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**INVESTMENT PERFORMANCE MEASUREMENT, RECOGNITION
AND ANALYSIS: THE CASE OF AN INSURANCE COMPANY**

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*To my parents
who gave me wings
to fly so high.*

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PREFACE

“A half-starved fox, which saw in the hollow of an oak tree some bread and meat left there by shepherds, crept in and ate it. With his stomach distended he could not get out again. Another fox, passing by and hearing his cries and lamentations, came up and asked what the matter was. On being told, he said: “Well, stay there till you are as thin as you were when you went in. Then you’ll get out quite easily.” This tale shows how time solves difficult problems.”

From Aesop's Fables

“Everything should be made as simple as possible, but not simpler.”

Albert Einstein (1879-1955)

Background

This section gives a brief overview and provides a context for our results. Detailed background material, complete with definitions and equations, is given in subsequent chapters of this thesis. It begins with quantitative techniques and concludes with qualitative approaches to introduce the subsequent study.

Many professionals would claim to be able to perform their jobs in financial field – mainly buying and selling relevant products– very profitably, without using much maths or accounting. On the other hand, the different dealing areas may be very complex and it is essential to get a grasp of investments’ performance measurement and recognition in order to understand how a financial firm’s position relates to its peers in given markets.

Almost all mathematics concepts in this thesis regarding performance measurement can be reduced to two basic ideas. The first concerns the “*time value money*”: a hundred dollars is worth more if I have it in my hand today than if I do not receive it until next year; or alternatively, for a given amount of cash which I will receive in the future, I can calculate an equivalent “present value” now. The second is the “*no free lunch principle*”: in theory it should not generally be possible to put together a series of simultaneous financial transactions which lock in a guaranteed no-risk profit. For example if a dealer buys an interest rate futures contract and simultaneously reverses it with an FRA¹, he will in general

¹ Forward Rate Agreement – FRAU: Is an over-the-counter contract between parties that determines the rate of interest, or the currency exchange rate, to be paid or received on an obligation beginning at a future start date. The contract will determine the rates to be used along with the termination date and notional value. On this type of agreement, it is only the differential that is paid on the notional amount of the contract. Also known as a "future rate agreement".

make no profit or loss if we ignore minor mechanical discrepancies and transaction costs. With this preface much of the difficulty lies in seeing through the confusion of market terminology and conventions.

At the same time another crucial topic relates to the treatment reserved to investment figures within accounting books. Last November the 12th, 2009 the International accounting standard board (IASB) published the first phase of IFRS 9 Financial Instruments, the accounting standard that will replace IAS 39 Financial Instruments: Recognition and Measurement. This fact launched a new chapter in the history of financial statements under IFRS.

Therefore the above two mentioned topics define the core of this thesis. In fact the entire work has been split in two main pillars, a quantitative approach dedicated to investment performance measurement & analysis and a qualitative approach conceived to understand the reasoning beyond asset derecognition and classification in accounting.

Quantitative approach

Quantitative approach refers to the measurement and interpretation of investment performance data, which is a critical component of investment strategy review. An investment program must be constantly monitored to ensure that it remains on track. All investors need to know how they achieved their performance and, in particular, the amount of risk taken and sources of value-added.

The objective is then to show how returns relative to an index can be broken down into various effects and subsequently to demonstrate the benefits deriving from such activity.

This quantitative analysis goes beyond the name of “attribution analysis” and its goal is to identify where and to what degree the skill of the investment manager added value to the investment portfolio.

This concept of *value-added* is fundamental to attribution theory.

Typically, for agreements dealing with interest rates, the parties to the contract will exchange a fixed rate for a variable one. The party paying the fixed rate is usually referred to as the borrower, while the party receiving the fixed rate is referred to as the lender.

For a basic example, assume Company A enters into an FRA with Company B in which Company A will receive a fixed rate of 5% for one year on a principal of \$1 million in three years. In return, Company B will receive the one-year LIBOR rate, determined in three years' time, on the principal amount. The agreement will be settled in cash in three years.

If, after three years' time, the LIBOR is at 5.5%, the settlement to the agreement will require that Company A pay Company B. This is because the LIBOR is higher than the fixed rate. Mathematically, \$1 million at 5% generates \$50,000 of interest for Company A while \$1 million at 5.5% generates \$55,000 in interest for Company B. Ignoring present values, the net difference between the two amounts is \$5,000, which is paid to Company B.

In order to evaluate success, the investor sets a benchmark (usually in the form of an index or combination of indexes), which he seeks to outperform. Value-added is the return achieved in excess of the benchmark.

Attribution techniques break down value-added into components, each of which quantifies the impact of key investment decisions.

The choice of benchmark is critical as it represents the starting point for performance attribution and, in turn, should reflect investor preferences such as orientation toward a particular region or security type.

By comparing portfolio returns against the benchmark, we can calculate value-added, generally referred to in Russell/Mellon Performance Attribution (RPA) as net management effect.

Net management effect is “attributed” to three key investment decisions or effects (allocation, selection, and currency), along with a fourth effect (interaction), which shows the combined impact of two of the decisions.

“In order to delineate *investment* responsibility and measure performance contribution, we need a clear and relevant method of attributing returns to those activities that compose the investment management process – investment policy, market timing, and security selection”.

Therefore various investment attribution models have since been analyzed within this work to identify the factors that impact investment performance and to assess the contribution of each factor.

There is no “one size fits all” approach to investment performance attribution as the method and the underlying assumptions to be used will depend on investment management process which is unique for each asset owners i.e. where in the process the investment policy has been developed, when and where the decisions have been made and which are the strategies that have been implemented.

It is then crucial to develop a clear and defined value chain which includes asset liability analysis, strategic asset allocation, tactical asset allocation, manager selection, local adaption and portfolio construction, security selection and trade execution, and asset manager oversight and investment reporting as part of the business strategy. The investment decisions and investment activities made through this value chain will shape the performance attribution method used to identify value contribution.

The question then becomes how we can decompose and interpret the excess return of invested portfolios against their benchmarks into active investment management decisions and activities so that we can identify the sources of the excess returns – tactical asset allocation and asset manager skill through security selection.

Investment performance attribution is an important part of the portfolios’ performance evaluation relative to its investment objectives. When implemented properly, the performance attribution can provide an insight into the sources of the relative return. It can also be used to enhance the effectiveness of the investment management process by acting as a feedback and control mechanism.

Qualitative approach

This section is dedicated to the analysis of the IFRS standard for accounting financial instruments which is changing. The new standard (IFRS 9) will be succeeding the existing IAS 39.

This means that investment management organisations will have to change their financial reporting in the future. In addition, for large parts of the investment management industry, the transition will also require a conversion of holding categories and of accounting values. The subsequent analysis addresses most of the recognition aspects of this conversion projects.

Corporate sector, in fact, has to plan well in advance for smoothly switching over to the new accounting standard - International Financial Reporting Standards (IFRS 9), which will eventually replace the existing International Accounting Standards (IAS 39).

IFRS 9, which will become mandatory across the world with effect January 1, 2013, is needed to eliminate the drawbacks of the existing accounting standard as it was partially blamed for the sub-prime crisis in the US.

In order to introduce the new accounting standard within the stipulated timeframe, the reporting mechanism has to undergo a change as management significantly rely on profit figures to assess financial performance. IFRS 9 eliminates the exception contained in IAS 39 that allowed unquoted equity instruments to be measured at cost if the fair value is not reliably measurable.

While the mandatory date for adopting IFRS 9 is January 2013, early adoption of Phase I² is permitted for reporting periods ending December 2009, if the regulating authorities allow. However, the European Union has decided that no company should adopt the new accounting standard until the whole standard is out.

In an apparent move to expedite the replacement of IAS 39, the International Accounting Standards Board (IASB) divided the whole project into phases and the first phase of IFRS 9 introduced in November 2009 addresses the asset side of the balance sheet.

IASB is in fact looking over the next 12 months to bring out a section on hedging and then move on to another section on fair valuation of liabilities. The visionary companies will look at the best time for introducing the new standard. Presumably a lot of them will look at introducing it in 2011. Some large banks may introduce it in even 2010.

The proposed adoption of IFRS 9 will immensely benefit listed companies everywhere.

The adoption of IFRS 9 will have a major impact on measuring a company's performance using earnings per share (EPS) as an indicator because any realised gains or losses from non-trading equity investments will not be included in the net profit for the year. This will be included only in the comprehensive income. Therefore, EPS will not necessarily be a clear measure for assessing a company's financial performance once IFRS is in place.

² Phase I: Classification and Measurement of financial instruments.

Now-a-days, the performance of companies is measured on the basis of EPS, which is determined by net profit³.

In other words as 'fair value' or 'mark-to-market'⁴ concept is the estimated market value of a financial asset; when the markets go down, and everything is mark-to-market, there is an instant measurement of how bad the situation is in each company as it comes out with its financial results. And during a crisis situation like the recent one that haunted the financial markets across the world, there are not many buyers and sellers for financial instruments.

Under this framework investors continue to hold, resulting in slow trend or listless activity on the markets and the bourses can not reflect the real value of financial instruments.

Motivation

This dissertation is motivated by a desire to show and analyze the importance that investment performance measurement and recognition have in determining a good representation of companies' financial values and the relevant data quality.

Since when I started my professional career I have always been working for a financial firm and since day one I have always found extremely fascinating the massive efforts invested in looking for new

³ Net profit is equal to the gross profit minus overheads minus interest payable plus/minus one off items for a given time period (usually: accounting period). A common synonym for "net profit" when discussing financial statements (which include a balance sheet and an income statement) is the bottom line. In simplistic terms, net profit is the money left over after paying all the expenses of an endeavor. In practice this can get very complex in large organizations or endeavors. The bookkeeper or accountant must itemise and allocate revenues and expenses properly to the specific working scope and context in which the term is applied. Definitions of the term can however vary between the UK and US. In the US, net profit is often associated with net income or profit after tax. The net margin percentage is a related ratio. This figure is calculated by dividing net profit by turnover, and it represents profitability, as a percentage.

⁴ Mark-to-market or fair value accounting refers to accounting for the value of an asset or liability based on the current market price of the asset or liability, or for similar assets and liabilities, or based on another objectively assessed "fair" value. Fair value accounting has been a part of the U.S. Generally Accepted Accounting Principles (GAAP) since the early 1990s, and has been used increasingly since then.

Mark-to-market accounting can make values on the balance sheet change frequently, as market conditions change. In contrast, book value, based on the original cost/price of an asset or liability, is more stable but can become outdated and inaccurate. Mark-to-market accounting can also become inaccurate if market prices deviate from the "fundamental" values of assets and liabilities because buyers and sellers are unable to collectively and accurately value the future value of income from assets and expenses from liabilities, possibly due to incorrect information or over-optimistic and over-pessimistic expectations.

ways to present/represent data to better reflect actual performances. Therefore I thought it was worth to “invest” my efforts trying to investigate what stood behind this necessity and which were the real benefits that derived from different measurement techniques.

The financial markets and the investment management industry are becoming increasingly global in nature. Given the variety of financial entities and countries involved, this globalization of the investment process and the exponential growth of assets under management demonstrate the need to standardize the calculation and presentation of investment performance.

Prospective clients and asset managers can now benefit from an established standard for investment performance measurement and accounting standards that are recognized worldwide.

Investment practices, regulation, performance measurement, and reporting of investment results vary considerably from country to country. Some countries have guidelines that are widely accepted within their borders, and others have few recognized standards for presenting investment performance.

Requiring financial institution and corporation to adhere to international standards helped assure investors and markets that the performance information and financial statements are both complete and fairly presented.

Additionally firms in countries with minimal standards are able to compete for business on an equal footing with firms from countries that have more developed standards. Companies from countries with established practices have more confidence of being fairly compared to “local” firms when competing for business in countries that have not previously adopted performance standards.

Therefore both prospective and existing stakeholders of investment firms have benefit from this approach: global standards for investment performance calculation and accounting that consequently have brought a greater degree of confidence in the numbers presented by the firms.

Standards that are accepted in all countries enable all investment firms to measure and present their revenues so that shareholders/clients can readily compare investment performance among firms.

Goal Statement

With the above preface, the main objective of this thesis is to assess the framework of investment performance attribution methods and accounting used to determine which aspects of investment decisions and activities add value to or subtract value from asset portfolios and active return which may be useful for monitoring and evaluating the effectiveness of investment management activities.

Solution statement

From a financial statements perspective, the accounting standards under IFRS 9 are lot more simple and easy to understand as compared to IAS 39.

The previous four methods of valuation of equity instruments and financial assets have been reduced to two under IFRS 9 and it is now very clear as to what goes into profit and what does not.

The four valuation methods under IAS 39 are held for trade, fair value through income statement, held for maturity and amortised cost. Under IFRS 9 the valuations are held for trade and amortised cost only.

The new accounting standard also brought in changes while taking an impairment provision on equity investment. IAS 39 stipulates companies to provide for any 'significant or prolonged' fall in the value. As far as recording unrealised gains or losses on investments are concerned, the new accounting standard allows companies to record it along with retained earnings. The danger is that it can be distributed, if the company management wishes to do so. However, conservative companies continue to retain reserves for realised movements in investments as a separate reserve.

Yet another major change brought in under IFRS 9 is that any income that a company makes from investments that are 'not held for trade' will not go to profit. Rather, it will go to a separate section called comprehensive income.

IAS 39, which came into effect almost ten years ago, was probably one of the most complicated accounting standards and subsequent amendments worsened the worries of the corporate sector in general and finance professionals in particular. It has been widely criticised as a standard that is complex and often difficult to apply.

As a result, a need was felt for replacing fair value accounting in IAS 39 standards. In April 2009, the G-20 leaders and various other organisations urged the International Accounting Standards Board (IASB) and the US Financial Accounting Standards Board (FASB) to reduce the complexity of accounting standards for financial instruments and make significant progress towards a single set of high quality global accounting standards by the end of 2009.

The IASB acted fast and accordingly in November 2009, it brought out the first phase of International Financial Reporting Standards (IFRS 9) to replace the existing IAS 39.

On the other hand from an investment performance perspective the main achievement consists in the realization that to be able to evaluate the effect of the current asset allocation against the Strategic Asset Allocation and to verify the performance of individual asset managers, it is recommended to develop an in-house performance attribution measurement system which collects the performance bottom up from the portfolio level, aggregates the investment performance up to the Group level and decomposes the relative return into that created by tactical under or overweight of individual asset class/type (allocation effect) and those generated from the skill of internal and external asset managers (selection effect).

Investment performance attribution is a crucial fundamental part of the portfolios' performance evaluation relative to its investment objectives and, when properly implemented, it can provide an insight into the sources of the relative return. It can also be used to enhance the effectiveness of the investment management process by acting as a feedback and control mechanism.

Therefore, as part of the business strategy, it is almost mandatory for whatever business institution to have a clear defined value chain which includes asset liability analysis, strategic asset allocation, tactical asset allocation, manager selection, local adaption and portfolio construction, security selection and trade execution, and asset manager oversight and investment reporting. The investment decisions and investment activities made through this value chain will shape the performance attribution method used to identify value contribution.

I FINANCIAL ASSETS IN THE ITALIAN CIVIL JURISDICTION

Article 2424 of the Italian Civil Code (CC) states financial assets booked to the Balance Sheet (BS) must be disclosed according to two criteria:

- Asset class: with separate distinction between investments in equity, fixed income, own shares and other;
- Position intent: securities are booked by fixed and current assets;

In addition, investments in equities must be further classified according to the legal bond existing among parties, keeping a distinction between:

- Third parties;
- Subsidiaries;
- Parent Companies;
- Affiliates.

Evaluation criteria change according to the position intent the company adopts when posts assets into the BS⁵.

In case of fixed assets, investments must be written at acquisition cost⁶ and impaired when permanent or long-lasting losses occur. In future years such impairments could be entirely or partially offset by revaluations if market conditions improve accordingly⁷.

⁵ See also Art. 2426 Codice Civile.

⁶ Investments in subsidiaries and affiliates can be evaluated with the equity method. Equity method in accounting is the process of treating equity investments, usually 20–50%, in associate companies. The investor keeps such equities as an asset. Proportional share of associate company's net income increases the investment, and proportional payment of dividends decreases it. In the investor's income statement, the proportional share of the investee's net income is reported as a single-line item. The ownership of more than 50% of voting stock creates a subsidiary. Its financial statements consolidate into the parent's. The ownership of less than 20% creates investment position carried at historic book or fair market value (if available for sale or held for trading) in the investor's balance sheet. In other terms it is accounting method used to determine income derived from a company's investment in another company over which it exerts significant influence. Under the equity method, investment income equals a share of net income proportional to the size of the equity investment. See also OIC 21 and art 2426 Codice Civile.

⁷ In any case the value booked to the BS will never exceed the acquisition cost.

On the other hand, in case of current assets, investments must be accounted at the smaller value between the acquisition cost⁸ and the market price⁹. Even in such a case impairments must be reversed if market conditions change.

1. CURRENT FINANCIAL ASSETS¹⁰

Italian law does not provide a list of assets which can be included into this category. However a definition can be derived as a difference from the concept of fixed assets given by the Civil Code (art. 2424).

To classify an entry as current asset there must be an evident purpose of sale to either benefit from market opportunities or to face other corporate needs. However liquidation does not need to happen in the short term as it may be consequence of market conditions or of specific financial needs.

For the above reason it is not compulsory to booked an asset for its entire amount under a single category. In fact, a firm can decide to held part of the securities to maturity and to channel the rest into current assets.

This class of assets is to be included into the BS distinguishing between:

- Subsidiary¹¹ equities;

⁸ Sales charge incurred to buy an asset or the original price, plus commissions and fees, of a security. It is the cost of an asset after deducting discounts, and adding normal incidental costs (except taxes).

⁹ A subjective estimate of what a willing buyer would pay a willing seller for a given asset, assuming both have a reasonable knowledge of the asset's worth. Market value is important in both law and accounting. The market value of a stock or bond is the current price at which that security is trading.

¹⁰ A balance sheet item which equals the sum of cash and cash equivalents, accounts receivable, inventory, marketable securities, prepaid expenses, and other assets that could be converted to cash in less than one year. A company's creditors will often be interested in how much that company has in current assets, since these assets can be easily liquidated in case the company goes bankrupt. In addition, current assets are important to most companies as a source of funds for day-to-day operations. In accounting, any asset expected to last or be in use for less than one year is considered a current asset. Also called circulating asset.

¹¹ A subsidiary is an entity that is controlled by a separate higher entity. The controlled entity is called either company, or corporation, or limited liability company; and in some cases can be a government or state-owned enterprise, and the controlling entity is called its parent (or the parent company). The reason for this distinction is that a lone company cannot be a subsidiary of any organization; only an entity representing a legal fiction as a separate entity can be a subsidiary. A

- Affiliate¹² equities;
- Parent Company¹³ equities;
- Third Party equities;
- Own shares;
- Other securities.

parent company does not have to be the larger or "more powerful" entity; it is possible for the parent company to be smaller than a subsidiary, or the parent may be larger than some or all of its subsidiaries (if it has more than one). The parent and the subsidiary do not necessarily have to operate in the same locations, or operate the same businesses, but it is also possible that they could conceivably be competitors in the marketplace. The most common way that control of a subsidiary, is achieved is through the ownership of shares in the subsidiary by the parent. These shares give the parent the necessary votes to determine the composition of the board of the subsidiary, and so exercise control. This gives rise to the common presumption that 50% plus one share is enough to create a subsidiary. There are, however, other ways that control can come about, and the exact rules both as to what control is needed, and how it is achieved, can be complex. A subsidiary may itself have subsidiaries, and these, in turn, may have subsidiaries of their own. Subsidiaries are separate, distinct legal entities for the purposes of taxation and regulation. For this reason, they differ from divisions, which are businesses fully integrated within the main company, and not legally or otherwise distinct from it.

¹² Affiliated Company is a company with less than 50% of its stock owned by another corporation, or one whose stock, with that of another corporation, is owned by the same controlling interests. Generally, one company is affiliated with another when both have less than a bulk share in the voting stock of the other or when both are subsidiary companies of a larger third entity, termed the Parent Company. The latter is defined to be one that possesses voting stock of a Subsidiary in excess of 50%. If there is no instance of a parent subsidiary partnership, the term affiliate is used for inter-corporate matters whether explicit or implied. The term subsidiary is usually employed in the presence of majority control. Firstly, an affiliate is an organization that is under the power of a single accounting firm either singly or in partnership by the terms of a common contract. Secondly, an affiliate is one that exercises control over an accounting company single-handedly or in concert with others according to an agreement. If the outstanding voting stock of a firm is under direct or indirect ownership, then that firm is an affiliate. In Italy an affiliate is a company controlled by another legal entity that owns at least one fifth of its share or one tenth whether the company is listed in any stock exchange.

¹³ A parent company is a business which owns and controls the operations of other businesses by possessing outright ownership. A parent company is also a company that owns enough voting stock in another firm to control management and operations by influencing or electing its board of directors; the second company being deemed as a subsidiary of the parent company. The definition of a parent company differs from jurisdiction to jurisdiction, with the definition normally being defined by way of laws dealing with companies in that jurisdiction. Also called holding company.

For what concern the returns coming from these assets such as dividends, interests and coupons matured during the year, article 2425 CC states they must be booked in the P&L under macro-class C (financial incomes and charges); while impairment and losses in value must be posted in class D (valuation and adjustments to financial assets).

Article 2426 CC regulates the criteria to evaluate current assets. In particular, point 9¹⁴ states that securities and financial assets which do not belong to the fixed asset base must be booked at acquisition value or at market value¹⁵ whether smaller. However such a smaller value will not be kept in future years if its reasons do not persist.

Ultimately there is some additional information that must be disclosed in the notes to financial statements. In fact articles 2423-bis, 2426 and 2427 require to provide with the following:

- The evaluation criterion adopted to measure assets as well as the one used to change their value subsequently;
- The reasons underneath the change of the above;
- The asset variations occurred in between current and prior year;
- The list of positions held through trust agreements, or third parties in subsidiary, or affiliate companies. Specifying for each one of those the company name, the headquarter location, the asset base, the shareholders equity, last year profit or loss, the quantity of shares owned and the value booked to the BS.

2. FIXED FINANCIAL ASSETS

Article 2424 CC establishes fixed financial assets must be booked in macro-class III (Financial assets¹⁶) of the Balance Sheet. Furthermore such a class must be split in four subcategories as follow:

¹⁴ *“Punto 9: (omissis) i titoli e le attività finanziarie che non costituiscono immobilizzazioni sono iscritte al costo d’acquisto (omissis), ovvero al valore di realizzazione desumibile dall’andamento del mercato, se minore; tale minor valore non può essere mantenuto nei successivi bilanci se ne sono venuti meno i motivi”.*

¹⁵ Italian Civil Code does not provide any definition of market value.

¹⁶ They belong to a wider category of asset called: capital asset. A capital asset is a fixed asset employed as a means of generating income. It is a long-term asset that is not bought or sold in the regular course of business. Generally, these are assets you cannot turn into cash quickly. Other than Financial assets, capital assets can be split in two additional categories: tangible and intangible assets. Examples of tangible assets can be: equipment, machinery, plant, property anything that has long-term physical existence or is acquired for use in the operations of the business and not for sale to customers. Tangible assets can be destroyed by fire, hurricane, or other disasters or accidents. However, they can be used as collateral to raise loans, and can be more readily sold to raise cash in emergencies. Intangible assets are the long-term resources of an

1. Equities¹⁷;
2. Credits;
3. Other securities;
4. Own shares¹⁸.

All financial assets held for investment¹⁹ purposes need to be posted within this item and can be considered fixed assets. With this preamble the following categories belong to class III:

entity, but have no physical existence. They derive their value from intellectual or legal rights, and from the value they add to the other assets. Intangible assets are generally classified into two broad categories: (1) Limited-life intangible assets, such as patents, copyrights, and goodwill, and (2) Unlimited-life intangible assets, such as trademarks. In contrast to tangible assets, intangible assets cannot be destroyed by fire, hurricane, or other accidents or disasters and can help build back destroyed tangible assets. However, they normally cannot be used as collateral to raise loans, and some intangible assets (goodwill, for example) can be destroyed by carelessness, or as a side effect of the failure of a business. Whereas tangible assets add to an entity's current market value, intangible assets add to its future worth. An approximation of the monetary value of a firm's intangible-assets is computed by deducting the net value of its tangible assets from its market value. In some cases, the value of a firm's intangible assets far outweighs the value of its tangible assets.

¹⁷ Subcategories 1 and 2 must be further disclosed distinguishing between assets deriving from subsidiaries, affiliates, parent companies or third parties.

¹⁸ In case of own shares the regulation is considerably different and it's beyond the scope of the research. For further information see also articles from 2357 to 2358 CC.

¹⁹ Investment is the commitment of money or capital to purchase financial instruments or other assets in order to gain profitable returns in form of interest, income, or appreciation of the value of the instrument. It is related to saving or deferring consumption. Investment is involved in many areas of the economy, such as business management and finance no matter for households, firms, or governments. An investment involves the choice by an individual or an organization such as a pension fund, after some analysis or thought, to place or lend money in a vehicle, instrument or asset, such as property, commodity, stock, bond, financial derivatives (e.g. futures or options), or the foreign asset denominated in foreign currency, that has certain level of risk and provides the possibility of generating returns over a period of time. Investment comes with the risk of the loss of the principal sum. The investment that has not been thoroughly analyzed can be highly risky with respect to the investment owner because the possibility of losing money is not within the owner's control. The difference between speculation and investment can be subtle. It depends on the investment owner's mind whether the purpose is for holding the resource in a portfolio or not. In finance, investment is the commitment of funds by buying securities or other monetary or paper (financial) assets in the money markets or capital markets, or in fairly liquid real assets, such as

- Securities held to maturity;
- Long term investments in equities.

In addition investments in affiliates' and subsidiaries' shares bigger than one fifth of capital stock (or one tenth if the company is listed in a stock exchange) must be booked as fixed asset, unless they will not be sold in a short term.

Positive and negative returns are treated as those deriving from current assets, which means they are all booked in class C (financial incomes and charges) of the P&L except from changes in value that belong to class D (valuation and adjustments to financials assets).

Article 2426 CC (at points 1, 2 and 3)²⁰ regulates the criterions to measure fixed assets. In particular point one states fixed assets must be booked at cost value including additional liabilities and charges paid to pursue the acquisition. However the article does not provide with a technical definition of

gold or collectibles. Returns on investments will follow the risk-return spectrum. Types of financial investments include shares, other equity investment, and bonds (including bonds denominated in foreign currencies). These financial assets are then expected to provide income or positive future cash flows, and may increase or decrease in value giving the investor capital gains or losses. Trades in contingent claims or derivative securities do not necessarily have future positive expected cash flows, and so are not considered assets, or strictly speaking, securities or investments. Nevertheless, since their cash flows are closely related to (or derived from) those of specific securities, they are often studied as or treated as investments. While speculation is mere the purchase or sale of a financial instrument for the sole purpose of making a capital gain.

²⁰ *“Le immobilizzazioni sono iscritte al costo di acquisto o di produzione. Nel costo di acquisto si computano anche i costi accessori. Il costo di produzione comprende tutti i costi direttamente imputabili al prodotto. Può comprendere anche altri costi, per la quota ragionevolmente imputabile al prodotto, relativi al periodo di fabbricazione e fino al momento dal quale il bene può essere utilizzato; con gli stessi criteri possono essere aggiunti gli oneri relativi al finanziamento della fabbricazione, interna o presso terzi. Il costo delle immobilizzazioni, materiali e immateriali, la cui utilizzazione è limitata nel tempo deve essere sistematicamente ammortizzato in ogni esercizio in relazione con la loro residua possibilità di utilizzazione. Eventuali modifiche dei criteri di ammortamento e dei coefficienti applicati devono essere motivate nella nota integrativa. L'immobilizzazione che, alla data della chiusura dell'esercizio, risulti durevolmente di valore inferiore a quello determinato secondo i numeri 1) e 2) deve essere iscritta a tale minore valore; questo non può essere mantenuto nei successivi bilanci se sono venuti meno i motivi della rettifica effettuata. Per le immobilizzazioni consistenti in partecipazioni in imprese controllate o collegate che risultino iscritte per un valore superiore a quello derivante dall'applicazione del criterio di valutazione previsto dal successivo numero 4) o, se non vi sia obbligo di redigere il bilancio consolidato, al valore corrispondente alla frazione di patrimonio netto risultante dall'ultimo bilancio dell'impresa partecipata, la differenza dovrà essere motivata nella nota integrativa”.*

additional charges. It just makes reference to *ancillary costs* that must be appended to the amount booked in the BS.

Point number two establishes that at year end the value to book can anyhow change in case enduring and consistent losses have occurred during the prior twelve months. Again it is then not specified what can be defined an *enduring and consistent loss*.

Note that the Civil Code does not provide any discipline according to the evaluation of companies' own shares.

Investments in subsidiaries and affiliates are regulated separately from other financial assets. In fact art. 2426 CC at its point number four specifies that in such a case assets can be booked with the equity method. If the value posted using this criterion is then bigger than the one deriving from the acquisition cost method, such difference will have to be further disclosed and adequately commented in the notes to the financial statements.

Additionally there is some further information that must be written in the notes to the financial statements:

- The method used to evaluate changes in value as well as the foreign exchange (FX) rates applied when necessary;
- The reasons underneath the change of the above method compared to prior year, if occurred;
- The reasons for the equity method adoption if applicable;
- Types of movement occurred during the year. Specifying for each field the acquisition cost, prior years changes in value, purchases, movements between different items, sales and current year changes in value;
- The list of positions in subsidiary, or affiliate companies held through trust agreements, or third party ventures. Specifying for each one of those the company name, the headquarter location, the asset base, the shareholders equity, last year profit or loss, the quantity of shares owned and the value booked to the BS;
- The details of P&L class E 20 (extraordinary incomes);
- The amount of revenues different from dividends²¹.

3. INVESTMENT RETURNS IN PROFIT AND LOSSES (P&L) ACCOUNTS

Investment result must be booked in the income statement²². Macro classes C, D and E are dedicated to the subsequent items and regulated by the Civil Code²³.

²¹ See also art. 2425 CC.

²² Equal to P&L Account.

²³ See articles 2423 and 2425.

3.1 C – FINANCIAL INCOMES AND CHARGES

Positive and negative components of the financial result are booked into section C of the Financial Income Statement. This entry is therefore made up of four items:

- C 15) Equity Investment Income;
- C 16) Other Investment Income;
- C 17) Passive Interests and Other Financial charges;
- C 17bis) Gains and Losses from Foreign Exchange Rates (FX).

3.1.1 C 15) Equity investment Income

All income arising from equity investments²⁴ must be posted into this item in accordance with the accrual basis accounting principle²⁵. In other words it includes incomes coming from third party, joint venture and consortium assets booked into the Balance Sheet²⁶.

It mainly concerns the following fields:

- Share dividends including deductions²⁷;
- Gains on sales of equities posted into the current assets of the Balance Sheet;
- Gains on sales of pre-emption rights²⁸ on equities;
- Dividends paid by joint venture partners and consortiums.

Other than dividend incomes must be described in the notes to the financial statements²⁹.

²⁴ Keeping into separate accounts the incomes deriving from own asset investments and those coming from affiliates.

²⁵ The most commonly used accounting method which reports income when earned and expenses when incurred, as opposed to cash basis accounting which reports income when received and expenses when paid. Under the accrual method, companies do have some discretion as to when income and expenses are recognized, but there are rules governing the recognition. In addition, companies are required to make prudent estimates against revenues that are recorded but may not be received, called a bad debt expense.

²⁶ Both current and fixed asset categories must be taken into account.

²⁷ Dividends must be booked when payment occurs. In case of affiliates dividend posting can be brought forward to the year of maturity if the Balance Sheet (BS) has been internally approved before the parent company's approval.

²⁸ Privilege granted in articles of association or bylaws of a firm under which the current stockholders (shareholders) are given the first option to buy a new issue of common stock (ordinary shares). It enables them to maintain their percentage of the total ownership of the firm, and is usually exercised on the basis of current stockholding. Also called subscription privilege or subscription right.

²⁹ Art. 2427 n. 11 Codice Civile.

3.1.2 C 16) Other Investment Income

C 16a) from fixed assets

This field gathers all net active interests³⁰ arising from credits³¹ matured during the year. Index-linked spreads, deductions and premiums on released loans³² are to be included.

C 16b) from non equities security - fixed assets

This entry includes interests³³ on fixed income securities³⁴ matured during the year, relative index-linked³⁵ spreads and deductions. This item also embodies all other incomes deriving from investments booked as fixed assets into the BS.

C 16c) other incomes

It concerns all financial incomes not listed into C15) nor into any other sub-category of the above.

3.1.3 C 17) Passive Interests and Other Financial charges

This entry treats financial charges occurred during the year regardless of their source. The amount to book is the value matured during the year after rediscounts.

As an example, losses on sales of debt and equity securities booked as current assets into the Balance Sheet and fees due to the leverage of REPO³⁶ positions can be considered part of this item.

³⁰ Net of rediscounts.

³¹ These credits must be booked as fixed assets into the BS.

³² This entry must be split into sub-entries in case of credits arising from contracts with affiliate partners.

³³ Positive difference between the acquisition cost and the nominal value. The item embodies interests from zero coupon bonds (ZCB).

³⁴ Securities are posted into the BS as fixed assets.

³⁵ Securities which pay a coupon that varies according to some underlying index, usually the Consumer Price Index. Index-linked securities are financial instruments for which the amounts of the coupon payments (interest) and/or the principal outstanding are linked to a general price index, a specific price index or an exchange rate index. The benefits to the issuer of indexing include a reduction in interest costs if the deal is targeted at a particular group of investors' requirements, and/or an ability to hedge an exposed position in a particular market. See also <http://www.imf.org/external/pubs/ft/eds/Eng/Guide/index.htm>

³⁶ Repurchase agreement (also known as a repo or Sale and Repurchase Agreement) allows a borrower to use a financial security as collateral for a cash loan at a fixed rate of interest. In a repo, the borrower agrees to sell immediately a security to a lender and also agrees to buy the same security from the lender at a fixed price at some later date. A repo is equivalent to a cash

C17 also includes passive interests and other charges due to capitalization³⁷.

Information must always be split in sub-categories according to the existing bond between the company and its counter parties³⁸.

In addition, in the notes to the financial statements it must be clear the distinction among bonds, debts due to banks and other third party debts. Capitalized financial charges must be specified accordingly.

3.1.4 C 17bis) Gains and losses from Foreign Exchange rates (FX)

C 17bis concerns all losses and gains deriving from deals in foreign currency. Positive and negative variations must either have occurred during the year or be due to rate floating after the date the deal was concluded³⁹.

3.2 D – VALUATION AND ADJUSTMENTS TO FINANCIAL ASSETS

Class D is made up of two sub-categories:

- D 18 revaluation adjustments⁴⁰;
- D 19 depreciation and impairments⁴¹.

The above items are used to book changes in financial assets value⁴². Figures are therefore split in three additional fields: equity, held to maturity debt positions (HtM)⁴³ and trading⁴⁴/available for sale (AfS)⁴⁵ debt securities.

transaction combined with a forward contract. The cash transaction results in transfer of money to the borrower in exchange for legal transfer of the security to the lender, while the forward contract ensures repayment of the loan to the lender and return of the collateral of the borrower. The difference between the forward price and the spot price is the interest on the loan while the settlement date of the forward contract is the maturity date of the loan.

³⁷ Recording of a cost as a fixed asset (written off as depreciation over several accounting periods) instead of an expense (charged off against earnings in one accounting period).

³⁸ With separate indication of third party, subsidiary, parent company and affiliate movements.

³⁹ See also OIC 26.

⁴⁰ Rises in the value of a company's assets to take account of inflation or changes in value since the assets were acquired. The change in value is credited to the revaluation reserve account.

⁴¹ Nonrecurring charge taken to write down an asset with an overstated book value. Generally an asset is considered to be value-impaired when its book value exceeds the future net cash flows expected to be received from its use.

⁴² In case of Available for Sale securities (AfS) and current assets evaluation adjustments see also OIC 26.

⁴³ Debt securities that a firm has the ability and intent to hold until maturity. These are reported at amortized cost; therefore they are not affected by swings in the financial markets.

Debt and equity impairments are therefore booked within D 19.

Fixed asset investments can be impaired only in the event of a permanent or long-lasting loss in value. In this case the amount written off will be booked through profit and loss statement (P&L). In addition any future revaluation (D 18) of the above mentioned assets cannot be bigger than the initial value.

Securities classified as current assets can be impaired and the written off value must be booked into D 19⁴⁶. Future revaluations (D 18) can never exceed the previous impairments.

Class D also includes positive and negative differences rising from equity securities classified with the equity method and allowances due to loss coverage reserves⁴⁷.

3.3 E – EXTRAORDINARY INCOMES AND CHARGES

Class E concerns all extraordinary movements occurred during the year. They are consequently split into two sub-categories⁴⁸:

⁴⁴ Trading securities are debt and equity securities held principally for selling them in the near term. They are reported at fair value, with unrealized gains and losses included in earnings.

⁴⁵ A debt or equity security not classified as a held-to-maturity security or a trading security can be classified as a current or non-current investment depending on the intended holding period. AFS securities include all other debt and equity securities. Unrealized gains and losses are excluded from earnings and reported in a separate component of shareholders' equity. Note: Under US GAAP AFS assets represent securities and other financial investments that are non-strategic, that are neither held for trading, held to maturity, or held for strategic reasons, and that have a readily available market price. As such, the gains and losses resulting from marking AFS investments to market (revaluing them to market price / fair value each period) are not included in net income (unlike the gains and losses associated with "trading" investments) but in other comprehensive income (income statement/retained earnings) and accumulated other comprehensive income (balance sheet) until they are realized (i.e. sold).

See also: http://www.fasb.org/pdf/aop_FAS115.pdf. Under IFRS AFS assets are defined as being all financial assets that do not fall into one of the other categories. As such, the treatment closely follows that of US GAAP. Gains or losses from revaluation of the asset are put through a reserve in Shareholders' equity, except to the extent that any losses are assessed as being permanent, and the asset is therefore impaired, under IAS 39, paragraph 58 or if the asset is sold or otherwise disposed of. If the asset is impaired, sold or otherwise disposed of the revaluation gain or loss implicit in the transaction is recognised as a revenue or expense.

⁴⁶ The drop down in value must be equal to the negative difference existing between the security book value and the total profit estimated to be generated from the sale.

⁴⁷ See also OIC 19.

⁴⁸ See also OIC 12.

- E 20 Extraordinary Incomes;
- E 21 Extraordinary Charges.

In this frame are booked capital gains⁴⁹ & losses, contingent liabilities⁵⁰ and non operating incomes⁵¹ deriving from deals which do not belong to the core business of the company.

Class E also includes positive and negative amounts arising from movements occurred in prior years⁵² and differences due to changes in asset evaluation criterions.

The different categories of income and charge are as follows:

- a) Charges and capital gains/losses coming from activities with a relevant impact on the company structure;
- b) Capital gains/losses on sales of properties, company facilities and non-financial company perks;
- c) Capital gains/losses from extraordinary valuation adjustments⁵³;
- d) Contingent liabilities and non operating incomes in kind or arising from events which are not connected to the core business;
- e) Positive and negative movements relative to prior years⁵⁴;

⁴⁹ The amount by which an asset's selling price exceeds its initial purchase price. A realized capital gain is an investment that has been sold at a profit. An unrealized capital gain is an investment that hasn't been sold yet but would result in a profit if sold. Capital gain is often used to mean realized capital gain. Opposite of capital loss.

⁵⁰ Hypothetical liability which depends on a possible (but hardly likely) event or situation to occur before becoming an actual liability. Contingent liabilities are different for every type of business and profession, and management makes provision for them by setting aside appropriate funds as reserves. Examples include acts of employees, credit guaranties, incomplete contracts, pending court cases, third party indemnities, unfilled purchase orders, unsettled disputes, etc. Under corporate-legislation, contingent liabilities must be disclosed in a balance sheet via an explanatory note (footnote).

⁵¹ Income received by a business that is not derived from operations. Non-operating income usually does not occur on an ongoing basis, and is examined separately from operating income. An example of non-operating income is income generated through the sale a subsidiary or division, since the company will not be able to resell that division again and the income is a one-time occurrence.

⁵² Comprising mistakes (i.e. in bookings, accounting, management decisions, tax requirements, etc.) that can be due to wrong calculations, analysis, evaluations, inadequate application of the accounting standards, oversights, etc.

⁵³ Note: evaluation adjustments due to the equity method do not belong to this category as they are cannot be considered extraordinary movements. They therefore must be booked into class D. See also OIC 21.

- f) Extraordinary movements due to changes in accounting standard adoption;
- g) Prior year tax duties.

4. ITALIAN ACCOUNTING STANDARDS: EQUITY AND FIXED INCOME SECURITIES

A security is a fungible, negotiable instrument representing financial value. Securities are broadly categorized into debt securities (such as banknotes, bonds and debentures) and equity securities, e.g., common stocks; and derivative contracts, such as forwards, futures, options and swaps.

The company or other entity issuing the security is called the issuer. A country's regulatory structure determines what qualifies as a security. For example, private investment pools may have some features of securities, but they may not be registered or regulated as such if they meet various restrictions.

Securities may be represented by a certificate or, more typically, "non-certificated", that is in electronic or "book entry" only form.

Certificates may be bearer, meaning they entitle the holder to rights under the security merely by holding the security, or registered, meaning they entitle the holder to rights only if he or she appears on a security register maintained by the issuer or an intermediary.

They include shares of corporate stock or mutual funds, bonds issued by corporations or governmental agencies, stock options or other options, limited partnership units, and various other formal investment instruments that are negotiable and fungible.

4.1 FIXED INCOME SECURITIES⁵⁵

An adequate definition and a rigorous classification of fixed income securities are fundamental to account the right value to the balance sheet.

Securities must be booked as current of fixed asset according to functionality. In other words their classification is strictly connected with the decisions taken by the management during the year.

⁵⁴ Including financial fee and income adjustments due to discounts, allowances, returns and premiums relative to activities occurred in prior years.

⁵⁵ Investment that provides a return in the form of fixed periodic payments and eventual return of principal at maturity. Unlike a variable-income security, where payments change based on some underlying measure such as short-term interest rates, the payments of a fixed-income security are known in advance. Common examples include bonds, which pay periodic coupons representing a certain interest rate, and preferred stocks, which are legally required to receive a specified dividend at certain times. Typically, fixed-income securities offer lower risk and lower returns than common stock and similar investment vehicles.

Consequently fixed assets are positions purchased for investment purposes and supposed to be kept until maturity, while current assets are securities bought either for trading or for speculation purposes. Therefore this is a classification that depends on management intents. In fact, in spite of its longevity a long-term bond can be bought for other purposes. While a convertible bond purchased and kept in a portfolio to convert it when it matures is unquestionably a fixed asset.

This classification is very important as it has a direct impact on the possible evaluation criterions. This is why such a decision must be based on reasonable and certain expectations that the position will not be sold in the short term⁵⁶ and its drivers must be further disclosed in the note to the financial statements.

Consistently with what stated above, it is possible to book assets belonging to the same portfolio in different sections of the BS. In fact, it can happen that part of the securities has been purchased to benefit from temporary market condition, while the rest to reach a long-term target.

To draw up a good Balance Sheet, reliable and comparable with prior years accounting, the principles used to measure its items must be kept in time. For this reason generally the asset classification must stay the same and therefore cannot be taken just to accommodate current year results.

However the above rule can be amended in case of valid and justified⁵⁷ reasons. When some assets move from fixed to current the realizations gained or lost on relative securities must be accounted as extraordinary incomes/losses.

4.1.1 Fixed income securities classified as fixed asset

Fixed income securities bought as long-term investments must be accounted in the Balance Sheet within macro-class III.3⁵⁸. All revenues deriving from those investments must be posted in the P&L according to the principle of accrual basis accounting.

Active and passive interests together with possible premiums and discounts must be booked through P&L in class C.b. Same policy applies to incomes and negative returns⁵⁹.

Note this treatment does not apply to realizations coming from fixed asset positions as they are due to changes in classification and therefore represent an extraordinary event. For such a reason the relative

⁵⁶ In such a contest aspects as market conditions, guideline restrictions, company strategy and capabilities must be taken into consideration.

⁵⁷ A specific and detailed comment must be provided in the notes to the financial statements account.

⁵⁸ See also art. 242 CC.

⁵⁹ In case continuing operations only; otherwise figures have to be booked in class E of the P&L (extraordinary incomes and charges).

amounts must be booked in class E of the P&L and same policy apply to charges rising from the sales of fixed assets.

Changes in asset classification might imply changes in evaluation methods and in such cases there could be a difference that must be accounted in the P&L within class D.19 (depreciations and impairments).

In case of drop in value the negative difference goes through the income statement and must be booked into class D.19.b. Consequently if the reason of the change in value fails the relative figure will be account in D.18.b (revaluation adjustments).

4.1.2 Debt securities: issue and negotiation difference⁶⁰

Bonds are debt instruments created for the purpose of raising capital. They are essentially loan agreements between an issuer and an investor. The terms of a bond obligate the issuer to repay the amount of principal at maturity. Most bonds also require that the issuer pay the investor a specific amount of interest on a semi-annual basis.

Bonds are known as "fixed income" securities because the amount of income the bond will generate each year is fixed, or set, when the bond is sold.

No matter what happens or who holds the bond, it will generate exactly the same amount of money stated in its terms and will be redeemed for its face value.

Typically, bonds are sold to the public in face value increments of \$1,000. However, once bonds are issued to the public, bond prices can rise and fall relative to its face value. The predictability in cash flow of a bond provides more certainty to investors than investments in equity, which are not contracted.

Bonds can be issued above, below or at par price. In particular debt securities with sale price equal to face value⁶¹ are issued at par; while bonds sold at a lower price than face value are issued below par (or at a discount).

⁶⁰ Fixed incomes purchased to accomplish a long-term investment strategy are booked in the BS at acquisition cost. Both the pro-rata negotiation difference and the market discount must be deducted to the above amount. Market discount is the increase in the market price of a discounted bond resulting from an approaching maturity date, rather than from declining interest rates. The increase occurs because the bond holder will receive a payout at par upon maturity, so the price of the bond will increase gradually as maturity approaches. The negotiation difference is the change between the acquisition cost and the cash redemption value after the remaining marked discount. Redemption value is the par value of a debt security at which it is normally redeemed at the end of its maturity period, also called redemption price.

⁶¹ Face value is the value printed or written on the face, as of a bill or bond. It is the nominal, or stated, amount of security. The face value of a bond is the amount the issuer agrees to pay upon

In this case bond values are stated on a scale where the face value is assigned the number 100, and the discount is shown as a factor of 100. For example, a bond with a par value \$1,000 and priced at 90 is selling at \$900.

Finally when a bond is issued at a price higher than its face value is called above par. A fixed-income security is most likely to sell above par if market rates of interest have declined since the time the security was issued. Bonds purchased above par will result in capital loss to the buyer if held to maturity and redeemed at face value.

A fourth category of fixed-income securities is made by zero coupon bonds.

A zero coupon bond is a debt security which pays no coupons. It is sold at a deep discount to its face value, and matures at its face value. A zero-coupon bond has the important advantage of being free of reinvestment risk, though the downside is that there is no opportunity to enjoy the effects of a rise in market interest rates.

Also, such bonds tend to be very sensitive to changes in interest rates, since there are no coupon payments to reduce the impact of interest rate changes. In addition, markets for zero-coupon bonds are relatively illiquid⁶².

Investors earn return from the compounded interest all paid at maturity plus the difference between the discounted price of the bond and its par (or redemption) value. Examples of zero-coupon bonds include Treasury bills, savings bonds, long-term zero-coupon bonds and any type of coupon bond that has been stripped of its coupons.

In contrast, an investor who has a regular bond receives income from coupon payments, which are usually made semi-annually. The investor also receives the principal or face value of the investment when the bond matures.

Some zero coupon bonds are inflation indexed, so the amount of money that will be paid to the bond holder is calculated to have a set amount of purchasing power rather than a set amount of money, but

maturity. Face value is also the amount upon which interest payments are determined. For example, a bond with a face value of \$1,000 and an interest rate of 6% will pay \$60 in interest a year (or, more typically, \$30 semi-annually). Important: face value is not usually the actual value (i.e. price) of a bond. For example, assume a 30-year bond with a face value of \$1,000 and an interest rate of 6%; the interest rate for bonds of similar safety and maturity is currently 10%. In that case, the actual value of the 6% bond would be below the face value, because investors could invest their money in 10% bonds with a face value of \$1,000 and earn \$100 a year instead of \$60. On the contrary, if interest rates fell to 2%, the actual value of the 6% bonds would be above face value, because investors would need to buy 2% bonds with a face value of \$3,000 to earn the same \$60.

⁶² Note: Under U.S. tax law, the imputed interest on a zero-coupon bond is taxable as it accrues, even though there is no cash flow.

the majority of zero coupon bonds pay a set amount of money known as the face value of the bond.

Zero coupon bonds may be long or short term investments. Long-term zero coupon maturity dates typically start at ten to fifteen years. The bonds can be held until maturity or sold on secondary bond markets. Short-term zero coupon bonds generally have maturities of less than one year and are called bills. Treasury bill market is the most active and liquid debt market in the world.

The positive value deriving from the purchase of above par securities must contribute to the investment income⁶³ as additional⁶⁴ fixed rate earning for the whole detention period. To avoid complexity in accounting is however allow to allocate such positive difference in equal portion for all years involved.

The above amounts must be booked to the P&L within class C.16.b and as counterbalance within class D (active accruals and deferrals) of the BS. In the notes to the financial statements must be clarified the figure is composed by two elements: explicit interests and additional earnings.

In other words it is not compliant with the accounting standards to allocate the entire income in once at maturity.

Same treatment must be applied to the negative value deriving from purchases below par. The entry must be assigned to the P&L (class C.17.b) and counterbalanced in the BS within class D (passive accruals and deferrals).

Zero coupon bonds must be booked among fixed assets at acquisition cost when purchased. Additionally an amount equal to the pro-rata income matured during current period must be booked in the P&L every year end and for the whole permanence of the investment.

Interests must be adequately discounted and the relative values assigned to the P&L, class C.16.b.

4.1.3 Fixed income asset accounting and evaluation

Bond price⁶⁵ can be flat (*tel quel*), *secco* or ex-coupon.

Tel quel is the French term for flat; which means without accrued interest. This is an expression used in the trading of fixed-interest securities to indicate the price of the securities includes current interest and any future interest income not yet paid (*tel quel* price). This price is quoted on the Stock Exchange for dual currency bonds and bond issues in default.

Secco price is equal to the flat price deducted by the interest matured until that moment in time.

Ex coupon price applies to bond or preferred stock (preference share) without the right to receive the next due interest payment. It is the process of separating the interest on a bond from the underlying principal. Also called Coupon stripping it is used most often to create treasury zero-coupon securities

⁶³ In conformity with the principle of accrual basis accounting.

⁶⁴ Supplementary to the incomes coming from explicit interests.

⁶⁵ Market price expressed in hundredth of the face value.

known as strip (Separate Trading of Registered Interest and Principal Securities) and similar zero-coupon investments.

In accounting securities must be booked at their face value (secco price) when purchased. In case of sales this value has to be adjusted by the difference through the P&L; while the historical amount posted in the BS has to be discounted.

This method highlights all components of the transactions and it is therefore a transparent approach to represent such entries according to Italian accounting standards.

The primary evaluation criterion is the acquisition cost, which includes any additional fee paid to accomplish the purchase. Among additional fees there are brokerage and mediation costs, extra charges or expenses, stamp/registry tax and consultancy fees. However to be included into the acquisition cost additional fees' amount must be relevant and the connection with the purchase has to be clear.

Securities must be evaluated one by one to assign the specific acquisition cost to each position. Note that any passive interest paid for suspensions or other reasons cannot be considered additional cost.

Acquisition cost defines then the highest value that can be booked in the BS for the relative assets. In case of durable loss or change of position intent; the value posted in the BS must be adapted.

Considering the long term investment purpose typical of fixed assets; their value cannot be modified in future years in case of temporary negative market fluctuations.

This is because the evaluation at acquisition cost is done considering a normal market scenario and average business trends. However such a value cannot be kept in case a major durable loss occurred during the year⁶⁶.

Unfortunately no laws provide with any explanation or definition of durable loss. So considering the importance of such a status; a recommended definition has been stated by the Italian accounting standard number 20.

To begin with a durable loss is a condition that must be accurately proven. Two are the possible issues that have to be faced to accomplish it:

- It must be evident the loss will last in time;
- It must be possible to quantify the minor value that needs to be booked instead.

The reasons to proceed with the drop in value must be supported by negative economic conditions that are not supposed to change in the short term.

Only when this negative scenario is confirmed it is then possible and necessary to move further with the asset devaluation.

⁶⁶ See also art. 2426 CC.

With this premise it is therefore clear that a simple drop down in market value it is not sufficient to make such a decision. In case of fixed assets it is important to remind current market conditions can be an indicator but surely they are not enough to prove the existence of a durable loss⁶⁷.

Other related topic that must be disclosed concerns the minor value that has to be booked instead of the acquisition cost.

In case of listed securities list price is not necessary relevant. In such a contest the minor value can be defined as the average of prices registered in a specific lapse of time (six months is normally the most common option).

In case of not listed securities the minor value must be assumed analysing the negative economic conditions in which the issuer is operating. Such a scenario must be drawn considering market movements, company's financial highlights and peers analysis. In this case market trade prices can be useful if recent.

However the drop down in value can be in part due to temporary factors and in part durable. In this contest only the long-term part has to be considered while booking the asset devaluation in the Balance Sheet.

The negative change in value must be accounted in to the P&L within class D.19.b. Such a variation has to be entirely assigned to the year in which the drop in value occurred. Therefore it cannot be deferred to future periods even if securities are supposed to mature several years later.

In the notes to the financial statements there are two recommended pieces of information that should be provided:

- The reasons standing behind the assets devaluation;
- The evidences that brought to such a conclusion.

If in future years the reasons of the above do not subsist anymore, the acquisition cost will have to be reintroduced accordingly. This is a statement that is worth even in case of partial revaluation.

In any case the revaluation process never justifies a booking of a value higher then the historical acquisition cost. The positive change in value must be accounted in the P&L under class D.18.b.

When the position intent changes, there are two possible scenarios according to the kind of change that is going to take place.

If a security moves from current assets to fixed assets this might be due either to the impossibility to sell the position in future, or to the rise of new legal bonds that impede any transaction. In any case the transfer can never be used to accommodate the current year result.

When position intent changes, the evaluation criterion must be reviewed if not compatible with what stated for fixed assets securities.

⁶⁷ It is not by chance that in case of fixed asset it is never possible to book securities at market value; while this is admissible in case of current asset evaluation.

Therefore assets must be booked at acquisition cost value unless this is not higher than their face value. In fact in presence of durable losses securities must be devaluated accordingly and booked in the BS for this smaller amount.

On the other hand when a position moves from fixed assets to current assets, valuation criterions change because the security is now hold with the purpose to be sold. As a consequence the method chosen must be compliant with what law states for current assets.

4.1.4 Fixed income securities classified as current assets

Article 2426 CC establishes current assets must be booked at the minor between the cost and the market value.

Acquisition cost (or subscription cost) is the price paid to purchase securities including all additional fees corresponded to complete the transaction.

It is often complicated to derive additional costs, especially when the operation is involving a massive number of positions with a high portfolio turnover ratio.

Once this value has been stated and booked in the Balance Sheet it cannot be modified but in case of devaluations or subsequent revaluations.

For Zero Coupon Bonds posting value has to be reviewed every year-end and augmented through accruals of the interests matured in the meantime. In the end the final accrued value (inclusive of all interests) must be compared with the realisable value when bonds mature.

The Italian Civil Code states current assets must be booked accordingly to current security market trends if this is minor than the historical acquisition price. However the Code does not provide with any definition of market or market trends.

When securities are listed in a Stock Exchange, market value can be easily derived. In this case market value corresponds to the official quotation used to trade the positions of the above.

Anyway when the amount of assets hold is huge current market value might not be the only and the best parameter to consider for the evaluation.

In such a scenario in fact the company must take into account the influence a massive sale of those securities can exert on market prices.

In case of non listed assets, market value can be assumed considering similar listed positions. Similarity may refer to sector, industry, issuer, duration, coupons etc. In any case difficulty in trading is a clear sign of low market value, as the income deriving from such sales will be negatively impacted.

Another fundamental aspect concerns the moment in time (or the date) to consider while establishing asset value. There are tow possibilities:

- Fixed approach which considers the year-end (or the closest available quotation date)⁶⁸;
- Average approach which includes all prices quoted within a specific time frame (one month usually)⁶⁹.

The devaluation at market value of current assets must be processed at single security level, no aggregation is then allowed. The negative change in value must be accounted in the P&L within class D.19.

The smaller amount booked in the BS substitutes the historical acquisition cost and this is the new value that must be taken into account for future transactions and other operations involving these assets.

It is anyhow crucial to keep track of the initial cost in case of any revaluation. In fact, if market value rises up and the conditions that brought to the devaluation do not subsist anymore, the original acquisition cost will have to be restored.

In such a situation the positive change in value must be booked through P&L under class D.18.

4.1.5 Additional information required

In the notes to the financial statements there is some additional information that must be disclosed. In particular it is worth to keep a distinction between fixed and current assets.

In case of fixed assets notes must clarify the following:

- Evaluation criterion chosen;
- Portion of securities issued by associate companies;
- Accounting of negotiation difference and interests;
- Asset movements specifying: costs, prior devaluations and revaluations, acquisitions, changes in position intent, sales, current year devaluations and revaluations;
- Positive or negative changes in value booked to the P&L after assets revaluations or devaluation;
- Reasons behind changes in position intent;
- Changes in evaluation criterions and relative impacts on the BS;
- Transaction restrictions;
- Durable losses verifications.

In case of current assets notes must disclose the following:

- Significant amounts of not-listed securities;

⁶⁸ This solution is often avoided as single day quotations might not be representative of the effective market value and influenced by temporary market contingencies.

⁶⁹ In period of massive downturns it is preferable to consider averages based on last week quotations instead of the whole past month.

- Markets chosen to establish the market value;
- Evaluation criterion adopted;
- Split by asset classes of all securities held in portfolios (such as corporate bonds, government bonds, zero coupon bonds etc.)

4.2 EQUITY SECURITIES

Equity securities are financial instruments that imply an ownership position (called equity) in a corporation, and represent a claim on their proportional share in the corporation's assets and profits.

Ownership in the company is determined by the number of shares owned divided by the total number of shares outstanding. For example, if a company has 1000 shares of stock outstanding and a person owns 50 of them, then the owner holds 5% of the company.

Most stock also provides voting rights, which give shareholders a proportional vote in certain corporate decisions. Only a certain type of company called corporation has stock; other types of companies such as sole proprietorships and limited partnerships do not issue stock.

Equity securities usually provide steady income as dividends but may fluctuate significantly in their market value with the ups and downs in the economic cycle and the fortunes of the issuing firm.

They might give right to subscribe for, or convert another security (such as a bond) into, the common stock (ordinary shares) of a firm.

Equities bought with long term investment intent are to be considered fixed assets.

The aim of the investment can be different. Shares can be purchased to exert a dominant (or a considerable) influence on company's decisions to control the issuer; or simply to benefit from economic advantages deriving from such partnership.

Equity investments must always be classified as follow:

- Investment in affiliate companies;
- Investment in subsidiary companies;
- Investment in third parties.

The first two categories are disclosed within art 2359 of the Italian Civil Code. They allow the owner to exert a certain influence on parent company's management.

In particular the Italian legislator distinguishes between two different kinds of control:

- Legal control: decisional power is due to the ownership of more than 50% of the shares issued;
- Dominant influence: this category can be further split into two sub-segments according to the nature of the bond.
 1. due to significant shares' holding;
 2. due to company agreements and contracts;

Even partnerships arising from “indirect control” must be included in this frame. Dominant control in fact can also arise from an indirect influence due to partnership in other affiliated companies which own some few share of the controlled entity.

Additionally a remarkable influence is usually considered enough to list a company among affiliates. Remarkable influence is proven when the parent company can exert at least one fifth of the total votes in shareholder assembly.

The main difference between dominant and considerable influence is the first scenario implies the holding company can always interfere with parent company’s management; while in case of considerable influence only, such a power is limited and does not assure a direct control.

In addition all others investments in equity which do not belong to prior categories are listed as *not qualified*. Here the entity of shares held does not allow to exert any form of control nor influence. However they still have to be booked as fixed assets when purchased with a long-term investment purpose.

4.2.1 Accounting of fixed asset equities

Investments in equity must be treated separately and booked in specific sections of the BS according to their nature and depending on the bond existing between parties involved.

Italian Civil Code states class C.III.1 (Fixed asset equities) of the balance sheet must distinguish between:

- Investments in subsidiaries;
- Investments in affiliates;
- Investments in parent companies;
- Not qualified equities.

Therefore this is the separation that must be provided while accounting such asset category.

Dividends have to be booked in agreement with the principle of accrual basis accounting. The above principle defines the moment from which the right for shareholders to claim dividend distribution arises. The sub-consequent amount must be assigned to P&L under class C.15.

Conforming to art 2425 CC gains or losses deriving from sales and due to the difference between booked value and sale price must be booked in the same class of the P&L if they come from current business operations.

In case of extraordinary operations such a difference has to be accounted either in class E.20 (for positive changes) or in class E.21 (for negative changes). Same policy is then used to treat all expenses arising from trading.

Nota bene the sale of fixed income assets is normally classified as an extraordinary operation as it implies a change in position intent which is not supposed to occur on a frequent basis.

Impairments and assets devaluations due to durable drop down in value are to be booked in P&L within class D.19.a. Whenever the reason of the impairment does not subsist anymore any future reinstatement must be posted in class D.18.a of the P&L.

4.2.2 Fixed asset equities evaluation

Equity investments can be measured with two criterions according to the Italian regulator:

- Acquisition cost method;
- Equity method.

Acquisition cost corresponds to the total amount paid to complete the purchase, including any collateral cost rose during the trade.

Collateral costs normally include brokerage, consultancy fees, commissions, mediation fees, taxes and other charges. Sometimes even passive interests, whether due to deferment of payments, can be classified as collateral costs.

In case of investments in *not qualified* equities the acquisition cost criterion is the only admissible solution to evaluate assets. Such a value must be kept unmodified in the BS for the whole length of the investment.

Two exceptions are however admissible:

- Reductions due to proven durable losses;
- And total or partial change in position intent.

While in case of investments in partner companies, assets can be evaluated with both options mentioned above (cost and equity).

However at every yearend, cost value must be compared with the equivalent equity fraction such investment represents in the BS of the subsidiary (or affiliate).

Should the difference be negative there is no obligation for the parent company to reduce the value of its investment accordingly but in case of durable loss. Anyhow whenever devaluation occurs, it must be booked in the P&L within class D.19.a.

In any case the negative change must be accurately disclosed and explained within the notes to the financial statements of the investing company.

In particular the information provided must clarify the following aspects:

- The reason why the criterion chosen is the cost while the equity approach is showing a smaller value;
- The minor amount due to the change mentioned above;
- The subsequent negative difference.

On the other hand, if the acquisition cost is smaller than the equity value, the difference can be motivated only by two factors:

- A wrong pricing of the shares at the moment of purchase;
- The presence of new assets (higher in value) within the partner company portfolios that increases its equity.

In any case the positive amount cannot be accounted either in the BS or in the P&L of the parent company.

Anyway for investments in partner companies the best evaluation criterion is the equity method. The reason is explained by the fact such assets are held to accomplish a common business interest that links the various entities.

With this premise acquisition cost becomes limiting as it does not provide with any information relative to partners' performances. In fact cost method does not allow to follow the evolution of partners' equity as it is a static representation of the sum paid to purchase the assets. It does not express the value of the investment in terms of business evolution.

There are however two exceptional scenarios where acquisition cost is recommended:

- In case of environmental restrictions impeding the parent company to exert its influence on subsidiaries and affiliates (political instability, legislation limits, etc.);
- In case of business elements that limit company's autonomy managing its investments in partners (default, external management, liquidation, business run-off etc.).

In both cases it is crucial to consider asset devaluation as an option and cost method is therefore preferable.

Investments in equities must be impaired in case of durable losses.

As for debt securities Italian Civil Code does not provide with any definition of durable loss. However it is now crucial to understand what belongs to such category.

With this premise it is common practice to consider a loss as durable when it is possible to proof there are no chances for the security to raise its value in the short term.

On the other hand when it is clear there is some recovery plan in action and some possibilities for the company to reverse the situation briefly; it is not possible to talk about durable losses.

So that is admissible, recovery plans must be compliant with some requirements:

- Concreteness is a matter of consequence;
- There must be a reasonable chance of success;
- There is need of a short term timeline clearly defined in its phases;
- There must be a written agreement among board members;
- A supportive analytical study has to be included.

All the above mentioned requirements have to be carefully disclosed in the notes to the financial statements. Therefore generic assumptions are not sufficient to consider a loss as non durable.

In case of listed companies, a general massive drop down in value of stocks can be cause of impairment. However negative changes in market value do not imply an impairment tout court.

In fact when equity securities are listed as fixed assets the only admissible devaluation criterion is the proof of a durable loss. Durable losses might be the result of drops down in market prices, but this last condition alone does not found any obligation to impair.

Once the durable loss has been settled, assets must be booked in the Balance Sheet at the minor value obtained deducting the loss of the above to the original value. The sub consequent negative difference has to be booked in the P&L under class D.19.a.

In addition Italian accounting regulator strongly recommends to disclose some further information within the notes to the financial statements; such as:

- The amount impaired;
- The reasons that brought to the conclusion an impairment was necessary;
- The elements that made realise the loss was durable and not recoverable;

As after impairment assets are booked at a minor amount, it is always convenient to keep separate track of the original booking value prior to devaluation. Such a note can be taken either within the accounting books or apart, as a reminder.

If the reasons that led to the assets devaluation entirely or partially failed it will be compulsory to revalue securities accordingly. However such a restore in value cannot be higher than the original amount booked in the Balance Sheet.

Besides the positive amount deriving from the above operation has to be accounted in the P&L within class D.18.a.

4.2.3 Changes in position intent

Changes in position intent imply two possible alternatives:

- Partial or entire change from fixed to current assets;
- Partial or entire change from current to fixed assets.

The first case occurs when assets are moved to accomplish an upcoming trading need. In this situation the evaluation criterion chosen must be changed and compliant with current asset policy.

The second scenario is less frequent and it happens when for some reason management drop to the conclusion certain positions are not tradable anymore. In such contest the evaluation method to use must be the acquisition cost.

In any case changes in position intent are exceptional operations that cannot be used to accommodate current year result. Note that all evaluation methods adopted to face any change in position intent have to

II IFRS - CLASSIFICATION AND MEASUREMENT OF FINANCIAL ASSETS

On 12 November 2009 the International accounting standard board (IASB) published the first phase of IFRS 9 *Financial Instruments*, the accounting standard that will replace IAS 39 *Financial Instruments: Recognition and Measurement*.

IAS 39 has been widely criticized as a standard that is complex and often difficult to apply. So that various stakeholders urged both IASB and the US Financial Accounting Standards Board (FASB) to reduce complexity of accounting standards for financial instruments and make significant progresses towards a single set of high quality global accounting standards by the end of 2009.

Whilst IFR 9 (the new standard) is not mandatory until January 2013, entities may adopt the first phase for reporting periods ending on or after 31 December 2009.

In order to expedite the replacement of IAS 39, the IASB divided the project into phases.

The main focus of the first phase is the classification and measurement of financial assets. Board's work on the other phases is currently ongoing and includes: impairment of financial instruments, hedge accounting⁷⁰, financial liability⁷¹ and derecognition⁷².

⁷⁰ Hedge accounting is an accountancy practice. It represents a number of provisions that allow companies to match the changes in fair value of their hedge contracts to the changes in fair value of the item being hedged. Many financial institutions and corporate businesses (entities) use derivative financial instruments to hedge their exposure to different risks (for example interest rate risk, foreign exchange risk, commodity risk, etc). Current IAS39 requires that all derivatives are marked-to-market with changes in the mark-to-market being taken to the profit and loss account. For many entities this would result in a significant amount of profit and loss volatility arising from the use of derivatives. An entity can mitigate the profit and loss effect arising from derivatives used for hedging, through an optional part of IAS39 relating to hedge accounting. Derivative hedging instruments are of three types:

- Fair value hedge: a hedge of the exposure to changes in fair value of a recognised asset or liability, or an identifiable portion of such an asset or liability;
- Cash flow hedge: a hedge of the exposure to variability in cash flows that is attributable to a particular risk associated with a recognised asset or liability or a highly probable forecast transaction which could affect profit or loss;
- Hedge of a net investment in a foreign operation.

A hedging relationship qualifies for hedge accounting if there is formal designation and documentation of the hedging relationship including the risk management objective, the strategy for undertaking the hedge, and how the hedging instrument's effectiveness will be assessed. It is necessary to assess the hedge's effectiveness, at inception and in subsequent periods in offsetting the exposure to changes in the hedged item's fair value or cash flows attributable to the hedged

risk. A hedge is regarded as highly effective if, at the inception of the hedge and in subsequent periods, it is determined prospectively to remain highly effective, i.e. that the hedge ratio is within a range of 80-125 per cent.

The hedge is assessed on an ongoing basis and thus must prospectively remain highly effective throughout the financial reporting periods for which the hedge was designated.

The assessment of effectiveness is made at each balance-sheet date or other reporting date.

If the assessment does not confirm the effectiveness of the hedge, from that time on hedge accounting is discontinued in respect of the hedge and the hedging derivative is reclassified as a held-for-trading instrument.

Hedge accounting is discontinued prospectively if the hedge is terminated or no longer highly effective; the hedging instrument expires or is sold, terminated or exercised; the hedged item is sold, expires or is repaid; or it is no longer highly probable that the forecast transaction will occur.

Hedging instruments are so designated when identifiable with an ultimate counterparty outside the Group.

Hedging derivatives are measured at fair value. Specifically:

- Fair Value Hedging - an effective fair value hedge is accounted for as follows: the gain or loss from remeasuring the hedging instrument at fair value is recognised through profit or loss in item 90 "Fair value adjustments in hedge accounting"; the gain or loss on the hedged item attributable to the hedged risk adjusts the carrying amount of the hedged item and is recognised through profit or loss in the same item. If the hedging relationship is terminated for reasons other than the sale of the hedged item, the difference between the carrying amount of the hedged item on termination of the hedging and the carrying amount it would have had if the hedge had never existed, is recognised through profit or loss in interest receivable or payable over the residual life of the original hedge, in the case of interest-bearing instruments; if the financial instrument does not bear interest, the difference is recognised in profit or loss under item 90 "Fair value adjustments in hedge accounting". If the hedged item is sold or repaid, the unamortised portion of fair value is at once recognised through profit or loss in the item 100. "Gains (losses) on disposal or repurchase";
- Cash Flow Hedging - the portion of the gain or loss on a cash flow hedging instrument that is determined to be an effective hedge is recognised initially in equity item 140 "Revaluation reserves". The ineffective portion of the gain or loss is recognised through profit or loss in item 90 "Fair value adjustments in hedge accounting". If a cash flow hedge is determined to be no longer effective or the hedging relationship is terminated, the cumulative gain or loss on the hedging instrument that remains recognised in "Revaluation reserves" from the period when the hedge was effective remains separately recognised in "Revaluation reserves" until the forecast transaction occurs or is determined to be no longer possible; in the latter case gains or losses are transferred through profit or loss to 80 "Gains and losses on financial assets/liabilities held for trading";

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- Hedging a Net Investment in a Foreign Operation - hedges of a net investment in a foreign operation are accounted for similarly to cash flow hedges:
 - the portion of the gain or loss on the hedging instrument that is determined to be an effective hedge is recognised directly in item 140 "Revaluation reserves" through the statement of changes in equity;
 - the ineffective portion is however recognised through profit or loss in item 90 "Fair value adjustments in hedge accounting".
 - The gain or loss on the hedging instrument relating to the effective portion of the hedge that has been recognised directly in equity is recognised through profit or loss on disposal of the foreign operation;
 - Macro-hedged Financial Assets (Liabilities) - IAS 39 allows a fair-value item hedged against interest rate fluctuations to be not only a single asset or liability. but also a monetary position made up of a number of financial assets or liabilities (or parts of them); accordingly, a group of derivatives can be used to offset fair-value fluctuations in hedged items due to changes in market rates. Macrohedging may not be used for net positions resulting from the offsetting of assets and liabilities.

As for fair value hedges, macrohedging is considered highly effective if, at the inception of the hedge and in subsequent periods, changes in the fair value attributable to the hedged position are offset by changes in fair value of the hedging instrument and if the hedge ratio is within the range of 80-125 per cent.

Net changes - gains or losses - in the fair value of macrohedged assets and liabilities are recognised in asset item 90 and liability item 70 respectively and offset the profit and loss item 90 "Fair value adjustments in hedge accounting".

The ineffectiveness of the hedging arises to the extent that the change in the fair value of the hedging item differs from the change in the fair value of the hedged monetary position. The extent of hedge ineffectiveness is in any case recognised in profit and loss item 90 "Fair value adjustments in hedge accounting".

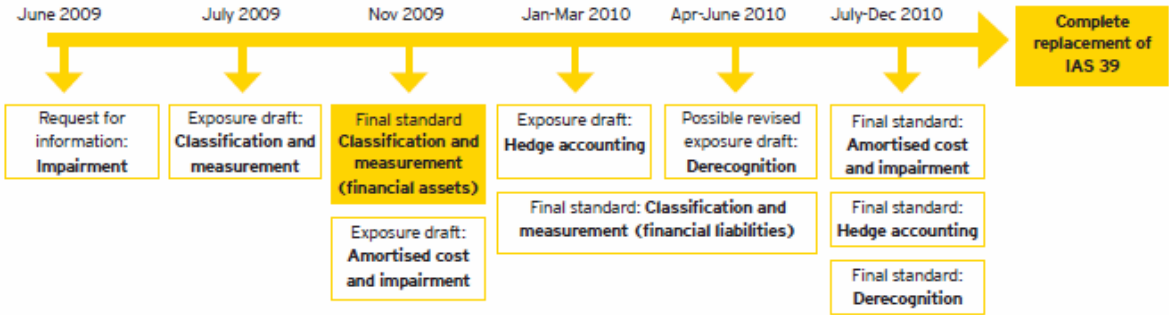
If the hedging relationship is terminated, for reasons other than the sale of the hedged items, the remeasurement of these items is recognised through profit or loss in interest payable or receivable, for the residual life of the hedged financial assets or liabilities.

If the latter are sold or repaid, unamortised fair value is at once recognised through profit and loss in item 100 "Gains (losses) on disposal or repurchase".

⁷¹ It is a financial obligation or the cash outlay that must be made at a specific time to satisfy the contractual terms of such an obligation. A financial liability requires a debtor to make a payment, or payments, to a creditor in circumstances specified in a contract between them; or specifies between the two parties certain rights or obligations, the nature of which requires them to be treated as financial. Any liability that is a legal obligation to deliver cash or another financial instrument to another enterprise or to exchange financial instruments with another enterprise under conditions that are potentially unfavourable can be considered financial liability.

The aim was to replace IAS 39 in its entirety by the end of 2010 (see timeline below); however the proposal of the EU to defer endorsement of phase two slowed down the entire timeline.

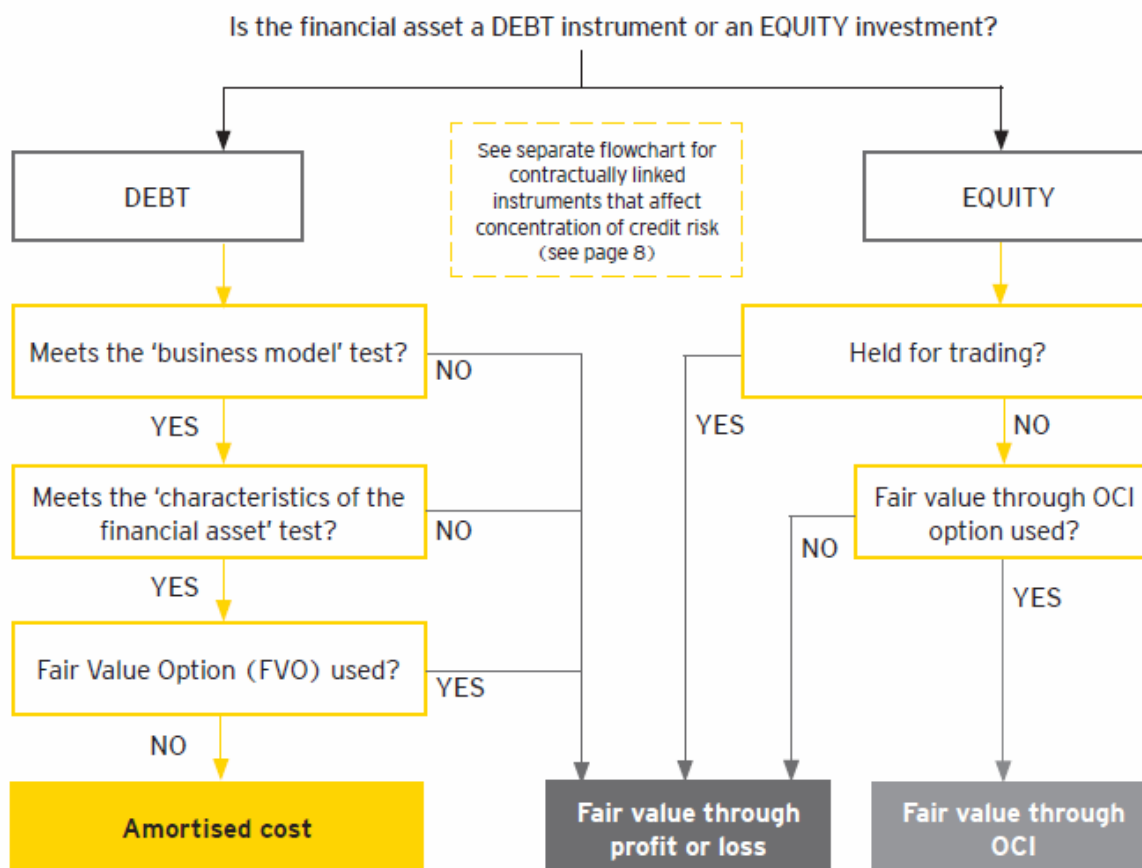
As each phase is completed, chapter with new requirements will be added to IFRS 9 and the relevant portion deleted from IAS 39. It is then expected that the developments in other phases of this project will be watched carefully by many constituents from the world over.



Phase one of IFRS 9 is applicable to all financial assets within the scope of IAS 39. They are then classified and measured as follow:

⁷² Derecognition refers to the removal of an asset or liability (or a portion thereof) from an entity's balance sheet. Derecognition questions can arise with respect to all types of assets and liabilities. There is a project from IASB that focuses on financial instruments. Questions regarding derecognition of assets and liabilities often arise in the context of certain special purpose entities and whether those entities should be included in a set of consolidated financial statements. IASB is considering both a comprehensive project on derecognition or all types of assets and liabilities and also a separate, narrower scope project that would explore the need to revise guidance in IAS 39 in the area of derecognition of financial instruments. This limited scope project would address questions that have arisen with regard to the application of conflicting aspects of IAS 39's guidance on derecognition. The project would result in an amendment to IAS 39 possibly through issuance of a separate standard on derecognition that supersedes that section of IAS 39.

Classification and measurement of financial assets



At initial recognition all financial assets (including hybrid contracts with a financial assets host) are measured at fair value⁷³.

⁷³ Fair value, also called fair price is a concept used in accounting and economics, defined as a rational and unbiased estimate of the potential market price of an asset, taking into account such objective factors as:

- acquisition costs, collateral costs, or costs of close substitutes
- actual utility at a given level of development of social productive capability
- supply vs. demand

and subjective factors such as

- risk characteristics
- cost of and return on capital
- individually perceived utility

In accounting, fair value is used as an estimate of the market value of an asset (or liability) for which a market price cannot be determined (usually because there is no established market for the asset). Under US GAAP fair value is the amount at which the asset could be bought or sold in a current transaction between willing parties, or transferred to an equivalent party, other than in a

In case of subsequent measurement financial assets that are debt instruments are classified at amortized cost⁷⁴ or fair value on the basis of both:

- The entity's business model for managing the financial assets;
- The contractual cash flow characteristics of the financial asset.

Note debt instrument may also be measured at amortized cost if the asset is held within a business model whose objective is to hold the asset to collect the contractual cash flows and if the contractual terms of the financial asset give rise to cash flows that are merely payments of principal and interest on the principal outstanding.

liquidation sale. This is used for assets whose carrying value is based on mark-to-market valuations; for assets carried at historical cost, the fair value of the asset is not used. This problem is compounded when numerous assets and liabilities are reported at historical cost, leading to a balance sheet that may be greatly undervalued. The fair-value balance sheet provides information for investors who are interested in the current value of assets and liabilities, not the historical cost. There are two schools of thought about the relation between the market price and fair value in any kind of market, but especially with regard to tradable assets:

- The efficient market hypothesis asserts that, in a well organized, reasonably transparent market, the market price is generally equal to or close to the fair value, as investors react quickly to incorporate new information about relative scarcity, utility, or potential returns in their bids; see also Rational pricing.
- Behavioral finance asserts that the market price often diverges from fair value because of various, common cognitive biases among buyers or sellers. However, even proponents of behavioral finance generally acknowledge that behavioral anomalies that may cause such a divergence often do so in ways that are unpredictable, chaotic, or otherwise difficult to capture in a sustainably profitable trading strategy, especially when accounting for transaction costs.

The latest edition of International Valuation Standards (IVS 2007) clearly distinguishes between fair value, as defined in the IFRS, and market value, as defined in the IVS. As the term is generally used, Fair Value can be clearly distinguished from Market Value. It requires the assessment of the price that is fair between two specific parties taking into account the respective advantages or disadvantages that each will gain from the transaction. Although Market Value may meet these criteria, this is not necessarily always the case. Fair Value is frequently used when undertaking due diligence in corporate transactions, where particular synergies between the two parties may mean that the price that is fair between them is higher than the price that might be obtainable in the wider market. In other words Special Value may be generated. Market Value requires this element of Special Value to be disregarded, but it forms part of the assessment of Fair Value.

⁷⁴ Cost of a security adjusted for the amortization of any purchase premium or discount. The amortization is part of the cost of an asset which is written off as depreciation in the firm's account books. Such a cost represents accumulated amortization or depreciation to date.

All other debt instruments are subsequently measured at fair value.

All financial assets that are equity investments are measured at fair value either through Other Comprehensive Income (OCI) or profit and loss statements (P&L).

This is an irrevocable choice the entity makes by instrument unless the equity investments are held for trading, in which case, they must be measured at fair value through P&L.

1. DEBT INSTRUMENTS

1.1 THE BUSINESS MODEL TEST

Although the business model test is stated first, it is important to highlight that both the business model test and the characteristics of the financial assets test are equally fundamental in determining classification and measurement of debt securities.

The assessment of a business model is not made at an individual financial instrument level. In addition the assessment is based on how key management personnel actually manage the business, rather than management's intent for specific financial assets.

An entity may have more than one business model for managing its financial assets and the classification needs to be determined at reporting entity level. As such, an entity needs to use judgments to determine the level at which this condition should be applied.

For example, the assessment could be at portfolio level: an entity may hold a portfolio of investments that it manages with the objective of collecting contractual cash flows and another portfolio of investments with the objective of trading to realize fair value changes.

A portfolio of financial assets that meets the definition of "held for trading"⁷⁵ (including non-hedging derivatives), as currently defines IAS 39, is not held to collect contractual cash flows – such a portfolio of instruments must still be measured at fair value through P&L.

⁷⁵ A financial asset is classified as held for trading if it is:

- acquired or incurred principally for the purpose of selling or repurchasing it in the near term;
- part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking;
- a derivative (except for a derivative that is a designated hedging instrument).

When an HFT financial asset is recognised initially, it is measured at its fair value excluding transaction costs and income which shall be directly recognised in profit and loss even when

An entity's business model may continue to have the objective of holding financial assets to collect contractual cash flows, even when some investments from the portfolio are sold. That is, the entity need not hold all of those financial assets until maturity. It is important to note the consequential amendments to IAS 1 (Presentation of Financial Statements) require that the gains or losses on the derecognition of such financial assets be disclosed as a separate line item in the statement of comprehensive income.

The term business model is new to IFRS. The application guidance to the Standard provides examples to help explain this concept⁷⁶.

An important change from IAS 39 is that whether or not the instrument is quoted in an active market is not relevant for the measurement basis under IFRS 9.

Instruments will clearly not qualify for the amortized cost classification if they have been designated at fair value using the fair value option under IAS 39 on the basis that they were managed and performance is evaluated on a fair value basis, if this continues to be the case at the date of initial application.

Whilst the approach used in IFRS 9 eliminates the *tainting rules*⁷⁷ relating to disposal of held-to-maturity⁷⁸ investments under IAS 39, there will be a need for judgment in determining whether a portfolio is held for the collection of contractual cash flows or for realizing fair value changes.

directly attributable to the acquisition or issue of the financial asset. After initial recognition, an entity shall measure these financial assets at their fair value through profit or loss.

A gain or loss arising from sale or redemption or a change in the fair value of a HFT financial asset is recognised in profit or loss in item "Gains (losses) on financial assets and liabilities held for trading", with the exception of financial derivatives relating to a fair value option of which gains and losses, whether realised or measured, are booked apart in "Gains (losses) on financial assets/liabilities at fair value through profit and loss". If the fair value of a financial asset falls below zero. It is recognised in item "Financial liabilities held for trading".

⁷⁶ Please see International Accounting Standards Board, Basis for Conclusion Exposure draft ED/2009/12 - Financial Instruments: Amortized Cost and Impairment. November 2009

⁷⁷ Tainting Rule: an entity is not permitted to classify any of its financial assets as held to maturity for two years if it had sold or transferred more than an insignificant amount of Held to Maturity investments before their maturity. Note The IASB issued an amendment on November 2008 to reduce the difference between US GAAP and IFRS in respect of reclassification of Financial Assets. Reclassification, which was previously severely restricted under the IFRS, is now permitted in specific circumstances if the conditions and disclosure requirements are followed. However, we have identified two important points that should be taken into consideration when deciding whether to reclassify or not:

1. The Recognition criteria under IAS39 have not changed. A portfolio of Financial Assets that are actively traded must continue to be classified as Held for Trading. Only those which meet the

Thus, even if some change of portfolio may be consistent with recognition on an amortized cost basis, significant levels of sales call that into question. In fact if more than an infrequent number of sales are made out of a portfolio, the entity needs to assess whether and how such sales are consistent with an objective of collecting contractual cash flows.

specific conditions in the amendments can a reclassification be made. In particular, the "tainting rule" governing financial assets classified as Held to Maturity will continue to apply, and preparers of financial reports must take extra care to ensure the rule is not breached.

2. The amendments have strict disclosure requirements which must be followed if an entity elects to reclassify its Financial Assets pursuant to the amendments. In particular, an entity must disclose the fair value gain or loss that would have been recognised as if the Financial Assets had not been reclassified for every reporting period until the Financial Assets are derecognised. As such, the additional disclosure requirements should be taken into account when deciding whether reclassification is required.

⁷⁸ Held to maturity investments ('HTM') are non-derivative financial assets with fixed or determinable payments and fixed maturity that an entity has the positive intention and ability to hold to maturity, other than:

- Those that the entity upon initial recognition designates as at fair value through profit or loss (FVTPL);
- Those that the entity designates as available-for-sale (AFS); and
- Those that meet the definition of loans and receivables (L&R).

Held-to-maturity investments are likely, in practice, to be a restricted class since the decision to classify as HTM indicates the investor is indifferent to future profit opportunities. For example, a company might hold gilts or corporate bonds as a long-term investment, but would be prepared to sell them if it needed cash to finance a future expansion of the business. The company could not classify the assets as HTM – it cannot demonstrate the necessary positive intent and ability to hold them to maturity.

Equity shares in a company do not have a "maturity date", so they cannot be HTM investments. HTM assets are stated at amortised cost, using the effective interest method. This is a method of calculating the amortised cost of a financial asset or financial liability, and of allocating the interest income or interest expense over the relevant period.

The effective interest rate in a financial instrument is the rate that exactly discounts the cash flows associated with the instrument (either through to maturity or to the next re-pricing date) to the net carrying amount at initial recognition, i.e. a constant rate on the carrying amount. The effective interest rate is sometimes termed the level yield to maturity (or the next re- pricing date), and is the internal rate of return of the financial asset or liability for that period.

1.2 THE FINANCIAL ASSET TEST

Once an entity determines that the business model is to hold the assets to collect the contractual cash flows, it must assess whether the contractual terms of the financial asset give rise, on specific dates, to cash flows that are solely payments of principal and interest on the principal outstanding.

Interest is defined as the consideration for the time value of money and the credit risk associated with the principal amount outstanding during a particular period of time.

The following tables give examples that illustrate instruments that will or will not qualify for amortized cost accounting.

Instrument	General analysis	Variations to the general analysis
A Instrument A is a bond with a stated maturity date. Payments of principal and interest are linked to an inflation index in the currency in which the instrument is issued. The inflation link is not leveraged.	The contractual cash flows are only payments of principal and interest. Linking payments of principal and interest to an unleveraged inflation index resets the time value of money to a current level. In other words, the interest rate on the instrument reflects 'real' interest. Thus, the interest amounts are consideration for the time value of money on the principal amount outstanding.	However, if the interest payments were indexed to another variable, such as the debtor's performance (e.g., the debtor's net income) or an equity index, the contractual cash flows are not payments of principal and interest, because the interest payments are not consideration for the time value of money and credit risk associated with the principal amount outstanding. There is variability in the contractual interest payments that is inconsistent with market interest rates.
B Instrument B has a variable interest rate and a stated maturity date that permits the borrower to choose the market interest rate on an ongoing basis. For example, at each interest rate reset date, the borrower can choose to pay three-month LIBOR for a three-month term or one-month LIBOR for a one-month term.	The contractual cash flows are only payments of principal and interest as long as the interest paid over the life of the instrument reflects consideration for the time value of money and the credit risk associated with the instrument. The fact that the interest rate is reset during the life of the instrument does not in itself disqualify the instrument from amortised cost treatment. The same analysis would apply if the borrower is able to choose between the one-month variable interest rate and three-month variable interest rate published by the lender.	If the borrower is able to choose to receive a one-month LIBOR rate for three months, and that one-month LIBOR is not reset each month, the cash flows are not payments of principal and interest. The same analysis would apply if the borrower is able to choose between the one-month variable interest rate and three-month variable interest rate published by the lender. However, if the instrument has a contractual interest rate that is based on a term that exceeds the instrument's remaining life, its contractual cash flows are not payments of principal and interest. For example, a bond with a five-year term that pays a variable rate that is reset periodically but always reflects a five-year maturity, does not result in contractual cash flows that are payments of principal and interest. That is because the interest payable in each period is disconnected from the term of the instrument (except at origination).
C Instrument C is a bond with a stated maturity date and pays a variable market interest rate which is capped.	As long as the interest reflects consideration for the time value of money and the credit risk associated with the instrument. The contractual cash flows of the following instruments are payments of principal and interest: a) an instrument that has a fixed interest rate b) an instrument that has a variable interest rate c) an instrument that combines (a) and (b) (e.g., a bond with an interest rate cap) The instrument could therefore include features that reduce cash flow variability (by setting a limit on variable interest rate) or increase cash flow variability (where a fixed rate becomes variable) and still be considered to result in cash flows that are only principal and interest.	
D Instrument D is a full recourse loan and is secured by collateral	The fact that a full recourse loan is collateralised does not in itself affect the analysis of whether the contractual cash flows are only payments of principal and interest.	See separate discussion on non-recourse loans, below.

Instrument	Analysis
E Instrument E is a convertible bond and is convertible into equity instruments of the issuer.	The holder would analyse the convertible bond in its entirety. The contractual cash flows are not payments of principal and interest because the interest rate does not reflect only consideration for the time value of money and the credit risk. The return is also linked to the value of the equity of the issuer.
F Instrument F is a loan that pays an inverse floating rate i.e., the interest rate has an inverse relationship to the market interest rates.	The contractual cash flows are not solely payments of principal and interest. The interest amounts are not consideration for the time value of money on the principal outstanding.
G Instrument G is a perpetual instrument but the issuer may exercise a call option at any point and pay the holder the par amount and accrued interest. Instrument G pays a market interest rate but payment of interest cannot be made unless the issuer is able to make such payments and remain solvent immediately afterwards. Deferred interest does not accrue additional interest.	The contractual cash flows are not payments of principal and interest, because the issuer may be required to defer interest payments (and additional interest does not accrue on the deferred amounts). Interest amounts are not consideration for the time value of money on the principal outstanding. If interest is accrued on the deferred amounts, the contractual cash flows could be payments of principal and interest. The fact that Instrument G is perpetual does not in itself mean that the contractual cash flows are not payments of principal and interest. In effect, a perpetual instrument has continuous (multiple) extension options, which may result in contractual cash flows that are payments of principal and interest. Also, the fact that the instrument is callable does not mean that the contractual cash flows are not payments of principal and interest (unless callable at an amount that does not substantially represent outstanding principal and interest), even if the callable amount includes compensation for early termination.

Leverage⁷⁹ is a contractual cash flow characteristic that amplifies the variability of contractual cash flows which would not have the economic characteristics of interest. Derivatives, such as option, forward and swap contracts, include leverage and therefore cannot be carried at amortized cost.

⁷⁹ It represents degree to which an investor or business is utilizing borrowed money. Companies that are highly leveraged may be at risk of bankruptcy if they are unable to make payments on their debt; they may also be unable to find new lenders in the future.

Financial leverage is not always bad, however; it can increase the shareholders' return on their investment and often there are tax advantages associated with borrowing. In finance, leverage (also known as gearing or levering) refers to the use of debt capital to supplement equity capital. Companies usually leverage to attempt to increase returns on equity capital, as it can increase the scope for gains or losses.

Financial leverage (FL) takes the form of a loan or other borrowings (debt), the proceeds of which are (re)invested with the intent to earn a greater rate of return than the cost of interest. If the firm's marginal rate of return on assets (ROA) is higher than the rate of interest payable on the loan, then its overall return on equity (ROE) will be higher than if it did not borrow.

It should be noted that an instrument that is subordinated to other instrument may still have contractual cash flows that are principal and interest⁸⁰.

An important change from IAS 39 is whether or not the instrument is quoted in an active market is not relevant for the measurement basis under IFRS 39.

In case of prepayment and extension options there are specific policies to be observed. In particular:

- Prepayment options permit the issuer to prepay a debt instrument or permit the holder to put a debt instrument back to the issuer before maturity;
- Extension options permit the issuer or the holder to extend the term of a debt instrument.

Instruments that contain contractual provisions such as the two classes of the above, would result in contractual cash flows that are only payments of principal and interests (and thus may be recorded at amortized cost) only if the following conditions are met:

- The provision is not contingent on future events other than terms that protect:
 1. the holder against credit deterioration of the issuer or a change in control of the issuer; or
 2. the holder or issuer against changes in relevant taxation or law;
- For prepayment options: the prepayment amount substantially represents unpaid amounts of principal and interest, which may include reasonable compensation for early termination of the contract;
- For extension options: the terms can only result in payments of principal and interest during the extension period.

On the other hand, if the firm's ROA is lower than the interest rate, then its ROE will be lower than if it did not borrow. Leverage allows greater potential returns to the investor that otherwise would have been available, but the potential for loss is also greater: if the investment becomes worthless, the loan principal and all accrued interest on the loan still need to be repaid.

Margin buying is a common way for a private investor or an investment company to employ leverage. An unleveraged firm can be seen as an all-equity firm, whereas a levered firm is made up of ownership equity and debt. A firm's debt to equity ratio is therefore an indication of its leverage. This debt to equity ratio's influence on the value of a firm is described in the Modigliani-Miller theorem, which states that leverage should not affect the expected overall return.

As is true of operating leverage, the degree of financial leverage measures the effect of a change in one variable on another variable. Degree of financial leverage (DFL) may be defined as the percentage change in earnings (earnings per share) that occurs as a result of a percentage change in earnings before interest and taxes.

⁸⁰ For example: trade receivables would generally qualify for amortised cost classification even if the debtor issued loans that are collateralised, which in the event of bankruptcy would give that loan holder priority over the claims of the general creditor in respect of the collateral but, does not affect the contractual right of the general creditor to unpaid principal and other amount due.

All other contractual provisions that could change the timing or amount of payments do not result in contractual cash flows that are solely principal and interest unless a variable rate represents consideration for the time value of money and the credit risk associated with the principle amount outstanding.

The application guidance states that an entity shall assess whether contractual cash flows are solely payments of principal and interest on the principal outstanding for the currency in which the financial asset is denominated. This seems to indicate that a dual currency bond would fail the criteria for amortized cost classification.

Applying IFRS 9, a number of debt instruments are likely to be determined to contain only payments of principals and interest. However, many instruments that currently have “other” features (for instance convertible bonds), will need to be recorded at fair value through P&L.

Two particular type of instrument are likely to pose difficulty: non-recourse loans⁸¹ and securitized debt⁸², both of which are addressed in more detail below.

⁸¹ A non-recourse loan does not allow the lender to pursue anything other than collateral. Non-recourse loans create the most risk for lenders because they can only collect the collateral - and nothing else, they want to see lower loan to value ratios to reduce their risk. These loans may have higher interest rates than recourse loans. It is a loan for which no partner or related person bears the economic risk of loss. For example, if a partnership fails to repay a non-recourse loan, the lender has no recourse against any partner except to foreclose of the assets used to secure the loan. In other word it is a loan in which the lender cannot claim more than the collateral as repayment in the event that payments on the loan are stopped. Thus, a group of investors may purchase an asset with a down payment and the proceeds from a non-recourse loan. In the event that the investment turns sour, the investors are not apt to lose more than the down payment and payments already made on the loan. The unpaid balance on the loan will be absorbed by the lender. So there is no personal liability for the borrower. The lender has agreed that the collateral is sufficient and, if there is a foreclosure and the property brings less than the amount due under the loan, then the lender will suffer the loss and not sue the borrower. Even non-recourse loans typically have carve-outs imposing personal liability on the borrower if there are environmental problems or the borrower is guilty of some sort of fraud.

⁸² Securitization is a structured finance process that distributes risk by aggregating assets in a pool (often by selling assets to a special purpose entity), then issuing new securities backed by the assets and their cash flows. The securities are sold to investors who share the risk and reward from those assets. Securitization is similar to a sale of a profitable business ("spinning off") into a separate entity. The previous owner trades its ownership of that unit, and all the profit and loss that might come in the future, for present cash. The buyers invest in the success and/or failure of the unit, and receive a premium (usually in the form of interest) for doing so. In most securitized investment structures, the investors' rights to receive cash flows are divided into "tranches": senior tranche investors lower their risk of default in return for lower interest payments, while junior

tranche investors assume a higher risk in return for higher interest. Securitization is designed to reduce the risk of bankruptcy and thereby obtain lower interest rates from potential lenders. A credit derivative is also sometimes used to change the credit quality of the underlying portfolio so that it will be acceptable to the final investors. As a portfolio risk backed by amortizing cash flows - and unlike general corporate debt - the credit quality of securitized debt is non-stationary due to changes in volatility that are time - and structure-dependent. If the transaction is properly structured and the pool performs as expected, the credit risk of all tranches of structured debt improves; if improperly structured, the affected tranches will experience dramatic credit deterioration and loss. Securitisation has evolved from its tentative beginnings in the late 1970s to a vital funding source with an estimated outstanding of \$10.24 trillion in the United States and \$2.25 trillion in Europe as of the 2nd quarter of 2008. In 2007, ABS issuance amounted to \$3,455 billion in the US and \$652 billion in Europe. In concept, all assets generating stable and predictable cash flows can be taken up for securitization. In practice however, much of the securitised paper issued have underlying periodic cash flows secured through contracts defining cash flow volumes, yield and timing. In this respect, securitization of auto loans, credit card receivables, computer leases, unsecured consumer loans, residential and commercial mortgages, franchise/royalty payments, and other receivables relating to telecom, trade, toll road and future export have gained prominence. Typically, asset portfolios that are relatively homogeneous with regard to credit, maturity and interest rate risk could be pooled together to create a securitization structure. However, to make reasonable estimates of the credit quality and payment speed of the securitised paper, it would be essential to analyse the historical data on portfolio performance over some reasonable length of time.

Essential features of a securitization transaction comprise the following:

1. Creation of asset pool and its sale

The originator/seller (of assets) creates a pool of assets and executes a legal true sale of the same to a special purpose vehicle (SPV). An SPV in such cases is either a trust or a company, as may be appropriate under applicable law, setup to carry out a restricted set of activities, management of which would usually rest with an independent board of directors.

2. Issuance of the securitised paper

This activity is usually performed by the SPV. Design of the instrument however would be based on the nature of interest that investors would have on the asset pool. In the case of pass-through issuances, the investors will have a direct ownership interest in the underlying assets, while pay-throughs are debt issued by the SPV secured by the assets and their cash flows.

3. Credit Risk

It must be made abundantly clear at the very outset that the accretions on the asset-backed security, i.e., interest, amortisation and redemption payments, are entirely dependent on the performance of the pooled assets, and will have nothing to do with the credit of the originator. By the same argument, such cash flows would also be not influenced by events affecting the condition of the originator, including insolvency.

4. Pool Selection

In case of non-recourse loans the guidance in the standard indicates that some financial assets may have cash flows which are described as principal and interest but do not in fact represent payment of such.

The example is given of non-recourse debt where the creditor's claim is limited to certain assets or cash flows and where the contractual cash flows arising from the debt may not exclusively represent the payment of principal and interest- for example, they may include payment for factors other than the time value of money and the credit risk involved in the debt.

However, the fact that a debit is non-recourse does not mean that it cannot be classified at amortized cost. A holder of a non recourse instrument, in which the lender is entitled only to repayment from specific assets or cash flows, must look through to the ring-fenced assets or cash flows to determine whether payment arising from the contract meet the "contractual cash flows characteristic" test.

If the terms of the debt give rise to any other cash flows in a manner inconsistent with the payments of principals and interests, it does not meet the test. Thus, for example, a non-recourse property loan in which the return earned by the lender is significantly dependent upon the performance of the secured property may not meet the test.

In case of securitized debt (contractually linked instruments) although an important objective of the standard was to simplify financial instrument accounting, it was not possible to find a simple way to classify contractually linked instruments that create concentration of credit risk like securitized debt.

The process of selecting assets to build a securitization pool would take into careful consideration, loan characteristics that are important from a cash flow, legal, and credit points of view, such as type of asset, minimum and maximum loan size, vintage, rate, maturity and concentration limits (geographic, single-borrower, etc.). 'Cherry-picking' to include only the highest quality assets in the pool should be consciously avoided. Ideal selection would be a random choice among assets conforming only to cash flow or legal criteria. Often, substitution of eligible assets in the place of original assets that mature/prepay in order to maintain the level of asset cover would also be required.

5. Administration

Formal delineation of duties and responsibilities relating to administration of securitised assets, including payment servicing and managing relationship with the final obligors must be spelt out clearly through a contractual agreement with the entity who would perform those functions.

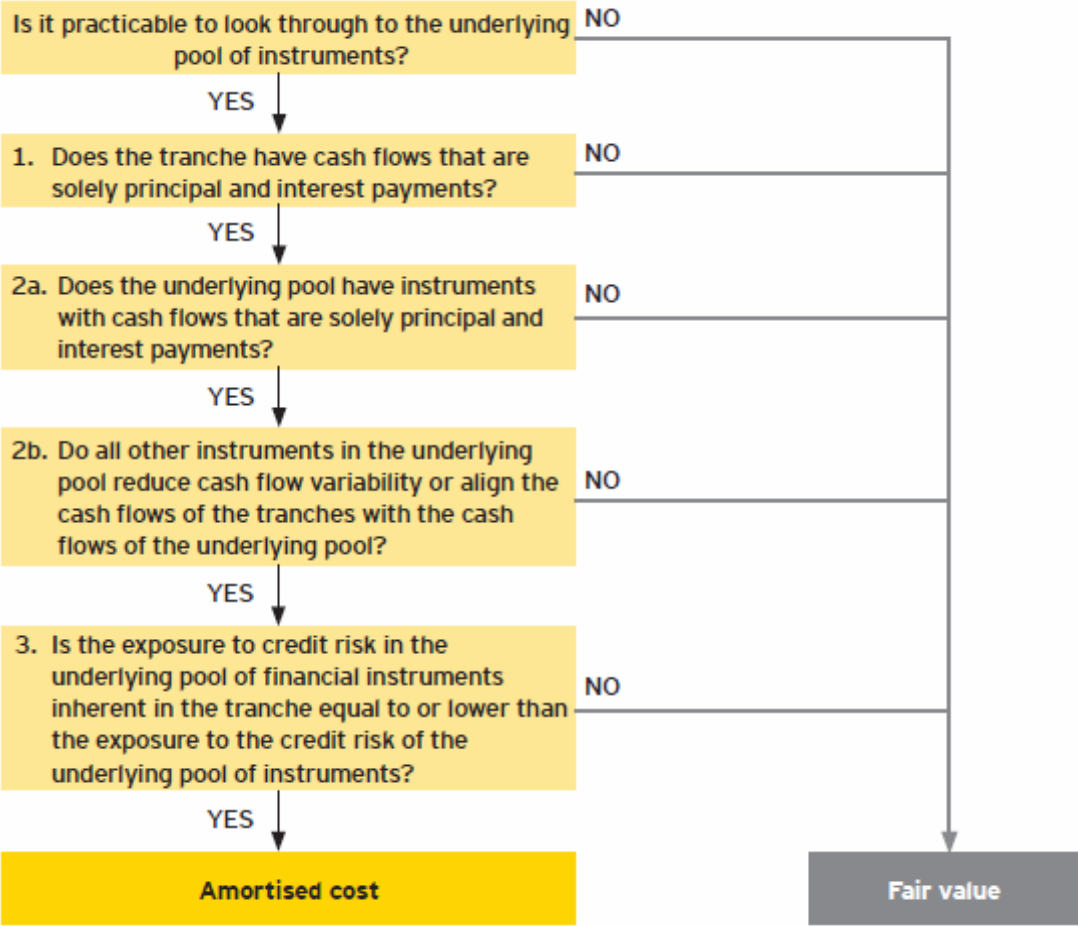
In addition, the following features are often included as part of a securitization transaction:

- Credit enhancement to support timely payments of interest and principal and to handle delinquencies,
- Independent credit rating of the securitised paper from a well known credit rating agency, and,
- Providing liquidity support to investors, such as appointment of market makers.

The complexity arises because the junior tranches provide credit protection to the more senior ones and the characteristics of the tranches depend on the underlying instruments held. The IASB has therefore decided to require a look-through approach, as recommended by many constituent.

With this premise, the holder should look through the structure until the underlying pool of instruments that are creating the cash flows are identified.

To qualify for measurement at amortized cost, a three-part test is applied:



- The contractual term of the tranche being assessed have cash flow characteristics that are solely payments of principal and interest;
- The underlying pool contains one or more instruments that have contractual cash flows that are solely payments of principal and interest; and any other instruments either:
 1. reduce the cash flow variability of other such instruments and result in cash flows that are solely payments of the principal and interest; or
 2. align the cash flows of the tranches with the cash flows of the underlying pool of instruments to address differences in and only in:
 - whether the interest rate is fixed or floating;

- the currency in which the cash flows are denominated, including inflation in that currency; or
- the timing of the cash flows.
- The exposure to credit risk in the underlying pool of financial instruments inherent in the tranche is equal to, or lower than, the exposure to credit risk of the underlying pool of instruments.

Reassessment of the underlying instrument pool is not permitted after initial recognition. If the terms of the structure allow substitution of instruments which could affect the analysis, the tranche cannot be measured at amortized cost.

It will often be difficult to look through a securitization structure to carry out the required analysis. Demonstrating that a tranche may be recorded at amortized cost may require considerable investment in processes and resources.

In addition, the process of looking through a pool of contractually linked financial instruments may encompass more than one securitization structure, particularly if the instruments are issued by one special purpose entity and are re-securitized through another.

It is also important to note that the term “credit risk” is not defined in IFRS 9. IFRS 7 (*Financial instruments: Disclosures*) defines credit risk as “the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation”. However, we do not believe that the credit risk of the tranche is intended to be read so narrowly.

An investor in a securitization tranche may incur a loss because the amount owned is adjusted for the credit losses on the underlying pool according to its contractual terms, not because of a failure to discharge an obligation.

Determining whether a tranche has a lower credit risk than that of the underlying instruments should, in many cases, be straightforward. The most senior tranches will not. For the tranches in between, the determination may be more difficult and may warrant a quantitative analysis.

In case of embedded derivatives⁸³, IFRS 9 will remove the requirement to separate derivatives embedded in financial host instruments that are assets within the scope of IFRS 9. Instead, the asset in

⁸³ A component of a hybrid security that is embedded in a non-derivative instrument. An embedded derivative can modify the cash flows of the host contract because the derivative can be related to an exchange rate, commodity price or some other variable which frequently changes. In other terms an embedded derivative is a component part of a ‘hybrid’ financial instrument which also includes a non-derivative host contract with the effect that some of the cash flows of the hybrid instrument vary in a way similar to a stand-alone derivative. A ‘hybrid’ instrument is a combination of both the host contract and the embedded derivative. Derivatives are financial instruments that ‘derive’ their value from an underlying price or index (e.g. an interest rate, foreign exchange rate or commodity price).

its entirety is measured at amortized cost, or fair value, depending on the business model and the instrument's cash flow characteristics.

It is important to note that the "characteristics of the financial asset" criteria are stricter than the criteria that currently apply under IAS 39 in determining which embedded derivatives require split

According to the International Financial Reporting Standards (IFRS), the embedded derivative has to be separated from the host contract and accounted for separately unless the economic and risk characteristics of both the embedded derivative and host contract are closely related.

An embedded derivative can arise from deliberate financial engineering (e.g. to make a low interest rate debt more attractive by including an equity-linked return). This situation is not; however, absolute and they can arise through market prices and other contractual arrangements - for example leases and insurance contracts. In fact, they may occur in all sorts of contracts and instruments with the objective being to change the nature of cash flows that would otherwise be required by the host contract and effectively shift financial risks between the parties concerned.

An example of a hybrid instrument is a loan that pays interest based on changes in the FTSE index. The component of the contract that is to repay the principal amount is the 'host' contract (this is the 'base state' with a pre-determined term and pre-determined cash flows).

The component that is to pay interest based on the changes in the FTSE is the 'embedded derivative'. This component causes some (or all) of the cash flows of the host contract to change. Some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative.

Another example is the conversion option in convertible debt. The fair value of the convertible (hybrid) instrument changes, in part, with movements in the fair value of the equity shares into which it is convertible - which would be similar to a stand-alone option.

IAS 39 requires an entity, when it first becomes a party to a hybrid contract, to assess whether any embedded derivatives contained in the contract are required to be separated from the host contract and accounted for as if they were stand-alone derivatives.

- Whether IAS 39 requires such an assessment to be made only when the entity first becomes a party to the hybrid contract, or whether the assessment be reconsidered throughout the life of the contract.
- Whether a first-time adopter of IFRSs should make its assessment on the basis of the conditions that existed when the entity first became a party to the contract, or those prevailing when the entity adopts IFRSs for the first time.

IAS 9 concludes that an entity must assess whether an embedded derivative is required to be separated from the host contract and accounted for as a derivative when the entity first becomes a party to the contract. Subsequent reassessment is prohibited unless there is a change in the terms of the contract that significantly modifies the cash flows that otherwise would be required under the contract, in which case reassessment is required. A first-time adopter must assess whether an embedded derivative is required to be separated on the basis of the conditions that existed at the date it first became a party to the contract, unless there was a subsequent change in terms of the contract that significantly modified the cash flows.

accounting. As a consequence, some embedded derivatives that were not separated under IAS 39 will result in the entire hybrid contract not being eligible for the amortized cost category.

If the host contract it is not within the scope of IFRS 9, the existing requirements for the separation of embedded derivatives will continue to apply. However, these requirements are expected to be revisited when the Board reviews the scope of IFRS 9 in a subsequent phase of the project.

In case of fair value options (FVO), IFRS 9 will retain a fair value option. At initial recognition, entities can elect to measure financial assets and financial liabilities that would otherwise qualify for amortized cost measurement, at fair value through P&L, provided the use of fair value eliminates or significantly reduces a measurement or recognition inconsistency (sometimes referred to as “an accounting mismatch”).

The other criteria for the use of FVO currently contained in IAS 39⁸⁴ will no longer be needed because:

- If an entity’s business model is to manage financial assets on a fair value basis, the assets concerned cannot qualify for classification at amortized cost.
- Embedded derivatives will no longer be separated.

2. FINANCIAL ASSETS – EQUITY INVESTMENTS

IFRS 9 allows an option to designate non-trading equity investments at fair value through OCI⁸⁵ upon initial recognition. Such a designation is irrevocable. However, as a change to the proposal in the exposure draft *Financial Instruments: Classification and Measurement* issued in July 2009, the standard requires that dividends received from these investments be recognized in P&L, unless they represent a recovery of part of the cost of investment. Fair value changes in these investments will be recognized in OCI, without recycling of gains and losses between P&L and OCI, even on impairment or on sale or disposal of the investment.

For equity investments designated at fair value through OCI, an entity needs to make several additional disclosures, including:

- Those investments that have been designated to be measured at fair value through OCI;
- The reasons for using this presentation alternative;
- The fair value of each such investment at end of the reporting period;

⁸⁴ See also Deloitte, IAS Plus – July 2005 Special Edition – Amendment to IAS 39: The Fair Value Option.

⁸⁵ Other comprehensive incomes

- Dividends recognized during the period, showing separately those related to investments derecognized during the reporting period and those related to investments held at the end of the reporting period; and
- Any transfers of the cumulative gain or loss within equity (such as from OCI to retained earnings) during the period including the reasons for such transfers.

Furthermore if any entity derecognizes investments in such equity instruments, it shall disclose:

- The reason for disposing of the investments;
- The fair value of the investments at the date of derecognition; and
- The cumulative gain or loss on disposal.

While this option is designated to deal with strategic equity investments that are not held to benefit from changes in their fair value, there is no restriction to the type of equity investments eligible for designation through OCI, as long as they are not held for trading, as currently defined in IAS 39.

Accordingly, equity derivatives cannot be designated at fair value through OCI.

2.1 UNQUOTED EQUITY INSTRUMENTS PREVIOUSLY HELD AT COST

IFRS 9 eliminates the exception contained in IAS 39 that allowed unquoted equity instruments to be measured at cost if the fair value is not reliably measurable. Accordingly, all equity instruments, including unquoted equity investments, will need to be measured at fair value.

Some respondents expressed concern that it is challenging to routinely estimate the fair value of such investments⁸⁶. As a limited concession, IFRS 9 states that cost may be the best estimate of fair value, if there is no, or insufficient, information available. It also provides guidance as to when cost is not appropriate.

⁸⁶ The following are indicators of when cost might not be representative of fair value for unquoted equity instruments:

- A significant change in the performance of the investee company compared with the budget plan or milestone
- Changes in expectation that technical milestones will be achieved
- A significant change in the market for the investee company or its products or potential products
- A significant change in the global economy or the economic environment in which the investee company operates
- A significant change in the observable performance of comparable companies, or in the valuations implied by the overall market
- Internal matters such as fraud, commercial disputes, or litigation, or changes in management or strategy
- Evidence from external transactions in the investee's equity, either by the investee (such as a fresh issue of equity), or by transfers of equity instruments between third parties.

Currently, based on this guidance and given the market turmoil, it is expected there will be many circumstances when cost will not be representative of the fair value of equity instruments.

3. RECLASSIFICATIONS

When an entity changes its business model for managing its financial assets, it is required to reclassify all affected financial assets to reflect the revised business model.

Such changes are expected to be infrequent. Reclassification is prohibited in all other circumstances.

If an instrument is reclassified from amortised cost to fair value, it should be measured at fair value on that date; any difference between the carrying amount and fair value would be recognised in a separate line in the income statement.

If an instrument is reclassified from fair value to amortised cost, the fair value of the instrument on the date of reclassification becomes its new carrying amount.

Reclassifications should be accounted for prospectively from the reclassification date, which is defined as ‘the first day of the reporting period following the change in business model that results in an entity reclassifying financial assets’.

The application guidance includes examples of circumstances when a reclassification is required or is not permitted⁸⁷.

If the entity reclassifies financial assets in accordance with IFRS 9, the entity is required to disclose the date of reclassification and the amount reclassified into or out of each category. In addition, a detailed explanation of the change in business model and a qualitative description of its effect on the financial statements needs to be provided.

If an entity reclassifies assets from fair value to amortised cost, the Standard requires further disclosures to be made:

⁸⁷ Examples of a change in business model, allowing reclassification:

- An entity has a portfolio of commercial loans that it holds to sell in the short term. The entity acquires a company that manages commercial loans and has a business model that holds the loans to collect the contractual cash flows. The portfolio of commercial loans is no longer for sale, and the portfolio is now managed together with the acquired commercial loans and all are held to collect the contractual cash flows.
- A financial services firm decides to shut down its retail mortgage business, and is no longer accepting new business. The firm actively markets its mortgage loan portfolio for sale.

Examples of NO change in business model, thus no reclassification

- A change in intention related to specific financial assets (even in circumstances of significant changes in market conditions)
- A temporary disappearance of a particular market for financial assets
- A transfer of financial assets between existing business models

- For assets reclassified since the last annual reporting date, the fair value of the asset at the end of the reporting period and the fair value gain or loss that would have been recognised in profit or loss during the reporting period if the financial assets had not been reclassified; and
- Until such reclassified assets are derecognised, the effective interest rate at the date of reclassification and interest income recognised for the reporting period.

While the possibility of reclassification, albeit in limited circumstances, will be welcomed as a change from the ED, it should be noted that most reclassifications made using the October 2008 amendments to IAS 39 will not qualify for reclassification in future.

4. EFFECTIVE DATE AND TRANSITION

The mandatory effective date for IFRS 9 will be 1 January 2013, with early adoption of Phase 1 permitted for reporting periods ending on or after 31 December 2009. It is important to note that in some jurisdictions, the local authority is required to endorse the Standard before it becomes available for adoption in that jurisdiction.

IFRS 9 is required to be applied retrospectively. However, the assessment of whether instruments are to be measured at amortised cost or fair value will need to be made for instruments on the entity's balance sheet, based on facts and circumstances existing as at the initial application date. The determination of whether an instrument is 'held for trading' is also made as at the initial application date.

It is also possible to de-designate or re-designate financial assets at fair value through profit or loss using the FVO as at the date of initial application and to apply the new designation retrospectively.

Furthermore, entities will be allowed to de- or re-designate financial liabilities at fair value through profit or loss, even though they are not otherwise within the scope of the Standard, presumably to avoid measurement mismatches when there is a required change in the treatment of financial assets under IFRS 9.

For entities adopting Phase 1 of the Standard early in 2009 and 2010, the initial application date may be *any date* within the reporting period from 12 November 2009.

Comparative figures are required to be restated. However, some transitional relief is available for early adopters as follows:

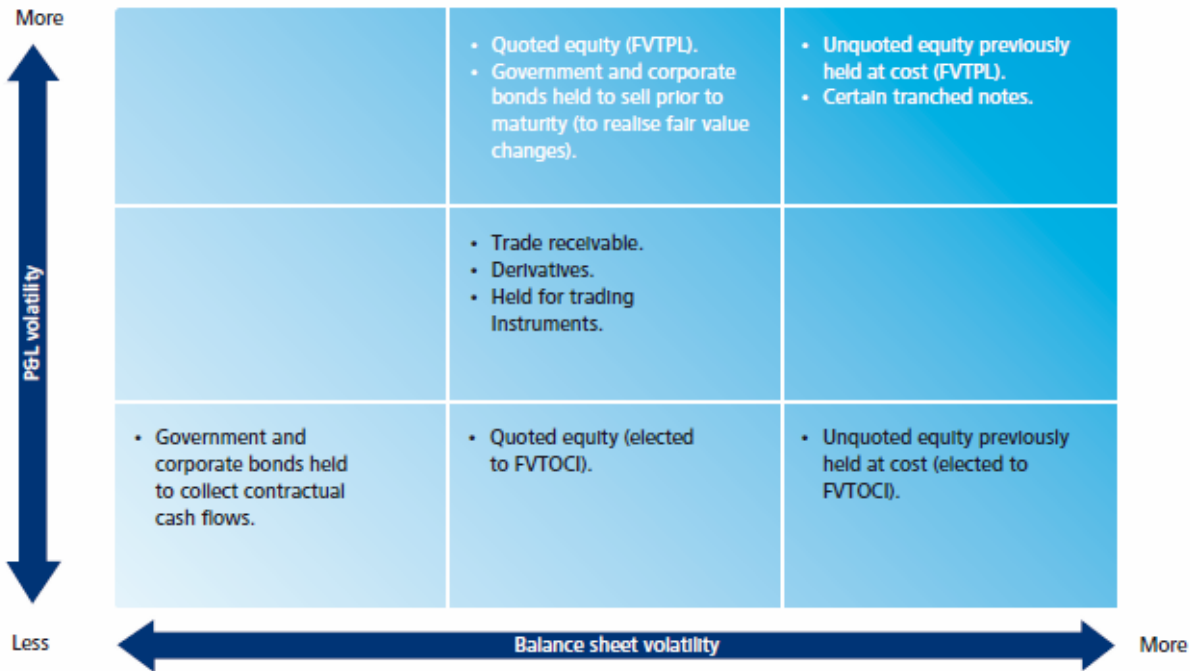
Year of adoption	2009 or 2010	2011	From 2012
Initial application date	May choose <i>any</i> date (after 12 November 2009) within the reporting period as the initial application date	Beginning of reporting period	Beginning of reporting period
Comparative figures	Are permitted, but <i>not required</i> to be restated	Are permitted, but <i>not required</i> to be restated	Are required to be restated

IFRS 9 cannot be applied to financial instruments that had already been derecognised before the date of initial application (which, although intended as a concession, may make it more difficult to restate the comparative periods). Also, if it is impractical to retrospectively determine an asset's amortised cost (for instance, because it is difficult to assess the level of impairment), the entity may use the fair value as a proxy for amortised cost at the date of initial application and at the end of each comparative period.

According to the Standard, "if comparative figures are not restated, the entity shall recognise any difference between the previous carrying amount and the carrying amount at the beginning of the annual reporting period that includes the date of initial application in the opening retained earnings (or other component of equity, as appropriate)" of that period. We believe this to mean that the income statement for that part of the first period of adoption which precedes the initial application date will be on the new measurement basis under IFRS 9.

5. BUSINESS IMPACT

Impact of IFRS 9



Adopting phase 1 of IFRS 9 early entities could benefit from one or more of the following:

- A unique opportunity to revoke the FVO and reclassify instruments previously designated at fair value through profit or loss, or to re-apply the FVO for instruments where there is an accounting mismatch.
- Avoid recording the full fair value decline as impairment on available-for-sale (AFS) debt investments, by reclassifying them to amortised cost (and so, instead, applying the amortised cost impairment model), as long as they meet the business model and characteristics of financial assets tests.
- Avoid recording impairment on AFS equity investments as a result of a significant or prolonged decline in fair value, by electing to record them at fair value through OCI.
- Allow reversal of previously recorded impairment on AFS equity investments whose fair values have increased, by reclassifying them to fair value through profit or loss.
- Enable hedge accounting in the future for debt instruments that were previously classified as ‘held-to-maturity’.
- Avoid restating comparative figures (if adopting by 2011).

Changes in the requirement to test financial assets for Impairment

Financial asset	IAS 39 classification	Impairment testing required?	IFRS 9 classification	Impairment testing required?
Debt Instruments	Available-for-sale	Yes	Amortised cost	Yes
	Loan and receivable	Yes	FVTPL	No
	Held-to-maturity	Yes		
	FVTPL	No		
Equity Investments	Available-for-sale	Yes	FVTOCI	No
	Cost less Impairment	Yes	FVTPL	No
	FVTPL	No		

However there are some challenges strongly connected to such adoption. In fact to qualify for amortised cost, entities need to be able to demonstrate that financial assets are held and managed as part of a ‘business model with the objective to hold the financial assets in order to collect the contractual cash flows’ (i.e., management intent for individual instruments is not sufficient).

Additionally entities need to assess the instruments impacted due to the new measurement criteria and make appropriate changes to accounting systems.

A number of areas will then require judgment and interpretation by preparers and auditors (for example, whether a business model is actively managed in order to realise fair value changes).

In other words many instruments reclassified using the October 2008 reclassification amendment to IAS 39 may need to be reclassified back to fair value depending on the related business model and their characteristics (see further discussion below).

Classification of tranches of securitised debt will be complex, as they are subject to a ‘look-through’ to the underlying pool of assets.

Not only, if a financial asset is reclassified from fair value through profit or loss to amortized cost, it is not possible to amend hedge accounting retrospectively. As a result, comparative information may require explaining, if fair value gains and losses on those assets had been previously offset by the change in value of derivatives.

There will be additional transition disclosures upon adopting IFRS 9.

Moreover, depending on the choices exercised, there could also be a change in the financial statement captions where certain gains and losses are recognised in the statement of comprehensive income.

Additionally entities would need to determine regulatory and tax consequences – adopting IFRS 9 would mean changes to the measurement model, with a consequential impact on the net profit or loss for the reporting period.

In conclusion, as financial liabilities and hedge accounting have been scoped out of the first phase, entities could face difficulties in understanding the overall implications for their portfolios of instruments if they adopt early.

With this premise entities that adopt IFRS over the next two to three years will have broadly the same exemptions and transition relief that is available to existing IFRS preparers.

Accordingly, comparative information produced by entities adopting IFRS before 1 January 2012 need not comply with IFRS 9. However, it appears that the date of initial application of IFRS 9 will be the beginning of the first IFRS reporting period, if entities adopt IFRS (including IFRS 9) for the first time before 1 January 2012.

The European Union initially requested that the IASB address five main issues. We have summarised below how the IASB has addressed these requests:

1. To provide additional guidance on fair values in illiquid markets:

- In October 2008, the IASB's Expert Advisory Panel (EAP) issued guidance on determining fair values in illiquid markets. In May 2009, the Board issued an exposure draft on Fair Value Measurement which includes the EAP guidance.

2. To permit entities to reclassify items that are measured at fair value using the FVO:

- On initial application (but not thereafter), IFRS 9 will permit entities to reclassify items that had previously been designated at fair value using the FVO to amortised cost where the criteria are met.

3. Clarify whether 'synthetic' collateralised debt obligations (CDOs) include embedded derivatives (an IFRS-US GAAP convergence issue):

- The IASB clarified, in February 2009, that synthetic CDOs contain an embedded derivative. Under IFRS 9, synthetic CDOs would not qualify for amortised cost. This is consistent with proposed changes to US GAAP.

4. To make changes to the impairment rules for AFS debt instruments; and

5. To allow reversal of impairment recorded on AFS equity instruments if fair values subsequently recover:

- Under IFRS 9, the AFS category will no longer exist.
- AFS debt instruments will be recorded at amortised cost or fair value through profit or loss, in which case impairment will be measured using the amortised cost impairment approach or will not be relevant.
- AFS equity instruments will be recorded at fair value through profit or loss (or through OCI, where elected), eliminating the need for impairment testing and allowing the reversal of revaluation losses in the income statement (assuming that the fair values are not recorded in OCI) if market prices recover.

It is now important to understand what might happen to financial instruments reclassified using the October 2008 amendments. Upon adopting IFRS 9, entities will have to assess the classification of financial assets based on the facts and circumstances at the initial date of application.

Many reclassified instruments will continue to be recorded at amortised cost, although they will need to be re-measured to amortised cost as if so classified since inception. Other reclassified financial assets will have characteristics which mean that they are no longer eligible, for instance, if such assets are investments in securitisation tranches which do not meet the three-part test set out in IFRS 9.

Also, a challenge for a number of institutions is that they may have reclassified instruments to amortised cost using the 2008 reclassification amendment, but those assets are still allocated to a trading business. In order to continue to record these assets at amortised cost, such entities will presumably need to transfer the instruments (booking them onto the appropriate systems), so that their performance measurement and risk management is consistent with the amortised cost business model. However, if IFRS 9 is adopted, it will be possible to cease to provide the onerous disclosures required by the 2008 reclassification amendments.

Not only, whether there is an increase or a decrease in the use of fair value for a particular entity will depend on its business model, the instruments it holds and the options it exercises under the new Standard.

More instruments will be eligible for amortised cost measurement than was originally proposed in the ED. Generally, non-financial institutions that hold financial assets for the longer term or financial institutions that undertake traditional banking activities of taking deposits and making loans, would likely be required to apply less fair value accounting under the new Standard than under IAS 39.

In particular, in case of insurance business the application of such a standard will have a specific impact. In fact, typically, insurer's assets are financial assets, while many of its liabilities are insurance liabilities. Whilst Phase 1 of IFRS 9 will be available from 2009, and mandatory from 2013, a revised standard on insurance is not expected until 2011. Insurers therefore expressed concern about difficulties in determining the classification of financial assets and financial liabilities under IFRS 9 before they know the treatment of insurance liabilities under the new insurance standard. The Board has addressed concerns of insurers by agreeing on the timescale for these projects – while the complete IFRS 9 is expected to be issued by the end of 2010 (and mandatory effective by 1 January 2013), the revised insurance standard is expected to be issued in 2011 (with a mandatory effective date in 2013 or 2014). Both standards will therefore be available for insurance companies to adopt from 2011 onwards.

Therefore, the Board expects that insurers will not be compelled to adopt IFRS 9 before adopting the new IFRS on insurance contracts. Whilst IFRS 9 does not include any temporary exceptions for insurers, the Board notes that it will consider whether to provide an option for insurers to reclassify some or all financial assets when they first apply the new insurance standard.

6. IFRS-US GAAP CONVERGENCE

At their September 2009 summit in Pittsburgh, the G-20 Leaders renewed their call for a single set of high-quality global accounting standards. This included a request to the IASB and the FASB (the Boards) to redouble their efforts to produce a converged standard on financial instruments. The timing and pace of the financial instruments project has been different for the Boards, primarily due to differing demands from other stakeholders.

The FASB has tentatively decided to require all financial instruments (including loans) to be measured at fair value, through profit or loss or through OCI. The exception would be for own debt, which could be measured at amortised cost, if certain criteria are met.

Whilst the “alternative approach” set out in the IASB’s ED was closer to the FASB’s approach, most constituents did not support the IASB’s alternative approach as they believed it increased complexity and did not provide decision-useful information.

On 5 November 2009, the IASB and the FASB issued a joint statement reaffirming their commitment to improving IFRS and US GAAP and achieving convergence.

The joint statement includes the commitment to achieve by the end of 2010 a comprehensive and improved solution that provides comparability internationally in the accounting for financial instruments.

Topic	Proposal as per the Exposure Draft	Constituents' response	Changes incorporated in IFRS 9
Amortised cost criteria	The ED proposed that financial instruments will be measured at amortised cost if two conditions are met: (i) the instrument has basic loan features; and (ii) the instrument is managed on a contractual yield basis.	The principles of "basic loan features" and "managed on a contractual yield basis" (a business model 'overlay') were not clearly expressed in the ED. Some constituents also argued that the business model overlay needs more emphasis than the characteristics of the instruments.	These principles are much clearer in the Standard. Additional examples have been included in the application guidance. Although both principles are equally important, the standard now discusses the business model overlay first.
Distressed debt purchases	The ED stated that distressed debt purchases cannot be recorded at amortised cost.	Many constituents did not agree with the ED's conclusion.	The Standard acknowledges that an asset acquired at a discount (reflecting incurred credit losses) is not in itself disqualified from being measured at amortised cost.
Concentrations of credit risk (investments in securitised debt)	The ED proposed that only the most senior tranche will be recorded at amortised cost and all other tranches at fair value.	Many constituents disagreed with the ED's form-driven approach and instead recommended an approach that requires a "look through" to underlying instruments.	The Standard now uses a look through approach.
Equity investments at fair value through OCI	For equity investments recognised in OCI, the ED proposed that dividends also be recorded through OCI, with no recycling to profit or loss upon disposal.	Some preparers asked the Board to consider one (or a combination) of the following: <ul style="list-style-type: none"> ▶ allow dividends to be recorded through profit or loss; ▶ define 'strategic' investments to narrow this category; or ▶ retain the current available-for-sale requirements, but modify impairment and allow reversals. 	The Standard confirms the proposal in the ED. However, the Standard requires dividends received from these investments to be recognised in profit or loss, unless they represent a recovery of part of the cost of investment (in which case the dividend is recognised in OCI). Fair value changes will be continue to be recognised in OCI, without recycling of gains and losses between profit or loss and OCI on disposal.
Unquoted equity instruments previously held at cost	The ED proposed to eliminate the current exception in IAS 39 and therefore require all equity instruments to be measured at fair value.	Some constituents argued that it is challenging to have to routinely estimate the fair value of such investments, and the cost would exceed the benefit of doing so.	The Standard eliminates the cost exception, and requires all equity instruments to be measured at fair value. However, additional guidance has been provided on how to determine fair value when there is little or no timely or relevant information, and 'when' cost might be representative of fair value.

Topic	Proposal as per the Exposure Draft	Constituents' response	Changes incorporated in IFRS 9
Own credit risk, embedded derivatives, financial liabilities	The ED proposed to remove the current requirement to separate embedded derivatives from host financial instruments if 'not closely related'.	<p>Constituents expressed concern that more liabilities (with non-basic loan features such as embedded derivatives) will need to be measured in their entirety at fair value through profit or loss, including the effect of changes in the fair value of own credit risk.</p> <p>Some constituents suggested that financial liabilities be deferred to another phase of the project in order to be able to give due consideration to the implications.</p>	<p>The Standard eliminates the requirement to separate embedded derivatives with respect to financial assets.</p> <p>With regard to own credit, the Board had tentatively agreed to require a frozen spread measurement for certain financial liabilities, but withdrew this decision due to concerns regarding the application of this measurement, interaction with the fair value option and convergence with FASB. The IASB has now excluded financial liabilities from Phase 1, but expects to address this issue in the near future.</p>
Reclassification	The ED proposed to prohibit reclassification between the amortised cost and fair value categories subsequent to initial recognition.	Many constituents believed that reclassifications should be required in some narrow circumstances, such as a change in business model.	The Standard requires reclassification to be made when an entity changes its business model, although such changes should be infrequent. Reclassification would be prohibited in all other circumstances.
Effective date and transition	The ED proposed full retrospective application of the new classification criteria.	<p>Many constituents asked for transition relief, similar to the transition relief provided for application of IAS 39 when entities converted to IFRS in 2005.</p> <p>Insurers had expressed concern that they may face particular issues in applying the ED's proposals before they apply the IFRS resulting from Phase 2 of the insurance standard.</p> <p>Several insurers requested the Board to retain the available-for-sale category and/or allow transitional relief or exempt them from the new standard.</p>	<p>Retrospective application is still required but comparative figures need not be restated if the new Standard is adopted before 2012.</p> <p>The Board expects the new insurance standard to be available before the mandatory adoption date for IFRS 9. Therefore it decided not to create a temporary exception for insurers by retaining the available-for-sale category. However, insurers may be given an option to reclassify some or all financial assets when they first apply the new insurance standard.</p> <p>The Board also decided not to make any consequential amendments to IFRS 4 relating to shadow accounting for insurance contracts or for financial instruments containing a discretionary participation feature.</p>

III FINANCIAL ASSET ACCOUNTING TREATMENT: KEY DIFFERENCES BETWEEN U.S. GAAP and IFRSs

1. OFFSETTING OF FINANCIAL ASSETS AND FINANCIAL LIABILITIES IN THE BALANCE SHEET

Under U.S. GAAP, entities follow the guidance in ASC 210-2088¹ and ASC 815-10-45-1 through 45-7⁸⁹ when considering whether it is appropriate to offset assets⁹⁰ and liabilities in the balance sheet.

⁸⁸ U.S. GAAP codification of accounting standards. Current rule applying to the Balance sheet:

- Current assets are reported separately from non-current assets;
- Current liabilities are reported separately from non-current liabilities.

Current assets are expected to be realized within a year or normal operating cycle, whichever is longer. Current liabilities are expected to liquidate within a year or normal operating cycle, whichever is longer.

Extraordinary items must be split in two categories: unusual nature and infrequency of occurrence.

While presentation criterions are as follows:

- Extraordinary items are presented separately in the income statement
- Earnings per share for extraordinary items presented in the income statement or in the notes

Note that the following items are "not" considered extraordinary items:

- Effects of a strike;
- Gains or losses from the abandonment of property, plant and equipment;
- Impairment of receivables and inventories;
- Foreign currency translation gains or losses;
- Gains or losses from the disposal of an entity's components.

Please see also: <http://cpaclass.com/gAAP-accounting-standards/gAAP-codification-asc-overview.htm>

⁸⁹ Codification Topic 815: Derivatives and Hedging Overview (<http://accountinginfo.com/financial-accounting-standards/asc-800/815-derivatives-hedging.htm>);

Codification Topic 810 : Consolidation (<http://accountinginfo.com/financial-accounting-standards/asc-800/810-consolidation.htm>);

Codification Topic 845: Non-monetary Transactions (<http://accountinginfo.com/financial-accounting-standards/asc-800/845-nonmonetary-transaction.htm>).

⁹⁰ Financial assets and financial liabilities are offset and the net amount reported in the consolidated balance sheet if, and only if, there is a currently enforceable legal right to offset the recognized amounts and there is an intention to settle on a net basis, or to realize the assets and settle the liabilities simultaneously.

While under IFRSs, entities face the same topic following IAS 32, *Financial Instruments: Presentation*.

There are some relevant key differences between U.S. GAAP and IFRSs regarding this topic and the table below summarizes such differences and is followed by a detailed explanation of each of them.

Subject	U.S. GAAP	IFRSs
Offsetting financial assets and financial liabilities in the balance sheet — elective nature	Entities are not required to set off financial assets and financial liabilities in the balance sheet even if the criteria for setoff are met; offsetting is elective.	Entities are required to set off financial assets and financial liabilities in the balance sheet when the criteria for setoff are met.
Offsetting certain assets and liabilities in the balance sheet — intent to set off	An entity may elect to offset fair value amounts for certain assets and liabilities subject to master netting agreements even in the absence of an intention to set off.	To qualify for offsetting, there must be intent to settle on a net basis or to realize the asset and settle the liability simultaneously. There is no exception for assets and liabilities subject to master netting agreements.
Offsetting amounts due from a third-party debtor against the amount due to a creditor	Offsetting of an amount due from a third-party debtor against the amount due to a different creditor is not permitted.	Offsetting of an amount due from a third party against the amount due to a different creditor is permitted in "unusual" circumstances.

U.S. GAAP and IFRSs generally provide similar guidance on determining whether it is appropriate to offset (i.e., net) financial assets and financial liabilities. Both sets of standards require an entity to determine:

- whether a legally enforceable right of setoff exists; and
- whether the entity intends to set off.

However, U.S. GAAP and IFRSs differ in how their respective offsetting guidance is applied. One difference is that the IFRS guidance on offsetting is not elective.

In accordance with paragraph 42 of IAS 32⁹¹, an entity applying IFRSs must offset when it currently has a legally enforceable right to set off the recognized amounts; and intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

⁹¹ A financial asset and a financial liability shall be offset and the net amount presented in the balance sheet when, and only when, an entity:

- currently has a legally enforceable right to set off the recognised amounts; and
- intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

While under U.S. GAAP, ASC 210-20-45-1 through 45-2 indicate that entities may, but are not required to, offset when the offset criteria are met. There are two exceptions to U.S. GAAP's general requirement that a reporting entity have the intent to set off when presenting an asset and a liability net in the balance sheet:

- ASC 815-10-45-5 provide an exception for "fair value amounts recognized for derivative instruments and fair value amounts recognized for the right to reclaim cash collateral (a receivable) or the obligation to return cash collateral (a payable) arising from derivative instrument(s) recognized at fair value executed with the same counterparty under a master netting arrangement."
- ASC 210-20-45-11 through 45-12 provides an exception for certain amounts recognized as payables under repurchase agreements or receivables under reverse repurchase agreements executed with the same counterparty under a master netting arrangement.

IFRSs, however, do not provide an exception to their "intends to settle on a net basis (or settle simultaneous)" requirement. The standard (IAS 32) indicates that "an entity may have a conditional right to set off recognised amounts, such as in a master netting agreement or in some forms of non-recourse debt, but such rights are enforceable only on the occurrence of some future event, usually a default of the counterparty. Thus, such an arrangement does not meet the conditions for offset."

Therefore, under IFRSs, a master netting arrangement does not provide a basis for offsetting unless an intent to set off or expectation of simultaneous settlement exists. Because a party to a master netting arrangement will often not be permitted to set off amounts recognized for derivative assets and derivative liabilities (and related cash collateral) or repurchase agreements and reverse repurchase agreements, except in the case of default, IFRSs will usually prohibit offset while U.S. GAAP will often permit it.

In addition, paragraph 45 of IAS 32 indicates the following: "in unusual circumstances, a debtor may have a legal right to apply an amount due from a third party against the amount due to a creditor provided that there is an agreement between the three parties that clearly establishes the debtor's right of set-off. As the right of set-off is a legal right, the conditions supporting the right may vary from one legal jurisdiction to another and the laws applicable to the relationships between the parties need to be considered.

Thus, under IFRSs, there may be unusual circumstances in which an entity is able to set off amounts due from a third-party debtor against amounts due to a different creditor. While U.S. GAAPs do not provide similar guidance: ASC 210-20-45-1 explicitly requires that the right of setoff exist between

In accounting for a transfer of a financial asset that does not qualify for derecognition, the entity shall not offset the transferred asset and the associated liability (see IAS 39, paragraph 36).

"each of two parties". Therefore, an entity applying U.S. GAAP is not permitted to set off amounts owed by a third-party debtor against an amount owed to a different creditor⁹².

2. EMBEDDED DERIVATIVES⁹³

Under U.S. GAAP, ASC 815⁹⁴ is the primary source of guidance on derivative instruments and hedging activities. Entities should also apply ASC 840 to determine whether a contract contains a lease or is a lease in its entirety, in which case the contract may be partially or wholly outside the scope of ASC 815.

Under IFRSs, IAS 39, Financial Instruments: Recognition and Measurement, is the actual primary source of guidance on derivative instruments and hedging activities. IAS 39 is also the primary source of guidance on recognition, derecognition, and measurement of all financial instruments.

IFRSs contain much less interpretive or implementation guidance than U.S. GAAPs do on the accounting for derivative instruments and hedging activities. Appendix A of IAS 39 and "Guidance on Implementing IAS 39 Financial Instruments: Recognition and Measurement" contain only limited application guidance. A secondary source of guidance that affects the scope of financial instruments accounted for as derivatives is IAS 32, Financial Instruments: Presentation. Certain derivative disclosures also are required by IFRS 7, Financial Instruments: Disclosures.

The table below gives a detailed analysis of the main differences existing between the two sets of standards. Subsequently some additional explanations are provided for each point disclosed in the table.

⁹² FASB Codification References:

- Primary Reference: 210-20;
- Secondary Reference: 815-10-45-1.

ASC 210-20 — 210 (Balance Sheet > 20 Offsetting);

ASC 210-20-45 — 210 (Balance Sheet > 20 Offsetting > 45 Other Presentation);

ASC 815-10-45 — 815 (Derivatives and Hedging > 10 Overall > 45 Other Presentation).

⁹³ This paragraph has not been updated for ASU 2010-11, Scope Exception Related to Embedded Credit Derivatives, which was issued in March 2010. This ASU is effective at the start of an entity's first fiscal quarter beginning after June 15, 2010; early adoption is permitted. In addition, this paragraph has not been updated for IFRS 9, Financial Instruments, which was issued in November 2009. An entity must adopt IFRS 9 for annual periods beginning on or after January 1, 2013; early adoption is permitted.

⁹⁴ See also: <http://accountinginfo.com/financial-accounting-standards/asc-800/815-derivatives-hedging.htm>

Subject	U.S. GAAP	IFRSs
Definition of a derivative and scope exceptions	One condition for separating an embedded derivative is that it must meet the definition of a derivative.	One condition for separating an embedded derivative is that it must meet the definition of a derivative. However, differences in the definition of a derivative and in the scope of derivative accounting between U.S. GAAP and IFRSs can lead to differences in conclusions about the accounting for embedded derivatives.
Hybrid contracts measured at fair value through earnings	Another condition for separating an embedded derivative is that the hybrid contract in which it is embedded must not be measured at fair value with changes in fair value reported in earnings.	Another condition for separating an embedded derivative is that the hybrid contract in which it is embedded must not be measured at fair value with changes in fair value reported in earnings. However, differences in the conditions that must be met to elect to carry hybrid contracts at fair value through earnings under U.S. GAAP and IFRSs can lead to differences in conclusions about whether separation of an embedded derivative in a hybrid contract is required.
Not clearly and closely related	A third condition for separating an embedded derivative is that its economic characteristics and risks must not be clearly and closely related to those of the host contract.	A third condition for separating an embedded derivative is that its economic characteristics and risks must not be closely related to those of the host contract. However, there are detailed application differences between IFRSs and U.S. GAAP related to items such as (1) puts, calls, and prepayment options; (2) embedded derivatives in purchase, sale, and service contracts; (3) insurance contracts; (4) caps and floors on interest rates; and (5) foreign currency features. Each of these items is discussed in more detail below.

Subject	U.S. GAAP	IFRSs
Embedded credit derivatives	Certain types of embedded credit derivatives associated with securitized financial assets and liabilities are exempt from bifurcation.	No similar exception.
Re-marketable put bonds	The issuer of a re-marketable put bond does not account for an attached call option to which it is not a party.	If the issuer of a re-marketable put bond could be required to participate in or facilitate the remarketing of the debt as a result of the exercise of an attached call option, the issuer would perform an analysis to determine whether the attached call option should be bifurcated as a term-extension option.
Multiple embedded derivatives	Multiple derivatives embedded in a single hybrid instrument are combined and measured as if they were a single, compound embedded derivative.	Multiple derivatives embedded in a single instrument are accounted for separately if they relate to different risk exposures and are "readily separable and independent of each other."

Subject	U.S. GAAP	IFRSs
Reassessment of embedded derivative status	An entity typically reassesses whether an embedded feature must be separated at least at the end of each reporting period.	Entities are not permitted to reassess whether an embedded derivative is required to be separated unless there is a change in the terms that significantly modifies the cash flows.
Presentation of embedded derivatives (combined with the host or separate)	Presentation of embedded derivatives is not explicitly addressed. However, Section I.M.3 of the SEC's Current Accounting and Disclosure Issues in the Division of Corporation Finance (as updated November 30, 2006) indicates, "Although bifurcated for measurement purposes, embedded derivatives should be presented on a combined basis with the host contract, except in circumstances where the embedded derivative is a liability and the host contract is equity."	AS 39 does not address whether an embedded derivative should be presented separately on the face of the financial statements.
Grandfathered contracts	Upon adoption of ASC 815, an entity was permitted to select January 1, 1998, or January 1, 1999, as its transition date for embedded derivatives. For an entity making such an election, embedded derivatives in pre-existing contracts, except those that are substantively modified after the transition date, are grandfathered from the bifurcation requirements.	AS 39 does not grandfather any pre-existing embedded derivatives. If a first-time adopter of IFRSs cannot reliably determine the initial carrying amounts of an embedded derivative and a host contract, it must treat the entire hybrid contract as a financial instrument held for trading.

Under both U.S. GAAP and IFRSs, one condition for separating an embedded derivative⁹⁵ from the host contract is that a separate instrument with the same terms as the embedded derivative must meet the definition of a derivative (ASC 815-15-25-1(c) and paragraph 11(b) of IAS 39).

⁹⁵ A component of a hybrid security that is embedded in a non-derivative instrument. An embedded derivative can modify the cash flows of the host contract because the derivative can be related to an exchange rate, commodity price or some other variable which frequently changes. For example, a Canadian company might enter into a sales contract with a Chinese company, creating a host contract. If the contract is denominated in a foreign currency, such as the U.S. dollar, an embedded foreign currency derivative is created. According to the International Financial Reporting Standards (IFRS), the embedded derivative has to be separated from the host contract and accounted for separately unless the economic and risk characteristics of both the embedded derivative and host contract are closely related.

As described in more detail in 815-10-15 (Q&A 01), U.S. GAAP and IFRSs do not use the same definition of a derivative.

For example, under U.S. GAAP, a derivative must have a notional amount or payment provision and must meet a net settlement criterion. Under IFRSs, however, a notional amount or payment provision is not required and there is no net settlement criterion; instead, settlement need only occur by a future date.

This could lead to differing conclusions about whether an embedded derivative exists. For instance, if an embedded conversion option in an investment in convertible debt meets the definition of a derivative except for the net settlement characteristic, it would not meet the definition of a derivative under U.S. GAAP but would meet the definition of a derivative under IFRSs.

In addition, U.S. GAAP and IFRSs have differing scope exceptions in accounting for derivatives. These scope exceptions also apply to embedded derivatives and thus could lead to differing conclusions about whether an embedded derivative requires bifurcation. These differences are discussed in more detail in 815-10-15.

In case of hybrid Contracts (Measured at Fair Value Through Earnings) ASC 815-15-25-1(b) under U.S. GAAP and paragraph 11(c) of IAS 39 under IFRSs both indicate that an embedded derivative cannot be separated from its host if the entire hybrid is carried at fair value with changes in fair value recognized in earnings.

However, U.S. GAAP and IFRSs differ regarding an entity's ability to elect the fair value option for hybrid instruments. In particular, an entity is not permitted to elect the fair value option for a hybrid contract under IAS 39 if the embedded derivative does not significantly modify the cash flows that otherwise would be required by the contract, unless the entity meets one of the other eligibility criteria for using the fair value option.

Therefore, in this situation an entity would not be eligible to use the fair value option under IFRSs (provided that none of the other criteria of the fair value option in paragraph 9 of IAS 39 are met) and would have to separate the embedded derivative from its host contract. Under U.S. GAAP, however, the entity could elect the fair value option for the entire hybrid contract.

In addition, U.S. GAAP ASC 815-15-25-1(a) indicates that an embedded derivative is only bifurcated and accounted for separately from its host contract when (among other criteria) "the economic characteristics and risks of the embedded derivative instrument are **not clearly and closely related** to the economic characteristics and risks of the host contract".

IFRSs (paragraph 11(a) of IAS 39) similarly indicate that an embedded derivative is only bifurcated and accounted for separately from its host contract when (among other criteria) "the economic characteristics and risks of the embedded derivative are **not closely related** to the economic characteristics and risks of the host contract".

While the phrases "not clearly and closely related" and "not closely related" convey a similar principle, there are application differences.

For instance, U.S. GAAPs have more detailed application guidance on some topics than IFRSs do. Thus, an entity may not necessarily reach the same conclusion under IFRSs as under U.S. GAAPs. IFRSs and U.S. GAAPs also differ in their guidance on how to apply the principle.

As an example of what just stated, under both U.S. GAAPs and IFRSs, contractual provisions that allow either party to terminate a debt instrument early and accelerate the repayment of the outstanding principal should be assessed to determine whether they must be separated as embedded derivatives⁹⁶.

Now under IFRSs, paragraph AG30(g) of IAS 39 indicates that these embedded derivatives are not closely related to the host debt contract unless the exercise price is approximately equal to the debt's amortized cost on each exercise date.

Under U.S. GAAP, ASC 815-15-25-40 states, "Call (put) options that can accelerate the repayment of principal on a debt instrument are considered to be clearly and closely related to a debt instrument that requires principal repayments unless both of the following conditions exist:

- The debt involves a substantial premium or discount (which is common with zero-coupon bonds, and
- The call (put) option is only contingently exercisable."

ASC 815-15-25-42 further clarifies that calls and puts are not clearly and closely related if the payoff amount is indexed to an underlying other than interest rates or credit risk. In addition, ASC 815-15-25-26 indicates that a put or call is not clearly and closely related to the debt host if

- "The hybrid instrument can contractually be settled in such a way that the investor would not recover *substantially all* of its initial recorded investment"; or
- "There is a possible future interest rate scenario under which the embedded derivative would at least double the investor's initial rate of return on the host contract and would at the same time result in a rate of return that is at least twice what otherwise would be the then-current market return for a contract that has the same terms as the host contract".

According to embedded derivatives in purchase, sale, and service Contracts (PSSC) under U.S. GAAP, if the pricing terms in a PSSC are not clearly and closely related to the asset being sold or purchased, the application of the normal purchases and sales exemption is precluded and thus the entire contract may have to be accounted for as a derivative⁹⁷. Under IFRSs, if the pricing terms are

⁹⁶ Examples of such provisions include call options of the issuer, put options of the holder, and prepayment features.

⁹⁷ See ASC 815-10-15-22 through 15-51 and ASC 815-15-15-4.

not closely related to the asset to be sold or purchased, such terms do not preclude an entity's application of the "own use" scope exception under paragraphs IN7 and 5–7 of IAS 39 (i.e., the IFRS equivalent of the U.S. GAAP normal purchase and normal sales scope exception) to the host contract. However, the pricing terms may require separation as an embedded derivative.

2.1 EMBEDDED DERIVATIVES WITHIN INSURANCE CONTRACTS

Paragraph AG33(h) of IAS 39 states, "*A derivative embedded in an insurance contract is closely related to the host insurance contract if the embedded derivative and host insurance contract are so interdependent that an entity cannot measure the embedded derivative separately (i.e., without considering the host contract).*" Because U.S. GAAP does not contain the same guidance, the conclusions reached under U.S. GAAP may be different from those reached under IFRSs.

In addition, the application guidance in U.S. GAAP and IFRSs on assessing embedded derivatives in insurance contracts sometimes differs⁹⁸.

⁹⁸ See Example 2 in Guidance on Implementing IFRS 4, Insurance Contracts, which illustrates the treatment of various types of embedded derivatives in insurance contracts under IFRSs. Under U.S. GAAP, entities should consider, for example, ASC 815-10-15-52, ASC 815-10-15-55 through 15-57, ASC 815-10-15-67, ASC 815-10-55-32 through 55-40, ASC 815-10-55-132 through 55-134, ASC 815-15-15-20 through 15-21, ASC 815-15-25-47, ASC 815-15-55-1 through 55-4, ASC 815-15-55-12, ASC 815-15-55-57 through 55-76, ASC 815-15-55-101 through 55-109, ASC 815-15-55-120 through 55-127, ASC 815-15-55-227 through 55-238, and ASC 944-815-25-1 through 25-6.

2.2 CAPS AND FLOORS ON INTEREST RATES⁹⁹

U.S. GAAP and IFRSs contain different guidance on evaluating whether caps and floors on interest rates are clearly and closely related to a debt host contract.

Paragraph AG33 (b) of IAS 39 states, "*An embedded floor or cap on the interest rate on a debt contract or insurance contract is closely related to the host contract*" unless:

- the cap or floor was "*in the money*"¹⁰⁰ when the contract was issued or

⁹⁹ An interest rate cap is a derivative in which the buyer receives payments at the end of each period in which the interest rate exceeds the agreed strike price. An example of a cap would be an agreement to receive a payment for each month the LIBOR rate exceeds 2.5%.

An interest rate cap is actually a series of European interest call options (called caplets), with a particular interest rate, each of which expire on the date the floating loan rate will be reset. At each interest payment date the holder decides whether to exercise or let that particular option expire. In an interest rate cap, the seller agrees to compensate the buyer for the amount by which an underlying short-term rate exceeds a specified rate on a series of dates during the life of the contract. Interest rate caps are used often by borrowers in order to hedge against floating rate risk. $(\text{Current market rate} - \text{Cap Rate}) \times \text{principal} \times (\# \text{ days to maturity}/360)$. An interest rate floor is a series of European put options or floorlets on a specified reference rate, usually LIBOR. The buyer of the floor receives money if on the maturity of any of the floorlets, the reference rate fixed is below the agreed strike price of the floor.

Floors are similar to caps in that they consist of a series of European interest put options with a particular interest rate, each of which expire on the date the floating loan rate will be reset. In an interest rate floor, the seller agrees to compensate the buyer for a rate falling below the specified rate during the contract period. A collar is a combination of a long (short) cap and short (long) floor, struck at different rates. The difference occurs in that on each date the writer pays the holder if the reference rate drops below the floor. Lenders often use this method to hedge against falling interest rates. $(\text{Floor rate} - \text{Current market rate}) \times \text{principal} \times (\# \text{ days to maturity}/360)$.

¹⁰⁰ Situation in which an option's strike price is below the current market price of the underlier (for a call option) or above the current market price of the underlier (for a put option). Such an option has intrinsic value. In other words be in the money means that a stock option is worth money and its owner can turn around and sell or exercise it. For example, if there is a call option on ABC stock with a strike price of \$12, and the price of the stock is sitting at \$15, the option is considered to be in the money. This is because the option gives the right to buy the stock for \$12 but it could immediately be sold for \$15, with a gain of \$3. If the owner paid \$3.50 for the call, then he wouldn't actually profit from the total trade, but it is still considered in the money.

- for a call option, when the option's strike price is below the market price of the underlying asset.
- for a put option, when the strike price is above the market price of the underlying asset.

- *"The cap or floor is leveraged in relation to the host contract"¹⁰¹.*

US GAAP (ASC 815-15-25-32) specifies that an embedded floor or cap on interest rates on a debt instrument is clearly and closely related to the host contract unless the contract could be contractually settled such that the investor would not recover substantially all its initially recorded investment or the embedded derivative could double the investor's initial rate of return and simultaneously result in a rate of return that is twice what otherwise would be the then-current market return.

2.3 FOREIGN CURRENCY FEATURES AND USE OF PARENT FUNCTIONAL CURRENCY WHEN HIGHLY INFLATIONARY

Under U.S. GAAP, ASC 815-15-15-10 states, in part:

"An embedded foreign currency derivative shall not be separated from the host contract and considered a derivative instrument under paragraph 815-15-25-1 if all of the following criteria are met:

- The host contract is not a financial instrument;
- The host contract requires payment(s) denominated in any of the following currencies:
 1. The functional currency of any substantial party to that contract,
 2. The currency in which the price of the related good or service that is acquired or delivered is routinely denominated in international commerce¹⁰²,
 3. The local currency of any substantial party to the contract, or
 4. The currency used by a substantial party to the contract as if it were the functional currency because the primary economic environment in which the party operates is highly inflationary¹⁰³;
- Other aspects of the embedded foreign currency derivative are clearly and closely related to the host contract."

Under IFRSs, paragraph AG33 (d) of IAS 39 states: "An embedded foreign currency derivative in a host contract that is an insurance contract or not a financial instrument (...) is closely related to the

Being in the money does not mean you will profit, it just means the option is worth exercising. This is because the option costs money to buy.

¹⁰¹ An insurance contract, lease, purchase contract or other financial instrument, such as debt or equity, that is combined with an embedded derivative to create a hybrid security. It is a non-derivative instrument. It is a non-derivative instrument used in business. The policyholder directs certain insurance premium investments in the investment account that includes equities. The investment account will also include bonds. Held in a separate account that is unique from the insurer's general account assets. This is not a derivative because of the unique attributes of the traditional variable annuity contracts issued by the insurance company.

¹⁰² For example, the U.S. dollar for oil transactions.

¹⁰³ As discussed in paragraph 830-10-45-11.

host contract provided, it is not leveraged, does not contain an option feature, and requires payments denominated in one of the following currencies:

- the functional currency of any substantial party to the contract;
- the currency in which the price of the related good or service that is acquired or delivered is routinely denominated in commercial transactions around the world (such as the U.S. dollar for crude oil transactions); or
- a currency that is commonly used in contracts to purchase or sell non-financial items in the economic environment in which the transaction takes place (e.g., a relatively stable and liquid currency that is commonly used in local business transactions or external trade)¹⁰⁴.

IAS 39 lacks the fourth exception (criterion 4. in the above quote from ASC 815) that exists under U.S. GAAP, which permits denomination of such payments in the *"currency used by a substantial party to the contract as if it were the functional currency because the primary economic environment in which the party operates is highly inflationary."* However, paragraph BC39 of IAS 39, states that *"an entity operating in a hyperinflationary economy may use a price list in a hard currency to protect against inflation, for example, an entity that has a foreign operation in a hyperinflationary economy that denominates local contracts in the functional currency of the parent."*

Note that under U.S. GAAP, ASC 815-10-15-30 indicates that if a non-financial contract contains an embedded foreign currency derivative that is not clearly and closely related, the entire contract does not qualify for the use of the normal purchases and normal sales scope exception such that it would have to be accounted for as a derivative provided that it meets the other criteria of a derivative as defined in ASC 815. IFRSs do not contain this provision; therefore, an embedded derivative may need to be separated while the host contract may be eligible for the "own use" scope exception and treated as an executory contract.

Moreover, note that under U.S. GAAP, ASC 830-10-45-11 requires that the financial statements of foreign subsidiaries in highly inflationary economies be re-measured as if the functional currency were the reporting currency.

In accordance with paragraph 14 of IAS 21, The Effects of Changes in Foreign Exchange Rates, IFRSs do not permit a foreign subsidiary with a highly inflationary functional currency to use the reporting currency of its parent only because it is operating in a highly inflationary economy. Therefore, when a subsidiary is operating in a highly inflationary economy, contracts denominated in the functional currency of the subsidiary's parent are not necessarily considered closely related under IFRSs.

¹⁰⁴ This exception in IAS 39 is worded more broadly than the exception in U.S. GAAP (3. above), which requires denomination of such payments in the "local currency of any substantial party to the contract.

3. HEDGE ACCOUNTING¹⁰⁵

Under U.S. GAAP, ASC 815-20, ASC 815-25, ASC 815-30, and ASC 815-35, are the primary sources of guidance on derivative instruments and hedge accounting.

Under IFRSs, paragraphs 71–102 and AG94–AG132 of IAS 39, Financial Instruments: Recognition and Measurement are the primary sources of guidance on derivative instruments and hedge accounting. Other hedge accounting guidance in IFRSs includes the illustrative examples in Appendix A of IAS 39 and Section F of "Guidance on Implementing IAS 39 Financial Instruments Recognition and Measurement."

The guidance in both U.S. GAAP and IFRSs discusses measuring certain hedging instruments at fair value and, in fair value hedge accounting, measuring hedged items at a fair-value-adjusted amount.

Both U.S. GAAP and IFRSs have general requirements for hedge accounting as well as requirements for specific types of hedging relationships¹⁰⁶.

¹⁰⁵ Practice in which a risky trading position and its hedge are treated as one item so that the gains in one automatically offset the losses in the other.

Many financial institutions and corporate businesses (entities) use derivative financial instruments to hedge their exposure to different risks (for example interest rate risk, foreign exchange risk, commodity risk, etc).

Accounting for derivative financial instruments under International Accounting Standards is covered by IAS39 (Financial Instrument: Recognition and Measurement).

IAS39 requires that all derivatives are marked-to-market with changes in the mark-to-market being taken to the profit and loss account. For many entities this would result in a significant amount of profit and loss volatility arising from the use of derivatives.

An entity can mitigate the profit and loss effect arising from derivatives used for hedging, through an optional part of IAS39 relating to hedge accounting.

There are three different types of hedge accounting:

- Cashflow Hedging
- Fair Value Hedging
- Hedge of a Net Investment

The aim of hedge accounting is to provide an offset to the mark-to-market movement of the derivative in the profit and loss account. For a fair value hedge this is achieved either by marking-to-market an asset or a liability which offsets the P&L movement of the derivative. For a cashflow hedge some of the derivative volatility into a separate component of the entity's equity called the cashflow hedge reserve.

Where a hedge relationship is effective (meets the 80%–125% rule), most of the mark-to-market derivative volatility will be offset in the profit and loss account.

To achieve hedge accounting requires a large amount of compliance work involving documenting the hedge relationship and both prospectively and retrospectively proving that the hedge relationship is effective.

However, as a general rule U.S. GAAP provide significantly more detailed guidance than IFRSs do on issues that are sometimes highly technical and not broad-based.

Note also that the following highlights significant **currently existing** differences between U.S. GAAP and IFRSs. Both the IASB and the FASB have projects under consideration that ultimately may affect the information in this paragraph. The table below summarizes these differences and is followed by a detailed explanation.

Subject	U.S. GAAP
<i>Requirements Applicable to All Hedges</i>	
Frequency of assessing hedge effectiveness	Required every time financial statements or earnings are reported, and at least every three months (ASC 815-20-25-79(b) and ASC 815-20-35-2).
Assessing effectiveness of hedging relationships that use an option as a hedging instrument	An entity may exclude components of time value from an effectiveness assessment (ASC 815-20-25-82).
Designation of hedging instrument	An entity is prohibited from separating a compound derivative into different risk components that are designated as hedging instruments (ASC 815-20-25-71(a)(2)).
Hedgeable risks for hedges of financial instruments (including, in U.S. GAAP, a recognized loan servicing right or a non-financial firm commitment with financial components)	Must be one or a combination of the following (ASC 815-20-25-12(f) and ASC 815-20-25-15(j)): <ul style="list-style-type: none"> · Interest rate risk. · Credit risk. · Foreign exchange risk. · Overall changes in fair value or cash flows.
Hedgeable risks for hedges of non-financial items (except, in U.S. GAAP, those noted above)	An entity may hedge overall changes in fair value or cash flows for an entire item. For cash flow hedges, the foreign exchange risk also can be designated as the hedged risk (ASC 815-20-25-12(e) and ASC 815-20-25-15(i)).
Shortcut method	Allowed for hedging relationships involving an interest rate swap and an interest-bearing financial instrument that meet specific requirements (ASC 815-20-25-102 through 25-117).
Written options as hedged items	Permitted if the combination of the hedged item and the written option provides at least as much potential for gains as exposure to losses (ASC 815-20-25-94).
Foreign currency hedging	Either the operating unit that has the foreign currency exposure or another unit with the same functional currency as the operating unit must be a party to the hedging instrument (ASC 815-20-25-30).
<i>Requirements Applicable to Fair</i>	

¹⁰⁶ For example a fair value hedge or a cash flow hedge, including foreign currency hedges, or a hedge of a net investment in a foreign operation.

Subject	U.S. GAAP
<i>Value Hedges</i>	
Fair value hedges of servicing rights and non-financial firm commitments with financial components	Permit recognized loan servicing rights and non-financial firm commitments with financial components to be hedged for the same risks as financial assets and financial liabilities (ASC 815-20-25-12(e) through 25-12(f)).
Held-to-maturity securities as a hedged item	Changes in total fair value of a prepayment option embedded in a held-to-maturity security can be designated as a hedged risk. Interest rate risk cannot be designated as the hedged risk (ASC 815-20-25-12(d)).
Partial-term hedging (when hedged item has longer term)	Not explicitly prohibited; however, hedging relationships generally will not be highly effective (ASC 815-20-55-5 through 55-8).
Measurement of fair value changes in hedged item that are attributable to changes in the benchmark interest rate	For a fair value hedge, all contractual cash flows must be included when changes in fair value attributable to changes in the benchmark interest rate are calculated (ASC 815-25-35-13).
Firm commitment to acquire a business in a business combination as a hedged item	Cannot be designated as a hedged item (ASC 815-20-25-43(c)(5)).
Non-derivative financial instruments as hedging instruments	Can only be designated as hedging changes in fair value of an unrecognized firm commitment (or a portion thereof) attributable to foreign exchange risk (ASC 815-20-25-58).
Portfolio hedge of interest rate risk	Portfolio hedges are permitted if individual items have generally proportionate exposure to hedged risk as the entire portfolio. A currency amount cannot be designated as the hedged item (ASC 815-20-25-12(b)(1)).
<i>Requirements Applicable to Cash Flow Hedges</i>	
Using a hedging instrument to modify variable rates	In certain circumstances, an entity is permitted to use a hedging instrument to modify interest receipts or payments from one variable rate to another in a hedge of both an asset and a liability (ASC 815-20-25-50).
Non-derivative financial instruments as hedging instruments	Cannot be designated as hedging instruments in a cash flow hedge (ASC 815-20-25-71(a)(1) and 25-71(c)(1)).
Basis adjustments when discontinuing a cash flow hedge involving a non-financial asset or non-financial liability	Amounts in accumulated other comprehensive income must be reclassified into earnings in the same period(s) in which the hedged forecasted transaction affects earnings (ASC 815-30-35-38).
Foreign currency cash flow hedge with an internal derivative	Permitted in consolidated financial statements if certain conditions are met (ASC 815-20-25-61).
Foreign currency cash flow hedge of a recognized asset or	All variability in hedged item's functional-currency-equivalent cash flows must be eliminated by hedge (e.g., in a cash flow hedge of variable-rate foreign-currency-denominated debt) (ASC 815-20-25-39(d)).

Subject	U.S. GAAP
liability	
Consideration of option's terminal value in the assessment and measurement of hedge effectiveness	An entity may focus on a purchased option's terminal value (i.e., its expected future payoff amount at maturity) in determining whether the hedging relationship is expected to be highly effective, when (1) it is documented that the assessment of effectiveness is based on total changes in the option's cash flows and (2) certain other criteria are met. Also, an entity may assume no ineffectiveness if additional criteria are met (ASC 815-20-25-126 through 25-129).
Forecasted transaction whose occurrence is no longer probable	The cumulative gain or loss on a derivative should remain in accumulated other comprehensive income unless it becomes probable that the forecasted transaction will not occur by the end of the originally specified period or within an additional two-month period (ASC 815-30-40-4).
Change in variable cash flows method for measuring ineffectiveness	Permitted as long as the fair value of the hedging swap is "at or somewhat near zero" at hedge inception (ASC 815-30-35-13 through 35-14).
<i>Requirements Applicable to Net Investment Hedges</i>	
Compound derivatives with multiple underlyings as the hedging instrument	An entity may not designate a cross-currency interest rate swap with one fixed-rate leg and one floating-rate leg as the hedging instrument in a hedge of a net investment (ASC 815-20-25-68A).
Permissible hedged exposures	A parent that has a functional currency different from that of its first-tier subsidiary may not hedge a net investment of that first-tier subsidiary in a second-tier subsidiary (ASC 815-20-25-27).
Where the hedging instrument can be held	Either (1) the operating unit that has the foreign currency exposure must be a party to the hedging instrument or (2) another member of the consolidated group that has the same functional currency as that operating unit must be a party to the hedging instrument, provided that there is no intervening subsidiary with a different functional currency (ASC 815-20-25-30).

3.1 REQUIREMENTS APPLICABLE TO ALL HEDGES

3.1.1 Frequency of assessing hedge effectiveness¹⁰⁷

¹⁰⁷ The extent to which a hedge transaction results in the offsetting changes in value or cash flow that the transaction was and is intended to provide. FAS 133 requires users to regularly assess the effectiveness of hedges. Furthermore, under FAS 133 only the portion of a transaction that is deemed effective may qualify for hedge accounting treatment.

Statement 133 (FAS 133 or SFAS 133) establishes accounting and reporting standards for derivative instruments, including certain derivative instruments embedded in other contracts and for hedging activities. Released in June 1998, FAS 133 represents the culmination of the US Financial Accounting Standards Board's nearly decade-long effort to develop a comprehensive framework for derivatives and hedge accounting. The Financial Accounting Standards Board establishes generally accepted accounting principles for most companies operating in the United States or requiring financial statements meeting US GAAP (see FASB site for more).

Under FAS 133, any part of fair value changes in a derivative that are not perfectly correlated with the fair value (or variable cash flow) changes of the hedged item must be reported in current earnings. FAS 133 does not delineate a specific methodology for assessing whether a hedge is expected to be highly effective or for measuring hedge ineffectiveness. Hedge effectiveness is a very broad concept, and FASB believes each company must define it relative to the intent of its hedging activities. The only requirement is that there be a reasonable basis for assessing hedge effectiveness. The focus on hedge effectiveness in FAS 133 contributes to a significant difference between previous practice and the new accounting standard. Whereas the earnings effect of minor hedge ineffectiveness was spread over the life of the hedge in the past, the FAS 133 rules result in anything other than perfect correlation being recorded in current earnings. Thus under FAS 133 there is the potential (and even likelihood) that hedges may have both an effective component and an ineffective component even for a highly effective hedge. The fact that some portion of a derivative is ineffective does not preclude a hedge from being deemed highly effective.

Hedge effectiveness is the test applied to a hedging instrument to ascertain whether it will be eligible for hedge accounting. Hedge accounting allows a hedging instrument (normally a derivative) to be exempt from the mark-to-market requirement of FAS 133 and IAS 39, instead the instrument is carried on the balance at its fairmarket value but the gains and losses are instead posted to reserves and not to the Income Statement.

There are two types of hedge – cash flow hedge and fair value hedge. A cash flow hedge matches cash flows from an instrument with predictable cash flows from a hedging instrument. A fair value hedge matches the changes in fair value in the underlying instrument with the changes in fair value of the hedging instrument.

To qualify for hedge accounting a hedging effectiveness of 0.80 – 1.25 is normally required. This hedge effectiveness is calculated by performing a regression analysis on the underlying instrument and the hedge.

Paragraph AG106 of IAS 39 requires an entity to assess a hedging relationship's effectiveness at least whenever it prepares its annual or interim financial statements. There is no requirement in IFRSs to prepare interim financial statements. For example, in some countries, entities that apply IFRSs may only issue financial statements every six months.

ASC 815-20-25-79(b) and ASC 815-20-35-2 require entities that apply U.S. GAAP to assess effectiveness every time financial statements are issued, and at least every three months.

In addition paragraph 74 of IAS 39 permits an entity to exclude the time value of an option contract and to designate only the change in the option's intrinsic value as the hedging instrument. IFRSs do not address whether an entity is permitted to exclude components of time value from hedge effectiveness assessments.

US GAAP (ASC 815-20-25-82- a) also permits an entity to exclude the change in an option's time value from hedge effectiveness assessments; however, ASC 815-20-25-82- c further clarifies that an entity may exclude components of time value from hedge effectiveness assessments.

3.1.2 Designation of hedging instrument

IAS 39 states, "*A single hedging instrument may be designated as a hedge of more than one type of risk provided that:*

- *The risks hedged can be identified clearly; (b) the effectiveness of the hedge can be demonstrated; and*
- *it is possible to ensure that there is specific designation of the hedging instrument and different risk positions."*

Thus, for example, IAS 39 shows that equal and opposite functional currency legs of a dual foreign currency forward contract can be treated as two different hedging instruments.

US GAAP¹⁰⁸ notes that "*an entity is prohibited from separating a compound derivative into components representing different risks and designating any such component as the hedging instrument.*" Thus, it is possible that certain qualifying hedging instruments under IFRSs could not be designated as hedging instruments under U.S. GAAP.

Derivatives ONE provides a free set of tool which can assist in the calculation of hedge effectiveness by valuing a range of cash flow instruments (such as interest rate swaps) and a wide range of derivative instruments.

¹⁰⁸ ASC 815-20-25-71(a) (2)

3.1.3 Hedgeable risks¹⁰⁹

¹⁰⁹ As investors became more sophisticated, along with the mathematical tools used to calculate values (known as models), the types of hedges have increased greatly.

Examples of hedging include:

- Forward exchange contract for currencies
- Currency future contracts
- Money Market Operations for currencies
- Forward Exchange Contract for interest (FRA)
- Money Market Operations for interest
- Future contracts for interest

This is a list of hedging strategies, grouped by category.

In addition for financial derivatives such as call and put positions the following options are available:

- Risk reversal: Simultaneously buying a call option and selling a put option. This has the effect of simulating being long a stock or commodity position.
- Delta neutral: This is a market neutral position that allows a portfolio to maintain a positive cash flow by dynamically re-hedging to maintain a market neutral position. This is also a type of market neutral strategy.

However many hedges do not involve exotic financial instruments or derivatives such as the married put. A natural hedge is an investment that reduces the undesired risk by matching cash flows, i.e. revenues and expenses.

One of the oldest means of hedging against risk is the purchase of insurance to protect against financial loss due to accidental property damage or loss, personal injury, or loss of life.

There are different categories of hedgeable risk:

- Volatility risk: the likelihood of fluctuations in the exchange rate of currencies. Therefore, it is a probability measure of the threat that an exchange rate movement poses to an investor's portfolio in a foreign currency. The volatility of the exchange rate is measured as standard deviation over a dataset of exchange rate movements.
- Interest rate risk: the risk that the relative value of an interest-bearing liability, such as a loan or a bond, will worsen due to an interest rate increase. Interest rate risks can be hedged using fixed-income instruments or interest rate swaps.
- Equity: the risk (or sometimes reward), for those whose assets are equity holdings, that the value of the equity falls.
- Securities lending: hedged portfolio stock secured loan financing is a form of individual portfolio risk reduction that typically results in a limited recourse loan.

Futures contracts and forward contracts are means of hedging against the risk of adverse market movements.

Hedging credit risk - Credit risk is the risk that money owing will not be paid by an obligor. Since credit risk is the natural business of banks, but an unwanted risk for commercial traders, an early

When the Hedged Item is a financial asset or financial liability IAS 39 does not explicitly enumerate the types of risks that can be designated as being hedged in a hedging relationship in which the hedged item is a financial asset or liability.

Paragraph 81 of IAS 39 permits the financial asset or financial liability to "*be a hedged item with respect to the risks associated with only a portion of its cash flows or fair value (...) provided that effectiveness can be measured*". It is also clarified that inflation may only be hedged when changes in inflation are a contractually specified portion of cash flows of a recognized financial instrument.

When describing the risks that can be hedged when the hedged item is a financial asset or financial liability ASC 815-20-25-12(f) and ASC 815-20-25-15(j) permit only the following risks, either individually or in combination, to be designated as the hedged risk:

- Interest rate risk (attributable to changes in the designated benchmark rate)

market developed between banks and traders that involved selling obligations at a discounted rate. Hedging currency risk - Currency hedging (also known as Foreign Exchange Risk hedging) is used both by financial investors to parse out the risks they encounter when investing abroad and by non-financial actors in the global economy for whom multi-currency activities are a necessary evil rather than a desired state of exposure.

The financial investor may be a hedge fund that decides to invest in a company but does not want to necessarily invest in local currency. The hedge fund can separate out the credit risk (i.e. the risk of the company defaulting), from the currency risk by "hedging" out the currency risk. Hedging allows the investor to transfer the currency risk to someone else who wants to take up a position in the currency. The hedge fund has to pay this other investor to take on the currency exposure, similar to insuring against other types of events.

As with other types of financial products, hedging may allow for economic activity that would otherwise not have been possible. The increased investment is assumed in this way to raise economic efficiency.

Hedging equity and equity futures - Equity in a portfolio can be hedged by taking an opposite position in futures. To protect your stock picking against systematic market risk, you short futures when you buy equity, or long futures when you short stock.

One way to hedge is the market neutral approach. In this approach, an equivalent dollar amount in the stock trade is taken in futures.

Another way to hedge is the beta neutral. Beta is the historical correlation between a stock and an index.

Futures hedging - Investors who primarily trade in futures may hedge their futures against synthetic futures. A synthetic in this case is a synthetic future comprising a call and a put position. Long synthetic futures means long call and short put at the same expiry price. So if you are long futures in your trade you can hedge by shorting synthetics, and vice versa.

Contract for difference - A contract for difference (CFD) is a two-way hedge or swap contract that allows the seller and purchaser to fix the price of a volatile commodity.

- Credit risk
- Foreign exchange risk
- Overall changes in fair value or cash flows.

Although U.S. GAAPs permit:

- a hedged item to be "*all or a specific portion of a recognized asset or liability or of an unrecognized firm commitment*" (fair value hedge) and
- partial-term hedges (cash flow hedge, provided that effectiveness can be demonstrated),

U.S. GAAPs do not permit entities to hedge risks other than those explicitly noted in the standard.

This could create differences between an entity that applies U.S. GAAP and one that applies IFRSs.

For example, under current IFRSs, an entity could choose to hedge changes in the fair value of a financial asset that are attributable to changes in a particular interest rate, such as a bank's prime rate, benchmark interest rate, or risk-free rate, if the risk is identifiable and measurable, whereas U.S. GAAP would require the entity to hedge either changes in fair value attributable to changes in the benchmark interest rate or overall changes in fair value.

When the hedged item is a non-financial asset or non-financial liability, paragraph 82 of IAS 39 restricts the risks that can be hedged. It permits such assets or liabilities to be the hedged item only for foreign currency risks or in its entirety for all risks.

Therefore IFRSs do not permit an entity to designate portions of risks or other types of risks when the hedged item is a non-financial asset or non-financial liability.

For cash flow hedges, ASC 815-20-25-15 (i), like IAS 39, permits entities to hedge the overall changes in cash flows, or risks associated with changes in foreign exchange rates, when hedging a forecasted purchase or a sale of a non-financial asset.

However, for fair value hedges of a non-financial asset or non-financial liability, ASC 815-20-25-12 (e) permits an entity to designate only the overall changes in fair value, not foreign currency risks, as the risk being hedged.

3.1.3 Shortcut method¹¹⁰

¹¹⁰ FASB adopted FAS 133 because there were some high-profile derivative cases in the press. There were some concerns of transparency and what people were doing with derivatives. FASB wanted to have some increased transparency and put in place a framework for how people account for derivatives and make it more consistent. A big piece of that was hedging.

Using the shortcut method vastly simplifies the necessary calculations involved in hedge accounting, as it assumes that the change in value of the swap is a 'perfect proxy' for the change in value of the hedged item, thereby resulting in no income statement volatility, according to FASB. Companies do not like volatility in income statements so originally the shortcut method was intended to apply to plain vanilla hedges of interest-rate risk using interest-rate swaps. There are a dozen conditions all together, and a good many companies have restated because of failure of the company to follow the exact requirements of the shortcut method.

Essentially, the shortcut method allows a company to assume that a hedge relationship through a derivative is 100 percent effective and there is no ineffectiveness. This shortcut method or assumption of no ineffectiveness is very important because it simplifies computations needed to make entries as there are no entries to be made.

If entities do not meet the criteria that would allow them to apply the shortcut method to determine hedge accounting, they must use what some refer to as the "long-haul" method. As its name implies, more work is involved in this method for determining hedge accounting.

The use of the long-haul method requires periodic evaluation of the effectiveness of the hedge and recording income of gains and losses related to the hedge ineffectiveness.

Companies sometimes choose to, or can be required to, use fair value to avoid the complexities of hedge accounting altogether.

The shortcut method requires that all aspects of the hedge match exactly. If the shortcut method applies, then it is assumed that the hedge is effective and the company does not have to evaluate effectiveness at every reporting date. Issues have arisen because, in a number of cases, the company assumed that the hedge was a perfect match and it was not, but it was not clear what was meant by a perfect match.

Preparers, auditors and regulators have found several other issues within FAS 133 that were unclear in implementation. One issue that FASB seeks to clarify is determining if the shortcut method is applicable if minor differences exist between the fair value of the hedge and the hedged item at the settlement date.

When the settlement of an interest-bearing asset or liability occurs several days after the related swap has been issued, the par value could differ from the fair value and the swap would not have a zero fair value. However the Board determined that these narrow market realities should not disqualify use of the shortcut method.

That is what FASB wanted the shortcut method to be there for. The issue also clarifies confusion on meeting the requirements of FAS 133 and FAS 157's requirement for an exit price on fair-value measurements.

IFRSs do not permit the use of the shortcut method for assessing hedge effectiveness. Under paragraph AG106 of IAS 39, effectiveness must be assessed whenever the entity prepares its interim or annual financial statements.

Under U.S. GAAP, the use of a shortcut method for assessing effectiveness is permitted as long as specific criteria are met in the hedging relationship. ASC 815-20-25-102 through 25-117 lists the specific eligibility requirements for applying the shortcut method. When an entity is eligible for, and applies, the shortcut method, it assumes that the hedging relationship has no ineffectiveness.

3.1.4 Written options as hedged items

Because a written option¹¹¹ provides a significantly greater potential for loss than gain, paragraph AG94 of IAS 39 does not permit an entity to designate a written option as a hedging instrument *"unless it is designated as an offset to a purchased option, including one that is embedded in another financial instrument."* IAS 39, IG.F.1.3, provides guidance on determining whether a combination of options is a written option.

US GAAP is a little more lenient in permitting a written option to be designated as a hedging instrument. ASC 815-20-25-94 permits an entity to designate a written option as a hedging instrument as long as *"the combination of the hedged item and the written option provides at least as much potential for gains as a result of a favourable change in the fair value of the combined instruments (favourable cash flows) as exposure to losses from an unfavourable change in their combined fair*

FAS 133 required that the fair value of an interest-rate swap at the inception of the hedge be zero. FAS 157 requires the company to use the exit price on day one to value a swap. If there are differences in the bid-ask price in the primary market, there might be a difference between the transaction price and the fair value.

FASB determined that this would not preclude use of the shortcut method as long as the transactions are at market with no embedded financing in the terms of the swap.

However the shortcut method cannot be applied when a hedge of a zero-coupon financial instrument is the hedged item, according to the proposal, because the interest rate swap contains a financing element and thus fails paragraph 68(e)(1) since it invalidates the assumption of no ineffectiveness.

¹¹¹ It is an option that is not owned through an opening sale transaction. While this position remains open, the writer is subject to fulfilling the obligations of that option contract; i.e., to sell stock (in the case of a call) or buy stock (in the case of a put) if that option is assigned. An investor who so sells an option is called the writer, regardless of whether the option is covered or uncovered.

The writer is then the seller of an option contract who is obligated to meet the terms of delivery if the option owner exercises his or her right. Such seller has made an opening sale transaction, and has not yet closed that position.

value (unfavourable cash flows)." ASC 815-20-25-87 through 25-97 also describes the test that an entity must perform to show that the written option meets the requirement and provides guidance on determining when an instrument is a written option.

3.1.5 Foreign currency hedging

IAS 39, IG.F.2.14, states "*IAS 39 does not require that the operating unit that is exposed to the risk being hedged be a party to the hedging instrument.*"

ASC 815-20-25-30 lists two criteria that must be satisfied by the hedging instrument before a relationship can qualify as either a foreign currency fair value hedge, a foreign currency cash flow hedge, or a hedge of a net investment in a foreign operation. One criterion is satisfied if either the operating unit that has the foreign currency exposure is a party to the hedging instrument or another member of the consolidated group that has the same functional currency as that operating unit is a party to the hedging instrument and there is no intervening subsidiary with a different functional currency.

3.2 REQUIREMENTS APPLICABLE TO FAIR VALUE HEDGES

3.2.1 Fair value hedges of servicing rights and non-financial firm commitments with financial components

Both IFRSs and U.S. GAAP limit the risks that can be hedged in hedging relationships in which the hedged item is a non-financial asset or non-financial liability.

Paragraph 82 of IAS 39 states that the only risk that can be hedged in such hedging relationships is the foreign currency risk or the entirety of all risks (i.e. total changes in cash flows or fair value) and IAS 39 does not provide any exceptions to this principle.

ASC 815-20-25-12(e) limits the hedged risk in fair value hedges of non-financial assets or non-financial liabilities to only the risk of changes in the fair value of the entire hedged asset or liability. ASC 815-20-25-12(e) through 25-12(f) provides an exception to this rule for a fair value hedging relationship in which the hedged item is either a recognized loan servicing right or a non-financial firm commitment with financial components. For such relationships, the risks that can be hedged are the same as those that can be hedged in relationships involving financial assets and financial liabilities; therefore, the risks that can be hedged for these non-financial items are not limited to changes in total fair value (e.g., interest rate risk also could be designated as the hedged risk).

3.2.2 Held-to-maturity securities as hedged item

Paragraph 79 of IAS 39 does not permit a held-to-maturity investment to be a hedged item with respect to interest rate risk or prepayment risk. However, IAS 39 permits an entity to designate a held-to-maturity investment as a hedged item for exposures arising from changes in foreign currency

exchange rates or credit risk. Note that the existence of terms that permit the holder to require prepayment of the debt instrument will limit the ability to designate the instrument as held-to-maturity in the first place (paragraph AG19 of IAS 39).

Under U.S. GAAP, ASC 815-20-25-12(d) also permits an entity to hedge the changes in fair value of a held-to-maturity security that are attributable to changes in the foreign currency exchange rates or credit risk and prohibits hedging changes arising from interest rate risk. ASC 815-20-25-12(d) also permits an entity to designate the option component of a held-to-maturity security that permits its prepayment as the hedged item in a fair value hedge. The hedged risk in such a relationship must be the total changes in the fair value of the option component. ASC 815-20-25-12(e) cautions, however, that "*if the hedged item is other than an option component of a held-to-maturity security that permits its prepayment, the designated hedged risk also shall not be the risk of changes in its overall fair value.*" IFRSs do not permit this designation.

3.2.3 Partial-term hedging (when hedged item has longer term)

IAS 39, IG.F.2.17, states a financial instrument may be a hedged item for only a portion of the period to maturity during which the hedged item is outstanding. For example, according to IG.F.2.17, an entity could designate a five-year pay-fixed, receive-floating swap as hedging both the fair value exposure of the interest rate payments on a 10-year fixed rate government bond until year 5 and the change in value of the principal payment due at maturity in year 10 to the extent affected by changes in the yield curve relating to the five years of the swap.

Although partial-term hedging is not specifically prohibited under U.S. GAAP, ASC 815-20-55-7 and 55-8 show that it would be unlikely that a hedging relationship that uses a hedging instrument with a shorter term and the same notional amount as the hedged item would be highly effective.

Moreover, ASC 815-20-55-5 notes that for such a relationship to be effective, a principal repayment on the hedged item equal to the notional amount of the hedging instrument must be expected to occur at the end of the term of the hedging instrument. Otherwise, the relationship would not be expected to be highly effective. Therefore, partial-term hedging when the hedged item has a longer term than the hedging instrument would be less likely to qualify for hedge accounting under U.S. GAAP than under IFRSs.

Note that the ability to partial-term-hedge when the hedged item has a longer maturity is only permissible under IFRSs when the hedged item is a financial item. Partial-term hedging a non-financial item is not permitted since this would breach the requirement in IFRSs that a non-financial item may only be hedged for foreign currency risk or all risks.

3.2.4 Measurement of fair value changes in hedged item that are attributable to changes in the benchmark interest rate

Paragraph 81 of IAS 39 permits "*an identifiable and separately measurable portion of the interest rate exposure of an interest-bearing¹¹² asset or interest-bearing liability to be designated as the hedged risk*" when the hedged item is a financial asset or financial liability.

Accordingly, measurement of the change in fair value attributable to changes in the designated interest rate risk would not need to be based on all of the contractual cash flows. Instead, measurement of the change in fair value may be based on a defined portion of the interest rate cash flows of the hedged financial asset or financial liability.

For fair value hedges of financial assets and financial liabilities, ASC 815-25-35-13 limits hedges of interest rate risk to risks attributable to changes in the benchmark interest rate, as defined. Additionally in calculating the change in the hedged item's fair value attributable to changes in the benchmark interest rate, the estimated cash flows used in calculating fair value shall be based on all of the contractual cash flows of the entire hedged item.

3.2.5 Non-derivative financial instruments as hedging instruments

Paragraph 72 of IAS 39 permits an entity to designate a non-derivative financial asset or non-derivative financial liability as a hedging instrument when hedging foreign currency risk. Otherwise, the hedging instrument must be a derivative.

Under U.S. GAAP, ASC 815-20-25-58 permits an entity to use a non-derivative financial instrument that may "*give rise to a foreign currency transaction gain or loss under ASC 830*" as a hedging instrument in a fair value hedge only when "*hedging changes in the fair value of an unrecognized firm commitment, or a specific portion thereof, attributable to foreign currency exchange rates.*" Otherwise, a non-derivative financial instrument may not be designated as a hedging instrument in a fair value hedge.

3.2.6 Portfolio hedge of interest rate risk

Both IFRSs and U.S. GAAP permit an entity to designate a portfolio of similar financial assets and financial liabilities as a hedged item as long as the individual assets and liabilities within that portfolio share the risk exposure for which they are being hedged. ASC 815-20-25-12(b) (1) provides quantitative guidance on how to determine whether assets or liabilities within a portfolio are similar; IAS 39 does not provide comparable guidance.

Paragraphs 81A, 89A, and AG114–AG131 of IAS 39 provide a special hedge accounting method for "a fair value hedge of the interest rate exposure of a portfolio of financial assets or financial

¹¹² That pays interests.

liabilities." This method allows the hedged item to be designated as an amount of a currency (e.g., an amount of U.S. dollars or euros) instead of as individual assets or liabilities. However, this amount must be an amount of assets or an amount of liabilities. Additionally an entity is not permitted to designate a net amount.

U.S. GAAP do not allow a currency amount to be designated as the hedged item in a fair value hedge of a portfolio of similar assets or liabilities.

3.3 REQUIREMENTS APPLICABLE TO CASH FLOW HEDGES

3.3.1 Using a hedging instrument to modify variable rates

ASC 815-20-25-50 permits an entity to use a cash flow hedging strategy in which a "*hedging instrument is used to modify the interest receipts or payments associated with a recognized financial asset or liability from one variable rate to another variable rate*" as long as the hedging instrument is a link between an existing designated asset and an existing designated liability (or groups of similar assets and liabilities), each of which has variable cash flows. In addition, the relationship must be highly effective at offsetting cash flows.

ASC 815-20-25-51 notes that a link exists if "*the basis (that is the rate index on which the interest rate is based) of one leg of an interest rate swap is the same as the basis of the interest receipts for the designated asset and the basis of the other leg of the swap is the same as the basis of the interest payments for the designated liability.*"

IFRSs do not contain equivalent guidance.

3.3.2 Non-derivative financial instruments as hedging instruments

Paragraph 72 of IAS 39 permits an entity to use a non-derivative financial asset or non-derivative financial liability as a hedging instrument when hedging foreign currency risk. Otherwise, the hedging instrument must be a derivative.

ASC 815-20-25-71(a)(1) and 25-71(c)(1) prohibit an entity from designating a non-derivative instrument as a hedging instrument in a cash flow hedge, including a foreign currency cash flow hedge.

3.3.3 Basis adjustments when discontinuing a cash flow hedge involving a non-financial asset or non-financial Liability

When a cash flow hedge of a forecasted transaction results in the recognition of a non-financial asset or a non-financial liability or it becomes a firm commitment to which fair value hedge accounting is applied, an entity must be able to remove from equity the accumulated gains or losses that were recognized in equity during the term of the hedge.

IAS 39 permits an entity to choose whether it will:

- reclassify the gains and losses from equity to profit and loss in the same period(s) when the acquired asset or liability affects earnings; or
- remove the gains and losses from equity and record them as a basis adjustment to the initial cost or other carrying amount of the acquired asset or liability.

The entity's decision about how to reclassify the accumulated gains and losses recorded in equity is a policy decision that must be applied consistently to all cash flow hedges subject to paragraph 98 of IAS 39.

ASC 815-30-35-38 discusses how an entity should reclassify amounts from accumulated other comprehensive income to earnings. ASC 815 requires an entity to reclassify those amounts "*into earnings in the same period or periods during which the hedged forecasted transaction affects earnings*" (this is similar to the first option in IFRSs in the previous paragraph). However, ASC 815 does not permit such accumulated gains or losses to be reflected as a basis adjustment to the initial cost or other carrying amount of the acquired asset or liability.

3.3.4 Foreign currency cash flow hedge with an internal derivative

IAS 39 states that all qualifying hedging instruments must involve a party external to the reporting entity. An instrument that involves only members of an entity's consolidated group may be considered a hedging instrument in the stand-alone financial statements of an entity within the consolidated group, but that same instrument cannot be considered a hedging instrument in the consolidated financial statements if it was not entered into with a party outside of the consolidated group. IFRSs do not permit an internal derivative to be designated as the hedging instrument.

Under U.S. GAAP, ASC 815-20-25-61 permits an entity to enter into a foreign currency derivative contract with another member of the consolidated group and to use that contract as a hedging instrument in a foreign currency cash flow hedge if certain conditions are met.

Namely, the entity that uses the contract as a hedging instrument must satisfy the criteria for foreign currency cash flow hedge accounting in ASC 815-20-25-39. The other party to the contract must either enter into a contract with an unrelated third party to offset the exposure resulting from the internal derivative or if the entity wants to offset net exposures and meets the criteria in ASC 815-20-25-62, it must enter into derivative contracts with unrelated third parties that would offset the foreign exchange risk arising from multiple internal derivative contracts on a net basis for each foreign currency. Note that IAS 39 does not contain any requirements similar to those in ASC 815-20-25-62.

3.3.5 Foreign currency cash flow hedge of a recognized asset or liability

ASC 815-20-25-39(d) notes that to qualify as a foreign currency cash flow hedge, "*if the hedged item is a recognized foreign-currency-denominated asset or liability, all the variability in the hedged item's functional-currency-equivalent cash flows shall be eliminated by the effect of the hedge.*" ASC 815-

20-25-40 further clarifies this requirement: "*an entity shall not specifically exclude a risk from the hedge that will affect the variability in cash flows.*"

IFRSs do not have a similar requirement; therefore, certain hedging relationships (e.g., a foreign currency cash flow hedge of variable-rate foreign-currency-denominated debt) may qualify as foreign currency cash flow hedges under IFRSs, yet not qualify for similar treatment under U.S. GAAP.

3.3.6 Consideration of an option's terminal value when assessing and measuring hedge effectiveness

Paragraph 74 of IAS 39 permits an entity that uses a purchased option as a hedging instrument in a cash flow hedge to define the hedging instrument as either including or excluding the time value of the option¹¹³. If the time value of the option is excluded (i.e., the hedging instrument is designated as

¹¹³ In finance, the value of an option consists of two components: its intrinsic value and its time value. Time value is simply the difference between option value and intrinsic value. Time value is also known as extrinsic value, or instrumental value.

The intrinsic value of an option is the value of exercising it now. If the option has a positive monetary value, it is referred to as being in-the-money, otherwise it is referred to as being out-of-the-money. If an option is out-of-the-money at expiration, its holder will simply abandon the option and it will expire worthless. For this reason we assume that the owner of the option will never choose to lose money by exercising, thus an option can never have a negative value.

Value of a call option: $\max[(S - K), 0]$, or $(S - K)^+$

Value of a put option: $\max[(K - S), 0]$, or $(K - S)^+$

The intrinsic value of a call option is positive when the underlying asset's spot price S exceeds the option's strike price K .

Option value (i.e. price) is found via a formula such as Black-Scholes or using a numerical method such as the Binomial model. This price will reflect the "likelihood" of the option finishing "in-the-money". For an out-the-money option, the further in the future the expiration date - i.e. the longer the time to exercise - the higher the chance of this occurring, and thus the higher the option price; for an in-the-money option the chance in the money *decreases*; however the fact that the option cannot have negative value also works in the owner's favor. The sensitivity of the option value to the amount of time to expiry is known as the option's "theta". The option value will never be lower than its intrinsic value.

Time value is, as above, the difference between option value and intrinsic value, i.e.

Time Value = Option Value - Intrinsic Value.

More specifically, an option's time value reflects the probability that the option will gain in intrinsic value or become profitable to exercise before it expires. An important factor is the option's volatility. Volatile prices of the underlying instrument can stimulate option demand, enhancing the value. Numerically, this value depends on the time until the expiration date and the volatility of the underlying instrument's price. The time value of an option is not negative (because the option value is never lower than the intrinsic value), and converges towards zero with time. At expiration,

changes in the option's intrinsic value), this time value will be recognized in earnings in each accounting period. If the hedging instrument is designated as changes in the total fair value of the option (inclusive of time value), then the time value component will be considered in assessments of hedge effectiveness and could result in the hedge's not being prospectively or retrospectively highly effective. Paragraph AG110B of IAS 39 clarifies that when "*an entity designates a purchased option in its entirety as the hedging instrument of a one-sided risk arising from a forecast transaction, the hedging relationship will not be perfectly effective.*"

ASC 815-20-25-126 permits an entity to focus on a purchased option's terminal value¹¹⁴ (i.e. its expected future payoff amount as of its maturity date) in determining whether a hedging relationship is

where the option value is simply its intrinsic value, time value is zero. Prior to expiration, the change in time value with time is non-linear, being a function of the option price.

¹¹⁴ The terminal value (continuing value or horizon value) of a security is the present value *at a future point in time* of all future cash flows when we expect stable growth rate forever. It is most often used in multi-stage discounted cash flow analysis, and allows for the limitation of cash flow projections to a several-year period. Forecasting results beyond such a period is impractical and exposes such projections to a variety of risks limiting their validity, primarily the great uncertainty involved in predicting industry and macroeconomic conditions beyond a few years.

Thus, the terminal value allows for the inclusion of the value of future cash flows occurring beyond a several-year projection period while satisfactorily mitigating many of the problems of valuing such cash flows. The terminal value is calculated in accordance with a stream of projected future free cash flows in discounted cash flow analysis. For whole-company valuation purposes, there are two methodologies used to calculate the Terminal Value.

The Perpetuity Growth Model accounts for the value of free cash flows that continue into perpetuity in the future, growing at an assumed constant rate. Here, the projected free cash flow in the first year beyond the projection horizon (N+1) is used. This value is divided by the discount rate minus the assumed perpetuity growth rate: $T_0 = FCF_{N+1}/(k - g)$. T_0 is the value of future cash flows at a future point in time which is immediately prior to N+1, or at the end of period N, which is the final year in the projection period, k being the discount rate and g being the growth rate. This equation is a perpetuity, which uses a geometric series to determine the value of a series of growing future cash flows.

To determine the present value of the terminal value, one must discount the Terminal Value at T_0 by a factor equal to the number of years included in the initial projection period. If N is the 5th and final year in this period, then the Terminal Value is divided by $(1 + k)^5$. The Present Value of the Terminal Value is then added to the PV of the free cash flows in the projection period to arrive at an implied enterprise value.

If the growth rate in perpetuity is not constant, a multiple-stage terminal value is calculated. The terminal growth rate can be negative, if the company in question is assumed to disappear in the future.

expected to be highly effective, provided that certain criteria are met. Furthermore, if additional criteria are met, the entity can assume that the hedge will be perfectly effective.

The Exit or Terminal Multiple Approach assumes a business will be sold at the end of the projection period. Valuation analytics are determined for various operating statistics using comparable acquisitions. A frequently used terminal multiple is Enterprise Value/EBITDA or EV/EBITDA. The analysis of comparable acquisitions will indicate an appropriate range of multiples to use. The multiple is then applied to the projected EBITDA in Year N, which is the final year in the projection period. This provides a future value at the end of Year N. The terminal value is then discounted using a factor equal to the number of years in the projection period. If N is the 5th and final year in this period, then the Terminal Value is divided by $(1+k)^5$. The Present Value of the Terminal Value is then added to the PV of the free cash flows in the projection period to arrive at an implied Enterprise Value. Note that if publicly-traded comparable company multiples must be used, the resulting implied enterprise value will not reflect a control premium. Depending on the purposes of the valuation, this may not provide an appropriate reference range.

There are several important differences between the two approaches.

The Perpetuity Growth Model has several inherent characteristics that make it intellectually challenging. Because both the discount rate and growth rate are assumptions, inaccuracies in one or both inputs can provide an improper value. The difference between the two values in the denominator determines the terminal value, and even with appropriate values for both, the denominator may result in a multiplying effect that does not estimate an accurate terminal value. Also, the perpetuity growth rate assumes that free cash flow will continue to grow at a constant rate into perpetuity. Consider that a perpetuity growth rate exceeding the annualized growth of the S&P 500 and/or the U.S. GDP implies that the company's cash flow will outpace and eventually absorb these rather large values. Perhaps the greatest disadvantage to the Perpetuity Growth Model is that it lacks the market-driven analytics employed in the Exit Multiple Approach. Such analytics result in a terminal value based on operating statistics present in a proven market for similar transactions. This provides a certain level of confidence that the valuation accurately depicts how the market would value the company in reality.

On the other hand the Exit Multiple approach must be used carefully, because multiples change over time. Simply applying the current market multiple ignores the possibility that current multiples may be high or low by historical standards. In addition, it is important to note that at a given discount rate, any exit multiple implies a terminal growth rate and conversely any terminal growth rate implies an exit multiple. When using the Exit Multiple approach it is often helpful to calculate the implied terminal growth rate, because a multiple that may appear reasonable at first glance can actually imply a terminal growth rate that is unrealistic.

In practice, academics tend to use the Perpetuity Growth Model, while investment bankers favor the Exit Multiple approach. Ultimately, these methods are two different ways of saying the same thing. For both terminal value approaches, it is essential to use a range of appropriate discount rates, exit multiples and perpetuity growth rates in order to establish a functional valuation range.

Because IFRSs do not provide a similar exception, more options may qualify as highly effective hedging instruments under U.S. GAAP and it is possible that no ineffectiveness will be recognized in such hedging relationships. In contrast, under IFRSs an entity frequently designates as the hedging instrument only the changes in intrinsic value of an option; the changes in the option's time value is excluded from the hedging relationship and will be recognized in earnings.

3.3.7 Forecasted transaction whose occurrence is no longer probable

Under IFRSs, for a forecasted transaction to be considered the hedged item in a cash flow hedging relationship, it must be highly probable that the transaction will occur (paragraphs 78 and 88(c) of IAS 39). Paragraph 101 of IAS 39 requires that if the forecasted transaction is at some point no longer expected to occur, for example because the event is delayed, the entity must reclassify the amount of any cumulative gains and losses recognized in equity to profit and loss. IAS 39 notes, however, that "*a forecast transaction that is no longer highly probable (...) may still be expected to occur.*"

Under U.S. GAAP, ASC 815-30-40-4 requires an entity to reclassify the amount related to cumulative gains and losses on a cash flow hedge to earnings only if "*it is probable that the forecasted transaction will not occur by the end of the originally specified time period (as documented at the inception of the hedging relationship) or within an additional two-month period of time thereafter (...).*" The same paragraph also notes that there may be situations in which the forecasted transaction cannot occur at the originally specified period because of extenuating circumstances "*outside the control or influence of the reporting entity.*" If that is the case, no amounts should be reclassified to earnings.

On the basis of these differences, it is possible that accumulated gains or losses recorded in equity that arose from a cash flow hedge of a forecasted transaction could be reclassified out of equity sooner under IFRSs than under U.S. GAAP.

3.3.8 Change in Variable Cash Flows Method for Measuring Ineffectiveness

Under IFRSs, IAS 39 expressly prohibits use of the change in variable cash flows method¹¹⁵ (i.e., a

¹¹⁵ The measurement of hedge ineffectiveness may be based on a comparison of the floating-rate leg of the swap and the hedged floating-rate cash flows on the asset or liability (herein referred to as the "change in variable cash flows" method). The change in variable cash flows method is consistent with the cash flow hedge objective of effectively offsetting the changes in the hedged cash flows attributable to the hedged risk. The method is based on the premise that only the floating-rate component of the swap provides the cash flow hedge, and any change in the swap's fair value attributable to the fixed-rate leg is not relevant to the variability of the hedged interest payments (receipts) on the floating-rate liability (asset).

Under this method, the interest rate swap designated as the hedging instrument would be recorded at fair value on the balance sheet. The calculation of ineffectiveness involves a comparison of the present value of the cumulative change in the expected future cash flows on the variable leg of the swap and the present value of the cumulative change in the expected future interest cash flows on the floating-rate asset or liability. (Because the focus of a cash flow hedge is on whether the hedging relationship achieves offsetting changes in cash flows, if the variability of the hedged cash flows of the floating-rate asset or liability is based solely on changes in a floating-rate index, the present value of the cumulative changes in expected future cash flows on both the floating-rate leg of the swap and the floating-rate asset or liability should be calculated using the discount rates applicable to determining the fair value of the swap.) If hedge ineffectiveness exists, accumulated OCI would be adjusted to a balance that reflects the difference between the overall change in fair value of the swap since the inception of the hedging relationship and the amount of ineffectiveness that must be recorded in earnings.

The change in variable cash flows method will result in no ineffectiveness being recognized in earnings if the following conditions are met: (1) the floating-rate leg of the swap and the hedged variable cash flows of the asset or liability are based on the same interest rate index (for example, three-month LIBOR), (2) the interest rate reset dates applicable to the floating-rate leg of the swap and to the hedged variable cash flows of the asset or liability are the same, (3) the hedging relationship does not contain any other basis differences (for example, ineffectiveness could be created if the variable leg of the swap contains a cap and the floating-rate asset or liability does not), and (4) the likelihood of the obligor not defaulting is assessed as being probable. However, ineffectiveness would be expected to result if any basis differences existed. For example, ineffectiveness would be expected to result from a difference in the indices used to determine cash flows on the variable leg of the swap (for example, the three-month Treasury rate) and the hedged variable cash flows of the asset or liability (for example, three-month LIBOR) or a mismatch between the interest rate reset dates applicable to the variable leg of the swap and the hedged variable cash flows of the hedged asset or liability.

Note there is no reported ineffectiveness when the present value of the cumulative change in the future expected cash flows on the floating-rate debt exceeds the present value of the cumulative change in the future cash flows on the variable leg of the swap.

method in which hedge ineffectiveness is measured on the basis of a comparison of the floating-rate leg of the hedging interest rate swap¹¹⁶ and the hedged floating-rate cash flows on the hedged asset or

¹¹⁶ A swap is a derivative in which one party exchanges a stream of interest payments for another party's stream of cash flows. Interest rate swaps can be used by hedgers to manage their fixed or floating assets and liabilities. They can also be used by speculators to replicate unfunded bond exposures to profit from changes in interest rates. Interest rate swaps are very popular and highly liquid instruments.

In an interest rate swap, each counterparty agrees to pay either a fixed or floating rate denominated in a particular currency to the other counterparty. The fixed or floating rate is multiplied by a notional principal amount (say, USD 1 million). This notional amount is generally not exchanged between counterparties, but is used only for calculating the size of cashflows to be exchanged.

The most common interest rate swap is one where one counterparty A pays a fixed rate (the swap rate) to counterparty B, while receiving a floating rate (usually pegged to a reference rate such as LIBOR).

A pays fixed rate to B (A receives variable rate)

B pays variable rate to A (B receives fixed rate).

Consider the following swap in which Party A agrees to pay Party B periodic fixed interest rate payments of 8.65%, in exchange for periodic variable interest rate payments of LIBOR + 70 bps (0.70%). Note that there is no exchange of the principal amounts and that the interest rates are on a "notional" (i.e. imaginary) principal amount. Also note that the interest payments are settled in net (e.g. Party A pays $(\text{LIBOR} + 1.50\%) + 8.65\% - (\text{LIBOR} + 0.70\%) = 9.45\%$ net. The fixed rate (8.65% in this example) is referred to as the swap rate.

At the point of initiation of the swap, the swap is priced so that it has a net present value of zero. If one party wants to pay 50 bps above the par swap rate, the other party has to pay approximately 50 bps over LIBOR to compensate for this.

Being over-the-counter instruments interest rate swaps can come in a huge number of varieties and can be structured to meet the specific needs of the counterparties. By far the most common are fixed-for-floating, fixed-for-fixed or floating-for-floating. The legs of the swap can be in the same currency or in different currencies. (A single-currency fixed-for-fixed rate swap is generally not possible; since the entire cash-flow stream can be predicted at the outset there would be no reason to maintain a swap contract as the two parties could just settle for the difference between the present values of the two fixed streams; the only exceptions would be where the notional amount on one leg is uncertain or other esoteric uncertainty is introduced).

1. Fixed-for-floating rate swap, same currency

Party B pays/receives fixed interest in currency A to receive/pay floating rate in currency A indexed to X on a notional amount N for a term of T years. For example, you pay fixed 5.32% monthly to receive USD 1M Libor monthly on a notional USD 1 million for 3 years. The party that pays fixed and receives floating coupon rates is said to be *short* the interest swap because it is expressed as a

bond convention (as prices fall, yields rise). Interest rate swaps are simply the exchange of one set of cash flows for another.

Fixed-for-floating swaps in same currency are used to convert a fixed rate asset/liability to a floating rate asset/liability or vice versa. For example, if a company has a fixed rate USD 10 million loan at 5.3% paid monthly and a floating rate investment of USD 10 million that returns USD 1M Libor +25 bps monthly, it may enter into a fixed-for-floating swap. In this swap, the company would pay a floating rate of USD 1M Libor+25 bps and receive a 5.5% fixed rate, locking in 20bps profit.

2. Fixed-for-floating rate swap, different currencies

Party P pays/receives fixed interest in currency A to receive/pay floating rate in currency B indexed to X on a notional N at an initial exchange rate of FX for a tenure of T years. For example, you pay fixed 5.32% on the USD notional 10 million quarterly to receive JPY 3M (TIBOR) monthly on a JPY notional 1.2 billion (at an initial exchange rate of USD/JPY 120) for 3 years. For nondeliverable swaps, the USD equivalent of JPY interest will be paid/received (according to the FX rate on the FX fixing date for the interest payment day). No initial exchange of the notional amount occurs unless the Fx fixing date and the swap start date fall in the future.

Fixed-for-floating swaps in different currencies are used to convert a fixed rate asset/liability in one currency to a floating rate asset/liability in a different currency, or vice versa. For example, if a company has a fixed rate USD 10 million loan at 5.3% paid monthly and a floating rate investment of JPY 1.2 billion that returns JPY 1M Libor +50 bps monthly, and wants to lock in the profit in USD as they expect the JPY 1M Libor to go down or USDJPY to go up (JPY depreciate against USD), then they may enter into a Fixed-Floating swap in different currency where the company pays floating JPY 1M Libor+50 bps and receives 5.6% fixed rate, locking in 30bps profit against the interest rate and the fx exposure.

3. Floating-for-floating rate swap, same currency

Party P pays/receives floating interest in currency A Indexed to X to receive/pay floating rate in currency A indexed to Y on a notional N for a tenure of T years. For example, you pay JPY 1M LIBOR monthly to receive JPY 1M TIBOR monthly on a notional JPY 1 billion for 3 years.

Floating-for-floating rate swaps are used to hedge against or speculate on the spread between the two indexes widening or narrowing. For example, if a company has a floating rate loan at JPY 1M LIBOR and the company has an investment that returns JPY 1M TIBOR + 30 bps and currently the JPY 1M TIBOR = JPY 1M LIBOR + 10bps. At the moment, this company has a net profit of 40 bps. If the company thinks JPY 1M TIBOR is going to come down (relative to the LIBOR) or JPY 1M LIBOR is going to increase in the future (relative to the TIBOR) and wants to insulate from this risk, they can enter into a float-float swap in same currency where they pay, say, JPY TIBOR + 30 bps and receive JPY LIBOR + 35 bps. With this, they have effectively locked in a 35 bps profit instead of running with a current 40 bps gain and index risk. The 5 bps difference (w.r.t. the current rate difference) comes from the swap cost which includes the market expectations of the future rate difference between these two indices and the bid/offer spread which is the swap commission for the swap dealer.

Floating-for-floating rate swaps are also seen where both sides reference the same index, but on different payment dates, or use different business day conventions. These have almost no use for speculation, but can be vital for asset-liability management. An example would be swapping 3M LIBOR being paid with prior non-business day convention, quarterly on JAJ0 (i.e. Jan, Apr, Jul, Oct) 30, into FMAN (i.e. Feb, May, Aug, Nov) 28 modified following ·

4. Floating-for-floating rate swap, different currencies

Party P pays/receives floating interest in currency A indexed to X to receive/pay floating rate in currency B indexed to Y on a notional N at an initial exchange rate of FX for a tenure of T years. For example, you pay floating USD 1M LIBOR on the USD notional 10 million quarterly to receive JPY 3M TIBOR monthly on a JPY notional 1.2 billion (at an initial exchange rate of USDJPY 120) for 4 years.

To explain the use of this type of swap, consider a US company operating in Japan. To fund their Japanese growth, they need JPY 10 billion. The easiest option for the company is to issue debt in Japan. As the company might be new in the Japanese market without a well known reputation among the Japanese investors, this can be an expensive option. Added on top of this, the company might not have appropriate debt issuance program in Japan and they might lack sophisticated treasury operation in Japan. To overcome the above problems, it can issue USD debt and convert to JPY in the FX market. Although this option solves the first problem, it introduces two new risks to the company:

- FX risk. If this USDJPY spot goes up at the maturity of the debt, then when the company converts the JPY to USD to pay back its matured debt, it receives less USD and suffers a loss.
- USD and JPY interest rate risk. If the JPY rates come down, the return on the investment in Japan might go down and this introduces an interest rate risk component.

The first exposure in the above can be hedged using long dated FX forward contracts but this introduces a new risk where the implied rate from the FX spot and the FX forward is a fixed rate but the JPY investment returns a floating rate. Although there are several alternatives to hedge both the exposures effectively without introducing new risks, the easiest and the most cost effective alternative would be to use a floating-for-floating swap in different currencies. In this, the company raises USD by issuing USD Debt and swaps it to JPY. It receives USD floating rate (so matching the interest payments on the USD Debt) and pays JPY floating rate matching the returns on the JPY investment.

5. Fixed-for-fixed rate swap, different currencies

Party P pays/receives fixed interest in currency A to receive/pay fixed rate in currency B for a term of T years. For example, you pay JPY 1.6% on a JPY notional of 1.2 billion and receive USD 5.36% on the USD equivalent notional of 10 million at an initial exchange rate of USDJPY 120.

6. Other variations

A number of other variations are possible, although far less common. Mostly tweaks are made to ensure that a bond is hedged "perfectly", so that all the interest payments received are exactly offset by the swap. This can lead to swaps where principal is paid on one or more legs, rather than

liability) to measure ineffectiveness in a cash flow hedge of a forecasted transaction in a debt instrument because that method has the effect of measuring ineffectiveness only on a portion of the

just interest (for example to hedge a coupon strip), or where the balance of the swap is automatically adjusted to match that of a prepaying bond (such as RMBS Residential mortgage-backed security).

Calculation: the present value of a plain vanilla (i.e. fixed rate for floating rate) swap can easily be computed using standard methods of determining the present value (PV) of the fixed leg and the floating leg.

The value of the fixed leg is given by the present value of the fixed coupon payments known at the start of the swap, i.e.

where C is the swap rate, M is the number of fixed payments, P is the notional amount, t_i is the number of days in period i , T_i is the basis according to the day count convention and df_i is the discount factor.

Similarly, the value of the floating leg is given by the present value of the floating coupon payments determined at the agreed dates of each payment. However, at the start of the swap, only the actual payment rates of the fixed leg are known in the future, whereas the forward rates (derived from the yield curve) are used to approximate the floating rates. Each variable rate payment is calculated based on the forward rate for each respective payment date. Using these interest rates leads to a series of cash flows. Each cash flow is discounted by the zero-coupon rate for the date of the payment; this is also sourced from the yield curve data available from the market. Zero-coupon rates are used because these rates are for bonds which pay only one cash flow. The interest rate swap is therefore treated like a series of zero-coupon bonds. Thus, the value of the floating leg is given by the following:

where N is the number of floating payments, f_j is the forward rate, P is the notional amount, t_j is the number of days in period j , T_j is the basis according to the day count convention and df_j is the discount factor. The discount factor always starts with 1. The discount factor is found as follows:

$$[\text{Discount factor in the previous period}] / [1 + (\text{Forward rate of the floating underlying asset in the previous period} \times \text{Number of days in period} / 360)].$$

(Depending on the currency, the denominator is 365 instead of 360; e.g. for GBP.)

The fixed rate offered in the swap is the rate which values the fixed rates payments at the same PV as the variable rate payments using today's forward rates, i.e.:

Therefore, at the time the contract is entered into, there is no advantage to either party, i.e.,

Thus, the swap requires no upfront payment from either party.

During the life of the swap, the same valuation technique is used, but since, over time, the forward rates change, the PV of the variable-rate part of the swap will deviate from the unchangeable fixed-rate side of the swap. Therefore, the swap will be an asset to one party and a liability to the other. The way these changes in value are reported is the subject of IAS 39 for jurisdictions following IFRS, and FAS 133 for U.S. GAAP. Swaps are marked to market by debt security traders to visualize their inventory at a certain time.

derivative, and IAS 39 does not permit the bifurcation of a derivative for the purposes of assessing effectiveness in this situation. IAS 39 acknowledges, however, that *"if the fixed interest rate on the interest rate swap is equal to the fixed rate that would have been obtained on the debt at inception, there will be no ineffectiveness assuming that there are no differences in terms and no change in credit risk or it is not designated in the hedging relationship."*

ASC 815-30-35-13 permits an entity to use the change in variable cash flows method when measuring hedge effectiveness. However, under this method, the fair value of the swap designated as the hedging instrument must be zero or *"somewhat near zero"* at the inception of the hedge.

Accordingly, use of the variable cash flows method in U.S. GAAP could result in a different measurement of hedge ineffectiveness than would be recognized under one of the methods permitted by IFRSs.

3.4 REQUIREMENTS APPLICABLE TO NET INVESTMENT HEDGES

3.4.1 Compound derivatives with multiple underlying as the hedging instrument

IAS 39 does not explicitly prohibit an entity from designating a compound derivative with multiple underlyings as the hedging instrument in a net investment hedge. For example, an entity could designate a cross-currency interest rate swap with one fixed-rate leg and one floating-rate leg as the hedging instrument in a hedge of a net investment, provided that the hedge is expected to be highly effective. However, this would generally not be an effective hedging relationship under IAS 39.

ASC 815-20-25-71(d) prohibits an entity from using a compound derivative that has multiple underlyings (when at least one is not based on foreign exchange risk) as the hedging instrument in a net investment hedge. There is an exception to this prohibition for certain cross-currency interest rate swaps, which is discussed in greater detail in ASC 815-20-25-67 through 25-68. However, ASC 815-20-25-68A clarifies that an entity could not designate a cross-currency interest rate swap with one fixed-rate leg and one floating-rate leg as the hedging instrument in a hedge of a net investment.

3.4.2 Nature of the hedged risk

Paragraph 12 of IFRIC 16 states that in a hedge of a net investment in a foreign operation, *"the hedged risk may be designated as the foreign currency exposure arising between the functional currency of the foreign operation and the functional currency of any parent entity (the immediate, intermediate or ultimate parent entity)."*

Under U.S. GAAP, ASC 815-20-25-27 notes that *"a parent that has a different functional currency cannot qualify for hedge accounting for a hedge of a net investment of a first-tier subsidiary in a second-tier subsidiary."*

Thus, IFRSs would permit a parent with a functional currency different from that of a first-tier subsidiary to hedge the first-tier subsidiary's net investment in a foreign operation. U.S. GAAP would not permit this, unless the consolidated parent and the first-tier subsidiary had the same functional currency.

3.4.3 Where the hedging instrument can be held

Paragraph 14 of IFRIC 16 states *"the hedging instrument(s) for a hedge of a net investment in a foreign operation may be held by any entity or entities within the consolidated group, as long as the designation, documentation and effectiveness requirements of IAS 39 paragraph 88 that relate to a net investment hedge are satisfied."*

ASC 815-20-25-30 requires that *"for consolidated financial statements, either of the following conditions is met: (1) the operating unit that has the foreign currency exposure is a party to the hedging instrument or (2) another member of the consolidated group that has the same functional currency as that operating unit is a party to the hedging instrument and there is no intervening subsidiary with a different functional currency."*

Thus, IFRSs would permit any entity within the consolidated group to be a party to a derivative that hedges a net investment exposure of any entity in that consolidated group. U.S. GAAP would not permit this.

4. FAIR VALUE MEASUREMENTS OF FINANCIAL INSTRUMENTS

Under U.S. GAAP, ASC 820 is the primary source of guidance on fair value measurements, including fair value measurements of financial instruments.

Under IFRSs, IAS 39, Financial Instruments: Recognition and Measurement, is the primary source of guidance on fair value measurements of financial instruments. Entities are also required to use the fair value measurement guidance in IAS 39 when applying IAS 32, Financial Instruments: Presentation, and IFRS 7, Financial Instruments: Disclosures.

Subject	U.S. GAAP	IFRSs
Scope	ASC 820 provides comprehensive fair value measurement guidance that applies to both financial instruments and other assets and liabilities.	The fair value measurement guidance in IAS 39 applies to all recognized financial instruments within its scope as well as to unrecognized financial instruments that may need to be disclosed in accordance with IFRS 7.
Definition of fair value: exit price	Exit price.	Exit price, except in the absence of observable market data, in which case the transaction price is presumed to be fair value at initial recognition only.
Definition of fair value: principal (or most advantageous) market	Explicitly required for all fair value measurements.	For financial instruments traded in active markets, the most advantageous active market to which the entity has access is

Subject	U.S. GAAP	IFRSs
	ASC 820 provides detailed guidance on this concept.	used. There is no principal-market concept.
Definition of fair value: market participants	Defined term (characteristics).	Not defined.
Definition of fair value: application to assets	The highest-and-best-use valuation premise is assumed in all fair value measurements.	There is no concept comparable to the highest-and-best-use valuation premise.
Definition of fair value: application to liabilities	A liability is assumed to be transferred to another market participant. ASC 820 contains no specific guidance on determining the fair value of a financial liability with a demand feature.	A liability is assumed to be settled with the counterparty. The fair value of a financial liability with a demand feature is not less than the amount payable on demand (discounted).
Fair value at initial recognition (inception)	Exit price is presumed to be fair value, but ASC 820 provides examples of situations in which the transaction price might not represent fair value.	Entry price is presumed to be fair value, unless fair value is evidenced by other observable market transactions or a valuation technique that only includes observable inputs.
Valuation techniques	There is detailed guidance on three acceptable valuation approaches. Mid-market pricing is permitted as a practical expedient.	There is detailed guidance on inputs to valuation techniques. Mid-market pricing is not permitted, unless positions are being offset. Bid price for assets and ask price for liabilities are assumed.
Fair value hierarchy	Valuation technique inputs to fair value measurements are classified into three broad levels.	For measurement purposes, fair value measurements are classified into two broad categories. For disclosures only, fair value measurements are classified into three broad levels (this classification is similar to that under ASC 820).
Disclosures	Fair value hierarchy disclosures are required. Recurring and nonrecurring fair value measurements are required to be disclosed separately. Disclosures about significant transfers between all three levels are required. Disclosures about sensitivity to unobservable assumptions or inception gains and losses are not required.	Fair value hierarchy disclosures are required. Disclosures are required for recognized financial instruments only, not for unrecognized financial instruments or nonrecurring measurements. Disclosures about significant transfers between all three levels are required. Disclosures about sensitivity to unobservable assumptions and inception gains and losses are required.

In general, U.S. GAAPs provide more comprehensive guidance on fair value measurements than IFRSs do. This is because of the issuance of ASC 820, which codified and expanded existing guidance on fair value measurements in U.S. GAAP. Unlike U.S. GAAP, IFRSs do not currently have one comprehensive fair value measurement standard. Rather, fair value measurement guidance in IFRSs is

spread throughout various accounting standards. (This situation is similar to that in U.S. GAAP before the issuance of ASC 820.)

Most financial assets and financial liabilities are within the scope of IAS 39 for recognition and measurement purposes. Entities are also required to use the fair value measurement guidance in IAS 39 when applying IAS 32 and IFRS 7.

4.1 DEFINITION OF FAIR VALUE: EXIT PRICE

Under U.S. GAAP, one defining characteristic of fair value is that it is assumed to be the exit price. ASC 820-10-35-3 defines exit price as the price that would be received or paid by the reporting entity *"in an orderly transaction between market participants to sell the asset or transfer the liability at the measurement date"*.

Under IFRSs, paragraph 9 of IAS 39 defines fair value as *"the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction."* Like the definition under U.S. GAAP, this definition of fair value reflects an exit price notion. Under IAS 39, however, a reporting entity should assume settlement rather than a transfer when determining the fair value for liabilities. In addition, paragraph AG76 of IAS 39 indicates that the transaction price (an entry price) is the best evidence of fair value in the absence of observable market data, but only at initial recognition.

4.2 PRINCIPAL (OR MOST ADVANTAGEOUS) MARKET

Under U.S. GAAP, another defining characteristic of fair value is the concept of the principal (or most advantageous) market. ASC 820-10-35-5 states, in part, *"A fair value measurement assumes that the transaction to sell the asset or transfer the liability either: (a) occurs in the principal market for the asset or liability [or] (b) in the absence of a principal market, occurs in the most advantageous market for the asset or liability."* This concept is considered from the reporting entity's perspective and can result in different fair value measurements by different reporting entities for the same asset or liability. Unlike U.S. GAAP, IAS 39 does not define fair value in terms of the principal (or most advantageous) market. However, for a financial instrument that is traded in an active market, paragraph AG71 of IAS 39 requires the use of a quoted price from the market that is most advantageous and immediately accessible to the entity.

4.3 MARKET PARTICIPANTS

Under U.S. GAAP, ASC 820-10 requires that a reporting entity determine fair value from the perspective of a market participant. That is, a reporting entity cannot incorporate its own intent into its valuation techniques.

In its definition of market participants, the Codification Master Glossary lists several characteristics that reporting entities must consider in determining the appropriate market participant (i.e., independent, knowledgeable, and able and willing to transact). ASC 820-10-35-9 indicates that the reporting entity should make this determination on the basis of general characteristics of market participants rather than identification of specific market participants.

Although paragraphs AG73 and AG76 of IAS 39 refer to the concept of a market participant, IAS 39 does not define the term "market participant." Nevertheless, the determination of fair value under IAS 39 incorporates characteristics similar to those of a market participant as defined in ASC 820. Under paragraphs AG71 and AG74 of IAS 39, the determination of fair value requires an entity to assume an arm's-length transaction between knowledgeable and willing parties.

4.4 APPLICATION TO ASSETS

ASC 820-10-35-10 establishes a valuation premise for all assets that requires a reporting entity to consider the highest and best use of the assets that is "*physically possible, legally permissible, and financially feasible at the measurement date.*"

Specifically, ASC 820 requires a reporting entity to determine how a market participant would maximize the value of an asset or group of assets. In doing so, the reporting entity should consider whether the value of the asset or group of assets is maximized by an in-use or in-exchange assumption. ASC 820-10-35-10 states, in part, "*The highest and best use of the asset is in-use if the asset would provide maximum value to market participants principally through its use in combination with other assets as a group.*" It goes on to state, "*The highest and best use of the asset is in-exchange if the asset would provide maximum value to market participants principally on a standalone basis.*"

IAS 39 does not require reporting entities to assume a highest-and-best-use valuation premise when valuing assets. Instead, it mandates an in-exchange valuation premise.

In practice, this difference is unlikely to be significant for financial instruments, since entities applying ASC 820 typically conclude that the in-exchange valuation premise is the highest and best use for these instruments.

4.5 APPLICATION TO LIABILITIES

As noted above, IAS 39 and ASC 820 also differ in the application of the exit price notion to the fair value measurement of liabilities.

ASC 820-10-35-16 requires a reporting entity to assume a transfer when determining the fair value of a liability. In other words, ASC 820 assumes that fair value is the amount that a market participant would pay to transfer the liability as of the measurement date to another market participant. However, paragraph 9 of IAS 39 defines fair value for a liability as a settlement amount. That is, it requires a reporting entity to assume a settlement notion when determining the fair value of a liability. A

reporting entity would estimate fair value by determining the amount it would have to pay the counterparty to that liability to exit the obligation.

Under U.S. GAAP, there is no specific guidance on determining fair value for a financial liability with a demand feature.

Paragraph 49 of IAS 39 states, "*The fair value of a financial liability with a demand feature (e.g., a demand deposit) is not less than the amount payable on demand, discounted from the first date that the amount could be required to be paid.*" This could result in different fair value measurements under IFRSs than under U.S. GAAP.

4.6 FAIR VALUE AT INITIAL RECOGNITION (INCEPTION)

Inception gains and losses occur when a reporting entity enters into a transaction at a price other than the one that it initially recognizes in its financial statements as the transaction's fair value.

Under U.S. GAAP, the use of the exit price is required for all fair value measurements, both at initial recognition and in subsequent measurements. When an exit price is used to determine fair value, the fair value of an asset or liability at inception may be an amount other than the transaction price (entry price).

This could occur, for example, because the exit price is based on a market different from that of the entry price. ASC 820-10-30-3 includes a list of other circumstances in which the transaction price may not represent fair value at initial recognition. However, ASC 820-10-30-3 does note that "*in many cases, the transaction price will equal the exit price and, therefore, represent the fair value of the asset or liability at initial recognition.*"

As discussed above, IAS 39 requires an entity to determine fair value on the basis of the asset or liability's exit price, except at initial recognition. Paragraph AG64 of IAS 39 states, in part, "*The fair value of a financial instrument on initial recognition is normally the transaction price.*" Paragraph AG76 elaborates on this point by requiring the use of transaction price for fair value at initial recognition "*unless the fair value of that instrument is evidenced by comparison with other observable current market transactions in the same instrument (i.e., without modification or repackaging) or based on a valuation technique whose variables include only data from observable markets.*" This concept is similar to the inception gain or loss guidance that previously existed, which was superseded by ASC 820.

4.7 VALUATION TECHNIQUES

ASC 820-10-35-28 outlines three acceptable valuation techniques and states that one or more techniques could be used to estimate fair value, depending on the circumstances. The three techniques are the market approach, the income approach, and the cost approach.

ASC 820 does not require an entity to use a particular valuation technique for a given fair value measurement. It also does not include detailed guidance on the appropriate inputs to valuation techniques, except for ASC 820-10-55-4 through 55-20 and ASC 820-10-55-33 and 55-34, which contain guidance on the use of present value techniques (i.e., a type of income approach).

IAS 39 does not provide guidance on the types of valuation techniques that reporting entities should use to determine fair value. However, paragraph AG82 of IAS 39 provides detailed guidance on the types of inputs that reporting entities should consider when using valuation techniques to measure the fair value of financial instruments. These inputs are more detailed than those described in U.S. GAAP. Under U.S. GAAP, reporting entities are required to update fair value estimates with current assumptions (information) as of each measurement date. In contrast, IAS 39 allows reporting entities to carry forward certain information from previous measurement dates when similar information is not available as of the current measurement date. However, IAS 39 does require reporting entities to make a reasonable effort to determine whether changes have occurred since issuance rather than to simply state that no information is available from recent transactions.

Under U.S. GAAP, ASC 820-10-35-57 permits mid-market pricing as a practical expedient. Moreover, ASC 820-10-35-56 indicates that a reporting entity should measure fair value by using the price within the bid-ask spread¹¹⁷ that is most representative of fair value. If the practical expedient is

¹¹⁷ The bid/offer spread (also known as bid/ask or buy/sell spread) for securities (such as stock, futures contracts, options, or currency pairs) is the difference between the price quoted by a market maker for an immediate sale (bid) and an immediate purchase (ask). The size of the bid-offer spread in a given commodity is a measure of the liquidity of the market and the size of the transaction cost.

The trader initiating the transaction is said to demand liquidity, and the other party (counterparty) to the transaction supplies liquidity. Liquidity demanders place market orders and liquidity suppliers place limit orders. For a round trip (a purchase and sale together) the liquidity demander pays the spread and the liquidity supplier earns the spread. All limit orders outstanding at a given time (i.e., limit orders that have not been executed) are together called the Limit Order Book. In some markets such as NASDAQ, dealers supply liquidity. However, on most exchanges, such as the Australian Securities Exchange, there are no designated liquidity suppliers, and liquidity is supplied by other traders. On these exchanges, and even on NASDAQ, institutions and individuals can supply liquidity by placing limit orders.

The bid-ask spread is an accepted measure of liquidity costs in exchange traded securities and commodities. On any standardized exchange two elements comprise almost all of the **transaction cost** – brokerage fees and bid-ask spreads. Under competitive conditions the bid-ask spread measures the cost of making transactions without delay. The difference in price paid by an urgent buyer and received by an urgent seller is the liquidity cost. Since brokerage commissions do not

not used, a reporting entity would most likely use the bid price to measure the fair value of its assets and the ask price to measure the fair value of its liabilities.

Under paragraph AG72 of IAS 39, a reporting entity may only use mid-market pricing¹¹⁸ when determining fair value for offsetting risk positions, but must apply the applicable bid or ask prices to all net open positions whenever current bid and ask prices are available. In the absence of offsetting positions, an entity must use the current bid price for assets held and the current ask price for liabilities held. IAS 39 does not allow reporting entities to use mid-market pricing as a practical expedient when determining fair value.

4.8 FAIR VALUE HIERARCHY

Under U.S. GAAP, ASC 820 establishes a fair value hierarchy. The hierarchy consists of the following three broad levels into which an entity classifies its valuation technique inputs:

- *Level 1* — Inputs based on quoted prices (unadjusted) in active markets for identical assets or liabilities
- *Level 2* — Inputs based on observable market information
- *Level 3* — Inputs based on unobservable information.

This hierarchy was established to develop increased consistency and comparability within and between reporting entities. ASC 820-10-35-36 requires entities to use valuation techniques that "*maximize the use of relevant observable inputs (that is, Level 1 and Level 2 inputs that do not require significant adjustment) and minimize the use of unobservable inputs.*"

IAS 39 classifies fair value measurements into two broad categories: quoted prices in active markets and fair values determined by the use of valuation techniques (i.e., in the absence of an active market). IFRS 7 (as amended in March 2009) clarifies that a three-level measurement hierarchy is implicit in IAS 39 and notes that fair values determined by the use of valuation techniques can be divided into two subcategories: financial instruments whose fair value is evidenced by comparison with other observable current market transactions in the same instrument (...) or based on a valuation technique whose variables include only data from observable markets and financial instruments whose fair value is determined in whole or in part using a valuation technique based on assumptions that are not

vary with the time taken to complete a transaction, differences in bid-ask spread indicate differences in the liquidity cost.

¹¹⁸ Price of a security in-between its offer and bid price, used in computing investment performance statistics. Most newspapers use mid-market prices in the stock (share) data tables.

supported by prices from observable current market transactions in the same instrument (...) and not based on available observable market data.

IAS 39 requires reporting entities to use quoted prices in active markets when available. IAS 39 also states, "*The existence of published price quotations in an active market is the best evidence of fair value and when they exist they are used to measure the financial asset or financial liability.*" The IAS 39 requirement is similar to the requirement in ASC 820-10-35-41, which states, "*A quoted price in an active market provides the most reliable evidence of fair value and shall be used to measure fair value whenever available.*"

Paragraph AG75 of IAS 39 requires that if a valuation technique is used (i.e., the market for the financial instrument is not active), the valuation technique should make maximum use of market inputs and rely as little as possible on entity-specific inputs.

4.9 DISCLOSURES

While the requirement to use relevant observable information under U.S. GAAP is similar to that under IFRSs, the three-tiered fair value hierarchy in U.S. GAAP also affects the disclosures required by ASC 820-10-50-1 through 50-3 and ASC 820-10-50-5.

These disclosures require, among other things, that an entity classify all fair value measurements into the three broad levels and provide certain information in a tabular format. The tabular disclosures should be presented separately for recurring and nonrecurring measurements. For both sets of disclosures, a reporting entity must classify all fair value measurements into the three broad levels and present them separately for each class of assets and liabilities (for equity and debt securities, "class" is determined on the basis of nature and risks, as described in ASC 320-10-50-1B). In addition, a reporting entity must reconcile the beginning and ending balances for all recurring measurements classified as Level 3.

Under IFRSs, IFRS 7 is the financial instrument disclosures standard. IFRS 7 was amended in March 2009 to conform the fair value hierarchy to ASC 820. The amendments significantly aligned the disclosure requirements with those required by ASC 820.

IFRS 7 requires detailed disclosures about fair value measurements for financial instruments, including disclosures about what methods and assumptions have been used and certain information about inception gains and losses. Three disclosures that are not required under U.S. GAAP but are required by IFRS 7 are:

- a sensitivity analysis of unobservable assumptions for Level 3 fair value measurements,
- the accounting policy for recognizing inception gains and losses, and
- a reconciliation of the change in the period in the aggregate difference yet to be recognized for inception gains and losses.

5. DEFINITION AND SCOPE

Under U.S. GAAP, ASC 815 is the primary source of guidance on derivative instruments and hedging activities. Entities should also apply ASC 840 to determine whether a contract contains a lease or is a lease in its entirety, in which case the contract may be partially or wholly outside the scope of ASC 815.

Under IFRSs, IAS 39, Financial Instruments: Recognition and Measurement, is the primary source of guidance on derivative instruments and hedging activities. IAS 39 is also the primary source of guidance on recognition, derecognition, and measurement of all financial instruments.

IFRSs contain much less interpretive or implementation guidance than U.S. GAAP does on the accounting for derivative instruments and hedging activities; Appendix A of IAS 39 and "Guidance on Implementing IAS 39 Financial Instruments: Recognition and Measurement" contain only limited application guidance. A secondary source of guidance that affects the scope of financial instruments accounted for as derivatives is IAS 32, Financial Instruments: Presentation. Certain derivative disclosures also are required by IFRS 7, Financial Instruments: Disclosures.

The purpose of what follows is to highlights the key differences between U.S. GAAP and IFRSs regarding the definition of derivative instruments and the permitted scope exceptions to that definition. The table below summarizes these differences and is followed by a detailed explanation of each difference.

Subject	U.S. GAAP	IFRSs
Definition: Notional amount or payment provision characteristic	A financial instrument or other contract must have one or more notional amounts, payment provisions, or both to be considered a derivative.	No requirement to have a notional amount or payment provision, but in practice one of these characteristics usually exists.
Definition: "Net settlement" versus "settlement at a future date" characteristic	A financial instrument or other contract must require or permit net settlement, be readily settled net by a means outside the contract, or provide for delivery of an asset that puts the recipient in a position not substantially different from net settlement.	No net settlement characteristic or requirement; however, contracts to purchase, sell, or use non-financial items are only accounted for as derivatives if they can be settled net in cash or with another financial instrument. Settling contracts net is broadly defined and is not restricted to the ability to net-settle in cash. IFRSs include a "settlement at a future date" characteristic in the definition.
Definition: Prepaid interest rate swaps	Meets definition if the entity prepays its obligation under a pay-fixed, receive-variable interest rate swap in which the prepayment is less than the	Meets definition if the entity prepays its obligation under a pay-fixed, receive-variable arrangement.

Subject	U.S. GAAP	IFRSs
	<p>amount determined by applying the effective notional amount to the underlying.</p> <p>Must be evaluated for embedded derivatives (debt host contract, with an embedded interest rate swap whose fair value equals zero at inception).</p>	
<p>Scope exception: Normal purchases and normal sales versus own-use contracts</p>	<p>Elective.</p> <p>Must have documentation.</p> <p>Certain written options are eligible.</p> <p>Embedded derivatives that are not clearly and closely related disqualify an entity from applying the normal purchases and normal sales exception.</p>	<p>Required.</p> <p>No documentation is required.</p> <p>Written options are not eligible if the non-financial item is readily convertible to cash.</p> <p>Embedded derivatives do not disqualify an entity from applying the own-use exception.</p>
<p>Scope exception: Certain contracts not traded on an exchange — underlying is based on a climatic or geological variable or on some other physical variable</p>	<p>Outside scope.</p>	<p>When such contracts do not meet the definition of an insurance contract (i.e., they are not within the scope of IFRS 4, Insurance Contracts), they are within the scope of IAS 39 and are accounted for as derivatives.</p>
<p>Scope exception: Certain contracts not traded on an exchange — underlying is based on specified volumes of sales or service revenues</p>	<p>Outside scope.</p>	<p>Contracts with an underlying based on specified volumes of sales or service revenues may meet the definition of a derivative; however, royalty agreements based on the volume of sales or service revenues are accounted for under IAS 18, Revenue, and would not be accounted for as derivatives.</p>
<p>Scope exception: Investments in life insurance</p>	<p>Outside scope of accounting by policyholder.</p>	<p>Outside scope of derivative accounting if they meet the definition of an insurance contract in IFRS 4.</p>
<p>Scope exception: Loan commitments</p>	<p>Outside scope, except for issuers' commitments to originate mortgage loans that will be held for sale.</p>	<p>Outside scope of derivative accounting, except for those that can be settled net in cash or by delivering or issuing another financial instrument, or if the loan is intended to be sold after issuance.</p>
<p>Scope exception: Contracts issued or held by a reporting entity on its own stock</p>	<p>ASC 815 indicates that an issuer's contract that would otherwise meet the definition of a</p>	<p>IAS 32 has a "fixed-for-fixed" model for determining whether a financial instrument is classified as equity. Net-share-settled contracts do not qualify as equity.</p>

Subject	U.S. GAAP	IFRSs
	<p>derivative that is both (1) indexed to the issuer's stock and (2) classified in stockholders' equity in its statement of financial position is not considered a derivative.</p> <p>ASC 815-40 includes a "fixed-for-fixed, plus fair value inputs" model for determining whether a financial instrument is considered "indexed to an entity's own stock."</p> <p>In addition, under ASC 815-40, a reporting entity should look to the form of a settlement to determine whether a financial instrument is classified as equity. Net-share-settled contracts could qualify as equity.</p>	
<p>Scope exception: Contracts whose underlying is a non-marketable equity security</p>	<p>These usually do not meet the net settlement characteristic in the definition of a derivative.</p>	<p>These are accounted for as derivatives unless the entity cannot reliably measure the instrument's fair value.</p>

5.1 DEFINITION OF A DERIVATIVE

5.1.1 Notional amount¹¹⁹ or payment provision characteristic

ASC 815-10-15-83(a) states that one of the defining characteristics of a derivative instrument is that it has "one or more notional amounts or payment provisions or both." The IFRS definition does not include a similar characteristic; therefore, the U.S. GAAP definition of a derivative instrument is narrower than the IFRS definition. Because the IFRS definition does not require a notional amount or payment provision, a financial instrument or other contract could meet the IFRS definition of a derivative but not the U.S. GAAP definition (e.g., certain requirements contracts that do not specify a

¹¹⁹ The notional amount (or notional principal amount or notional value) on a financial instrument is the nominal or face amount that is used to calculate payments made on that instrument. This amount generally does not change hands and is thus referred to as notional.

minimum quantity to be acquired would not necessarily be deemed to have a notional amount or payment provision under U.S. GAAP, but may meet the definition of a derivative under IFRSs).

5.1.2 "Net settlement" versus "settlement at a future date" characteristic

The U.S. GAAP definition of a derivative requires the presence of a net settlement characteristic in the financial instrument or other contract (ASC 815-10-15-83(c)), while IFRSs require either gross or net settlement of the financial instrument or other contract as of a future date (paragraph 9 of IAS 39).

However, under IFRSs, contracts to buy, sell, or use a non-financial item are only accounted for as derivatives if they can be settled net (either explicitly or implicitly). In addition, there is an "own-use" scope exception for many of these contracts.

Under U.S. GAAP, the net settlement criterion can be met if a financial instrument or other contract can readily be settled net by a means outside the contract or if the terms of the instrument provide for delivery of an asset that puts the recipient in a position not substantially different from net settlement. Stated differently, net settlement exists when a market mechanism facilitates net settlement or when the asset to be delivered under the contract is readily convertible to cash or is itself a derivative instrument.

Because the IFRS definition of a derivative permits gross or net settlement but does not require net settlement, some financial instruments could meet the definition of a derivative under IFRSs but not under U.S. GAAP. For example, a purchased option on an unquoted security may not meet the definition of a derivative under U.S. GAAP because the underlying security is not readily convertible to cash (i.e., does not meet the net settlement criterion). In contrast, IFRSs would most likely require the option to be accounted for as a derivative.

5.1.3 Prepaid interest rate swaps

IFRSs and U.S. GAAP differ in their application to prepaid interest rate swaps. Both sets of standards do not consider an arrangement in which the entity prepays its obligation under a pay-variable, receive-fixed interest rate swap to meet the definition of a derivative. However, the determination differs for cases in which the entity prepays its obligation under a pay-fixed, receive-variable interest rate swap. IFRSs require an entity to account for this type of arrangement as a freestanding derivative. Under U.S. GAAP, however, an entity must account for this type of interest rate swap as a freestanding derivative if the prepayment amount is less than the effective notional amount of the interest rate swap multiplied by its variable-rate underlying (see ASC 815-10-15-97 and ASC 815-10-55-148 through 55-168).

Even if an arrangement does not meet the freestanding derivative criteria under U.S. GAAP, however, the entity must evaluate the arrangement for embedded derivatives. ASC 815-10-55-156 through 55-165 state that such an arrangement is essentially a debt host contract with an embedded interest rate

swap whose fair value equals zero at inception. Unless the entity accounts for the entire instrument at fair value with changes in fair value recorded in earnings, the entity may have to bifurcate it into its debt host component and the interest rate swap component and account for them separately.

5.2 SCOPE EXCEPTIONS

5.2.1 Normal purchases and normal sales versus own-use contracts

Both IFRSs and U.S. GAAP provide scope exceptions for contracts to purchase non-financial items that will be purchased, sold, or used in the normal course of business (i.e., in accordance with the requirements of the business); however, the IFRS scope exception in paragraph 5 of IAS 39 is not elective and does not require an entity to document its designation of a contract as "normal" or "own-use."

Under U.S. GAAP, contracts subject to unplanned netting (e.g., "book-outs" in the electricity utility industry) typically do not qualify for the normal purchases and normal sales exception in ASC 815-10-15-13(b). However, ASC 815-10-15-46 states that a power purchase or sales agreement that meets certain criteria still may be eligible for the normal purchases and normal sales scope exception even if it is subject to being booked out or is scheduled to be booked out. Such a contract may not qualify for the scope exception in IFRSs, because an entity's past history of net-settling similar contracts would indicate that the contract was not "*entered into for the purpose of the receipt or delivery of the non-financial item in accordance with the entity's expected purchase, sale or usage requirements*," as required by paragraph 7 of IAS 39.

Under IFRSs, the own-use scope exception cannot be applied to written options to buy, sell, or use a non-financial item when the option can be settled net in cash or with another financial instrument, or by exchanging financial instruments, or the non-financial item subject to the option is readily convertible to cash.

Although written options are typically accounted for as derivatives, there is diversity in what is considered a written option for a non-financial item because IFRSs do not define the term "written option."

Two primary approaches have developed in practice for determining whether a financial instrument or other contract is a written option. They include considering whether a premium is received by the writer and whether the holder of the option has the ability to exercise the option to make a profit.

In U.S. GAAP, a freestanding option contract that "*would require delivery of the related asset at an established price under the contract only if exercised*" does not qualify for the normal purchases and normal sales exception, unless it is a power purchase or sales agreement that meets certain criteria.

Many of the contracts that qualify for the normal purchases and normal sales exception under ASC 815-10-15-45 through 15-51 and ASC 815-10-55-31 are written option contracts. A forward contract

that contains an optionality feature is also permitted under U.S. GAAP to qualify for the normal purchases and normal sales scope exception as long as that optionality feature does "*not modify the quantity of the asset to be delivered under the contract.*"

Another difference between how the normal purchases and normal sales scope exception and the own-use scope exception are applied under U.S. GAAP and IFRSs, respectively, is that under U.S. GAAP, a contract is not permitted to qualify for the scope exception if it contains an embedded derivative that is not clearly and closely related. Further, an entity is prohibited from separating a compound derivative into a portion that qualifies for the scope exception and a portion that is accounted for as a derivative. IFRSs do not similarly restrict the application of the own-use scope exception and permit separation of a hybrid contract into a derivative component that is accounted for at fair value and an own-use component that is not accounted for as a derivative.

5.2.2 Certain contracts not traded on an exchange

Pursuant to paragraph 2(e) of IAS 39, a contract with an underlying that is based on a climatic or geological variable or on some other physical variable (e.g., a weather derivative) is accounted for as a derivative unless it meets the definition of an insurance contract in IFRS 4, in which case it is accounted for in accordance with this standard. ASC 815-10-15-59(a) states that a contract whose underlying is "[a] climatic or geological variable or other physical variable" is not within the scope of ASC 815 if that contract is not exchange-traded. On the basis of this difference, a contract with these characteristics could be accounted for differently under IFRSs than under U.S. GAAP.

ASC 815-10-15-59(d) also provides a scope exception for contracts not traded on an exchange that have an underlying based on "[s]pecified volumes of sales or service revenues of one of the parties to the contract." IFRSs do not explicitly provide the same exception, but paragraph AG2 of IAS 39 notes that it "does not change the requirements relating to . . . royalty agreements based on the volume of sales or service revenues that are accounted for under IAS 18, *Revenue.*" On the basis of these differences, certain contracts could be accounted for differently under IFRSs than under U.S. GAAP.

5.2.3 Investments in life insurance and loan commitments

ASC 815-10-15-67 provides a scope exception for a policyholder's investment in a life insurance contract accounted for under ASC 325-30. Paragraph 2(e) of IAS 39 provides a scope exception for rights arising under insurance contracts as defined in IFRS 4. Accordingly, depending on whether the investment in a life insurance contract meets the definition of an insurance contract under IFRS 4, it may or may not be within the scope of IAS 39.

In U.S. GAAP, an issuer's commitment to originate a mortgage loan that will be held for sale is within the scope of ASC 815 and is accounted for as a derivative and carried at fair value; other loan commitments are outside the scope of ASC 815 (ASC 815-10-15-69 through 15-71). Under paragraph

4 of IAS 39, the only loan commitments reported at fair value with changes in fair value reported through profit or loss are (1) those "that can be settled net in cash or by delivering or issuing another financial instrument," (2) those for which the entity elects the fair value option, and (3) those for which the entity has a past practice of selling the assets resulting from its loan commitment shortly after origination. In addition, IAS 39 applies to all loan commitments, not solely to mortgage loan commitments. IFRSs do not differentiate between the accounting for the holder (i.e., the potential borrower) and the issuer of the commitment. Since IFRSs require fair value accounting for more loan commitments and do not exempt the holders of such commitments from applying derivative accounting, the scope exception in IFRSs is narrower than that in U.S. GAAP. This may result in more types of loan commitments being accounted for at fair value under IFRSs.

Note that IAS 39, whose scope is broader than that of ASC 815, also prescribes the accounting for loan commitments to provide a loan at a below-market interest rate; however, such loan commitments are not accounted for at fair value.

5.2.4 Contracts Issued or Held by a Reporting Entity on Its Own Stock

Both IFRSs and U.S. GAAP provide a scope exception from derivative accounting for contracts issued or held by a reporting entity (only from the reporting entity's perspective) with an underlying based on the entity's own stock and classified in stockholders' equity in its statement of financial position. The scope exceptions in both sets of guidance rely on the definition of equity to determine which financial instruments or other contracts qualify for the scope exception.

ASC 815-10-15-74(a) indicates that an issuer's contract that would otherwise meet the definition of a derivative that is both (1) indexed to the issuer's stock and (2) classified in stockholders' equity in its statement of financial position shall not be considered a derivative. If a freestanding financial instrument meets the scope exception in ASC 815-10-15-74(a), it is classified as an equity instrument, not as a derivative. An entity should look to ASC 815-40 to determine whether an instrument is (1) indexed to the issuer's stock and (2) classified in stockholders' equity in its statement of financial position.

For embedded features, ASC 815-15-25-1 requires bifurcation of an embedded derivative instrument if certain criteria are met. One criterion, set forth in ASC 815-15-25-1(c), is that a separate instrument with the same terms as the embedded derivative instrument would be a derivative instrument subject to the requirements of ASC 815. Consequently, if an embedded feature (for example, the conversion option embedded in a convertible debt instrument) meets the scope exception in ASC 815-10-15-74(a), it would not be separated from the host contract and accounted for as a derivative by the issuer.

When an entity makes its determination of whether a financial instrument or embedded feature (collectively "instrument") qualifies for the ASC 815-10-15-74(a) exception, it must look to the guidance in ASC 815-40-15-5 through 15-8 and ASC 815-40-55-26 through 55-48 to determine

whether the instrument should be considered indexed to the issuer's stock. Assuming the entity can conclude that the instrument is indexed to the issuer's stock, it must then apply the guidance in ASC 815-40-25 to determine whether the instrument would be classified as equity or as an asset/liability.

ASC 815-40-15-7A indicates that any instrument that is potentially settled in an entity's own stock and includes an exercise contingency (i.e., a provision that entitles the entity (or the counterparty) to exercise the financial instrument on the basis of changes in an underlying, including the occurrence (or non-occurrence) of a specified event) is potentially considered indexed to the entity's own stock (i.e., it is not precluded from classification as equity) if the exercise contingency is not based on (1) an observable market, other than the market for the issuer's stock (if applicable) or (2) an observable index, other than an index calculated or measured solely by reference to the issuer's own operations (e.g., revenue of the issuer).

In addition to performing the contingency test, the entity also must assess whether the settlement features of the instrument meet the ASC 815-40-15-7C through 15-8 criteria for the instrument to be deemed indexed to the entity's own stock. An instrument that is not indexed to the entity's own stock cannot be within the scope of ASC 815-40-25, and therefore could not qualify as equity of the entity. The model in ASC 815-40-15-7C through 15-8 requires an instrument's settlement provisions to be "fixed-for-fixed, plus fair value inputs" for the instrument to be considered indexed to the entity's own stock and fall within the scope of ASC 815-40-25. For financial instruments in the scope of ASC 815-40-25, the entity must evaluate the instrument's potential settlement alternatives to determine the appropriate classification between equity and an asset/liability. Under ASC 815-40-25, a net-share-settled contract could qualify for classification as equity.

Paragraph 22 of IAS 32 states, in part, "Except as stated in paragraph 22A, a contract that will be settled by the entity (receiving or) delivering a fixed number of its own equity instruments in exchange for a fixed amount of cash or another financial asset is an equity instrument." Sometimes this model is referred to as a "fixed-for-fixed" model. A net-share-settled contract would not qualify for classification as equity. Refer to Q&A Derivatives: 2 for more information on the comparison of the two models. The IFRS model for determining whether a financial instrument is equity generally is narrower in scope than the U.S. GAAP model, leading entities to classify fewer financial instruments as equity under IFRSs than under U.S. GAAP. As a result, IFRSs potentially classify more financial instruments as derivatives.

5.2.5 Contracts Whose Underlying Is a Non-marketable Equity Security

Under IFRSs, derivatives that are based on, and that will be settled in, an unquoted equity instrument are accounted for as derivatives at fair value unless fair value cannot be reliably measured. If fair value cannot be reliably measured, the entity should measure the instrument at its cost basis (paragraphs 46(c) and 47(a) of IAS 39).

Under U.S. GAAP, there is no similar requirement to record derivatives whose fair value cannot be reliably measured at historical cost. However, contracts that are based on, and that will be settled in, an unquoted equity security usually would not meet the net settlement criterion in the definition of a derivative (unless they can be net-share-settled). Accordingly, such contracts would usually not be accounted for as derivatives, irrespective of whether their fair value can be reliably measured.

5.2.6 Other Scope Exceptions of Interest

Both IFRSs and U.S. GAAP exclude lease transactions from the scope of derivative accounting. Paragraph 2(b) of IAS 39 and ASC 815-10-15-79 do so explicitly. However, a lease a may contain an embedded derivative that may be subject to IAS 39 and ASC 815. It is important to note that ASC 840 provides guidance on determining whether certain energy contracts, including capacity contracts, requirements contracts, and transportation contracts, should be accounted for as leases under ASC 840 instead of as derivatives under ASC 815.

Another scope exception that is similar between IFRSs and U.S. GAAP is that financial instruments that represent rights and obligations accounted for as insurance contracts are not included within the scope of derivative accounting. While both sets of standards provide for a scope exception, IFRSs define insurance contracts in IFRS 4, and any contract that meets this definition qualifies for the scope exception from derivative accounting in paragraph 2(e) of IAS 39. Under U.S. GAAP, a similar definition of an insurance contract is not provided; however, ASC 815-10-15-52 provides a scope exception for certain insurance contracts that meet the requirements in ASC 815-10-15-52 through 15-57. The difference in defining insurance contracts could result in accounting differences for certain financial instruments.

IV GLOBAL INVESTMENT PERFORMANCE STANDARDS

1. PREAMBLE: WHY IS A GLOBAL STANDARD NEEDED?

The financial markets and the investment management industry are becoming increasingly global in nature. Given the variety of financial entities and countries involved, this globalization of the investment process and the exponential growth of assets under management demonstrate the need to standardize the calculation and presentation of investment performance.

Prospective clients and asset managers can now benefit from an established standard for investment performance measurement and presentation that is recognized worldwide.

Investment practices, regulation, performance measurement, and reporting of performance results vary considerably from country to country. Some countries have guidelines that are widely accepted within their borders, and others have few recognized standards for presenting investment performance.

Requiring investment managers to adhere to performance presentation standards helped assure investors that the performance information is both complete and fairly presented.

Additionally firms in countries with minimal presentation standards are able to compete for business on an equal footing with firms from countries that have more developed standards. Companies from countries with established practices have more confidence of being fairly compared to “local” firms when competing for business in countries that have not previously adopted performance standards.

Therefore both prospective and existing clients of investment firms had benefit from a global investment performance standard by having a greater degree of confidence in the performance numbers presented by the firms. Performance standards that are accepted in *all* countries enable all investment firms to measure and present their investment performance so that clients can readily compare investment performance among firms.

2. GLOBAL INVESTMENT PERFORMANCE STANDARDS: VISION, OBJECTIVES AND OVERVIEW

A global investment performance standard leads to readily accepted presentations of investment performance that:

- present performance results that are readily comparable among investment managers, without regard to geographic location, and
- Facilitate a dialogue between investment managers and their prospective clients about the critical issues of how the manager achieved performance results and future investment strategies.

The main goals that want to be achieved with such approach can be summarized as follows:

1. To obtain worldwide acceptance of a standard for the calculation and presentation of investment performance in a fair, comparable format that provides full disclosure.
2. To ensure accurate and consistent investment performance data for reporting, record keeping, marketing, and presentation.
3. To promote fair, global competition among investment firms for all markets without creating barriers to entry for new firms.
4. To foster the notion of industry self-regulation on a global basis.

The Global Investment Performance Standards (GIPS) have several key characteristics:

- a. GIPS are ethical standards for investment performance presentation to ensure fair representation and full disclosure of an investment firm's performance history.
- b. GIPS exist as a minimum worldwide standard where local or country-specific law, regulation, or industry standards may not exist for investment performance measurement and/or presentation.
- c. GIPS require managers to include all actual fee-paying discretionary portfolios in composites defined according to similar strategy and/or investment objective and require firms to show GIPS compliant history for a minimum of five years, or since inception of the firm or composite if in existence less than five years.
- d. GIPS require firms to use certain calculation and presentation methods and to make certain disclosures along with the performance record.
- e. GIPS rely on the integrity of input data. The accuracy of input data is critical to the accuracy of the performance presentation. For example, benchmarks and composites should be created/selected on an *ex ante* basis, not after the fact.
- f. GIPS consist of guidelines that firms are required to follow in order to claim compliance. The adoption of other elements of GIPS is recommended for firms to achieve best practice in performance presentation.
- g. GIPS apply to the presentation of investment performance of assets managed on behalf of a third party.
- h. GIPS should be applied with the goal of full disclosure and fair representation of investment performance. Meeting the objective of full and fair disclosure is likely to require more than compliance with the minimum requirements of GIPS. If an investment firm applies GIPS in a performance situation that is not addressed specifically by the Standards, or is open to interpretation, disclosures other than those required by GIPS may be necessary. To fully explain the performance included in a presentation, firms are encouraged to present all relevant supplemental information.
- i. In cases in which applicable local or country-specific law or regulation conflicts with GIPS, the Standards require firms to comply with the local law or regulation and make full disclosure of the conflict.

j. GIPS do not address every aspect of performance measurement, valuation, attribution, or coverage of all asset classes. GIPS will evolve over time to address additional aspects of investment performance. Certain recommended elements in GIPS may become requirements in the future.

3. APPLICATION AND SCOPE OF THE GLOBAL INVESTMENT PERFORMANCE STANDARDS

Investment management firms from any country may come into compliance with GIPS. Compliance with GIPS will facilitate a firm's participation in the investment management industry on a global level.

GIPS must be applied on a firm-wide basis.

A company may define itself as:

- an entity registered with the appropriate national regulatory authority overseeing the entity's investment management activities; *or*
- an investment firm, subsidiary, or division held out to clients or potential clients as a distinct business unit (e.g., a subsidiary firm or distinct business unit managing private client assets may claim compliance for itself without its parent organization being in compliance);

In any case when presenting investment performance in compliance with GIPS, an investment management firm must state how it defines itself as a "firm."

A company is subsequently required to present, at a minimum, five years of annual investment performance that is compliant with GIPS. If the firm or composite has been in existence less than five years, firms must present performance since the inception of the firm or composite.

After a firm presents five years of compliant history, it must present additional annual performance up to ten years. For example, after a firm presents five years of compliant history, it must add an additional year of performance each year so that after five years of claiming compliance, the firm presents a ten year performance record.

A company may link a non-GIPS-compliant performance record to their compliant history so long and the firm discloses the periods of non-compliance and explains how the presentation is not in compliance with GIPS.

In any case nothing shall prevent firms from immediately presenting more than five years of compliant performance results.

Companies must meet *all* the requirements set forth in GIPS to claim compliance with GIPS. GIPS requirements must be met immediately by a firm claiming compliance, here below there is a short list of the most recent requirements:

a. Portfolios must be valued at least monthly for periods beginning January 1, 2001.

- b. Time-weighted rates of return¹²⁰ adjusted for cash flows are required. Firms must use time-weighted rates of return *adjusted for daily-weighted* cash flows for periods beginning January 1, 2005.
- c. For periods beginning January 1, 2010, firms are likely required to value portfolios on the date of any external cash flow.
- d. Firms must use trade-date accounting for periods beginning January 1, 2005.
- e. Accrual accounting¹²¹ must be used for dividends (as of the ex dividend date) for periods beginning January 1, 2005.

¹²⁰ Measure of the compound rate of growth in a portfolio. This method eliminates the distorting effects created by inflows of new money; it is used to compare the returns of investment managers.

This is also called the "geometric mean return," as the reinvestment is captured by using the geometric total and mean, rather than the arithmetic total and mean.

It is assumed that all cash distributions are reinvested in the portfolio and the exact same periods are used for comparisons. When calculating time-weighted rate of return, the effect of varying cash inflows is eliminated by assuming a single investment at the beginning of a period and measuring the growth or loss of market value to the end of that period.

Time weighted rate of return measures the compound rate of return over a given period for one unit of money. A Money-weighted rate of return, by contrast, measures the compound growth rate in the value of *all* funds invested in the account over the evaluation period.

MWR represents the average growth rate of all money invested, while TWR represents the growth of a single unit invested.

MWR is sensitive to the timing of external cash flows, whereas TWR is not affected.

Time-weighted return is the superior measure for evaluating managers with no control over the size or timing of cash flows. For example, a mutual fund manager would have no control over whether investors deposit or withdraw funds on any given day. In order to comply with Global Investment Performance Standards (GIPS) returns must be presented on a time-weighted basis.

However, there are situations in which MWR might be a more appropriate measure. Private equity managers, for example, typically receive commitments from investors but do not accept the funds until they have an appropriate investment. Since they can control the size and timing of cash flows, it is more appropriate to judge them based on the money-weighted return.

¹²¹ Accounting method that records revenues and expenses when they are incurred, regardless of when cash is exchanged. The term "accrual" refers to any individual entry recording revenue or expense in the absence of a cash transaction

Most businesses typically use one of two basic accounting methods in their bookkeeping systems: cash basis or accrual basis.

The cash method is the most simple in that the books are kept based on the actual flow of cash in and out of the business. Income is recorded when it's received, and expenses are reported when they're actually paid. The cash method is used by many sole proprietors and businesses with no inventory. From a tax standpoint, it is sometimes advantageous for a new business to use the cash

Until these requirements were not effective, these provisions should have been considered recommendations. Firms were encouraged to implement these requirements prior to their effective date. To ease compliance with GIPS when the requirements took effect, firms should have designed performance software to incorporate them.

Firms must take all steps necessary to ensure that they have satisfied all of the requirements of GIPS before claiming compliance with GIPS. Firms are strongly encouraged to perform periodic internal compliance checks and implement adequate business controls on all stages of the investment performance process—from data input to presentation material—to ensure the validity of compliance claims.

4. THIRD-PARTY PERFORMANCE MEASUREMENT, COMPOSITE AND CLAIM OF COMPLIANCE

GIPS recognize the role of independent third-party performance measurers and the value they can add to the firm's performance-measurement activities. Where third-party performance measurement is an established practice or is available, firms are encouraged to use this service as it applies to the investment firm. Similarly, where the practice is to allow third parties to construct composites¹²² for

method of accounting. That way, recording income can be put off until the next tax year, while expenses are counted right away.

With the accrual method, income and expenses are recorded as they occur, regardless of whether or not cash has actually changed hands. An excellent example is a sale on credit. The sale is entered into the books when the invoice is generated rather than when the cash is collected. Likewise, an expense occurs when materials are ordered or when a workday has been logged in by an employee, not when the check is actually written. The downside of this method is that you pay income taxes on revenue before you've actually received it.

In the US the accrual method is required if your business' exceed \$5 million a year and your venture is structured as a corporation. In addition, businesses with inventory must also use the accrual method. It's also highly recommended for any business that sells on credit, as it more accurately matches income and expenses during a given time period.

The cash method may be appropriate for a small, cash-based business or a small service company. You should consult your accountant when deciding on an accounting method.

¹²² Composites are single groups of discretionary portfolios that collectively represent a particular investment strategy or objective.

Composite Construction – Requirements

1. Actual, fee-paying, discretionary portfolios must be included in at least one composite. Non-fee-paying discretionary accounts may be included.
2. Nondiscretionary accounts must not be included in a composite.

investment firms, companies can use such composites in a GIPS-compliant presentation only if the composites comply with GIPS.

Once a firm has met all of the required elements of GIPS, the firm may use the following “Compliance Statement” to indicate that the performance presentation is in compliance with GIPS:

“[Insert name of firm] has prepared and presented this report in compliance with the Global Investment Performance Standards (GIPS)”.

If the performance presentation does not meet all of the requirements of GIPS, firms cannot represent that the performance presentation is “in compliance with the Global Investment Performance Standard *except for . . .*”

3. Composites are defined based on a common investment objective or strategy. A full definition must be made available upon request.

4. New accounts are included in composites in a timely manner and one that is consistently applied, once the account comes under full discretionary management.

5. Terminated accounts must be included in the historical record up to the last full measurement period in which they were under management. In other words, there is no survivorship bias where terminated accounts are eliminated.

6. Accounts cannot be switched from one composite to another unless the client’s objectives are documented to have changed, and the record of the portfolio remains in the appropriate composite.

7. Hybrid securities (e.g. convertibles) must be treated consistently within composites.

8. Carve-out segments (i.e. a single asset class that is carved out of a diversified portfolio – such as the returns on foreign stocks within a balanced account) must include a cash allocation that is consistently applied. Starting Jan 1, 2010, carve-out returns are not permitted unless the asset class is actually managed separately (with its own separate cash balance).

9. Composites must only include assets under management within the defined firm.

10. Simulated or model returns cannot be linked with actual performance.

11. If a minimum asset level is established, no account below that value can be included, and changes to the minimum level cannot be made retroactively.

Composite Construction – Recommendations

1. Carve-out returns should be excluded unless they are actually managed separately with their own cash balance (i.e. the standard that becomes mandatory in 2010).

2. To remove the effect of a significant cash flow, accounts receiving large external cash flows should use a temporary new account – in other words, place the amount of the deposit as if it were a new account but not part of the existing account. This method is an improvement versus simply excluding the account that received the deposit from composite calculations.

3. Firms are discouraged from marketing a composite with a minimum asset level to a client with assets below that level.

Statements referring to the calculation methodology used in a presentation as being “*in accordance* (or compliance) with the Global Investment Performance Standards” are prohibited except when applied to the performance of a single, existing client.

5. RELATIONSHIP OF GIPS WITH COUNTRY SPECIFIC LAWS, REGULATIONS AND INDUSTRY STANDARDS

GIPS fill the void where no country standards exist. Regulators and investment organizations worldwide are strongly encouraged to recognize and adopt GIPS as the performance presentation standard applicable to their constituencies.

If there is a need for country specific guidelines that go beyond GIPS, regulators and organizations are encouraged to develop and implement such guidelines to augment, but not conflict with, GIPS. Regulators are urged to supervise country compliance with GIPS and any country-specific standards that may exist.

Where existing laws, regulations, or industry standards already impose performance presentation standards, firms are strongly encouraged to comply with GIPS *in addition to* those local requirements. Compliance with applicable law or regulation does not necessarily lead to compliance with GIPS. When complying with GIPS and local law or regulation, firms must disclose any local laws and regulations that conflict with GIPS.

The establishment of GIPS will minimize the complexities that result with the existing contingent reciprocity agreements among organizations with their own standards.

Organizations are encouraged to recognize GIPS rather than establish “country-to-country” reciprocity agreements for country specific standards. When a country or group establishes local performance presentation standards, such standards should incorporate all of the required elements of the GIPS and state that compliance with GIPS is equivalent to compliance with the local standards.

6. THE GLOBAL INVESTMENT PERFORMANCE STANDARD

GIPS is divided into five sections that reflect the basic elements involved in presenting performance information:

Input Data,

1. Input Data,
2. Calculation Methodology,
3. Composite Construction,
4. Disclosures, and
5. Presentation and Reporting.

1. *Input Data*: Consistency of input data is critical to effective compliance with GIPS and establishes the foundation for full, fair, and comparable investment performance presentations. The Standards provide the blueprint for a firm to follow in constructing this foundation.

2. *Calculation Methodology*: Achieving comparability among investment management firms' performance presentations requires uniformity in methods used to calculate returns. The Standards mandate the use of certain calculation methodologies (e.g., performance must be calculated using a time-weighted total-rate-of return method).

3. *Composite Construction*: A composite is an aggregation of a number of portfolios into a single group that represents a particular investment objective or strategy. The composite return is the asset-weighted average of the performance results of all the portfolios in the composite.

Creating meaningful, asset-weighted composites is critical to the fair presentation, consistency, and comparability of results over time and among firms.

4. *Disclosures*: Disclosures allow firms to elaborate on the raw numbers provided in the presentation and give the end user of the presentation the proper context in which to understand the performance results. To comply with GIPS, firms must disclose certain information about their performance presentation and the calculation methodology adopted by the firm. Although some disclosures are required of all firms, others are specific to certain circumstances and thus may not be applicable in all situations.

5. *Presentation and Reporting*: After constructing the composites, gathering the input data, calculating returns, and determining the necessary disclosures, the firm must incorporate this information in presentations based on the guidelines set out in GIPS for presenting the investment performance results. No finite set of guidelines can cover all potential situations or anticipate future developments in investment industry structure, technology, products, or practices. When appropriate, firms have the responsibility to include in GIPS-compliant presentations information not covered by the Standards.

The Standards for each section are divided between requirements, listed first in each section, and recommended guidelines. Firms must follow the required elements of GIPS to claim compliance with GIPS. Firms are strongly encouraged to adopt and implement the recommendations to ensure that the firm fully adheres to the spirit and intent of GIPS.

Although GIPS may be translated into many languages, if a discrepancy arises between the different versions of the standards, the English version of GIPS is controlling.

6.1 INPUT DATA

Requirements:

- All data and information necessary to support a firm's performance presentation and to perform the required calculations must be captured and maintained.

- Portfolio valuations must be based on market values (not cost basis or book values)¹²³.
- Portfolios must be valued at least quarterly. For periods beginning January 1, 2001, portfolios must be valued at least monthly. For periods beginning January 1, 2010, firms are required to value portfolios on the date of any external cash flow.
- Firms must use trade-date accounting for periods beginning January 1, 2005.
- Accrual accounting must be used for fixed-income securities and all other assets that accrue interest income.
- Accrual accounting must be used for dividends (as of the ex dividend date) for periods beginning January 1, 2005.

Furthermore the sources of exchange rates should be the same for the composite and the benchmark.

6.2 CALCULATION METHODOLOGY

Requirements:

- Total return¹²⁴, including realized and unrealized gains plus income, must be used.

¹²³ Market value is the price at which an asset would trade in a competitive setting. Market value is often used interchangeably with *open market value*, *fair value* or *fair market value*, although these terms have distinct definitions in different standards, and may differ in some circumstances.

Book value or carrying value is the value of an asset according to its balance sheet account balance. For assets, the value is based on the original cost of the asset less any depreciation, amortization or impairment costs made against the asset. Traditionally, a company's book value is its total assets minus intangible assets and liabilities. However, in practice, depending on the source of the calculation, book value may variably include goodwill, intangible assets, or both. When intangible assets and goodwill are explicitly excluded, the metric is often specified to be "tangible book value".

Cost is the value of money that has been used up to produce something, and hence is not available for use anymore. The cost may be one of acquisition, in which case the amount of money expended to acquire it is counted as cost. In this case, money is the input that is gone in order to acquire the thing. This acquisition cost may be the sum of the cost of production as incurred by the original producer, and further costs of transaction as incurred by the acquirer over and above the price paid to the producer.

¹²⁴ When measuring performance, the actual rate of return of an investment or a pool of investments over a given evaluation period. Total return includes interest, capital gains, dividends and distributions realized over a given period of time.

Total return accounts for two categories of return: income and capital appreciation. Income includes interest paid by fixed-income investments, distributions or dividends. Capital appreciation represents the change in the market price of an asset.

- Time-weighted rates of return that adjust for cash flows must be used. Periodic returns must be geometrically linked¹²⁵. Time-weighted rates of return that adjust for daily-weighted cash flows must be used for periods beginning January 1, 2005. Actual valuations at the time of external cash flows are likely required for periods beginning January 1, 2010.
- In both the numerator and the denominator, the market values of fixed-income securities must include accrued income.
- Composites must be asset weighted using beginning-of-period weightings or another method that reflects both beginning market value and cash flows.
- Returns from cash and cash equivalents¹²⁶ held in portfolios must be included in total-return calculations.
- Performance must be calculated after the deduction of all trading expenses.
- If a firm sets a minimum asset level for portfolios to be included in a composite, no portfolios below that asset level can be included in the composite.

In addition returns should be calculated net of non-reclaimable withholding taxes on dividends, interest, and capital gains. Reclaimable withholding taxes should be accrued.

Performance adjustments for external cash flows should be treated in a consistent manner. Significant cash flows (i.e., 10 percent of the portfolio or greater) that distort performance (i.e., plus or minus 0.2 percent for the period) may require portfolio revaluation on the date of the cash flow (or after investment) and the geometric linking of sub-periods.

6.3 COMPOSITE CONSTRUCTION

Requirements:

¹²⁵ Equation below assumes equal time periods: $(1 + S_1) \times (1 + S_2) \times \dots (1 + S_n) - 1$. Time weighted formula is as follow: If $T = t_1+t_2+\dots+t_n$ and $1+T R = (1+t_1 r_1).(1+t_2 r_2)....(1+t_n r_n)$ then $R = [(1+t_1 r_1).(1+t_2 r_2)....(1+t_n r_n) - 1] / T$

¹²⁶ Cash and cash equivalents are the most liquid assets found within the asset portion of a company's balance sheet. Cash equivalents are assets that are readily convertible into cash, such as money market holdings, short-term government bonds or Treasury bills, marketable securities and commercial paper. Cash equivalents are distinguished from other investments through their short-term existence; they mature within 3 months whereas short-term investments are 12 months or less, and long-term investments are any investments that mature in excess of 12 months. Another important condition a cash equivalent needs to satisfy is that the investment should have insignificant risk of change in value; thus, common stock cannot be considered a cash equivalent, but preferred stock acquired shortly before its redemption date can be.

- All actual fee-paying discretionary portfolios must be included in at least one composite.
- Firm composites must be defined according to similar investment objectives and/or strategies.
- Composites must include new portfolios on a timely and consistent basis after the portfolio comes under management—unless specifically mandated by the client.
- Terminated portfolios must be included in the historical record of the appropriate composites up to the last full measurement period that the portfolio was under management.
- Portfolios must not be switched from one composite to another unless documented changes in client guidelines or the redefinition of the composite make switching appropriate. The historical record of the portfolio must remain with the appropriate composite.
- Convertible and other hybrid securities must be treated consistently across time and within composites.
- Carve-out¹²⁷ returns excluding cash cannot be used to create a stand-alone composite. When a single asset class is carved out of a multiple-asset portfolio and the returns are presented as part of a single-asset composite, cash must be allocated to the carve-out returns and the allocation method must be disclosed. Since January 1, 2005, carve-out returns must not be included in single asset class composite returns unless the carve-outs are actually managed separately with their own cash allocations.
- Composites must include only assets under management and may not link simulated or model portfolios with actual performance.

Furthermore separate composites should be created to reflect different levels of allowed asset exposure.

Unless the use of hedging is negligible, portfolios that allow the use of hedging should be included in different composites from those that do not.

6.4 DISCLOSURES

The following disclosures are *mandatory*:

- The definition of "firm" used to determine the firm's total assets and firm-wide compliance.
- Total firm assets for each period.
- The availability of a complete list and description of all of the firm's composites.
- If settlement-date valuation is used by the firm.

¹²⁷ A situation in which a parent company sells a minority share of a child company, usually in an IPO, while retaining the rest. The child company will have its own board of directors and financial statements, but will benefit from the parent company's resources and strategic support. Usually, the parent company will eventually sell the rest of the child company in the open market. **also called** partial spin-off

- The minimum asset level, if any, below which portfolios are not included in a composite.
- The currency used to express performance.
- The presence, use and, extent of leverage¹²⁸ or derivatives, including a description of the use, frequency and characteristics of the instruments sufficient to identify risks.

¹²⁸ In finance, leverage is a general term for any technique to multiply gains and losses. Common ways to attain leverage are borrowing money, buying fixed assets and using derivatives.

Important examples are:

- A public corporation may leverage its equity by borrowing money. The more it borrows, the less equity capital it needs, so any profits or losses are shared among a smaller base and are proportionately larger as a result.
- A business entity can leverage its revenue by buying fixed assets. This will increase the proportion of fixed, as opposed to variable, costs, meaning that a change in revenue will result in a larger change in operating income.
- Hedge funds often leverage their assets by using derivatives.

A good deal of confusion arises in discussions among people who use different definitions of leverage. The term is used differently in investments and corporate finance, and has multiple definitions in each field.

Accounting leverage is total assets divided by total assets minus total liabilities. Notional leverage is total notional amount of assets plus total notional amount of liabilities divided by equity. Economic leverage is volatility of equity divided by volatility of an unlevered investment in the same assets. To understand the differences, consider the following positions, all funded with \$100 of cash equity.

- Buy \$100 of crude oil. Assets are \$100 (\$100 of oil), there are no liabilities. Accounting leverage is 1 to 1. Notional amount is \$100 (\$100 of oil), there are no liabilities and there is \$100 of equity. Notional leverage is 1 to 1. The volatility of the equity is equal to the volatility of oil, since oil is the only asset and you own the same amount as your equity, so economic leverage is 1 to 1.
- Borrow \$100 and buy \$200 of crude oil. Assets are \$200, liabilities are \$100 so accounting leverage is 2 to 1. Notional amount is \$200, equity is \$100 so notional leverage is 2 to 1. The volatility of the position is twice the volatility of an unlevered position in the same assets, so economic leverage is 2 to 1.
- Buy \$100 of crude oil, borrow \$100 worth of gasoline and sell the gasoline for \$100. You now have \$100 cash, \$100 of crude oil and owe \$100 worth of gasoline. Your assets are \$200, liabilities are \$100 so accounting leverage is 2 to 1. You have \$200 notional amount of assets plus \$100 notional amount of liabilities, with \$100 of equity, so your notional leverage is 3 to 1. The volatility of your position might be half the volatility of an unlevered investment in the same assets, since the price of oil and the price of gasoline are positively correlated, so your economic leverage might be 0.5 to 1.

- Whether performance results are calculated gross or net of investment management fees and other fees paid by the clients to the firm or to the firm's affiliates.
- Relevant details of the treatment of withholding tax on dividends, interest income, and capital gains. If using indexes that are net of taxes, firms must disclose the tax basis of the composite (e.g., Luxembourg based or U.S. based) versus that of the benchmark.
- For composites managed against specific benchmarks, the percentage of the composites invested in countries or regions not included in the benchmark.
- Any known inconsistencies between the chosen source of exchange rates and those of the benchmark must be described and presented.
- Whether the firm has included any non-fee-paying portfolios in composites and the percentage of composite assets that are non-fee-paying portfolios.
- Whether the presentation conforms with local laws and regulations that differ from GIPS requirements and the manner in which the local standards conflict with GIPS.
- For any performance presented for periods prior to January 1, 2000, that does not comply with GIPS, the period of non-compliance and how the presentation is not in compliance with GIPS.
- When a single asset class is carved out of a multiple-asset portfolio and the returns are presented as part of a single-asset composite, the method used to allocate cash to the carve-out returns.

There is then a series of disclosures which are only *recommended*:

- The portfolio valuation sources and methods used by the firm.
- The calculation method used by the firm.
- When gross-of-fee performance is presented, the firm's fee schedule(s) appropriate to the presentation.
- When only net-of-fee performance is presented, the average weighted management and other applicable fees.
- Any significant events within the firm (such as ownership or personnel changes) that would help a prospective client interpret the performance record.

-
- Buy \$100 of a 10-year fixed-rate treasury bond, and enter into a fixed-for-floating 10-year interest rate swap to convert the payments to floating rate. The derivative is off-balance sheet, so it is ignored for accounting leverage. Accounting leverage is therefore 1 to 1. The notional amount of the swap does count for notional leverage, so notional leverage is 2 to 1. The swap removes most of the economic risk of the treasury bond, so economic leverage is near zero.

6.5 PRESENTATION AND REPORTING

Requirements

- The following items must be reported:

(a) At least five years of performance (or a record for the period since firm inception, if inception is less than five years) that is GIPS compliant.

After presenting five years of performance, firms must present additional annual performance up to 10 years. (For example, after a firm presents five years of compliant history, the firm must add an additional year of performance each year so that after five years of claiming compliance, the firm presents a 10-year performance record).

(b) Annual returns for all years.

(c) The number of portfolios and amount of assets in the composite and the percentage of the firm's total assets represented by the composite at the end of each period.

(d) A measure of the dispersion¹²⁹ of individual component portfolio returns around the aggregate composite return.

(e) The standard Compliance Statement indicating firm-wide compliance with GIPS.

(f) The composite creation date.

- Firms may link non-GIPS-compliant performance to their compliant history so long as firms meet the disclosure requirements of prior section and no non-compliant performance is presented for periods after January 1, 2000. (For example, a firm that has been in existence since 1990 that wants to present its entire performance history *and* claim compliance as of January 1, 2000, must present performance history that meets the requirements of GIPS at least from January 1, 1995, and must meet the disclosure requirements of prior section for any non-compliant history prior to January 1, 1995.)
- Performance for periods of less than one year must not be annualized.
- Performance results of a past firm or affiliation can only be linked to or used to represent the historical record of a new firm or new affiliation if:

¹²⁹ A term used in statistics that refers to the location of a set of values relative to a mean or average level. In finance, dispersion is used to measure the volatility of different types of investment strategies. Returns that have wide dispersions are generally seen as more risky because they have a higher probability of closing dramatically lower than the mean. In practice, standard deviation is the tool that is generally used to measure the dispersion of returns. In statistics, dispersion is the placement of data points along a chart relative to an average or a trend line. It is important to finance as the data points of say, a stock, determine the mean, which in turn helps determine the stock's trend. Dispersion is also used to determine volatility: data points all over the chart indicate that a stock has wild fluctuation in price.

- (a) a change only in firm ownership or name occurs, or
- (b) the firm has all of the supporting performance records to calculate the performance, substantially all the assets included in the composites transfer to the new firm, and the investment decision-making process remains substantially unchanged.
- If a compliant firm acquires or is acquired by a non-compliant firm, the firms have one year to bring the noncompliant firm's acquired assets into compliance.
- If a composite is formed using single asset carve-outs from multiple asset class composites, the presentation must include the following:
 - (a) A list of the underlying composites from which the carve-out was drawn, *and*
 - (b) The percentage of each composite the carve-out represents.
- The total return for the benchmark (or benchmarks) that reflects the investment strategy or mandate represented by the composite must be presented for the same periods for which the composite return is presented. If no benchmark is presented, the presentation must explain why no benchmark is disclosed. If the firm changes the benchmark that is used for a given composite in the performance presentation, the firm must disclose both the date and the reasons for the change. If a custom benchmark or combination of multiple benchmarks is used, the firm must describe the benchmark creation and rebalancing process.

In addition the following items should be included in the composite presentation or disclosed as supplemental information unless not mandatory:

- (a) Composite performance gross of investment management fees and custody fees¹³⁰ and before taxes (except for non-reclaimable withholding taxes¹³¹),

¹³⁰ Custodian fees are a charge a brokerage or other financial institution applies for safekeeping services. Safekeeping or custody is a service in which the brokerage or financial institution holds securities on behalf of the client, which reduces the risk of the client losing his/her assets or having them stolen. They are also available to the brokerage to sell at the client's demand. Like a bank, custody provides an investor a place to store assets with little risk. Unlike a bank, custodians are not allowed to use the items in safekeeping for their own ends. Assets in custody are not fungible for the brokerage because they remain in the client's name.

Management fees are a charge paid to managers of a mutual fund for their services; usually also includes fund administration costs and investor relations. Typically a certain percentage of assets under management. It is a remuneration paid to a management company which manages mutual funds, unit trusts, etc. on behalf of investors/owners. This fee usually consists of a fixed monthly, quarterly, or annual amount plus a percentage of the revenue or income generated by the managed enterprise.

¹³¹ Withholding tax is a government requirement for the payer of an item of income to withhold or deduct tax from the payment, and pay that tax to the government. In most jurisdictions withholding tax applies to employment income. Many jurisdictions also require withholding tax on

payments of interest or dividends. In most jurisdictions there are additional withholding tax obligations if the recipient of the income is resident in a different jurisdiction, and in those circumstances withholding tax sometimes applies to royalties, rent or even the sale of real estate. Governments use withholding tax as a means to combat tax evasion, and sometimes impose additional withholding tax requirements if the recipient has been delinquent in filing tax returns, or in industries where tax evasion is perceived to be common.

Typically the withholding tax is treated as a payment on account of the recipient's final tax liability. It may be refunded if it is determined, when a tax return is filed, that the recipient's tax liability to the government which received the withholding tax is less than the tax withheld, or additional tax may be due if it is determined that the recipient's tax liability is more than the withholding tax. In some cases the withholding tax is treated as discharging the recipient's tax liability, and no tax return or additional tax is required.

The amount of withholding tax on income payments other than employment income is usually a fixed percentage. In the case of employment income the amount of withholding tax is often based on an estimate of the employee's final tax liability, determined either by the employer or by the government.

Some governments have written laws which require taxes to be paid before the money can be spent for any other purpose. This ensures the taxes will be paid first, and will be paid on time as the government needs the funding to meet its obligations.

Typically withholding is required to be done by the employer of someone else, taking the tax payment funds out of the employee or contractor's salary or wages. The withheld taxes are then paid by the employer to the government body that requires payment, and applied to the account of the employee, if applicable. The employee may also be required by the government to file a tax return self-assessing their tax and reporting their withheld payments.

Most developed countries operate a wage withholding tax system. In some countries subnational governments require wage withholding, so that both national and subnational taxes may be withheld. In the U.S., Canada, and Switzerland the Federal and most state, provincial or cantonal governments, as well as some local governments, require such withholding for income taxes on payments by employers to employees. Income tax for the individual for the year is generally determined upon filing a tax return after year end. The amount withheld and paid by the employer to the government is applied as a prepayment of income taxes and is refundable if it exceeds the income tax liability determined on filing the tax return. In such systems, the employee generally must make a representation to the employer regarding factors that would influence the amount withheld. Generally, the tax authorities publish guidelines for employers to use in determining the amount of income tax to withhold from wages.

The United Kingdom (UK) and certain other jurisdictions operate a withholding tax system known as Pay as you earn (PAYE), which is more comprehensive. PAYE systems generally aim to collect all of an employee's tax liability through the withholding tax system, making an end of year tax return redundant. However, taxpayers with more complicated tax affairs must file tax returns.

- (b) Cumulative returns¹³² for composite and benchmarks for all periods,
- (c) equal-weighted¹³³ means and median returns for each composite,
- (d) Volatility¹³⁴ over time of the aggregate composite return, and

Australia operates a Pay as you go (PAYG) system, which is similar to PAYE. The system applies only at the federal level, as the individual states do not collect income taxes.

Internationally most countries require that payers of certain amounts, especially interest, dividends, and royalties, to foreign payees withhold income tax from such payment and pay it to the government. Payments of rent may be subject to withholding tax or may be taxed as business income. The amounts may vary by type of income. A few jurisdictions treat fees paid for technical consulting services as royalties subject to withholding of tax. The U.S. also imposes a 10% withholding tax on the gross sales price of a U.S. real property interest unless advance IRS approval is obtained for a lower rate. Further, income tax treaties may reduce the amount of tax for particular types of income paid from one country to residents of the other country.

The European Union has issued directives prohibiting taxation by one member nation of dividends from subsidiaries, interest on debt obligations, or royalties received by a resident of another member nation. See also European Union withholding tax.

Procedures vary for obtaining reduced withholding tax under income tax treaties. Procedures for recovery of excess amounts withheld vary by jurisdiction. In some, recovery is made by filing a tax return for the year in which the income was received. Time limits for recovery vary highly.

Taxes withheld may be eligible for a foreign tax credit in the payee's home country.

¹³² Cumulative Rate of Return is a compounded rate of return covering more than one year. It calculates the total return on an investment over a specified time period. For example, a \$100 investment that grows to \$200 in ten years has a ten-year cumulative return of 100%. The cumulative rate of return is computed from the earliest to the latest time period selected. In Russell Performance Universes (RPU), cumulative rate of return is calculated as follows:

$$R_c = \left[\prod_{i=1}^n \left(1 + \frac{R_i}{100} \right) - 1 \right] * 100$$

Where: R_c = Cumulative rate of return; n = Number of observations and R_i = i -th return.

¹³³ A type of weighting that gives the same weight, or importance, to each stock in a portfolio or index fund. The smallest companies are given equal weight to the largest companies in an equal-weight index fund or portfolio. This allows all of the companies to be considered on an even playing field.

The Rydex S&P Equal Weight Exchange Traded Fund, for example, provides the same exposure to the smallest companies in the S&P 500 as it does to corporate giants such as General Electric and Exxon.

Equal weighting differs from the weighting method more commonly-used by funds and portfolios in which stocks are weighted based on their market capitalizations. Equal-weighted index funds tend to have higher stock turnover than market-cap weighted index funds and, as a result, they usually have higher trading costs.

(e) Inconsistencies among portfolios within a composite in the use of exchange rates.

¹³⁴ In finance, volatility most frequently refers to the standard deviation of the continuously compounded returns of a financial instrument within a specific time horizon. It is used to quantify the risk of the financial instrument over the specified time period. Volatility is normally expressed in annualized terms, and it may either be an absolute number (\$5) or a fraction of the mean (5%).

Relevant risk measures—such as volatility, tracking error, beta, modified duration¹³⁵, etc.—should be presented along with total return for both benchmarks and composites.

¹³⁵ Tracking error is a measure of how closely a portfolio follows the index to which it is benchmarked. The most common measure is the root-mean-square of the difference between the portfolio and index returns.

Many portfolios are managed to a benchmark, normally an index. Some portfolios are expected to replicate, before trading and other costs, the returns of an index exactly (an index fund), while others are expected to 'actively manage' the portfolio by deviating slightly from the index in order to generate active returns or to lower transaction costs. Tracking error (also called active risk) is a measure of the deviation from the benchmark; the aforementioned index fund would have a tracking error close to zero, while an actively managed portfolio would normally have a higher tracking error. Dividing portfolio active return by portfolio tracking error gives the information ratio, which is a risk adjusted performance metric.

The *beta* (β) of a security or portfolio is a number describing the relation of its returns with that of the financial market as a whole.

An asset with a beta of 0 means that its price is not at all correlated with the market. A positive beta means that the asset generally follows the market. A negative beta shows that the asset inversely follows the market; the asset generally decreases in value if the market goes up and vice versa.

The beta coefficient is a key parameter in the capital asset pricing model (CAPM). It measures the part of the asset's statistical variance that cannot be mitigated by the diversification provided by the portfolio of many risky assets, because it is correlated with the return of the other assets that are in the portfolio. Beta can be estimated for individual companies using regression analysis against a market index.

Modified duration. A formula that expresses the measurable change in the value of a security in response to a change in interest rates. Calculated as:

$$\text{Modified Duration} = \left[\frac{\text{Macauley Duration}}{\left(1 + \frac{\text{YTM}}{n}\right)} \right]$$

Where: n = number of coupon periods per year and YTM = the bond's yield to maturity

Modified duration follows the concept that interest rates and bond prices move in opposite directions. This formula is used to determine the effect that a 100-basis-point (1%) change in interest rates will have on the price of a bond.

7. VERIFICATION

The primary purpose of verification is to establish that a firm claiming compliance with GIPS has adhered to the standards. Verification will also increase the understanding and professionalism of performance-measurement teams and the consistency of presentation of performance results.

The verification procedures attempt to strike a balance between ensuring the quality, accuracy, and relevance of performance presentations and minimizing the cost to investment firms of independent review of performance results. Investment firms should assess the benefits of improved internal processes and procedures, which are as significant as the marketing advantages of verification.

The goal of the GIPS committee in drafting the verification procedures was to encourage broad acceptance of verification.

7.1 SCOPE AND PURPOSE OF VERIFICATION

Verification is the review of an investment management firm's performance measurement processes and procedures by an independent third-party "verifier" through a test.

The objective is to check whether the investment firm has complied with all the composite construction requirements of GIPS on a firm-wide basis, and whether the firm's processes and procedures are designed to calculate and present performance results in compliance with the GIPS standards.

A single verification report is issued in respect to the whole firm; GIPS verification cannot be carried out for a single composite.

Third-party verification brings credibility to the claim of compliance and supports the overall guiding principles of full disclosure and fair representation of investment performance. For such reasons verification is *strongly encouraged* and many countries are requiring verifications through the establishment of local standards.

The initial minimum period for which verification can be performed is one year of a firm's presented performance. The recommended period over which verification is performed will be that part of the firm's track record for which GIPS compliance is claimed.

A verification report must confirm that:

- the investment firm has complied with all the composite construction requirements of GIPS on a firm-wide basis and
- the firm's processes and procedures are designed to calculate and present performance results in compliance with the GIPS standards.

Without such a report from the verifier, the firm cannot claim that its claim of compliance with GIPS has been verified.

After performing the verification, the verifier may conclude that the firm is not in compliance with GIPS or that the records of the firm cannot support a complete verification. In such situations, the verifier must issue a statement to the firm clarifying why a verification report was not possible.

A principal verifier may accept the work of a local or previous verifier as part of the basis for the principal verifier's opinion.

7.2 REQUIRED VERIFICATION PROCEDURES

The following are the *minimum* procedures that verifiers must follow when verifying an investment firm's compliance with GIPS. Verifiers must follow these procedures prior to issuing a verification report to the firm:

7.2.1 Pre-verification Procedures

Knowledge of the Firm - Verifiers must obtain selected samples of the firm's investment performance reports, and other available information regarding the firm, to ensure appropriate knowledge of the firm.

Knowledge of GIPS - Verifiers must understand the requirements and recommendations of GIPS, including any updates, reports, or clarifications of GIPS published by Investment Performance Council, the AIMR sponsored body responsible for oversight of the Global Investment Performance Standards.

Knowledge of the Performance Standards – Verifiers must be knowledgeable of country-specific performance standards, laws, and regulations applicable to the firm and must determine any differences between GIPS and the country specific standards, laws, and regulations.

Knowledge of Firm Policies - Verifiers must determine the firm's assumptions and policies for establishing and maintaining compliance with all applicable requirements of GIPS. At minimum, verifiers must determine the firm's following policies and procedures of the firm:

- Policy with regard to investment discretion¹³⁶. The verifier must receive from the firm, in writing, the firm's definition of investment discretion and the firm's guidelines for determining whether accounts are fully discretionary.

¹³⁶ An institutional investment manager exercises investment discretion if: (i) the manager has the power to determine which securities are bought or sold for the account(s) under management; or (ii) the manager makes decisions about which securities are bought or sold for the account(s), even though someone else is responsible for the investment decisions.

A manager also has investment discretion with respect to all accounts over which any natural person, company, or government instrumentality under its control exercises investment discretion. For example, by virtue of their corporate relationship, bank holding companies share investment

- Policy with regard to the definition of composites according to investment strategy. The verifier must obtain the firm's list of composite definitions with written criteria for including accounts in each composite;
- Policy with regard to the timing of inclusion of new accounts in the composites.
- Policy with regard to timing of exclusion of closed accounts in the composites.
- Policy with regard to the accrual of interest and dividend income.
- Policy with regard to the market valuation of investment securities.
- Method for computing time-weighted portfolio return.
- Assumptions on the timing of capital inflows/outflows.
- Method for computing composite returns.
- Policy with regard to the presentation of composite returns.
- Policies regarding timing of implied taxes due on income and realized capital gains for reporting performance on an after-tax basis.
- Policies regarding use of securities/ countries not included in a composite's benchmark.
- Use of leverage and other derivatives.
- Any other policies and procedures relevant to performance presentation.

Knowledge of Valuation Basis for Performance Calculations - Verifiers must ensure that they understand the methods and policies used to record valuation information for performance calculation purposes. In particular, verifiers must determine that:

- the firm's policy on classifying fund flows (e.g., injections, disbursements, dividends, interest, fees, taxes, etc.) is consistent with the desired results and will give rise to accurate returns;
- the firm's accounting treatment of income, interest, and dividend receipts is consistent with cash account and cash accruals definitions;
- the firm's treatment of taxes, tax reclaims, and tax accruals is correct and the manner used is consistent with the desired method (i.e., gross- or net-of-tax return);
- the firm's policies on recognizing purchases, sales, and the opening and closing of other positions are internally consistent and will produce accurate results; and
- the firm's accounting for investments and derivatives is consistent with GIPS.

7.2.2 Verification Procedures

Definition of the Firm - Verifiers must determine that the firm is, and has been, appropriately defined.

Composite Construction - Verifiers must be satisfied that:

discretion with their bank trust departments, and parent corporations share investment discretion with their subsidiaries.

- The firm has defined and maintained composites according to reasonable guidelines in compliance with GIPS.
- All of the firm's actual discretionary fee paying portfolios are included in a composite;
- the manager's definition of discretion has been consistently applied over time;
- at all times, all accounts are included in their respective composites and no accounts that belong in a particular composite have been excluded;
- composite benchmarks are consistent with composite definitions and have been consistently applied over time;
- the firm's guidelines for creating and maintaining composites have been consistently applied; and
- The firm's list of composites is complete.

*Nondiscretionary Accounts*¹³⁷ - Verifiers must obtain a listing of all firm portfolios and determine on a sampling basis whether the manager's classification of the account as discretionary or nondiscretionary is appropriate by referring to the account agreement and the manager's written guidelines for determining investment discretion.

Sample Account Selection - Verifiers must obtain a listing of open and closed accounts for all composites for the years under examination.

Verifiers may check compliance with GIPS using a selected sample of a firm's accounts. Verifiers should consider the following criteria when selecting the sample accounts for examination:

- number of composites at the firm;
- number of portfolios in each composite;
- nature of the composite;
- total assets under management;
- internal control structure at the firm (system of checks and balances in place);
- number of years under examination; and
- Computer applications, software used in the construction and maintenance of composites, the use of external performance measurers, and the calculation of performance results.

This list is not all inclusive and contains only the *minimum* criteria that should be used in the selection and evaluation of a sample for testing.

¹³⁷ Is an account which the client makes all the trading decisions. However, the client may give very limited discretion to the broker or account executive. This limited discretion is in terms of price or time. However, an order as to whether to buy or sell, quantity and exact instrument is required to be given.

For example, one potentially useful approach would be to choose a portfolio for the study sample that has the largest impact on composite performance because of its size or because of extremely good or bad performance.

The lack of explicit record keeping or the presence of errors may warrant selecting a larger sample or applying additional verification procedures.

Account Review - For selected accounts, verifiers must determine:

- whether the timing of the initial inclusion in the composite is in accordance with policies of the firm;
- whether the timing of exclusion from the composite is in accordance with policies of the firm for closed accounts;
- whether the objectives set forth in the account agreement are consistent with the manager's composite definition as indicated by the account agreement, portfolio summary, and composite definition;
- the existence of the accounts by tracing selected accounts from account agreements to the composites;
- that all portfolios sharing the same guidelines are included in the same composite; and
- That shifts from one composite to another are consistent with the guidelines set forth by the specific account agreement or with documented guidelines of the firm's clients.

Performance-Measurement Calculation – Verifiers must determine whether the firm has computed performance in accordance with the policies and assumptions adopted by the firm and disclosed in its presentations. In doing so, verifiers should:

- recalculate rates of return for a sample of accounts in the firm using an acceptable return formula as prescribed by GIPS (i.e., time-weighted rate of return) and
- Take a reasonable sample of composite calculations to assure themselves of the accuracy of the asset weighting of returns, the geometric linking of returns to produce annual rates of returns, and the calculation of the dispersion of individual returns around the aggregate composite return.

Disclosures - Verifiers must review a sample of composite presentations to ensure that the presentations include the information and disclosures required by GIPS.

Maintenance of Records - The verifier must maintain sufficient information to support the verification report. The verifier must obtain a representation letter from the client firm confirming major policies and any other specific representations made to the verifier during the examination.

8. DETAILED EXAMINATIONS OF INVESTMENT PERFORMANCE PRESENTATIONS

Separate from a GIPS verification, an investment management firm may choose to have a further, more extensive, specifically focused examination (or performance audit) of a specific composite presentation.

Firms cannot make any claim that a particular composite has been independently examined with respect to GIPS unless the verifier has also followed the GIPS verification procedures set forth above.

Firms cannot state that a particular composite presentation has been “GIPS verified” or make any claim to that effect. GIPS verification relates only to firm-wide verification. Firms can make a claim of verification only after a verifier has issued a GIPS verification report.

To claim verification or a claim of compliance with the Standards, a detailed examination of a specific composite presentation is not required. Examinations of this type are *unlikely* to become a requirement of GIPS or become mandatory.

9. GUIDANCE ON PERFORMANCE ATTRIBUTION PRESENTATION

Performance attribution has become an increasingly valuable tool not only for assessing asset managers’ skills and for identifying the sources of value added but also for facilitating a meaningful dialogue between investment managers and their clients.

Like any other performance presentation, a presentation of performance attribution results provides meaningful information to the user only to the extent the user understands the assumptions and concepts underlying this presentation. That’s why it is crucially important that the presentation of attribution results is provided in a way that does not mislead the users and contains all necessary disclosures to explain the underlying assumptions and concepts.

Given the aforementioned, the European Investment Performance Committee (EIPC) has decided to take the initiative and to address the demand of the investment management industry for specific guidance with respect to presentation of return and risk attribution analysis. The first step was the issue of the EIPC Working Paper „Guidance for Users of Attribution Analysis“in early 2002. The following principles on Performance Attribution Presentation aims to represent a next milestone in this process and establishes a reporting framework, which provides for a fair presentation of return and risk attribution results with full disclosure.

EIPC acknowledges that this is not the final step in this process and will have to be developed further to address any new matters arising in future.

Except for definition of some general terminology, these principles do not address methodological issues with respect to calculation of attribution results, nor attempts to present any prescriptive definitions.

EIPC believes that setting any standard on performance attribution should primarily contribute to increasing the understanding of attribution through the necessary disclosures and transparency of the methodology and investment process. For details on various performance attribution methods and concepts, users should refer to the dedicated performance literature available. Being some “disclosure principles”, the following can be generally applied to all types of investment portfolios (equity, fixed income or balanced).

The guidance does not require investment managers to present return and risk attribution results. However, if investment managers do present attribution analysis¹³⁸, they are encouraged to provide full disclosure and to apply the provisions stated below. As the importance of a particular piece of information may vary depending on the situation, EIPC believes that differentiation in the disclosures between required and recommended may be too subjective. EIPC regards it as the responsibility of users of performance attribution to duly inform themselves about performance attribution concepts and, when presented with performance attribution results, to ask relevant questions to understand the underlying assumptions and methods. A different approach may lead to misinterpretations and misjudgement of the quality of investment managers presenting the attribution results.

9.1 DEFINITIONS

The purpose of the following definitions is to provide the user with an explanation on the terminology as it is used in this Guidance. These principles do not attempt to establish any absolute definitions and recognise that there may be various views and interpretations of these matters within the investment management industry.

Performance Attribution:

- Performance attribution techniques are generally understood as a process of decomposition of return and risk into the investment management decisions in order to measure the value added by active investment management and to communicate the risk components of the investment strategy.

¹³⁸ A performance-evaluation tool used to analyze the abilities of portfolio or fund managers. Attribution analysis uncovers the impact of the manager’s investment decisions with regard to overall investment policy, asset allocation, security selection and activity. A fund or portfolio’s returns are compared to a benchmark in order to determine whether a manager is actually skilled or just lucky.

Fund and portfolio management cost money, and so attribution analysis helps determine whether that money is being well spent. This technique is commonly used by institutional investors, but is not widely used by individuals. This analysis helps investors enlist the best managers and maximize their returns.

- 2) For the purposes of this chapter term “Performance Attribution” refers both to attribution of historic returns and to risk attribution (ex-ante and ex-post). The following principles emphasise the distinction between return and risk and encourage the view of performance as a combination of risk and return. As a rule, terms “*Return attribution*” and “*Risk attribution*” are explicitly used in this chapter.

Excess / Active Return: The difference between a periodic portfolio return and its benchmark return. This value may be calculated either as arithmetic or geometric difference; also called *relative return*.

Return Attribution:

- Return attribution techniques are generally understood as a process of decomposition of active (historic) returns into the investment management decisions in order to identify the sources of return.
- Return attribution can be applied to absolute returns (absolute attribution) or to relative / excess returns, being the difference between the portfolio and benchmark return (relative attribution).

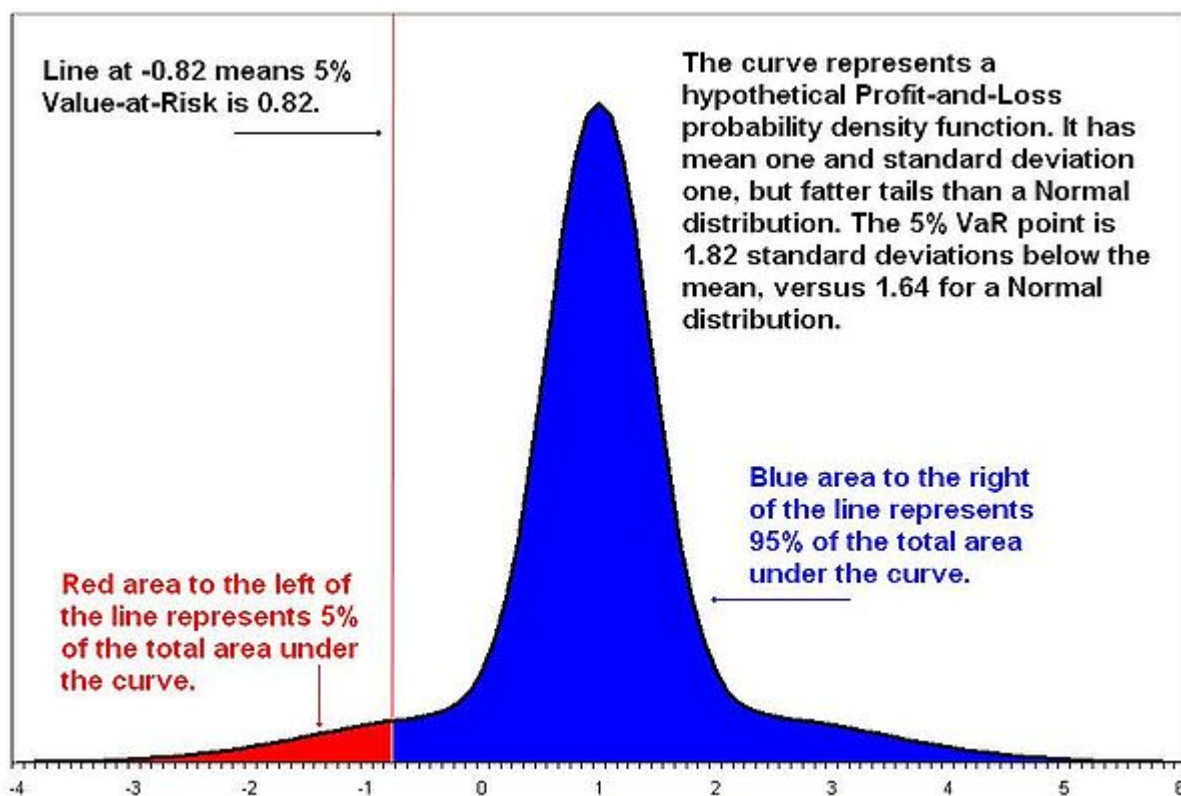
Return Contribution: Return contribution techniques are generally understood as a process of decomposition of returns in order to measure the contribution of each particular segment of the portfolio to the portfolio overall return.

Risk Attribution: For the purpose of this chapter, the following elements of risk attribution analysis are defined:

- *Risk measurement:* The process of measurement of a portfolio’s risk in absolute (e.g. volatility, value-at-risk¹³⁹) or relative (e.g. tracking error) terms, both ex-post (historic) and ex-ante (predicted).

¹³⁹ In financial mathematics and financial risk management, Value at Risk (VaR) is a widely used risk measure of the risk of loss on a specific portfolio of financial assets. For a given portfolio, probability and time horizon, VaR is defined as a threshold value such that the probability that the mark-to-market loss on the portfolio over the given time horizon exceeds this value (assuming normal markets and no trading in the portfolio) is the given probability level.

For example, if a portfolio of stocks has a one-day 5% VaR of \$1 million, there is a 0.05 probability that the portfolio will fall in value by more than \$1 million over a one day period, assuming markets are normal and there is no trading. Informally, a loss of \$1 million or more on this portfolio is expected on 1 day in 20. A loss which exceeds the VaR threshold is termed a “VaR break.”



The 5% Value at Risk of a hypothetical profit-and-loss probability density function

VaR has five main uses in finance: risk management, risk measurement, financial control, financial reporting and computing regulatory capital. VaR is sometimes used in non-financial applications as well.

Important related ideas are economic capital, backtesting, stress testing and expected shortfall.

Common parameters for VaR are 1% and 5% probabilities and one day and two week horizons, although other combinations are in use.

The reason for assuming normal markets and no trading, and to restricting loss to things measured in [daily accounts](#), is to make the loss [observable](#). In some extreme financial events it can be impossible to determine losses, either because market prices are unavailable or because the loss-bearing institution breaks up. Some longer-term consequences of disasters, such as lawsuits, loss of market confidence and employee morale and impairment of brand names can take a long time to play out, and may be hard to allocate among specific prior decisions. VaR marks the boundary between normal days and extreme events. Institutions can lose far more than the VaR amount; all that can be said is that they will not do so very often.

The probability level is about equally often specified as one minus the probability of a VaR break, so that the VaR in the example above would be called a one-day 95% VaR instead of one-day 5% VaR. This generally does not lead to confusion because the probability of VaR breaks is almost always small, certainly less than 0.5.

- *Risk attribution:* The first step of risk attribution is the risk decomposition, i.e. identifying the sources of a portfolio's risk, both ex-post (historic) and ex-ante (predicted), both in absolute terms and relative to the selected benchmark. This process may include decomposition into sources of systematic and specific risk¹⁴⁰ or into various factors (e.g. industry, style, country,

Although it virtually always represents a loss, VaR is conventionally reported as a positive number. A negative VaR would imply the portfolio has a high probability of making a profit, for example a one-day 5% VaR of negative \$1 million implies the portfolio has a 95% chance of making more than \$1 million over the next day.

Another inconsistency is VaR is sometimes taken to refer to profit-and-loss at the end of the period, and sometimes as the maximum loss at any point during the period. The original definition was the latter, but in the early 1990s when VaR was aggregated across trading desks and time zones, end-of-day valuation was the only reliable number so the former became the *de facto* definition. As people began using multiday VaRs in the second half of the 1990s they almost always estimated the distribution at the end of the period only. It is also easier theoretically to deal with a point-in-time estimate versus a maximum over an interval. Therefore the end-of-period definition is the most common both in theory and practice today.

¹⁴⁰ Specific risk is a risk that affects a very small number of assets. This is sometimes referred to as "unsystematic risk". In a balanced portfolio of assets there would be a spread between general market risk and risks specific to individual components of that portfolio. Determination of the extent of exposure to individual risks is made using models such as Treynor-Black in which the optimal share of a security is inversely proportional to the square of its specific risk.

An example would be news that is specific to either one stock or a group of companies, such as the loss of a patent or a major natural disaster affecting the company's operation.

Unlike systematic risk or market risk, specific risk can be diversified away. In fact, most unsystematic risk is removed by holding a portfolio of about twenty-five to thirty securities.

Systemic risk is the risk of collapse of an entire financial system or entire market, as opposed to risk associated with any one individual entity, group or component of a system. It can be defined as "financial *system* instability, potentially catastrophic, caused by events or conditions in financial intermediaries". It refers to the risks imposed by *interlinkages* and *interdependencies* in a system or market, where the failure of a single entity or cluster of entities can cause a cascading failure, which could potentially bankrupt or bring down the entire system or market. It is also sometimes erroneously referred to as "systematic risk".

Systematic risk, sometimes called market risk, aggregate risk, or undiversifiable risk, is the risk associated with aggregate market returns.

By contrast, unsystematic risk, sometimes called specific risk, idiosyncratic risk, residual risk, or diversifiable risk, is the company-specific or industry-specific risk in a portfolio, which is uncorrelated with aggregate market returns.

Unsystematic risk can be mitigated through diversification, and systematic risk can not be. Systematic risk should not be confused with systemic risk, the risk of loss from some catastrophic event that collapses the entire financial system.

currency, credit quality, etc.) affecting a portfolio's risk; as well as determination of contribution of individual securities to the overall portfolio risk. The further step of risk attribution is the process of measurement of contribution of investment management decisions to the active portfolio risk (e.g. to the portfolio tracking error). Risk attribution for the purposes of this chapter only refers to the analysis of investment risk and not to operational or other types of business risks¹⁴¹.

For example, consider an individual investor who purchases \$10,000 of stock in 10 biotechnology companies. If unforeseen events cause a catastrophic setback and one or two company's stock prices drop, the investor incurs a loss. On the other hand, an investor who purchases \$100,000 in a single biotechnology company would incur ten times the loss from such an event. The second investor's portfolio has more unsystematic risk than the diversified portfolio. Finally, if the setback were to affect the entire industry instead, the investors would incur similar losses, due to systematic risk. Systematic risk is essentially dependent on macroeconomic factors such as inflation, interest rates and so on.

¹⁴¹ There are two kinds of Investments - Riskless and Risky. Riskless investments are guaranteed, but since the value of a guarantee is only as good as the guarantor, those backed by the full faith and confidence of a large stable government are the only ones considered "riskless." Even in that case the risk of devaluation of the currency (inflation) is a form of risk appropriately called "inflation risk." Therefore no venture can be said to be by definition "risk free" - merely very close to it where the guarantor is a stable government.

Depending on the nature of the investment, the type of investment risk will vary.

A concern with any investment is that you may lose your capital. This risk is therefore often referred to as "capital risk."

If the assets you invest in are held in another currency there is a risk that currency movements alone may affect the value. This is referred to as "currency risk."

Many forms of investment may not be readily saleable on the open market (e.g. commercial property) or the market has a small capacity and may therefore take time to sell. Assets that are easily sold are termed *liquid*; therefore this type of risk is termed "liquidity risk."

The risk that there may be a disruption in the internal financial affairs of the investment, thereby causing a loss of value, is called "financial risk." A prime example of that form of risk was experienced by the investors in Enron, or one of the "dot-com" stocks that really never did have a profitable financial footing. Many of the employees of Enron experienced both liquidity and financial risk as the price decline in the stock of that company occurred just as there was a "freeze" on stock liquidation in their retirement plans.

Perhaps the most familiar but often least understood form of investment risk is "market risk." In a highly liquid market like the collective stock exchanges in the United States and across the developed world, the price of securities is set by the forces of supply and demand. If there is a high demand for a given issue of stock, or a given bond, the price will rise as each purchaser is willing to pay more for the security than the last one. The reverse of that occurs when the sellers want to

9.2 GUIDING PRINCIPLES

Investment managers are required to apply the following principles when calculating and presenting return and risk attribution results:

rid themselves of an issue more than the buyers want to buy it. Each seller is willing to receive less than the last one and the market price, or valuation, declines.

The same form of risks apply to a house, an issue of stock, a mutual fund, or a bond. Some forms of investment risk can be insured against. For example, the risk that an investment rental property might burn down, or the custodian of your stock and bond investments might go out of business. Most of the forms of risk that we concern ourselves with, financial risk, market risk, and even inflation risk, can at least partially be moderated by forms of *diversification*.

A science has evolved around managing market and financial risk under the general title of Modern portfolio theory initiated by Dr. Harry Markowitz in 1952 with his seminal article, "Portfolio Selection."

An operational risk is, as the name suggests, a risk arising from execution of a company's business functions. It is a very broad concept which focuses on the risks arising from the people, systems and processes through which a company operates. It also includes other categories such as fraud risks, legal risks, physical or environmental risks.

A widely used definition of operational risk is the one contained in the Basel II regulations, the means by which the European Capital Requirements Directive has been implemented across the European banking sector. This definition states that operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events.

The approach to managing operational risk differs from that applied to other types of risk, because it is not used to generate profit. In contrast, credit risk is exploited by lending institutions to create profit, market risk is exploited by traders and fund managers, and insurance risk is exploited by insurers. They all however manage operational risk to keep losses within their risk appetite - the amount of risk they are prepared to accept in pursuit of their objectives. What this means in practical terms is that organisations accept that their people, processes and systems are imperfect, and that losses will arise from errors and ineffective operations. The size of the loss they are prepared to accept, because the cost of correcting the errors or improving the systems is disproportionate to the benefit they will receive, determines their appetite for operational risk.

Determining appetite for operational risk is a discipline which is still in its infancy. Some of the issues and considerations around this process are outlined in this Sound Practice paper published by the Institute for Operational Risk in December 2009.

Business risk is the risk that a company will not have adequate cash flow to meet its operating expenses. A company's risk is composed of financial risk, which is linked to debt, and risk, which is often linked to economic climate. If a company is entirely financed by equity, it would pose almost no financial risk, but, it would be susceptible to business risk or changes in the overall economic climate.

- Return and risk attribution analysis must follow the investment decision process of the investment manager and measure the impact of active management decisions. It is essential that the attribution analysis reflects the actual decisions made by the investment manager. Return and risk attribution analysis must mirror the investment style¹⁴² of the investment manager.

¹⁴² Investment style refers to different style characteristics of equities, bonds or financial derivatives within a given investment philosophy.

Theory would favor a combination of big capitalization, passive and value. Of course one could almost reach that condition when investing in an important Index like S&P 500, EURO STOXX or the like. Note the degree of financial leverage and diversification are also factors.

The style is determined by

- the temper and the beliefs of the investor.
- some personal or social traits (investor profile) such as age, gender, income, wealth, family, tax situation, etc.
- generally, its financial return / risk objectives, assuming they are precisely set and fully rational.

Examples of investment style:

Active vs. Passive Active investors believe in their ability to outperform the overall market by picking stocks they believe may perform well. Passive investors, on the other hand, feel that simply investing in a market index fund may produce potentially higher long-term results. The majority of mutual funds underperform market indexes.

Active investors feel that the small-cap market is less efficient since smaller companies are not followed as closely as larger blue-chip firms. A less efficient market should favor active stock selection. The core-/satellite concept combines a passive style in efficient market and an active Style in less efficient markets.

Growth vs. Value Active investors can be divided into growth and value seekers. Proponents of growth seek companies they expect (on average) to increase earnings by 15% to 25%.

Value investors look for bargains — cheap stocks that are often out of favor, such as cyclical stocks that are at the low end of their business cycle. A value investor is primarily attracted by asset-oriented stocks with low prices compared to underlying book, replacement, or liquidation values. There is also a diversification effect: Returns on growth stocks and value stocks are not highly correlated. By diversifying between growth and value, investors can help manage risk and still have high long-term return potential.

Small Cap vs. Large Cap. Some investors use the size of a company as the basis for investing. Studies of stock returns going back to 1925 have suggested that "smaller is better." On average, the highest returns have come from stocks with the lowest market capitalization (common shares outstanding times share price). But since these returns tend to run in cycles, there have been long periods when large-cap stocks have outperformed smaller stocks. Also, early on, small cap stocks

- For the attribution of relative return and risk, a benchmark appropriate to the investment strategy must be used. The employed benchmark should be specified in advance and meet such criteria as investability, transparency and measurability.
- If investment managers are not able to produce return and risk attribution results that comply with the above guiding principles, they still may use these results for internal purposes but should refrain from presenting attribution to external users or use it for the purposes of soliciting potential clients.

9.3 DISCLOSURES

The following disclosures are required to be provided, as long as they are applicable, when presenting return attribution results.

- *Investment Process*
 1. Object of a return attribution analysis: Firms must disclose the object of a return attribution analysis, e.g. a particular portfolio, a representative portfolio, a model portfolio, a group of portfolios (composite), etc., and the reasons for selecting this particular object.
 2. Investment management process and investment style: Firms must disclose the main elements of their investment management process, including the key investment decision factors employed.
 3. Benchmark: Firms must disclose the composition of the benchmark used for the return attribution purposes. Benchmark rebalancing rules¹⁴³ must also be disclosed. If there has been any change in benchmark, the old benchmark(s) and date(s) of change(s) are to be disclosed. In case of investments outside of the scope of the benchmark, firms must disclose the

had bigger premiums and were more expensive to buy and sell, but isn't easily captured in historical analysis, and in reality likely skewed total return for investors.

Small-cap stocks also have higher price volatility, which translates into higher risk.

Some investors choose the middle ground and invest in mid-cap stocks with market capitalizations between \$500 million and \$8 billion — seeking a tradeoff between volatility and return. In so doing, they give up the potential return of small-cap stocks.

¹⁴³ Range rebalancing consists of rebalancing whenever the portfolio mix encounters a deviation from the BM. Constant rebalancing to benchmark allocation often improves performance, especially in the long term; but may produce poor short term results in strong market trends.

More sophisticated active management with functionally generated portfolio exploiting market diversity is promising as con_rmed by the practical experience of fund management by Fernholz at INTECH and the active present research reported by Fernholz and Karatzas (2007).

treatment of the impact of these investments, e.g. allocated to another attribution effect, presented separately, etc. If the attribution is not based on a benchmark, firms must disclose the rationale for this.

- *Return Attribution Model*

1. Return attribution model and attribution effects: Firms must disclose a description of the return attribution model. Attribution effects derived (e.g. depending on the portfolio type: timing, security selection, currency effects, or income, duration, spread effects, etc.) must be clearly identified. If the attribution model has changed during the period of analysis, these changes and the rationale for them must be disclosed. In addition, the implications for the attribution history, if any, as a result of this change must be disclosed.
2. Excess / active returns: Firms must disclose whether periodic excess returns are derived using arithmetic or geometric method.
3. Presentation period: Firms must disclose what time period the attribution analysis covers and why this period has been chosen.
4. Frequency of return attribution analysis: Firms must disclose the frequency of calculation of attribution effects (e.g. daily, monthly basis, etc.).
5. Linking methodology: If the attribution report provides effects which were calculated for sub-periods (e.g. days) and linked to present results for longer periods (e.g. a month), then the details of the linking methodology must be made available upon request. If a smoothing algorithm has been employed to allocate in a systematic way residual effects over time, the type of this algorithm is to be disclosed.
6. Buy-and-hold vs. transaction based approach: Firms must disclose whether the return attribution approach is buy-and-hold or transaction based¹⁴⁴.

¹⁴⁴ Holdings-based attribution uses market values at the beginning of the period to measure the exposure of the portfolio and calculates a hypothetical return for the portfolio as if no transaction took place during the period. The residual performance necessary to converge towards the factual return of the portfolio is sometimes assigned to trading, security selection or a residual. This approach has the advantage of being simple, but conceals three major problems. Most important, it does not explain the true performance of the portfolio. Second, it ignores the transactions that may have taken place during the period and therefore disregards some decisions (or actions) taken by the portfolio manager. Finally, it discounts trading costs and therefore results in an upward bias over time that favors the manager. The holdings-based attribution methodology does not explain the true performance deviation of the portfolio. Instead it explains the difference between the return of the benchmark and the hypothetical return of the no-transaction portfolio. The error term (*i.e.* the residual performance due to transactions) is naïvely bundled into trading or selection effect, or reported separately. This ignores the fact that transactions often result from allocation decisions and disregards the impact of transactions on the allocation effects. The error term exists

for all portfolios with transaction activities and is more important for portfolios with large transactions. The magnitude of the error term is also amplified when transactions occur during volatile markets. When holdings-based attribution is calculated daily, the error term introduced by the approximating holdings-based methodology is reduced. However, though accuracy is increased, the holdings-based approach, even when calculated daily, fails to reflect accurately the impact of timing on intraday transactions and therefore fails to explain the true performance of the portfolio. While converging toward the true return of the portfolio, daily calculation also increases the complexity of the calculation process and the data requirements.

Transaction-based attribution methodologies use transaction adjusted weights *i.e.* weights that reflect holdings positions valued at market at the beginning of the period along with all the transactions that have occurred during the period. While this approach appears to be more complex, its advantages are substantial. The main advantage of the transaction-based attribution methodology is that the attribution results account exactly for the difference between the factual return of the portfolio and the return of the benchmark with no residual. Second, transaction-based attribution accounts for the cost of trading, a cost that should be included since it is inherent to the cost of actively managing the portfolio. The third advantage is that the impact of transactions is reflected in the allocation and security selection effects. This differs from the holdings-based approach, which simply assigns the impact of transactions to trading, selection, or residual effect. When calculated monthly, transaction-based attribution is an improvement on holdings-based attribution, but one can still question the meaningfulness of the results. Daily transaction-based attribution may be required for portfolios in which intra-month allocation decisions are taken. This is even more necessary during periods of high volatility; otherwise the impact of transactions resulting from allocation decisions will be inaccurately allocated to selection and allocation effects instead of being reflected primarily into the allocation effect. Holdings and transactions are required to calculate the transaction-adjusted weights of each asset class in the portfolio. The technique used to calculate the exposures is similar to the one used to calculate the denominator of the Modified Dietz formula. Each transaction is day weighted or multiplied by a factor representing the ratio of the number of days between the transaction date and the end of the period over the number of days between the beginning and the end of the period. Presented differently, the weight of an asset class is the denominator of its base currency return calculation divided by the denominator of the total portfolio.

Transaction-based attribution systems do not require daily calculation in order to match the true return of the portfolio. This is because intra-month transactions are accounted for and reflected in the allocation effect and security selection effect. Daily calculation is preferable for greater precision, but it is not a necessity in order to converge toward the true return of the portfolio. Because it requires transaction-adjusted weights, transaction-based attribution appears to be more complex. However it is easily implemented as part of a performance measurement application that intrinsically requires holdings and transactions to calculate performance results; hence, the advantage of having an integrated solution for performance measurement and performance attribution.

7. Interaction effect and/or unexplained residuals¹⁴⁵: Some attribution models generate interaction effects or even unexplained residuals. Unexplained residuals may impair the quality of analysis and conclusions that may be drawn from it. If the model has an interaction term or an unexplained residual, details of its treatment must be disclosed, e.g. presented separately, ignored, allocated to other attribution effects, etc.
8. Derivatives: Firms must disclose to what extent derivatives are included and how they are treated in the return attribution analysis.
9. Effect of leverage¹⁴⁶: If leverage is employed, firms must disclose how leverage effects are attributed according to investment decision process.

¹⁴⁵ An interaction may arise when considering the relationship among three or more variables, and describes a situation in which the simultaneous influence of two variables on a third is not additive. Most commonly, interactions are considered in the context of regression analyses.

The presence of interactions can have important implications for the interpretation of statistical models. If two variables of interest interact, the relationship between each of the interacting variables and a third "dependent variable" depends on the value of the other interacting variable. In practice, this makes it more difficult to predict the consequences of changing the value of a variable, particularly if the variables it interacts with are hard to measure or difficult to control.

The notion of "interaction" is closely related to that of "moderation" that is common in social science research: the interaction between an explanatory variable and an environmental variable suggests that the effect of the explanatory variable has been moderated or modified by the environmental variable.

Explained variation or explained randomness measures the proportion to which a mathematical model accounts for the variation of a given data set. Often, variation is quantified as variance; then, the more specific term explained variance can be used. The complementary part of the total variation/randomness/variance is called unexplained or residual.

¹⁴⁶ Leverage is a general term for any technique to multiply gains and losses. Common ways to attain leverage are borrowing money, buying fixed assets and using derivatives. Important examples are:

- A public corporation may leverage its equity by borrowing money. The more it borrows the less equity capital it needs, so any profits or losses are shared among a smaller base and are proportionately larger as a result.
- A business entity can leverage its revenue by buying fixed assets. This will increase the proportion of fixed, as opposed to variable, costs, meaning that a change in revenue will result in a larger change in operating income.
- Hedge funds often leverage their assets by using derivatives. A fund might get any gains or losses by posting some cash as margin.

10. Foreign currency effects: If investments in currencies other than the base currency of the portfolio are employed, treatment of foreign currency effects in terms of the currency management strategy must be disclosed.
11. Inclusion of cash: Firms must disclose whether cash is specifically included in the attribution analysis and whether a cash benchmark is determined. Firms also must disclose any difference in treatment of strategic cash allocation positions vs. temporary cash from realised income.
12. Transaction costs, fees: Firms must disclose the treatment of the impact of transaction costs, fees, etc. - e.g. allocated to a particular attribution effect, presented separately, etc.
 - *Underlying input data*
 1. Portfolio returns. Firms must disclose: methodology and frequency of calculation of portfolio and portfolio segment returns. Plus the treatment of single performance components, such as management fees, custodian fees, taxes and transaction costs (gross vs. net treatment).
 2. Benchmark returns. Firms must disclose: the methodology of calculation of benchmark returns, any adjustments with respect to management fees, realised income positions, taxes etc. and source of data. Firms are encouraged to disclose any other specific details that may be important.
 3. Leveraged portfolios. If the underlying portfolio includes discretionary leverage, the firm must disclose whether calculation of portfolio returns is performed on an actual or “all-cash” basis¹⁴⁷.

¹⁴⁷ Actual-Basis & All-Cash-Basis ne objective of the performance measurement process is to calculate performance of traded portfolios and then compare it to the performance of selected benchmarks. In principle it is possible to outperform the benchmark by stock (bond) picking, i.e. being over or under exposed in a specific security relative to the benchmark and using leveraged instruments that have different payoff profiles than the underlying cash (spot) instruments. Examples of leveraged instruments include forwards, futures, and options. In order to separate these two factors, the Association of Investment Management and Research requires that the performance is measured using two different methods called actual basis and all cash basis, see e.g. the AIMR-PPS standard. AIMR defines actual basis and all cash basis as follows:

- Actual basis measures the growth of the actual invested capital, i.e. it is a combination of both stock picking and leverage.
- All cash basis attempts to eliminate the effects of leverage by restating the position into an equivalent cash position having the same market exposure. The all cash basis performance is then the performance measured on the restated cash equivalent position.

If a fund is using leverage, the AIMR standard requires the presentation of both actual and all cash bases performance. Since the benchmark normally is non-levered, the comparison between the benchmark and all cash basis show the stock picking ability of the fund manger whereas the

4. Underlying valuation data. Firms must disclose if there are any differences with respect to sources and timing of prices of underlying securities between the portfolio and the benchmark.
5. Foreign exchange rates. Firms must disclose if the sources or timing of foreign exchange rates are different between the portfolio and the benchmark.
6. Income positions. Firms must disclose if realised income from dividends and coupons is considered after or before deduction of applicable withholding taxes both for the portfolio and the benchmark.

Firms are encouraged to disclose any additional matters they find useful or relevant for the users of attribution analysis.

10. RISK ATTRIBUTION

The following disclosures are required to be provided when presenting risk attribution analysis results.

10.1 INVESTMENT PROCESS

- Object of risk attribution. Firms must disclose the object of risk analysis, e.g. a particular portfolio, a representative portfolio, a model portfolio, a group of portfolios (composite), and the reasons for selecting this particular object.
- Investment management process and investment style. Firms must disclose the main elements of their investment management process, including the key investment decision factors employed.
- Benchmark. Firms must disclose the composition of the benchmarks used for the risk attribution purposes. Benchmark rebalancing rules must also be disclosed. If there has been any change in benchmark, the old benchmark(s) and date(s) of change(s) are to be disclosed. In case of investments outside of the scope or profile of the benchmark, firms must disclose the treatment of the impact of these investments. If the attribution is not based on a benchmark, firms must disclose the rationale for this. In case risk attribution is presented

difference between the actual and the all cash basis performance indicate timely and efficient use of leverage in managing the fund.

http://www.trema.com/finance_online/5/1/FLperformance_measurement_technical2.html

The standards deal with financial leverage in the sense that the reporting entity is directly leveraging its *own* balance sheet. In terms of credit leverage, the issue comes into play because reporting entities might leverage against a third-party balance sheet when the reporting entity's debt servicing obligations are guaranteed and these guarantees are provided by that third-party.

<http://www.benefitscanada.com/content/legacy/Content/1998/10-98/ben317.html>

together with return attribution, the same benchmark as for return attribution should be used. If a different benchmark is used, the rationale for this must be disclosed.

10.2 RISK ATTRIBUTION MODEL

- Risk attribution model and attribution factors. Firms must disclose a general description of the risk attribution model, including description of the presented risk measures and risk decomposition factors. If the risk attribution model has changed during the period of analysis, these changes and the rationale for them are to be disclosed. In addition, the implications for the analysis history, if any, as a result of this change must be disclosed. The risk attribution should, where possible, involve both ex-post and ex-ante analysis. This should also involve a reconciliation of the ex-post and ex-ante measures in order to assess the validity of the model.
- Ex-ante risk measures: when presenting forward-looking risk measures, firms must provide a broad description with respect to the methods used to estimate portfolio holdings and/or likely magnitudes of relative returns for individual securities, sectors or markets and their correlation with each other. Firms must also disclose the impact of the portfolio turnover and how this would influence their assumption regarding stability of the future portfolio asset structure.
- Analysis period: when presenting risk measures, firms must disclose the reporting date of the analysis. When presenting backward-looking risk measures, firms must disclose what time period the analysis covers and why this period has been chosen. In case ex-post risk attribution is presented together with return attribution, the analysis period should be the same as for the return attribution.

10.3 UNDERLYING INPUT DATA

- Portfolio returns, firms must disclose:
 1. methodology and frequency of calculation of portfolio and segment returns,
 2. treatment of single performance components, such as management fees, custodian fees, taxes, external cash flows and transaction costs (gross vs. net treatment).
- Benchmark returns. Firms must disclose:
 1. methodology of calculation of benchmark returns,
 2. any adjustments with respect to management fees, realised income positions, taxes, etc.,
 3. source of data.

Firms are encouraged to disclose any other specific details that may be important.

- Leveraged portfolios: if the underlying portfolio includes discretionary leverage, the firm must disclose whether calculation of portfolio returns is performed on an actual or “all-cash” basis.

- Underlying valuation data. Firms must disclose if there are any differences with respect to sources and timing of prices of underlying securities and foreign exchange rates between the portfolio and the benchmark.
- Foreign exchange rates. Firms must disclose if the sources or timing of foreign exchange rates are different between the portfolio and the benchmark.
- Income positions. Firms must disclose if realised income from dividends and coupons is considered after or before deduction of applicable withholding taxes.

Firms are encouraged to disclose any additional matters they find useful or relevant for the users of attribution analysis.

11. RELATION TO THE GLOBAL INVESTMENT PERFORMANCE STANDARDS

These principles are not currently considered as a part of the Global Investment Performance Standards (GIPS_) compliance framework. However, they can obviously be considered as a part of a broader ethical code of conduct for investment managers. Firms claiming GIPS compliance and presenting performance attribution analysis are encouraged to follow these rules. However, users should be aware that some GIPS requirements may not always be applicable for attribution analysis purposes, e.g. return calculation methods for individual client reporting.

Attribution analysis results may also be presented as supplemental information to a GIPS compliant performance presentation. If attribution analysis is presented as a part of a GIPS compliant performance presentation, users should also refer to the GIPS Guidance Statement on the Use of Supplemental Information for guidance.

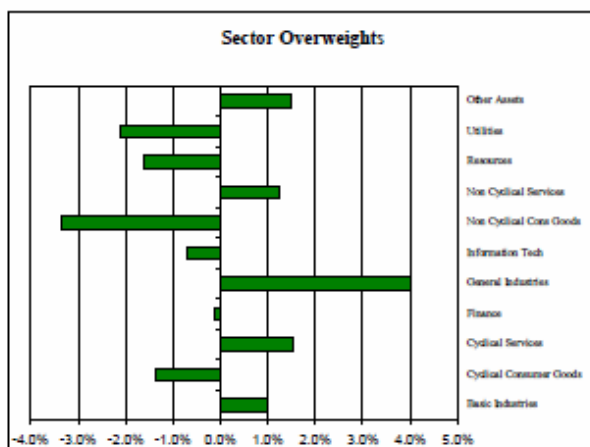
12. EXAMPLE OF RETURN AND RISK ATTRIBUTION REPORT IN COMPLIANCE WITH THESE STATEMENTS

The following sample attribution analysis report refers to an equity portfolio and is *an example* of how a performance attribution presentation in compliance with what stated so far should look like. This sample report is absolutely not intended to serve as a “best practice” benchmark to present performance attribution in terms of methodology or layout.

Investment Manager ABC

Return Attribution and Risk Attribution Report for Equity Portfolio XYZ as of dd.mm.yyyy

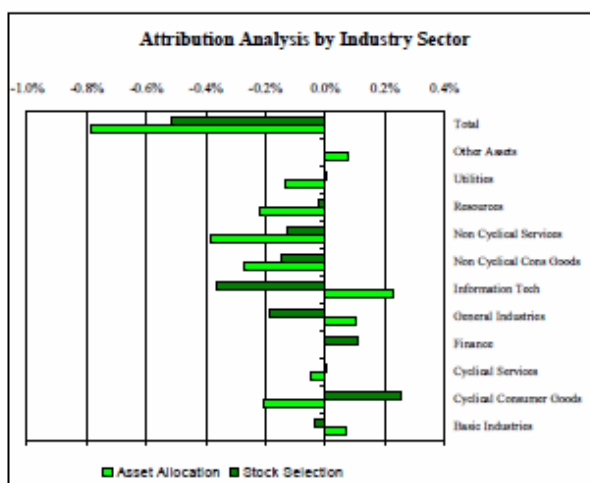
Return and Risk Attribution Report for:	PORTFOLIO XYZ
Period:	1.1.2000 - 30.03.2001
Reference Currency:	EUR
Benchmark:	Customised (refer to Disclosures)



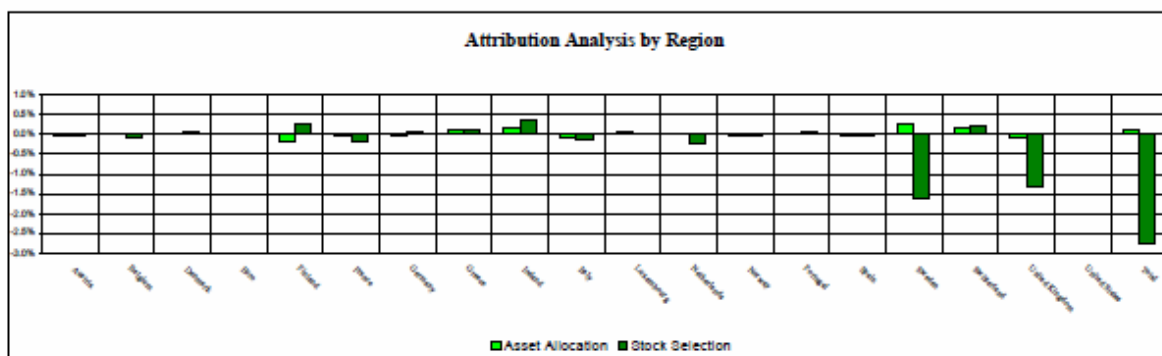
Return	
Portfolio	-4.45%
Benchmark	-2.89%
Active (Relative) Return	-1.56%

Return Attribution Analysis by Industry Sector	
Asset Allocation	-0.79%
Stock Selection	-0.52%
Other Effect	-0.25%
Total	-1.56%

Return Attribution Analysis by Region	
Asset Allocation	0.09%
Stock Selection	-2.74%
Other Effect	1.09%
Total	-1.56%



Risk Analysis (end of period)	Portfolio	Benchmark
Number of Securities	99	576
Number of Currencies	2	2
Portfolio Value	227447728	
Total Risk (ex-ante)	15.76%	15.31%
- Factor Specific Risk	15.53%	15.20%
- Style	4.91%	4.29%
- Industry	11.95%	11.80%
- Stock Selection Risk	2.72%	1.83%
Tracking Error (ex-post)	2.29%	
Tracking Error (ex-ante)	2.35%	
Value at Risk (at 97.7%)	10878425	
R-squared	0.98	
Beta-adjusted Risk	15.59%	15.31%
Predicted Beta	1.02	
Predicted Dividend Yield	2.22	2.37



Disclosures

Investment Process:

- Object of the attribution analysis: The return and risk attribution analysis is performed for Portfolio XYZ as an integral part of the periodic client reporting to company XYZ.

- Investment management process and investment style: Portfolio XYZ is a discretionary equity mandate with reference currency EUR managed in an active way against the customised benchmark specified by company XYZ as described below. In addition, the following specific client guidelines apply: outperform the defined benchmark (basis EUR) by 2% p.a. over a rolling 2-year period with a tracking error of max. 3% p.a. Investment Manager ABC applies a top-down investment approach by actively modifying the portfolio asset allocation and taking active decisions with respect to stock selection. Foreign currency positions are not actively hedged. The inception date of portfolio XYZ is 1.1.2000.
- Benchmark: The benchmark for portfolio XYZ is given as follows:
 1. EUR Cash Index Z: 5%
 2. EUR Stock Index X 60%
 3. World Stock Index Y 35%

A monthly rebalancing is applied. Results from investments in single stocks outside of the scope of the benchmark are allocated to the stock selection effect. There were no changes in the benchmark since inception of the mandate.

Attribution Model:

- Return attribution model: Return attribution is performed under the *Brinson-Fachler* method¹⁴⁸. Details and explanations to this model are available upon request. Returns are attributed to asset allocation (timing) and stock selection effects and presented according to the industry sector and region. Please refer also to disclosure “Interaction effect and/or unexplained residuals”. There has been no change in the model since inception of the portfolio.
- Excess / active returns: Periodic excess returns are derived using an arithmetic method.

$$148 \quad \sum_{j=1}^{j=n} PW_j \cdot IR_j - \sum_{j=1}^{j=n} IW_j \cdot IR_j = \sum_{j=1}^{j=n} (PW_j - IW_j) \cdot IR_j$$

or since

$$\sum_{j=1}^{j=n} PW_j = \sum_{j=1}^{j=n} IW_j = 1 \quad = \sum_{j=1}^{j=n} (PW_j - IW_j) \cdot (IR_j - b)$$

Stock selection

$$\sum_{j=1}^{j=n} IW_j \cdot PR_j - \sum_{j=1}^{j=n} IW_j \cdot IR_j = \sum_{j=1}^{j=n} IW_j \cdot (PR_j - IR_j)$$

and interaction

$$\sum_{j=1}^{j=n} PW_j \cdot PR_j - \sum_{j=1}^{j=n} PW_j \cdot IR_j - \sum_{j=1}^{j=n} IW_j \cdot PR_j + \sum_{j=1}^{j=n} IW_j \cdot IR_j = \sum_{j=1}^{j=n} (PW_j - IW_j) \cdot (PR_j - IR_j)$$

- Presentation Period: The return attribution and risk attribution analysis cover the period from dd.mm.yyyy to dd.mm.yyyy and is performed within the regular quarterly since-inception reporting.
- Frequency of return attribution analysis: The attribution effects are calculated on a monthly basis.
- Linking methodology: The monthly attribution effects are multiplicatively linked to show the attribution results for the whole presentation period. No smoothing algorithms are employed to systematically allocate the residual effects over time. Details on the methodology are available upon request.
- Treatment of transactions: The return attribution model is based on a “buy-and-hold” approach. However, as transactions in the portfolio usually occur at the beginning of the month and the attribution effects are calculated on a monthly basis, portfolio manager ABC believes that potential distortions should be minimal.
- Interaction effect and/or unexplained residuals: The model generates a residual effect due to multiplicative linking of arithmetically derived attribution effects over time. This effect is presented separately as “Other effect”. The model does not generate any other unexplained residuals.
- Derivatives: Derivatives are not employed in this portfolio.
- Use of leverage: Leverage is not employed in this portfolio.
- Inclusion of cash: According to the defined portfolio benchmark, cash represents a strategic position and is specifically included in the attribution analysis against a specified cash benchmark index. There is no difference in treatment of the strategic cash allocation position comparing to temporary cash from realised income as the realised income cash is deemed to be immaterial.
- Foreign currency positions: Foreign currency positions are not hedged into the portfolio reference currency. Foreign exchange effects of these positions are included in the return attribution analysis within the stock selection effect.
- Transaction costs and fees: Returns are calculated net of transaction costs and gross of fees. The impact of transaction costs vis-à-vis the benchmark return is not calculated specifically as the model is not transaction based. The model implicitly includes transaction costs on a cash level.
- Risk attribution analysis: The presented risk attribution analysis includes both ex-post and ex-ante risk measurement and risk decomposition. Ex-post analysis includes calculation of the historical annualised tracking error. Ex-ante analysis includes calculation of the predicted total risk of the portfolio (annualised volatility) and its decomposition into factor-specific (style and industry) and stock selection components. In addition ex-ante annualised tracking error and

value-at-risk (VaR) measures are presented. The predicted VaR measure is calculated on the basis of the parametric (variance/covariance) method. The methodology and assumptions used for calculation of ex-ante (predicted) risk measures are developed and implemented in the proprietary model of company WWW, broad details of which are available upon request. For the purposes of the ex-ante risk analysis, an assumption is taken that the portfolio strategic asset structure remains stable (with monthly rebalancing) over time. While reasonable care is exercised when predicting risk parameters, users of this report should be aware of inherent limitations of such forecast methods as well as of the assumptions underlying the calculation of risk measures (such as normality of return distributions, etc.). A periodic reconciliation of the ex-post and ex-ante measures is performed on a quarterly basis to assess the model risk. The historic reconciliation results (since portfolio inception) show that an average model error lies within the bandwidth of 200-300 b.p.

Underlying input data:

- Underlying portfolio returns: The underlying portfolio returns are calculated in EUR on a monthly basis according to the true time-weighted rate of return method and under application of the total-return concept. Returns are calculated net of transaction costs and withholding taxes on interest and dividend income and gross of management and custodian fees. The underlying portfolio data are derived from the accounting records of Investment Manager ABC. The source of securities prices and foreign exchange rates is data provider ZZZ.
- Benchmark returns: The underlying benchmark returns are calculated on a monthly basis under application of the total-return concept and monthly rebalancing. The benchmark returns are calculated on the basis of EUR as reference currency. The source of the benchmark data is data provider ZZZ.

V INVESTMENT PERFORMANCE MEASUREMENT

The measurement and interpretation of performance data is a critical component of investment strategy review. An investment program must be constantly monitored to ensure that it remains on track. All investors need to know *how* they achieved their performance and, in particular, the amount of risk taken and sources of value-added.

The objective is now to show how returns relative to an index can be broken down into four attribution effects and review some examples.

1. ATTRIBUTION EFFECTS

The goal of attribution analysis is to identify where and to what degree the skill of the investment manager¹⁴⁹ added value to the portfolio. This concept of *value-added* is fundamental to attribution

¹⁴⁹ Investment management is the professional management of various securities (shares, bonds and other securities) and assets (e.g., real estate), to meet specified investment goals for the benefit of the investors. Investors may be institutions (insurance companies, pension funds, corporations etc.) or private investors (both directly via investment contracts and more commonly via collective investment schemes e.g. mutual funds or exchange-traded funds) .

The term asset management is often used to refer to the investment management of collective investments, (not necessarily) whilst the more generic fund management may refer to all forms of institutional investment as well as investment management for private investors. Investment managers who specialize in *advisory* or *discretionary* management on behalf of (normally wealthy) private investors may often refer to their services as wealth management or portfolio management often within the context of so-called "private banking".

The provision of 'investment management services' includes elements of financial statement analysis, asset selection, stock selection, plan implementation and ongoing monitoring of investments. Investment management is a large and important global industry in its own right responsible for caretaking of trillions of dollars, euro, pounds and yen. Coming under the remit of financial services many of the world's largest companies are at least in part investment managers and employ millions of staff and create billions in revenue.

Fund manager (or investment adviser in the United States) refers to both a firm that provides investment management services and an individual who directs fund management decisions.

The business of investment management has several facets, including the employment of professional fund managers, research (of individual assets and asset classes), dealing, settlement, marketing, internal auditing, and the preparation of reports for clients. The largest financial fund managers are firms that exhibit all the complexity their size demands. Apart from the people who bring in the money (marketers) and the people who direct investment (the fund managers), there are compliance staff (to ensure accord with legislative and regulatory constraints), internal auditors

theory. In order to evaluate success, the investor sets a benchmark¹⁵⁰ (usually in the form of an index or combination of indexes), which he seeks to outperform. Value-added is the return achieved in excess of the benchmark.

Attribution techniques break down value-added into components, each of which quantifies the impact of key investment decisions.

of various kinds (to examine internal systems and controls), financial controllers (to account for the institutions' own money and costs), computer experts, and "back office" employees (to track and record transactions and fund valuations for up to thousands of clients per institution).

Asset Management can refer to:

- Investment management - the sector of the financial services industry that manages collective investment schemes.
- Global assets under management
- List of asset management firms
- Fixed assets management - An accounting process that seeks to track fixed assets for the purposes of financial accounting.
-

¹⁵⁰ An investment benchmark is a standard against which the performance of an individual security or group of securities is measured.

For example, the average annual performance of a class of securities over time is a benchmark against which current performance of members of that class and the class itself is measured.

When the benchmark is an index tracking a specific segment of the market, the changing value of the index not only measures the strength or weakness of its segment but is the standard against which the performance of individual investments within the segment is measured.

For example, the Standard & Poor's 500 Index (S&P 500) and the Dow Jones Industrial Average (DJIA) are the most widely followed benchmarks, or indicators, of the US market for large-company stocks and the funds that invest in those stocks.

There are other indexes that serve as benchmarks for both broader and narrower segments of the US equities markets, of international markets, and of other types of investments such as bonds, mutual funds, and commodities.

Individual investors and financial professionals often gauge their market expectations and judge the performance of individual investments or market sectors against the appropriate benchmarks. In a somewhat different way, the changing yield on the 10-year US Treasury bond is considered a benchmark of investor attitudes.

For example, a lower yield is an indication that investors are putting money into bonds, driving up the price, possibly because they expect stock prices to drop. Conversely, a higher yield indicates investors are putting their money elsewhere.

The choice of benchmark is critical. The benchmark represents the starting point for performance attribution and, in turn, should reflect investor preferences such as orientation toward a particular region or security type.

By comparing portfolio returns¹⁵¹ against the benchmark, we can calculate value-added, generally referred to in Russell/Mellon Performance Attribution (RPA) as *net management effect*¹⁵².

Net management effect is “attributed” to three key investment decisions or effects (allocation, selection, and currency), along with a fourth effect (interaction), which shows the combined impact of two of the decisions¹⁵³.

- The **allocation effect** measures the impact of decisions to allocate assets differently from the policy benchmark.

¹⁵¹ The aggregated expected return on the securities and other assets in a portfolio, where the return on each security or asset is weighted for the proportion of its representation in the portfolio

¹⁵² The value added by active portfolio management. Russell Performance Attribution (RPA) derives this value by subtracting the benchmark return from the portfolio or composite return. The net management effect is the sum of the:

- Allocation Effect: measure of the impact of decisions to overweight or underweight particular asset categories relative to a benchmark. A positive allocation effect results from: (a) overweighting sectors or countries that produce greater returns than the benchmark average; or (b) underweighting sectors or countries that produce lower returns than the benchmark average.
- Selection Effect: measure of the impact of choosing securities that provide different returns from the benchmark. The selection effect evaluates the manager's skill in choosing better performing securities than those in the benchmark.
- Interaction Effect: measure of the combined impact of allocation and selection. In RPA interaction effects can be displayed separately on attribution reports or included with selection or allocation effect reports.
- Currency Effect: measures of the impact of overweighting or underweighting currency exposures in the portfolio relative to the benchmark. RPA calculates the currency effect when the local currency is different from the reporting currency. Spot exchange rates and 30-day forward exchange rates are used as currency data. The currency effect has two components: currency management effect (the results of managing currency surprise) and the forward premium effect.

¹⁵³ Russell/Mellon Performance Attribution also allows the calculation of the policy effect. This effect measures the return difference between the policy benchmark and the neutral benchmark (called *neutral* because it is an industry average allocation). While useful, the policy effect is not part of net management effect as described and therefore is not discussed in detail in this chapter.

- The **selection effect** measures the impact of selecting securities different from those held in the benchmark.
- The **interaction effect** measures the combined impact of selection and allocation decisions within a category or asset class.
- The **currency effect** measures the impact of deviating from the benchmark currency position.

Russell’s performance attribution approach follows the framework outlined by Brinson and Fachler in 1985, but expands on that approach to account for currency effects in multicurrency portfolios. We will consider each of the attribution effects in turn and then discuss more fully the specialized techniques developed by Frank Russell Company for analysis of multicurrency portfolios.

1.1 THE ALLOCATION EFFECT

The allocation effect (allocation) measures the impact of over- or underweighting particular portfolio *categories*, i.e., sectors, countries, or industries.

Positive allocation results are achieved when the portfolio is overweight in an asset category which performed better than the benchmark. Conversely, negative allocation occurs when the portfolio is underweight in such an asset category.

Allocation quantifies different decisions depending on the type of portfolio involved. For example, a balanced manager “allocates” between broad asset classes, a domestic equity manager between industries, and so on. Although asset category definitions vary, the generalized model defines allocation in the same way. For each asset category the allocation effect is:

$$\left(\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Category Weight} & \text{Category Weight} \end{array} \right) *$$

$$\left(\begin{array}{cc} \text{Benchmark} & - \text{Benchmark} \\ \text{Category Return} & \text{Total Return} \end{array} \right)$$

More detailed formulas for each attribution effect can be found in the *Russell Research Commentary* “Multicurrency Performance Attribution” by Ernest Ankrim and Chris Hensel.

Note that the portfolio return is not used when calculating allocation; we are only measuring the impact of the asset weighting decision. Also, when doing multicurrency attribution, all returns used to calculate the allocation effect exclude the effect of currency; currency impacts are measured elsewhere.

Russell's performance attribution methodology is *benchmark relative*. This means that overweighting a portfolio category gives positive allocation only if that category outperforms the total benchmark return (excluding currency).

This is consistent with the way that investment managers make allocation decisions. The approach contrasts with other attribution systems which give credit for allocation if an overweighted segment has a return greater than zero.

1.2 THE SELECTION EFFECT

The selection effect (selection) isolates the skill at security selection *within* each asset category (e.g. stocks within industry group). The formula is:

$$\left(\begin{array}{cc} \text{Portfolio} & - & \text{Benchmark} \\ \text{Category Return} & & \text{Category Return} \end{array} \right) * \left(\begin{array}{c} \text{Benchmark} \\ \text{Weight} \end{array} \right)$$

As above, portfolio and benchmark returns are measured excluding currency because the over- or underperformance of the portfolio is weighted by the benchmark weight. Selection is not affected by the manager's allocation to the segment.

Some attribution approaches measure selection based on portfolio instead of benchmark weight. This causes the interaction of selection and allocation to be included in selection. Because this approach does not suit all investment styles, Russell provides a more detailed analysis by calculating the interaction effect separately.

1.3 THE INTERACTION EFFECT

Brinson and Fachler (1985) identified the interaction effect as the cross product¹⁵⁴ of allocation and selection, for example, being overweight in an asset category where you also outperformed the asset

¹⁵⁴ In mathematics, the cross product, vector product or Gibbs vector product is a binary operation on two vectors in three-dimensional space. It has a vector result, a vector which is always perpendicular to both of the vectors being multiplied and the plane containing them. It has many applications in mathematics, engineering and physics.

If either of the vectors being multiplied is zero or the vectors are parallel then their cross product is zero. More generally, the magnitude of the product equals the area of a parallelogram with the

category benchmark. Strictly speaking this effect is neither allocation nor selection but a hybrid of both. The formula for interaction is as follows:

vectors for sides; in particular for perpendicular vectors this is a rectangle and the magnitude of the product is the product of their lengths. The cross product is anticommutative, distributive over addition and satisfies the Jacobi identity. The space and product form an algebra over a field, which is neither commutative nor associative, but is a Lie algebra with the cross product being the Lie bracket.

Like the dot product, it depends on the metric of Euclidean space, but unlike the dot product, it also depends on the choice of orientation or "handedness". The product can be generalized in various ways; it can be made independent of orientation by changing the result to pseudovector, or in arbitrary dimensions the exterior product of vectors can be used with a bivector or two-form result. But if the product is limited to non-trivial products with vector results it only exists in three and seven dimensions.

The cross product of two vectors a and b is denoted by $a \times b$. In physics, sometimes the notation $a \wedge b$ is used, though this is avoided in mathematics to avoid confusion with the exterior product.

The cross product $a \times b$ is defined as a vector c that is perpendicular to both a and b , with a direction given by the right-hand rule and a magnitude equal to the area of the parallelogram that the vectors span.

The cross product is defined by the formula: $a \times b = ab \sin \theta n$

where θ is the measure of the smaller angle between a and b ($0^\circ \leq \theta \leq 180^\circ$), a and b are the magnitudes of vectors a and b , and n is a unit vector perpendicular to the plane containing a and b in the direction given by the right-hand rule as illustrated. If the vectors a and b are parallel (i.e., the angle θ between them is either 0° or 180°), by the above formula, the cross product of a and b is the zero vector 0 .

The direction of the vector n is given by the right-hand rule, where one simply points the forefinger of the right hand in the direction of a and the middle finger in the direction of b . Then, the vector n is coming out of the thumb (see the picture on the right). Using this rule implies that the cross-product is anti-commutative, i.e., $b \times a = -(a \times b)$. By pointing the forefinger toward b first, and then pointing the middle finger toward a , the thumb will be forced in the opposite direction, reversing the sign of the product vector.

Using the cross product requires the handedness of the coordinate system to be taken into account (as explicit in the definition above). If a left-handed coordinate system is used, the direction of the vector n is given by the left-hand rule and points in the opposite direction.

This, however, creates a problem because transforming from one arbitrary reference system to another (e.g., a mirror image transformation from a right-handed to a left-handed coordinate system), should not change the direction of n . The problem is clarified by realizing that the cross-product of two vectors is not a (true) vector, but rather a pseudovector.

$$\left(\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Category Weight} & \text{Category Weight} \end{array} \right) *$$

$$\left(\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Category Return} & \text{Category Return} \end{array} \right)$$

The interaction effect (interaction) is generally relatively small compared to the two effects described so far. However, if the portfolio weight (or return) is significantly more or less than the benchmark weight (or return), the interaction effect has a larger impact. For convenience, interaction is often combined with selection or occasionally with allocation.

1.4 THE CURRENCY EFFECT

Selection, allocation, and interaction are all calculated after the effects of currency movements have been stripped out. The currency effect is measured separately, giving an indication of the effect of currency exposures on the portfolio and the impact of forward currency contracts or currency futures.

Like allocation, the currency effect is measured relative to the benchmark currency return. For example, if the benchmark had an average currency return of -2% in an asset with an overweight position in the portfolio, a currency return of zero, or even -1, for a particular asset category results in a positive currency effect because it exceeds the benchmark return.

The formula for calculating the currency effect is as follows:

$$\left(\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Category Weight} & \text{Category Weight} \end{array} \right) *$$

$$\left(\begin{array}{cc} \text{Benchmark Category} & - \text{Benchmark Total} \\ \text{Currency Return} & \text{Currency Return} \end{array} \right)$$

2. SPECIALIZED CURRENCY FEATURES OF RUSSELL/MELLON PERFORMANCE ATTRIBUTION

Some performance attribution models ignore the currency effect completely and show all returns in the base currency of the portfolio. Others introduce a currency effect as shown previously.

This approach provides better information than the traditional single-currency Brinson and Fachler model¹⁵⁵, but does not fully reflect the fact that the forward currency markets offer the investor a riskless currency return (the forward premium¹⁵⁶).

¹⁵⁵ Brinson, Gary P., and Nimrod Fachler, "Measuring Non-US Equity Portfolio Performance," *Journal of Portfolio Management*, Spring 1985, pp. 73-76.

Brinson, Gary P., L. Randolph Hood, and Gilbert L. Beebower, "Determinants of Portfolio Performance," *Financial Analysts Journal*, July-August 1986, pp. 39-44.

Brinson, Gary P., Singer, Brian D., and Gilbert L. Beebower, "Determinants of Portfolio Performance II: An Update," *Financial Analysts Journal*, May-June 1991, pp. 40-48.

Cariño, David, "Combining Attribution Effects Over Time," *Journal of Performance Measurement*, Summer 1999, pp. 5-14.

Davies, O. and Laker, D., "Multiple-Period Performance Attribution Using the Brinson Model," *Journal of Performance Measurement*, Fall 2001, pp 12-22.

Kirievsky, Leonid and A. Kirievsky, "Attribution Analysis: Combining Attribution Effects Over Time Made Easy," *Journal of Performance Measurement*, Summer 2000, pp. 49-59.

Laker, Damien, "What is this Thing Called Interaction?" *Journal of Performance Measurement*, Fall 2000, pp. 43-57.

(Working Group of) The Society of Investment Analysts (UK), "The Measurement of Portfolio Performance for Pension Funds," 1972.

The other models treat the currency impact as though it were wholly attributable to unexpected short-term currency fluctuations. This has the effect of crediting positive currency impact to managers who have large exposures to countries with positive forward premiums and vice versa. Russell believes that attribution analysis should separate out the impact of forward premiums and evaluate currency decisions accordingly.

For example, assume that a UK-based investor chooses to invest in the US, and that cash returns in the US are 3% compared with 7% in the UK. Cash returns (and possibly returns on other assets) are lower in the US. But, since currencies generally move to offset interest rate differentials, the investor is largely compensated by a positive return on currency, i.e., we expect that the US dollar will appreciate relative to the pound sterling. Conversely, if interest rates in the US are higher than in the UK, the dollar is expected to depreciate relative to sterling. The anticipated appreciation or depreciation in the currency is reflected in the *forward currency premium*.

We can see how the forward premium comes to exist and how to measure it. The following diagram illustrates how the impact of differential interest rates will give rise to a forward premium.

If we invest £1 at 7% for a single year, we will receive £1.07. On the other hand, if we convert this £1 to US\$2 (assuming a \$1 = £0.5 exchange rate), we will end up with \$2.06 after one year (\$2 at a 3% interest rate). The exchange rate that will convert US\$2.06 back to £1.07 is \$1 = £0.519. We call this the *expected forward rate*.

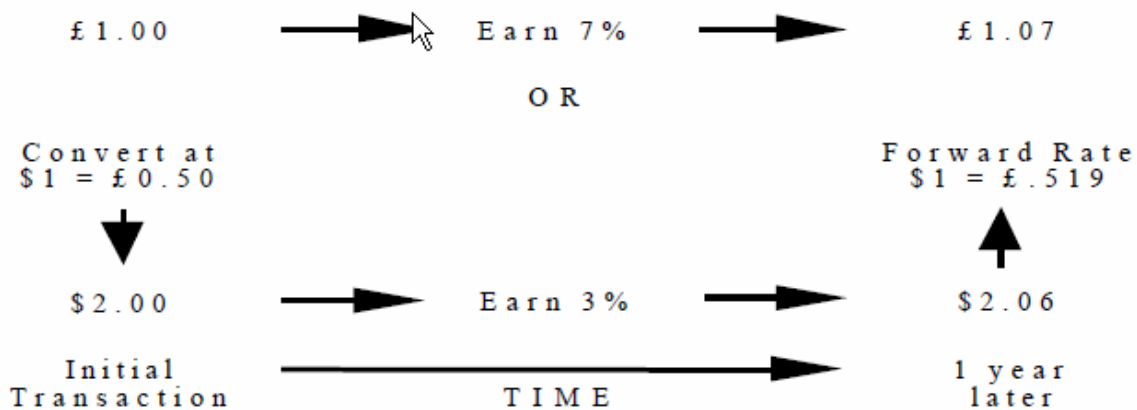
We can calculate the *forward currency premium* directly from the forward exchange rate as shown in the equation below.

¹⁵⁶ The term forward premium, as used in currency trading, refers to the premium (or discount) resulting from a forward contract to be executed in the future at a forward rate. The premium is calculated as follows:

$$((\text{fw rate} - \text{spot rate}) / \text{spot rate}) \times (12 / \text{number of months fw}) \times 100$$

The resulting value is a percentage and termed a premium if it is positive. If the resulting percentage is negative, it is a forward discount.

Need for Forward Premia: This is important as it provides opportunity to a Forex trader to encash interest rate differential between two currencies when trading forward. To explain in detail, when a Seller of currency Forward sells his currency with lower interest rate and agrees to take delivery of local currency with higher interest rate on a future date, he stands to lose the interest differential advantage during the intervening period. Forward premium compensates the trader by building in a premium for the forward months.



Forward Premium Calculation

$$\frac{\text{Forward Rate} - \text{Spot Rate}}{\text{Spot Rate}}$$

$$= \frac{0.519 - 0.500}{0.500}$$

$$= 3.80\%$$

3.80% (not zero) is the return that will occur if currency markets behave as anticipated, and so, for practical purposes, 3.80% is the *expected return* in the US dollar. By hedging the portfolio using forward currency contracts, an investor is able to lock in this return without effectively taking any currency risk.

We can therefore separate the currency return into that which is available at no currency risk (the forward premium) and the remainder, which represents the reward (or penalty) for actively taking on currency exposure.

We call the second component the *currency surprise*, so called because it is not known at the start of each period. The currency surprise is calculated simply as the total currency return (the change in spot rates) minus the forward premium.

This concept is best illustrated by referring back to the example above. Suppose the currency return for the portfolio for the year was 8%; we would break out the currency return as follows:

Total Currency Return	8.00%
– Forward Premium	3.80%
= Currency Surprise	4.20%

Once the currency return is broken down in this way, we can define two related currency attribution measures. Specifically we divide the currency effect into two components:

- The forward premium effect: shows the impact of forward premiums on portfolio return. The forward premium effect is measured as:

$$\left(\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Category Weight} & \text{Category Weight} \end{array} \right) *$$

$$\left(\begin{array}{cc} \text{Category} & - \text{Benchmark Total} \\ \text{Forward Premium} & \text{Forward Premium} \end{array} \right)$$

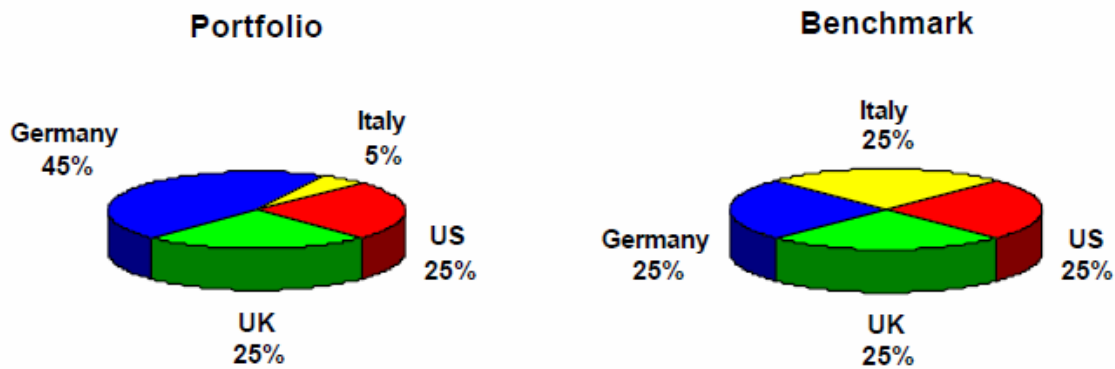
- The currency management effect¹⁵⁷: shows the impact of “managing” the currency surprise element of currency return. This effect is called the currency management effect because a positive value implies some skill in predicting currency fluctuations beyond those implied by the forward currency premium. The currency management effect is measured as:

$$\left[\left(\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Category Weight} & \text{Category Weight} \end{array} \right) * \right. \\ \left. \left(\begin{array}{cc} \text{Category} & - \text{Total Benchmark} \\ \text{Currency Surprise} & \text{Currency Surprise} \end{array} \right) \right]$$

We can examine the application of this method in an example:

Suppose a US dollar investor is allocated across four bond markets as shown in the diagram below. The portfolio country allocations result in an overweight position in the German market and an underweight position in Italy relative to the benchmark. The portfolio is unhedged, so similar over- and underweight positions exist relative to the benchmark currency positions.

¹⁵⁷ The formula for currency management effect shown on this page excludes the impact of hedging positions. The approach therefore appears to be slightly different to that shown in the Ankrim and Hensel (A&H) research commentary (section 2 of this publication). In their review, A&H present aggregate formula covering both the physical security and the currency positions. RPA measures currency positions as separate assets using the formula on this page. The A&H approach is therefore the generalized solution.



The relative weights and returns are shown in the following table. The first column shows the portfolio weight versus the index. Columns two and three show the country returns for both the portfolio and the index. The country returns (similar to the local currency returns) are simply the returns in the reporting (or base) currency less the currency return. The last two columns show the currency return and the forward premium. The currency surprise is not shown since this is simply the difference between the figures shown in the last two columns.

	Rel. Weight % Points	Portfolio Country Return	Index Country Return	Currency Return	Forward Premium
US	0.00	2.51%	2.15%	0.00%	0.00%
UK	0.00	2.14%	2.03%	-2.05%	-0.07%
Germany	20.00	1.57%	1.53%	0.03%	0.52%
Italy	-20.00	2.54%	2.44%	-1.34%	-0.82%
Total	0.00	2.00%	2.04%	-0.84%	-0.09%

By examining this table we can evaluate the magnitude of the attribution effects. First, we examine selection.

	Rel. Weight % Points	Portfolio Country Return	Index Country Return	Currency Return	Forward Premium
US	0.00	2.51%	2.15%	0.00%	0.00%
UK	0.00	2.14%	2.03%	-2.05%	-0.07%
Germany	20.00	1.57%	1.53%	0.03%	0.52%
Italy	-20.00	2.54%	2.44%	-1.34%	-0.82%
Total	0.00	2.00%	2.04%	-0.84%	-0.09%

Comparing the portfolio returns with those of the index (above) shows that selection was positive: the portfolio return was higher than the local index return in every market. Despite this, the aggregate

portfolio return (excluding currency) was 0.04% below the benchmark due to poor allocation; the portfolio was overweight in Germany (the worst performing market) and underweight in Italy (the best performing market). This impact is shown in the table below.

	Rel. Weight % Points	Portfolio Country Return	Index Country Return	Currency Return	Forward Premium
US	0.00	2.51%	2.15%	0.00%	0.00%
UK	0.00	2.14%	2.03%	-2.05%	-0.07%
Germany	20.00	1.57%	1.53%	0.03%	0.52%
Italy	-20.00	2.54%	2.44%	-1.34%	-0.82%
Total	0.00	2.00%	2.04%	-0.84%	-0.09%

The portfolio country exposure clearly has a negative impact on allocation. On the other hand, the decision to overweight the German mark and underweight the Italian lira had a positive currency impact. The currency return for Germany was better than for the total benchmark and the Italian lira depreciated by more than the average (see below).

	Rel. Weight % Points	Portfolio Country Return	Index Country Return	Currency Return	Forward Premium
US	0.00	2.51%	2.15%	0.00%	0.00%
UK	0.00	2.14%	2.03%	-2.05%	-0.07%
Germany	20.00	1.57%	1.53%	0.03%	0.52%
Italy	-20.00	2.54%	2.44%	-1.34%	-0.82
Total	0.00	2.00%	2.04%	-0.84%	-0.09%

In the following example, we have chosen to combine interaction with selection. The contribution from each decision (currency, allocation, and selection) can then be summarized as follows:

	Attribution Effects			Total
	Currency	Allocation	Selection	
US	0.00%	0.00%	0.09%	0.09%
UK	0.00%	0.00%	0.03%	0.03%
Germany	0.17%	-0.10%	0.02%	0.09%
Italy	0.10%	-0.08%	0.01%	0.02%
Total	0.27%	-0.18%	0.14%	0.23%

In each of the tables of attribution effects, the currency, allocation, and selection effects sum to the total effect. Attribution effects also sum by column. In certain cases totals will not add exactly due to rounding.

Our attribution analysis tells us that currency was the main component of total net management effect. We can now break down the currency return further to identify how much was due to the forward premium. This breakdown (shown below) shows us that the currency management effect was small, with most of the currency effect arising from the forward premium effect.

	Currency Effects		
	Forward Premium Effect	Currency Management Effect	Total Currency Effect
US	0.00%	0.00%	0.00%
UK	0.00%	0.00%	0.00%
Germany	0.12%	0.05%	0.17%
Italy	0.15%	-0.05%	0.10%
Total	0.27%	0.01%	0.27%

Taking this example further we can examine what would happen if the US investor had hedged the sterling position.

The proportion of currency return that investors can hedge away is the currency return (-2.05%) less the forward premium (-0.07%). Eliminating this negative return (of -1.97%) through hedging will improve return at the portfolio level by nearly 0.50%, i.e. $-1.97 \times 25\%$ (the UK weight). How would this be reflected in the attribution analysis?

	Attribution Effects			
	Currency	Allocation	Selection	Total
US	0.00%	0.00%	0.09%	0.09%
UK	0.50%	0.00%	0.03%	0.53%
Germany	0.17%	-0.10%	0.02%	0.09%
Italy	0.10%	-0.08%	0.01%	0.02%
Total	0.77%	-0.18%	0.14%	0.73%

We observe an additional 0.50% return in the UK currency category. Breaking down the currency further (below) indicates that the entire impact of the hedging decision is attributed to currency management.

This further level of detail enables investors to classify accurately the contribution from hedging.

Currency Effects			
	Forward Premium Effect	Currency Management Effect	Total Currency Effect
US	0.00%	0.00%	0.00%
UK	0.00%	0.50%	0.50%
Germany	0.12%	0.05%	0.17%
Italy	0.15%	-0.05%	0.10%
Total	0.27%	0.50%	0.77%

This example highlights the two key benefits of this approach:

- The **forward premium** effect separates out return impacts arising from differential interest rates.
- The impact of active **currency management** is identified separately.

A multicurrency performance attribution system should enable the measurement of value-added relative to an appropriate benchmark and should separate the impact of currency decisions from allocation and selection decisions. The benchmark used may be hedged (partial or full) or unhedged, but the measurement framework should recognize that the forward premium, not zero, is the expected return on currency.

3. PERFORMANCE CALCULATIONS

To calculate portfolio weights and returns from cash flow data, RPA use the modified Dietz formula¹⁵⁸, as described below.

¹⁵⁸ In the absence of daily portfolio valuations, the modified Dietz method weights individual cash flows by the amount of time that those cash flows are held (or absent) from the portfolio. The modified Dietz method overcomes the need to know the valuation of the portfolio on the date of each cash flow by assuming a constant rate of return during the period. Each cash flow is weighted by the amount of time it is held in the portfolio. The formula for modified Dietz is as follows:

$$r(T) = \{MV(T) - MV(0) - \text{sum}[C(t)]\} / \{MV(0) + \text{sum}[w(t) * C(t)]\}$$

r(T) = Modified Dietz Return;

MV(T) = Ending market value;

MV(0) = Beginning market value;

C(t) = Net contribution occurring on day t;

w(t) = weight of the net contribution on day t;

$$w(i) = \{T - t\} / T$$

3.1 ADJUSTED BEGINNING MARKET VALUE

RPA uses the following algorithms for calculating the adjusted beginning market value (ABMV):

Mid-Period Weighted Adjusted Beginning Market Value:

$$ABMV = V_b + \sum_m \frac{C_m}{2}$$

Note that cash flows (C_m) are entered as purchases, sales, or income. Sales and income values are assumed to be negative in the ABMV calculations.

Day-weighted Adjusted Beginning Market Value:

$$ABMV = V_b + \sum_m T_m C_m$$

Where V_b = Beginning accrued market value;

C_m = Amount of cash flow m ;

T_m = Day-weighting factor;

The day-weighting factor indicates the length of time the cash flow has been available, expressed as a fraction between one and zero. For example, RPA uses 1.0 if the cash flow has been available for the complete month, 0.5 if the cash flow occurred on day 15 of a 30-day month, and 0.0 if the cash flow occurred at the end of the month.

Returns Calculation

RPA uses the following algorithm for calculating returns:

$$R = \frac{V_e - V_b - \sum_m C_m}{ABMV}$$

Where V_b = Beginning accrued market value;

V_e = Ending accrued market value;

C_m = Amount of cash flow m ;

T= Total number of days;

t= day the net contribution occurs.

The Modified Dietz method assumes that net contributions are invested at the end of the respective day they occur.

Modified Dietz is an example of a money (or dollar) weighted methodology. If modified Dietz returns for finite periods (typically monthly) are geometrically linked the methodology becomes time weighted (although not true time weighted which requires valuations at the point of each cash flow)

4. CURRENT METHODS OF PERFORMANCE ATTRIBUTION

In a classic article on performance attribution, Brinson and Fachler (1985) illustrate a simple analytic framework for evaluating the returns of non-US equity portfolios.

Their approach breaks returns into market selection, stock selection, and cross-product effects. Their model was intuitively appealing and simple to implement. However, it assumed an equity portfolio and a benchmark index that had no direct currency exposure.

While other attribution methods for dealing with currency exposure have been developed, we propose a method of performance attribution that retains the simplicity and intuitive appeal of Brinson and Fachler's (BF's) approach but breaks the returns due to currency into two components: one that recognizes the opportunity cost of returns achievable in forward currency markets and a second that measures the currency returns attributable to being less than fully hedged, both in the portfolio and in the benchmark against which the portfolio is compared.

4.1 PROBLEMS INTRODUCED BY CURRENCY EXPOSURE

There are three reasons that introducing currency exposure into performance attribution causes problems.

First, and most obvious, it alters the returns (certainly absolute returns and most likely returns in excess of some benchmark) ultimately received by the client.

In BF all returns are denominated in the home currency, but this makes it impossible to separate the contribution to returns made by the manager's country and security selection decisions from the impact of currency translation gains and losses.

Second, in practice many portfolios have some portion (but not necessarily all) of their currency exposure hedged away. This requires an approach to performance attribution that allows for the proportion of currency exposure hedged to be variable.

In the case of equities, perfect static hedging¹⁵⁹ is not possible, given the uncertain terminal value of the foreign equity. Even in the case of fixed income instruments, where (short of default problems) the

¹⁵⁹ A static hedge is one that does not need to be re-balanced as the price of other characteristics (such as volatility) of the securities it hedges change. This contrasts with a dynamic hedge that requires constant re-balancing.

A simple example of a static hedge is a future that is used to hedge a position in a foreign currency. Once the future is in place the foreign exchange risk is entirely eliminated. Leaving aside counter-party risk and similar problems, the portfolio (the foreign exchange position plus the future) is entirely risk free.

Static hedges need to be perfect, but, without the risks attached to re-balancing, they can be.

terminal value is known with certainty, the investor may not choose to hedge away all currency exposure.

Third, even if a portfolio is completely hedged, the client may choose to adopt a benchmark that is less than fully hedged. This may follow from research indicating the optimal hedge ratio is less than one.

All of these will cause the actual excess return (relative to the benchmark) in base currency to differ from what would have occurred in the absence of currency effects. To understand the proposed method for dealing with these currency distortions, it is first necessary to define the two components of currency return.

4.2 COMPONENTS OF CURRENCY RETURN

To define and illustrate the two parts of currency returns, it is necessary to define the following:

S_t = current spot conversion rate (foreign into base currency).

\tilde{S}_{t+1} = spot conversion rate at time $t + 1$. The \sim symbol indicates that this value is uncertain at time t .

F_{t+1} = forward exchange rate at time t for conversion (foreign into base currency) through a forward contract at time $t + 1$.

The return on holding the foreign currency for the period from time t to $t + 1$ is

$$\tilde{r}_{t+1} = \left(\tilde{S}_{t+1} - S_t \right) / S_t. \quad (1)$$

By adding and subtracting the same value from the numerator we get

$$\begin{aligned} \tilde{r}_{t+1} &= \left(\tilde{S}_{t+1} - F_{t+1} + F_{t+1} - S_t \right) / S_t, \text{ and} \\ \tilde{r}_{t+1} &= \left(\tilde{S}_{t+1} - F_{t+1} \right) / S_t + \left(F_{t+1} - S_t \right) / S_t. \end{aligned} \quad (2)$$

A static hedge is likely not to last indefinitely. Most hedged portfolios contain securities that will expire or mature. At that point the hedge will need to be adjusted or re-constructed. Unlike a dynamic hedge, this happens occasionally at comparatively long intervals.

Static hedges can be much more complex than the simple example above: for example, when statically hedging a barrier option with vanilla options a number of vanilla options may be required to hedge one barrier option.

A dynamic hedge is sometimes required: for example to hedge an option with its underlying (as opposed to other options on the same underlying) requires dynamic hedging — delta hedging at the very least.

Like a dynamic hedge, a static hedge may be reversed to replicate the cash flows of a security.

From this equation the uncertain returns to currency exposure can be broken down into two components:

$$\begin{array}{lll} \text{a)} & \text{currency surprise:} & \tilde{e}_{t+1} = \\ & (\tilde{S}_{t+1} - F_{t+1}) / S_t & (3) \\ \text{I} & \text{and} & \\ \text{b)} & \text{forward premium:} & f_{t+1} = \\ & (F_{t+1} - S_t) / S_t & (4) \end{array}$$

While the returns to currency exposure over the period t to $t + 1$ are uncertain at time t , it is evident from equation (2) that all of the uncertainty derives from the currency surprise. Because the value of an active manager lies in its ability to forecast the uncertain sources of return, it is only the ability to capture positive returns due to currency surprise that we should seek to attribute to performance.

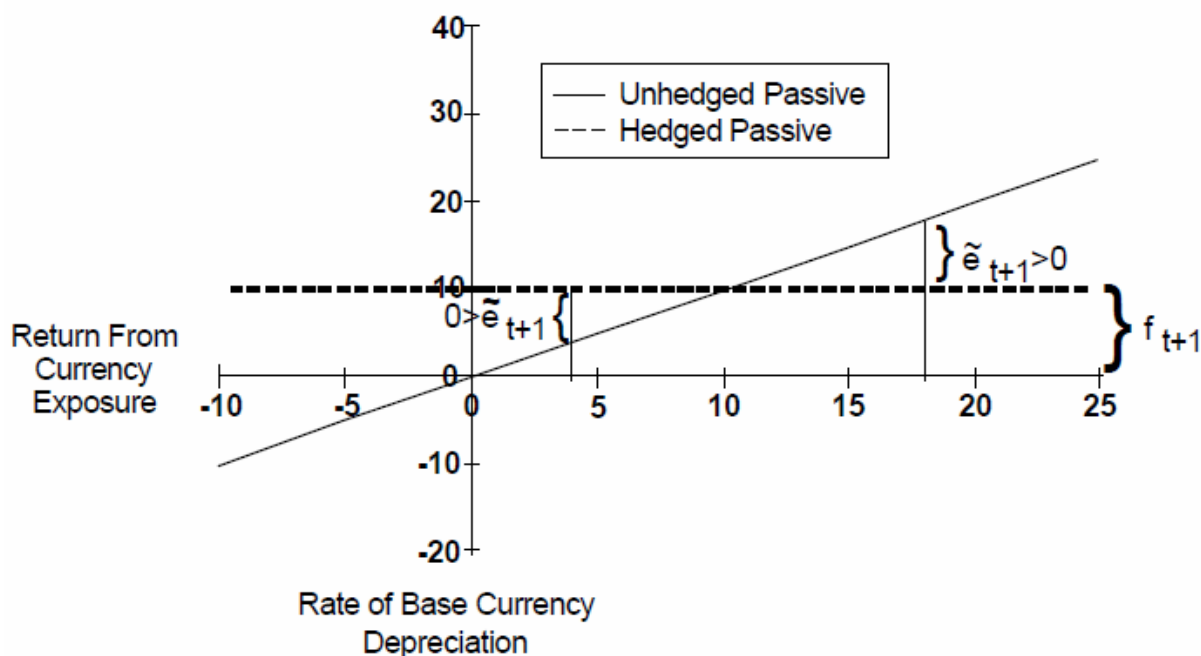
Any approach to multicurrency attribution that lumps the forward premium and currency surprise together (i.e., looks at currency returns as solely the percentage change in spot rates) will credit positive performance to managers who have large exposures in countries with positive forward premiums. Such an approach would also penalize managers who hold large positions in countries with negative forward premiums.

Consider a simple example in which a currency manager decides to take a fully exposed position in some foreign currency. The return generated by this position would be equal to the rate of depreciation of the base currency. In Figure 1 such a position is represented by the line labeled

“unhedged passive.” Also assume that the forward premium at the beginning of the period is such that the client could lock in a return of 10% by selling the foreign currency forward.

The return to this position would be equal to the forward premium, regardless of the subsequent change in exchange rates. This return is represented by the line labeled “hedged passive.”

Figure 1
Payoffs From Different Hedging Strategies
(For Currency With 10% Forward Premium)



Now consider two possible outcomes for the base currency over the period: (A) it depreciates by 18%, or (B) it depreciates by 4%.

- If the currency depreciates 18%, by taking a fully exposed position in the foreign currency the manager will have generated 8% beyond what the client could have secured in a riskless forward hedge. It is this 8% gain that we would attribute to the manager's decision.
- (B) If the currency depreciates 4%, by taking a long position in the foreign currency the manager generated 6% less than the client could have made by selling forward the currency at the beginning of the period. Note that the manager could report a gain of 4% due to currency exposure, but this would not represent the opportunity costs of passing up the certain return of 10% available through the forward markets at the beginning of the period.

For this reason, our proposed approach would assign a negative performance result to the manager who underperformed the forward premium. The currency performance of the manager would be equal to the currency surprise. In this case, any total return to currency of less than 10% (the known forward premium at the beginning of the period) would be viewed as manager performance that detracts from the total return of the client.

Once we have identified the two potential sources of currency return, it is necessary to combine these with the BF attributes: market (or country) selection and security selection. These two effects, along with the two elements of currency return, represent the four major components of any total performance differential that the manager could deliver relative to some benchmark.

4.3 THE PROPOSED METHOD OF PERFORMANCE ATTRIBUTION WITH CURRENCY

Prior to describing our proposal, it is necessary to define some additional terms. Let:

ω_i = weight of the i th country's securities in the portfolio.⁶

$\bar{\omega}_i$ = weight of the i th country's securities in the index (benchmark).

ω_{FC_i} = ratio of base currency value of currency i forward positions to the base currency value of the total portfolio. (This value is negative when the foreign currency is sold forward, as is normally the case in hedging.⁷)

$\bar{\omega}_{FC_i}$ = ratio of base currency value of currency i forward positions to the base currency value of the total *benchmark* portfolio (index).

f_i = forward premium for period in the i th country's currency.

e_i = currency surprise return for the period in the i th country's currency.

\bar{f} = weighted average (by index weights) forward premium.

\bar{e} = weighted average (by index weights) currency surprise.

r_i = return of the i th country's securities in the portfolio (including currency-related returns).

\bar{r}_i = return of the i th country's securities in the index (including currency-related returns).

R = total return to portfolio in the period in base currency (i.e.,
 $R = \sum_i \omega_i * r_i$).

\bar{R} = total return to index in the period in base currency (i.e.,
 $\bar{R} = \sum_i \bar{\omega}_i * \bar{r}_i$).

k_i = rate of return in the period for the portfolio of securities invested in country i (i.e., $k_i = r_i - [f_i + e_i]$).⁸

\bar{k}_i = rate of return in the period for the index of securities invested in country i (i.e., $\bar{k}_i = \bar{r}_i - [f_i + e_i]$).

K = the weighted average of country returns for the portfolio (i.e., $K = \sum_i \omega_i * k_i$).

\bar{K} = the weighted average of country returns for the index (i.e., $\bar{K} = \sum_i \bar{\omega}_i * \bar{k}_i$).

r_{FC_i} = the “return” to forward contracts in the portfolio.⁹

\bar{r}_{FC_i} = the implied “return” to forward contracts in the index.

5. SECURITY SELECTION EFFECT

This effect measures how much the manager’s security selection decisions within each country (as they differ from the benchmark) add to the portfolio’s performance differential. Conceptually, the selection effect of the i th class or sector is

$$\begin{pmatrix} \text{Portfolio} - \text{Benchmark} \\ \text{Return} \quad \text{Return} \end{pmatrix} * \begin{pmatrix} \text{Benchmark} \\ \text{Weight} \end{pmatrix}$$

The difference in
sector performance

This component is defined as

$$\text{Security selection} = \sum_i (k_i - \bar{k}_i) * \bar{\omega}_i. \quad (5)$$

This selection component has the country return differentials weighted by the benchmark weights. This means that large overperformance in a small market would contribute no more than small overperformance in a large market.

6. ALLOCATION EFFECT

This effect measures the impact on the portfolio's performance differential of the manager's decision to invest in certain countries in proportions different than those of the benchmark. Conceptually, the allocation effect of the i th class or sector is

$$\left(\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Weight} & \text{Weight} \end{array} \right) * \left(\begin{array}{c} \text{Benchmark Country Return} \\ \text{Relative to Total Return} \end{array} \right)$$

The difference in
sector allocation

This effect is defined as

$$\text{Allocation effect} = \sum_i (\omega_i - \bar{\omega}_i) * (\bar{k}_i - \bar{K}) \quad (6)$$

Managers who have large positions in countries that enjoy above-average returns and small positions in countries that experience below-average returns will generate positive contributions to the portfolio's performance.

7. FORWARD PREMIUM EFFECT

This effect measures the return generated by the forward premiums in place at the beginning of the period and the manager's weighting differential that serves to capture those premiums. Conceptually, the forward premium effect of the i th class or sector is

$$\left(\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Weight} & \text{Weight} \end{array} \right) * \left(\begin{array}{c} \text{Expected Currency Return} \\ \text{Relative to} \\ \text{Average Premium} \end{array} \right)$$

The difference in
sector allocation

The expected currency
return known at the start
of the period

This effect is defined as

$$\text{Forward premium} = \sum_i (\omega_i - \bar{\omega}_i) * (f_i - \bar{f}) \quad (7)$$

This value will be positive (negative) when the manager places a greater (smaller) fraction of the portfolio than the benchmark in those countries for which a large (positive) forward premium exists. Although it is unlikely that international managers construct their portfolios with this attribute in mind, it still constitutes a source of return and as such needs to be recognized.

Another element to note in this effect is the absence of any measure of the currency exposure of either the portfolio or the benchmark. Hedging has no impact on this effect. This attribute measures a known reward implied in the forward/spot structure that is unaffected by the decisions the manager makes with respect to the amount of currency exposure the portfolio retains. This decision will affect the rewards from currency surprise (see below) but will have no impact on the forward premium effect.

8. CURRENCY MANAGEMENT EFFECT

This effect measures the impact that differential currency exposure (from the benchmark) has on return performance. Conceptually, the currency management effect of the i th class or sector is

$$\left[\begin{array}{cc} \text{Portfolio} & - \text{Benchmark} \\ \text{Weight} & \text{Weight} \end{array} \right] * \left[\begin{array}{cc} \text{Currency} & - \text{Total Benchmark} \\ \text{Surprise} & \text{Currency Surprise} \end{array} \right]$$

The difference in sector allocation
The currency surprise relative to the total benchmark currency surprise

The currency management effect is defined as

$$\text{Currency management} = \sum_i [(\omega_i - \bar{\omega}_i) * (e_i - \bar{e}) + (\omega_{FC_i} - \bar{\omega}_{FC})]. \quad (8)$$

Some observations concerning the currency management effect should be noted here. First, remember that selling currency forward will cause the value of w_{FCi} to be less than zero. As the sum of these two weights approaches zero, the portfolio is closer to being fully hedged against currency fluctuations.

However, since these values are determined using beginning-of-the-period values, it is quite likely that “hedge slippage” will cause some currency exposure to remain. In this approach, the returns from hedge slippage are contained in the interaction effect.

Second, it should be noted that this definition includes an approximation that will leave the total attribution off by a very small amount (in our preliminary applications, the errors were around 3 basis points¹⁶⁰ per year).

Finally, note that a lack of currency management effect can result from two different outcomes.

There will be no currency management effect if the net exposures to the currencies are the same for both the portfolio and the index. Similarly, there will be no currency management effect if the currency surprise is equal to zero.

9. INTERACTION EFFECT

In BF this term is referred to as the cross product. In a single-currency treatment, this effect measures the contribution of simultaneously occurring performance effects. That is, if a manager exhibits both heavier weighting *and* positive security selection performance in a given country, the combination of these two events will cause the addition to performance to exceed the sum of the effects by their *cross product*. In our multicurrency approach, we report the BF cross product while the interaction effect of the currency returns with those of the security returns is distributed among the selection, allocation, and currency management effects.

¹⁶⁰ A basis point (often denoted as bp or; rarely, permyriad) is a unit related to the *change* in an interest rate, and it is equal to 1/100th of a percentage point per annum (pa). Put another way: 1 bp = 0.01%

It is frequently, but not exclusively, used to express differences in interest rates of less than 1% pa. For example, a difference of 0.10% is equivalent to a change of 10 basis points (e.g. a 4.67% rate increases by 10 basis points to 4.77%).

Basis points avoid the ambiguity between relative and absolute discussions about interest rates by dealing only with the absolute change in numeric value of a rate. For example, if a report says there has been a "1% increase" from a 10% interest rate, this could refer to an increase either from 10% to 10.1% (relative, 1% of 10%), or from 10% to 11% (absolute, 1% plus 10%). If, however, the report says there has been a "10 basis point increase" from a 10% interest rate, then we know that the interest rate of 10% (the "basis", if you will) has increased by 0.10% (the absolute change) to a 10.1% rate.

It is common practice in the financial industry to use basis points to denote a rate change in a financial instrument, or the difference (spread) between two interest rates, including the yields of fixed-income securities.

Since certain loans and bonds may commonly be quoted in relation to some index or underlying security, they will often be quoted as a spread over (or under) the index. For example, a loan that bears interest of 0.50% per annum above LIBOR is said to be 50 basis points over LIBOR, which is commonly expressed as "L+50bps" or simply "L+50".

10. NUMERICAL EXAMPLES AND LIKELY MAGNITUDE

In this section we provide an indication of the relative magnitude of these effects by constructing a simple example. Two types of information are necessary to build sample values for the effects:

- the magnitude and variability of currency return components and
- reasonable values for the benchmark and portfolio weights.

Summary statistics from monthly data (January 1978 to December 1990) on the forward premium and currency surprise elements of currency return are presented for the largest three countries in the MSCI EAFE Index¹⁶¹: Japan, United Kingdom, and Germany.

The forward premium represents the return from selling the currency forward on one-month contracts. The currency surprise represents the difference between that forward rate and the spot rate on the date of forward delivery as a percentage of the original spot rate.

Currency Return Values (Stated in basis points per month)

	Forward Premium		Currency Surprise	
	Average	Standard Dev.	Average	Standard Dev.
Japan	35.3	25.9	8.7	391.6
UK	-17.6	25.2	24.4	359.6
Germany	31.8	18.1	-3.6	357.4

Two contrasts are evident in these values. First, the average absolute size of the forward premium is greater (in general) than that of the currency surprise. Second, the volatility of the currency surprise dwarfs that of the forward return. The impact of both of these relationships will be evident in the simple example to come. Before we can proceed with the example, however, we need to establish reasonable portfolio weights for the three countries.

To establish those weights, we took the average country weights of 133 non-US equity portfolios and the weights of the MSCI EAFE Index as of December 1990. Although the three countries in our example do represent the largest three countries (by portfolio share) in these non-US portfolios, their weights will clearly not sum to one (a condition necessary for our attribution calculations). For our simple example, these portfolio and index country weights were increased on a pro rata basis so that the resulting weights summed to one, while preserving the original relative proportions.

¹⁶¹ The Morgan Stanley Capital International Europe, Australia, Far East (MSCI EAFE) Index is a widely used index of non-US equities for US investors.

Country Weights

	Actual Weights		Example Weights	
	Average: 133 Portfolios	MSCI EAFE	Portfolio	Index
Japan	24.4%	50.4%	50.5%	67.6%
UK	15.7%	17.5%	32.5%	23.4%
Germany	8.2%	6.7%	17.0%	9.0%
Total	48.3%	74.6%	100.0%	100.0%

To get a general idea of the magnitude of currency effects, we use the information from the two previous tables along with our definitions of the forward premium effect and the currency surprise effect.

$$\begin{aligned}
 \text{Forward currency} &= \dots\dots \sum_i (\omega_i - \bar{\omega}_i) * (f_i - \bar{f}) \\
 &= (0.505 - 0.676) * (35.3 - 22.6) \text{ (Japan)} \\
 &+ (0.325 - 0.234) * (-17.6 - 22.6) \text{ (UK)} \\
 &+ (0.170 - 0.090) * (31.8 - 22.6) \text{ (Germany)} \\
 &= (-2.2) + (-3.7) + (0.7) = -5.1 \text{ bp per month.}
 \end{aligned}$$

Similar calculations were performed on values of the forward premiums that were one standard deviation higher and one standard deviation lower than the mean. Those values, along with extrapolations for annual values, are contained in the following table:

Range of Reasonable Forward Premium Effects (Measured in basis points)

	Monthly	Annual
Expected forward premium effect	-5.1	-61.1
$E[f]$ plus 1 standard deviation	-5.8	-63.5
$E[f]$ minus 1 standard deviation	-4.4	-58.7

A similar calculation produces a reasonable value for the currency surprise element of the currency management effect (or, for purposes of this example, considers that both the portfolio and benchmark are unhedged):

$$\begin{aligned}
\text{Currency surprise} &= \dots\dots \sum_i (\omega_i - \bar{\omega}_i) * (e_i - \bar{e}) \\
&= (0.505 - 0.676) * (8.7 - 11.3) \text{ (Japan)} \\
&+ (0.325 - 0.234) * (24.4 - 11.3) \text{ (UK)} \\
&+ (0.170 - 0.090) * (-3.6 - 11.3) \text{ (Germany)} \\
&= (0.4) + (1.2) + (-1.2) = 0.4 \text{ bp per month.}
\end{aligned}$$

As with the forward return calculations, values from plus or minus one standard deviation as well as annual extrapolations were calculated and are summarized below:

**Range of Reasonable Currency Surprise Effects
(Measured in basis points)**

	Monthly	Annual
Expected currency surprise return effect	0.4	5.3
$E[f]$ plus 1 standard deviation	-5.2	-14.2
$E[f]$ minus 1 standard deviation	6.1	24.9

The results from these two tables allow us to answer some basic questions about the two components of returns to currency exposure.

In this simple example the combination of forward premium and currency surprise effects would have been between 40 and 80 basis points a year most of the time. There were cases of dramatically larger currency surprise impacts. These were, however, rather infrequent.

The forward premium effects were about 60 basis points a year of the 40 to 80 points of total currency effects. However, the vast majority of the variation in period-to-period effects is contained in the currency surprise effects. This can be seen by observing the difference between the forward and surprise in the range of effects with the plus or minus one standard deviation inputs. The range for the forward effect was about 5 basis points per year (-63.4 to -58.6).

This is in stark contrast to the currency surprise, where the range is close to 40 basis points per year (-17.1 to 22.3). Because of the small scale of these effects, it is expected their pair-wise cross product or interaction effect is virtually zero.

This performance attribution approach allows for recognition of the currency return that can be locked in through the use of simple, forward-contract, static hedges. This allows for the impact of the manager's currency positions to be reflected along with the other attributes associated with active management.

While the bulk of the volatility will still, most likely, derive from currency surprise, the removal of the forward premium should provide a more accurate representation of the return added by the manager's decisions.

This adjustment to the BF additive approach to performance attribution assumes that such analysis provides more information than noise. Problems of variations in risk between managers and the selection of an appropriate index have not been addressed by this instance.

We have also not addressed the problem of over-time consistency in the additive nature of these effects.

Because the value of an active manager lies in its ability to forecast the uncertain sources of return, it is only the ability to capture positive returns due to currency surprise that we should seek to attribute to performance. Any approach to multicurrency attribution that lumps the forward premium and currency surprise together (i.e., looks at currency returns as solely the percentage change in spot rates) will credit positive performance to managers who have large exposures in countries with positive forward premiums.

11. COMBINING ATTRIBUTION EFFECTS OVER TIME

Performance attribution is in common use by portfolio analysts and plan sponsors. Attribution systems typically compare a portfolio's return to that of a benchmark and decompose the difference into a number of "effects." While many different decompositions have been devised¹⁶², all of them begin by calculating attributed effects within a basic time period of, say, a month.

Then, the single-period effects are combined or accumulated over multiple periods to obtain summary measures over, say, a full year.

Unlike rates of return, which compound over time, in most attribution schemes there is no obvious way in which to combine attribution effects over time. The dilemma can best be understood by way of an example. Suppose that the difference between a portfolio's return $t R$ and a benchmark's return $t R$ for a given period t is decomposed into a number of effects. Over multiple periods, the natural way to combine returns is to compound them. The compounded portfolio return R over T periods is

$$R = (1 + R_1)(1 + R_2) \cdots (1 + R_T) - 1$$

and for the benchmark,

$$\bar{R} = (1 + \bar{R}_1)(1 + \bar{R}_2) \cdots (1 + \bar{R}_T) - 1.$$

¹⁶² The most well-known scheme is attributable to Brinson and Fachler (1985), which is further discussed in Brinson, Hood, and Beebower (1986) and Brinson, Singer, and Beebower (1991). Other decompositions are described in Fama (1972); Dietz, Fogler, and Hardy (1980); Rudd and Clasing (1982); Fong, Pearson, and Vasicek (1983); Allen (1991); Ankrim (1992); Ankrim and Hensel (1994); Karnosky and Singer (1994); and Burnie, Knowles, and Teder (1998).

If the single-period decomposition works with the difference, it is most natural to look for a decomposition of the multiperiod return difference. However, it is clearly unsatisfactory to simply add effects over time, because the sum of return differences does not equal the difference between compounded returns:

$$R - \bar{R} \neq (R_1 - \bar{R}_1) + (R_2 - \bar{R}_2) + \dots + (R_T - \bar{R}_T).$$

Nor is it satisfactory to compound the single-period return differences, because that result does not equal the difference in compounded returns either:

$$R - \bar{R} \neq (1 + R_1 - \bar{R}_1)(1 + R_2 - \bar{R}_2) \dots (1 + R_T - \bar{R}_T) - 1.$$

Is there a sensible way to combine attribution effects over time? Purveyors of attribution systems have come up with various solutions to this problem, often keeping their methods more or less proprietary¹⁶³.

In this section, we present the method implemented in the Russell/Mellon Performance Attribution (RPA) system¹⁶⁴.

We show how to think of practical attribution systems as approximations to an ideal system, one that utilizes a very large number of very short measurement periods. By viewing multiperiod attribution in this way, we see a natural method for accumulating effects.

The method implemented in RPA has several advantages:

- *Generality*— The method can be applied to any single-period decomposition of returns into effects. There is no need to redefine the single-period formulas.
- *Familiarity*— Any intuition contained in the single-period formulas carries over to the multiperiod effects.
- *No residuals or distortion*— Total returns are fully accounted for. No additional interaction terms or residuals are introduced.

11.1 THE DILEMMA OF ADDITIVE EFFECTS AND COMPOUND RETURNS

As inputs, attribution analysis uses certain outputs of a performance measurement system: the weights and returns of portfolio segments. Segments might consist of the various countries in an international equities portfolio, or they might consist of the asset classes or sectors within a single-country portfolio. However the segments are defined, the weights *it w* and returns *it R* (for segments indexed by *i* and

¹⁶³ Frank Russell Company published a general description of its techniques in Cariño (1992). Articles specifically addressing this topic have appeared recently: Singer, Gonzalo, and Lederman (1998); and Burnie, Knowles, and Teder (1998).

¹⁶⁴ Currently distributed by Russell/Mellon Analytical Services, these algorithms have been in use at Russell since 1987. The key idea for combining effects over time was suggested by John Gillies.

periods indexed by t) must be internally consistent, meaning that the weighted sum of segment returns must equal the total portfolio return $t R$ and that the weights must sum to one:

$$\begin{aligned} \sum_i w_{it} R_{it} &= R_t \\ \sum_i w_{it} &= 1. \end{aligned} \tag{1}$$

This internal consistency is already a nontrivial requirement. Normally, within any given period of measurement (a month, say), there are likely to be cash flows into or out of the segments due to income or dividends received or due to other portfolio management transactions. Because the data required for true time-weighted returns is often not readily available, the segment returns are calculated using some adjustment to mitigate the effect of cash flows. Accordingly, the associated weights for a given period are also adjusted and do not simply represent relative beginning-of-period market values. The input data for attribution analysis is already an approximate description of reality. Attribution formulas take advantage of the weighted sums (1) when comparing a portfolio's return against a benchmark. Weights (underlined) w_{it} and returns (underlined) R_{it} for a benchmark portfolio (denoted by overbars) must also satisfy:

$$\sum_i \bar{w}_{it} \bar{R}_{it} = \bar{R}_t$$

Because segment i represents an aggregation of securities, the returns R_{it} and (underlined) \bar{R}_{it} may differ as a result of security selection within the segment.

Given the linear relationship between total return and segment returns, it is quite natural to expand the *difference* between the portfolio and benchmark returns into components that isolate the effects of various management decisions. For example, the most well-known scheme²³ expands the difference using the formulas shown in Table 1.

Table 1

Formulas for single-period effects in the decomposition $R_t - \bar{R}_t = A_t + S_t + I_t$

Effect	Formula
Allocation	$A_t = \sum_i (w_{it} - \bar{w}_{it})(\bar{R}_{it} - \bar{R}_t)$
Selection	$S_t = \sum_i \bar{w}_{it}(R_{it} - \bar{R}_{it})$
Interaction	$I_t = \sum_i (w_{it} - \bar{w}_{it})(R_{it} - \bar{R}_{it})$

These formulas are easy to understand. For example, each term in the allocation effect measures the impact of the decision to over- or underweight a particular portfolio segment.

The effects calculated as above are also easily grasped when presented in a table. For example, given the weights and returns in Table 2,24 the calculated effects may be displayed as in Table 3.

Table 2

Weights and returns for the example.

	Portfolio		Benchmark	
	Weight	Return	Weight	Return
Equities	70%	7.00%	60%	8.00%
Bonds	20	7.50	40	6.00
Cash	10	6.00	0	5.00
Total	100	7.00	100	7.20

Table 3

Calculated effects for a single time period.

	Allocation	Selection	Interaction	Total
Equities	0.080%	-0.600%	-0.100%	-0.620%
Bonds	0.240	0.600	-0.300	0.540
Cash	-0.220	0.000	0.100	-0.120
Total	0.100	0.000	-0.300	-0.200

When presented with a table such as this, it is natural to assume that a column labeled “Total” represents the sum of the other columns. Indeed, with effects defined as in Table 1, the numbers do sum both down and across. In doing so, the table conveys very naturally the idea that the total (in the lower right corner) is decomposed into components.

While single-period effects are interesting, analysts need to evaluate skill over longer periods of time. The challenge is to come up with a way of linking results that preserves the intuitive simplicity of the single-period decomposition. As mentioned in the introduction, the multiperiod table cannot be obtained simply by adding the single-period effects. Doing so would leave a substantial unexplained residual.

This problem is solved in various ways by attribution systems. One approach is to not use the single-period effects directly when calculating multiperiod effects. Instead, the multiperiod effects might be defined in terms of intermediate portfolios that are compounded over the multiple periods. The method described in Singer (1996) and Singer, Gonzalo, and Lederman (1998) is of this nature. The authors suggest that the residual is reduced but not eliminated using this approach.

Another approach is to redefine the single-period effects in such a way that they compound over time, just as returns do. The methods described in Burnie, Knowles, and Teder (1998), called “geometric attribution,” and in Allen (1991) are of this nature. In doing so, the methods abandon the simplicity of the familiar formulas of Table 1.

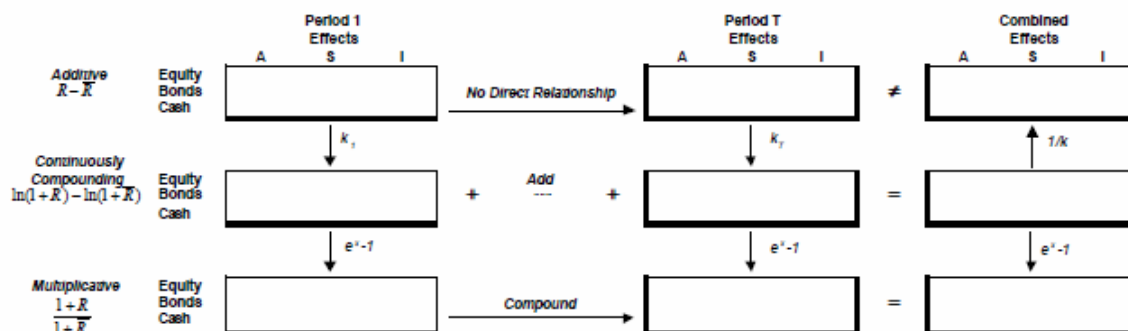
The approach taken in RPA is to use the familiar single-period formulas, but to transform the results into a form that naturally cumulates over time. The transformation distributes a small residual, arising within a given period, proportionately among all of the effects calculated for the period. In doing so, it directly maintains the sensibility of the single-period calculations, while linking effects over time in a way that does not distort the results. RPA presents the combined multiperiod effects in a table that also sums both down and across. We have found that plan sponsors and consultants prefer the familiar additive presentation of such a table, over other forms.

RPA breaks the difference between R it and (underlined) R it into the sum of allocation, selection, interaction, and, in a multicurrency portfolio, currency effects. The currency effect is further split into forward premium and currency management effects. To simplify the discussion below, we consider a single-currency portfolio as an example. However, the method for combining effects over time works with any additive decomposition into any number of effects.

11.2 THE ALGORITHM

We first state the algorithm in this section and then explain the reasoning in the next section.

Figure 1 depicts an overview of the methodology implemented in RPA.



Additive effects (first row of boxes) for each period are transformed to a continuously compounding form (middle row), which is additive over time. The continuously compounding terms are transformed back to an additive form (upper right box). Summing the continuously compounding effects is equivalent to compounding the multiplicative forms (bottom row), which can be calculated for each period.

For each period, we calculate the factor

$$k_t = \frac{\ln(1 + R_t) - \ln(1 + \bar{R}_t)}{R_t - \bar{R}_t} \quad (2)$$

where, if $R_t = (\text{underlined}) R_t$, we set $k_t = 1/(1+R_t)$. Then, for each effect such as A_t in Table 1, the product $k_t A_t$ is a continuously compounding form of the effect. Because continuously compounding returns may be summed, that is, because

$$\ln(1 + R) = \ln(1 + R_1) + \ln(1 + R_2) + \dots + \ln(1 + R_T),$$

it follows that the continuously compounding effects sum to the difference in continuously compounding returns:

$$\ln(1 + R) - \ln(1 + \bar{R}) = \sum_{t=1}^T (k_t A_t + k_t S_t + k_t I_t).$$

To transform back to the difference in returns (instead of the difference in log-returns), we calculate the combined-period factor

$$k = \frac{\ln(1 + R) - \ln(1 + \bar{R})}{R - \bar{R}}$$

where again, if $R = (\text{underlined}) R$, we set $k = 1/(1+R)$. The formula for the combined effect A is

$$A = \sum_t k_t A_t / k$$

while the other effects S and I are calculated similarly. After these transformations, $R - (\text{underlined}) R = A + S + I$. An alternate way of looking at continuously compounding effects is to transform them to a multiplicative or discretely compounding form. A multiplicative form \tilde{A}_t calculated as:

$$\tilde{A}_t = e^{k_t A_t} - 1 \quad (3)$$

may be compounded within periods and across time periods. That is, within a period,

$$\frac{1 + R_t}{1 + \bar{R}_t} = (1 + \tilde{A}_t)(1 + \tilde{S}_t)(1 + \tilde{I}_t), \quad (4)$$

and we may calculate an effect \tilde{A} for the combined periods, in multiplicative form, by compounding:

$$\tilde{A} = (1 + \tilde{A}_1)(1 + \tilde{A}_2) \dots (1 + \tilde{A}_T) - 1.$$

In this alternate view, the combined effects satisfy the multiplicative decomposition,

$$\frac{1 + R}{1 + \bar{R}} = (1 + \tilde{A})(1 + \tilde{S})(1 + \tilde{I}),$$

analogous to the single-period decomposition (4).

11.3 AN IDEALIZED ATTRIBUTION SYSTEM

As mentioned above, weights and returns for any measurement period already comprise an approximate description of reality. Market values (and therefore weights) in reality change at every moment. The adjustment factor (2) is fashioned in the same spirit as the adjustments for beginning-of-period weights. The factor ensures internal consistency in the sense of leaving no unexplained residuals.

Imagine an ideal system in which market value data could be recorded very frequently, so that the period of measurement was very short. With such instantaneous data, the returns over time actually would be continuously compounding, or additive, instead of multiplicative. The formula relating instantaneous returns r_t to the return over a discrete period is

$$1 + R = e^{\int r_t dt} . \quad (5)$$

It is reasonable to think of the integration in (5) as a summation over time of a large number of returns r_t over very short time periods¹⁶⁵. With this in mind, it is easy to imagine an ideal attribution system decomposing these instantaneous returns into instantaneous effects. The internal consistency relation:

$$r_t = \sum_i w_{it} r_{it}$$

also applies to instantaneous returns. Therefore, a decomposition such as Table 1 could be applied to instantaneous weights and returns to obtain instantaneous effects a_t , s_t , and i_t :

$$r_t - \bar{r}_t = a_t + s_t + i_t .$$

Now, the instantaneous effects naturally sum over time:

$$\int (r_t - \bar{r}_t) dt = \int a_t dt + \int s_t dt + \int i_t dt . \quad (6)$$

We view practical attribution systems as approximations to an ideal system such as (6). In this light, we may think of effects A_t over short periods as approximations to instantaneous effects a_t . As a simple approximation, using sums instead of integrals, we might write

$$\int (r_t - \bar{r}_t) dt \approx \sum_t (A_t + S_t + I_t) \quad (7)$$

and, because of the relation (5) between instantaneous and discrete returns,

¹⁶⁵ In fact, integration is defined as the limit of such a sum as the time increment is shortened to zero.

$$\frac{1+R_t}{1+\bar{R}_t} \approx e^{A_t+S_t+I_t} .$$

Given the approximation (7), it might be reasonable to simply define approximate multiperiod effects by

$$1+\tilde{A}_t \approx e^{A_t} \text{ and } 1+\tilde{I}_t \approx e^{\sum_t A_t} .$$

However, doing so would leave an unexplained residual. Recognizing that discrete returns and effects already constitute an approximation, it is fair to distribute the residual proportionately. Hence, the factor (2) is just what is needed to obtain the equality

$$\frac{1+R_t}{1+\bar{R}_t} = e^{k_t A_t + k_t S_t + k_t I_t} . \quad (8)$$

The equality is easily proven by substituting (2) into (8). Given this form, the multiplicative form of effects as in (3) follows naturally. By multiplying the effects $A_t + S_t + I_t$ by the factor k_t , we effectively distribute the error in the approximation (7) among the effects.

How big is that error? Figure 2 graphs the difference between

$$\ln(1+R_t) - \ln(1+\bar{R}_t)$$

and $R_t - \underline{Rt}$. For return differences up to 5 percent, the error to be distributed is less than 12 basis points in magnitude. Distributing this small residual among effects compensates for the lack of more frequent measurements and does not distort the basic interpretation of the effects.

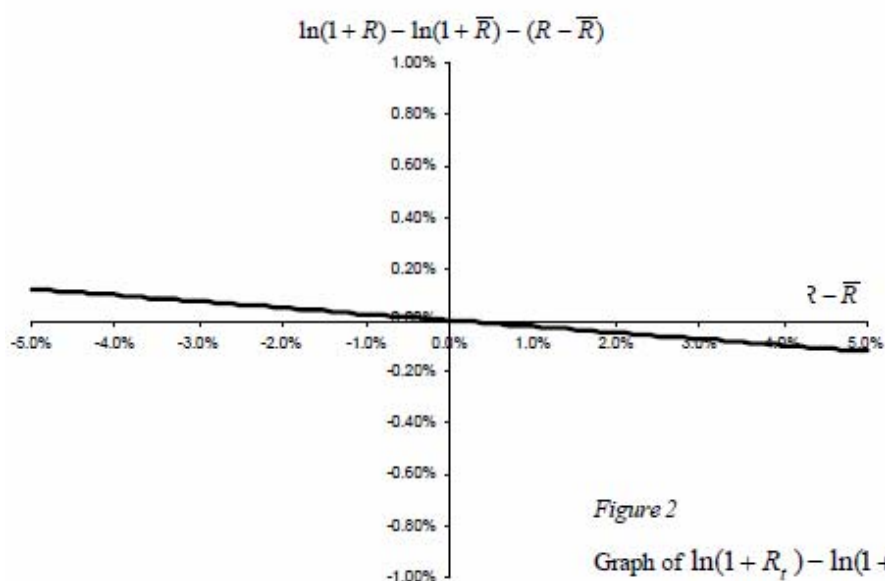


Figure 2

Graph of $\ln(1 + R_t) - \ln(1 + \bar{R}_t)$ minus $R_t - \bar{R}_t$ plotted against $R_t - \bar{R}_t$. The value of R_t ranges from 0 percent to 5 percent and \bar{R}_t ranges from 5 percent to 0 percent.

A Numerical Example

Using the weights and returns in Table 2, we show the calculations for a single period in Table 4.

The table below represents calculated effects for a single time period, showing the additive effects, continuously compounding effects, and the multiplicative (discretely compounding) effects.

Additive Effects				
	Allocation	Selection	Interaction	Total
Equities	0.080%	-0.600%	-0.100%	-0.620%
Bonds	0.240	0.600	-0.300	0.540
Cash	-0.220	0.000	0.100	-0.120
Total	0.100	0.000	-0.300	-0.200

Continuously Compounding Effects				
	$k_t = 0.933707$			
Equities	0.075%	-0.560%	-0.093%	-0.579%
Bonds	0.224	0.560	-0.280	0.504
Cash	-0.205	0.000	0.093	-0.112
Total	0.093	0.000	-0.280	-0.187

Multiplicative (Discretely Compounding) Effects				
Equities	0.075%	-0.559%	-0.093%	-0.577%
Bonds	0.224	0.562	-0.280	0.505
Cash	-0.205	0.000	0.093	-0.112
Total	0.093	0.000	-0.280	-0.187

The return difference $R_t - (\text{underlined})R_t$ is -0.200 percent while the difference:

$$\ln(1 + R_t) - \ln(1 + \bar{R}_t)$$

is -0.187 percent. The residual of 0.013 percent is distributed throughout the table by multiplying the additive effects by the factor $kt=0.933707$. Doing so preserves the signs (positive or negative) and the order of the elements (the largest value remains the largest, for example). In this sense there is no distortion or residuals created with this transformation.

To illustrate the alternate view, the continuously compounding effects have also been converted to multiplicative (discretely compounding) effects using equation (3). Instead of summing down and across, the entries in the table compound down and across to the total in the lower right corner.

Extending the example to multiple periods, suppose that there were three identical periods, with the weights and returns in Table 2. The combined effects would be calculated as shown in Table 5.

Table 5
Combined effects assuming three identical periods.

Additive Effects				
	Allocation	Selection	Interaction	Total
Equities	0.275%	-2.065%	-0.344%	-2.133%
Bonds	0.826	2.065	-1.032	1.858
Cash	-0.757	0.000	0.344	-0.413
Total	0.344	0.000	-1.032	-0.688

Continuously Compounding Effects				
	$k = 0.814013$			
	Allocation	Selection	Interaction	Total
Equities	0.224%	-1.681%	-0.280%	-1.737%
Bonds	0.672	1.681	-0.840	1.513
Cash	-0.616	0.000	0.280	-0.336
Total	0.280	0.000	-0.840	-0.560

Multiplicative (Discretely Compounding) Effects				
	Allocation	Selection	Interaction	Total
Equities	0.224%	-1.667%	-0.280%	-1.722%
Bonds	0.675	1.695	-0.837	1.524
Cash	-0.614	0.000	0.281	-0.336
Total	0.281	0.000	-0.837	-0.559

To create the table, the continuously compounding effects were first obtained by adding the three periods together. The difference between logarithms is -0.560 percent while the return difference $Rt - \text{(underlined)}Rt$ is -0.688 percent. To calculate the additive effects, the residual, 0.128 percent, was distributed proportionately among the elements by dividing by the factor $k = 0.814013$. The alternate multiplicative effects are also shown.

11.4 THE RELATIONSHIP WITH GEOMETRIC ATTRIBUTION

There is a close relationship between RPA's method and that of Burnie, Knowles, and Teder (1998) (BKT), which they call "geometric attribution." They create effects in the multiplicative form (4) by defining new single-period attribution formulas. Their formulas are shown in Table 6 using our notation. BKT distinguish between "top-down" and "bottom-up" forms, depending on whether the interaction effect is combined with selection or with allocation, respectively. To display the similarities with RPA's method, we show the interaction effect separately.

Table 6

BKT's formulas for single-period effects in the decomposition $\frac{1+R_t}{1+\bar{R}_t} = (1+\tilde{A}_t)(1+\tilde{S}_t)(1+\tilde{I}_t)$.

Effect	Formula
Allocation (Top-Down Form)	$\tilde{A}_t = \sum_i (w_{it} - \bar{w}_{it}) \left[\frac{1+\bar{R}_{it}}{1+\bar{R}_t} - 1 \right]$
Selection (Bottom-Up Form)	$\tilde{S}_t = \sum_i \bar{w}_{it} \left[\frac{R_{it} - \bar{R}_{it}}{1+\bar{R}_t} \right]$
Interaction	$\tilde{I}_t = \frac{(1+R_t)(1+\bar{R}_t)}{\left(1 + \sum_i w_{it} \bar{R}_{it}\right) \left(1 + \sum_i \bar{w}_{it} R_{it}\right)} - 1$

The formulas produce effects that are numerically very close to the multiplicative effects shown in Tables 4 and 5. Table 7 shows the results using BKT's formulas. The differences are less than 0.001 percent in this example.

Table 7

Effects calculated using BKT's formulas. The entries NA are not defined in BKT's scheme.

Geometric Effects, Single Period (Compare Table 4)

	Allocation	Selection	Interaction	Total
Equities	0.075%	-0.560%	NA	NA
Bonds	0.224	0.560	NA	NA
Cash	-0.205	0.000	NA	NA
Total	0.093	0.000	-0.280%	-0.187%

Geometric Effects, Multiple Periods (Compare Table 5)

Equities	NA	NA	NA	NA
Bonds	NA	NA	NA	NA
Cash	NA	NA	NA	NA
Total	0.280%	0.000%	-0.836%	-0.559%

In BKT's formulas, effects are constructed to sum downward, and there are no total asset-class effects defined. Only the total effects compound across, whereas the multiplicative effects in Tables 4 and 5 compound both downward and across.

Despite this slight distinction, the numerical closeness is not surprising in light of the idealized attribution concept. The BKT formulas can be understood as an alternate method of distributing the residual in equation (7). By observing that

$$\frac{(1 + R_t)/(1 + \bar{R}_t) - 1}{R_t - \bar{R}_t} = \frac{1}{1 + \bar{R}_t},$$

we see that BKT's formulas for allocation and selection are equal to the conventional formulas in Table 1 multiplied by the factor

$$\tilde{k}_t = \frac{1}{1 + \bar{R}_t}$$

Compared with the factor in equation (2), BKT's formulas distribute the residual so that the effects sum to the multiplicative form, rather than to the continuously compounding form. Both methods basically attempt to calculate the same idealized effects.

In our experience, portfolio analysts, plan sponsors, and consultants are very familiar with the conventional single-period attribution scheme. The RPA method of combining effects retains the familiar single-period formulas, while linking them in a sensible manner.

By viewing practical attribution calculations as approximations to an ideal system, we have shown that there is a natural way of combining effects over time. The methodology can be used with any additive decomposition scheme. No residuals are created, and any intuition contained in the single-period measures is preserved in the combined effects.

VI INVESTMENT ACCOUNTING POLICIES AT ZFS

1. OVERVIEW

This chapter sets the definition of ZFS Group investment accounting policies and methodology regarding IFRS (International Financial Reporting Standards or formerly IAS International Accounting Standards). These policies must be followed by all legal entities belonging to the group in submitting financial information to Corporate Center. This approach ensures that all consolidated entities apply the Global accounting policies for consolidation purpose. The group accounts are presented in accordance with International Financial Reporting Standards (IFRS) and comply with Swiss Law.

This chapter provides guidance on specific policies of the Group. Policies must be read in conjunction with the IFRS; it is not a summary of these standards and cannot be used as such.

The following reporting requirements are not within the scope of this analysis:

- Statutory;
- Regulatory;
- Planning and forecasting.

The Group accounting guidelines are prepared by the Accounting Policy Group (APG) and new policies as well as significant changes have to be validated by the group auditors before issuance.

The structure of the below analysis is organized as follows:

- **General principles:** objectives of the guidelines, reference texts, information/alerts on possible changes;
- **Detailed sections** describing the Group policies under IFRS: (a) reference to standard; (b) scope and definitions; (c) recognition; (d) measurement; (e) derecognition; (f) procedural requirements (g) implementation guidance; (h) version control

Additionally whenever the IASB publishes any new standards or interpretations that impact the Group the relevant part of the group accounting policy will be reviewed accordingly.

Changes might be implemented even when:

- the Group wishes to amend the accounting, reporting or valuation methods to be applied based on available options in order to provide more relevant and reliable information;
- it is believed that more guidance should be provided based on experience.

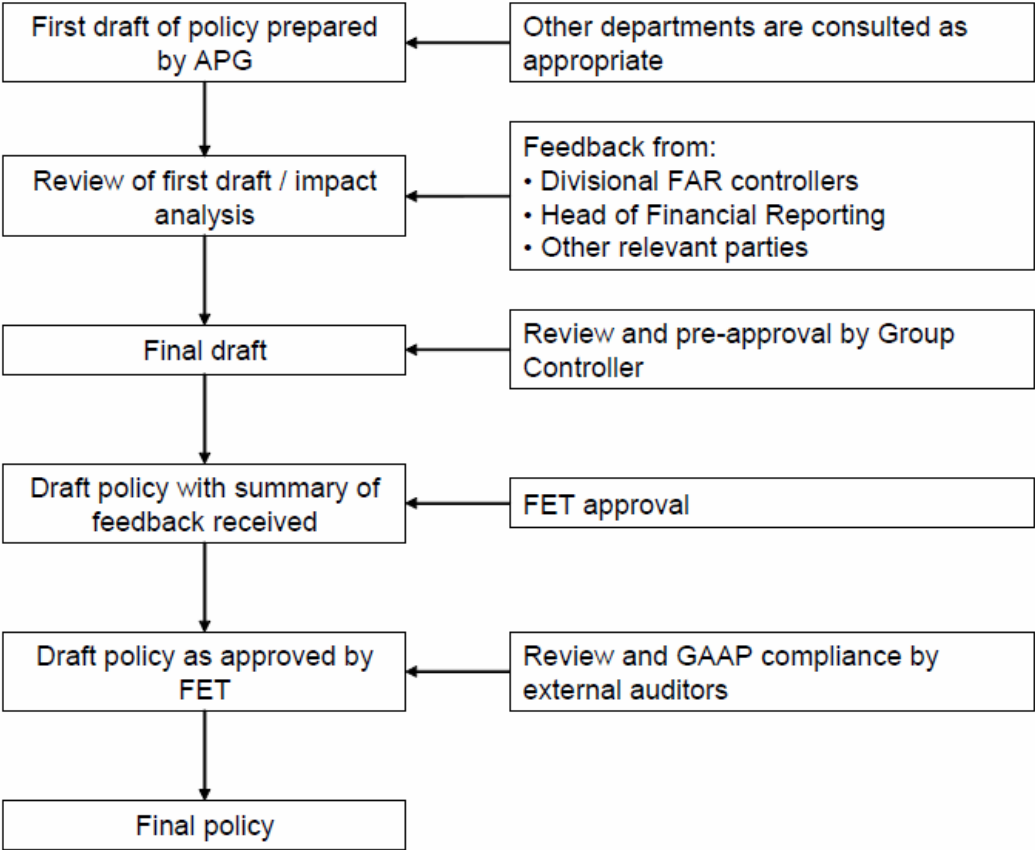
2. POLICY APPROVAL PROCESS

A first draft of a policy is prepared by APG. Other departments (i.e. actuarial, investment, etc.) are consulted during the drafting phase, as appropriate.

The draft accounting policy is then discussed with Divisional FAR controllers and the Head of Financial Reporting and Policies (these are permanent reviewers) and other relevant parties (as appropriate actuarial, investment, tax, or other group functions). Representatives are required to evaluate the impact of such policies within their area and also provide feedback on potential implementation issues, clarity, etc. The feedback on wording changes is integrated into the final draft.

This final draft is reviewed and pre-approved by the Group Controller prior to presentation of the draft policy together with a summary of feedback received to the Finance Executive Team (FET). Once the FET has approved the policy it is presented to the external auditors for final review and GAAP compliance prior to publication.

Overview of the policy approval process:



The same process as that for new policies applies to amendments to existing policies implying changes in the current accounting treatment.

Amendments to existing policies implying no changes in the current accounting treatment (e.g. wording changes or enhancements with examples), may be approved by the Head of Accounting Policy Group.

The issuance or amendment of a policy is communicated through the Finance Network and if necessary via the quarterly Group Controller Memo.

3. CONCEPTUAL FRAMEWORK

The Group prepares its consolidated financial statements and notes thereto in accordance with IFRS. IFRS does not contain guidelines governing the accounting treatment of certain transactions including those that are specific to insurance products. When a specific topic is not addressed by the standards, IFRS permit that management uses judgment in developing and applying accounting policies that result in more relevant and reliable information. In making such judgment management shall refer to the requirements and guidance in standards dealing with similar issues and the definitions contained in the Framework. Management may also ultimately reference to other comprehensive bodies of accounting principles based on a similar conceptual framework. In these cases, the Group typically refers to accounting principles generally accepted in the United States (US GAAP). The Group currently refers to US GAAP for guidance regarding insurance products and investment instruments related to insurance contracts.

Where IFRS and US GAAP allows for alternatives in accounting treatment, one method will be selected by the Group to be consistently applied throughout the Group by all companies and branches. The selection of the method to be followed will be made by the Group Controller Department.

For example IFRS 4 *Insurance Contracts* was issued on March 31, 2004, with effect from January 1, 2005. This standard is the first phase of a two-phase project by the IASB to create a comprehensive standard on accounting for insurance contracts. The second phase is unlikely to be effective until 2012 at the earliest. The IASB have issued an Exposure Draft in May 2007.

IFRS 4 is designed as a transitional standard to address the differences in insurance accounting across countries. Under IFRS 4, insurers are permitted to continue to use their existing GAAP practices (i.e., US GAAP for the Group as noted above) for insurance and

reinsurance contracts that meet the definition of an insurance contract. Contracts that do not meet that definition are to be accounted for as investment contracts under IAS 39.

The Group’s policies comply with the standards and interpretations issued by the IASB and/or IFRIC as well as Swiss Law. Additionally, if no equivalent IFRS guidance is available, reference to US GAAP may be made. However, a newly issued US GAAP standard is not automatically adopted.

	IFRS	US GAAP
Standards	IFRS or IAS	SFAS
Interpretations	IFRIC or SIC	EITF, FSP
Recommendations		AICPA (SOP)

Furthermore under IFRS, accounting conventions are as follows:

- **Going concern:** the financial statements are normally prepared on the assumption that an entity is a going concern and will continue its operation for the foreseeable future. Going concern means that the enterprise wants to and is able to continue business for at least 12 months from the balance sheet date. It will not have the intention or need to liquidate, stop or materially curtail the scale of its operations.
- **Accrual basis:** under this basis, the effects of transactions and other events are recognized when they occur (and not when cash or its equivalent is received or paid) and they are recorded in the accounting records and reported in the financial statements of the periods to which they relate. The accrual basis informs users of:
 1. payment and receipt of cash due to transactions happened in the past;
 2. obligations to pay cash in the future;
 3. resources that represent cash to be received in the future (e.g. account receivables).

While the nine principal qualitative characteristics are:

Understandability: the information provided in financial statements has to be readily understandable by users. For this purpose, users are assumed to have a reasonable knowledge of business and economic activities and accounting. The financial and statistical data requested by the Group has been specifically designed with this criterion in mind.

Relevance: information has the quality of relevance when it influences the economic decisions of users by helping them evaluate past, present or future events or confirming, or correcting, their past evaluations. Information can help to predict the future as well as to confirm the past. These two roles of information are interrelated. For example, information

about the current level and structure of asset holdings has value to users when they want to predict how well the enterprise can take advantage of opportunities and how well it can react to unfavourable situations. The same information plays a confirmatory role in comparing past predictions about, for example, the way in which the enterprise would be structured or the outcome of planned operations (predictive value).

Reliability: information has the quality of reliability when it is free from material error and bias and can be depended upon by users to represent faithfully that which it either purports to represent or could reasonably be expected to represent. For example, if the validity and amount of a claim for damages under a legal action are disputed, it may be inappropriate for the enterprise to recognize the full amount of the claim in the balance sheet, although it may be appropriate to disclose the amount and circumstances of the claim.

Substance over form/faithful presentation: if information is to represent faithfully the transactions and other events that it purports to represent, it is necessary that they are accounted for and presented in accordance with their substance and economic reality and not merely their legal form. The substance of transactions or other events is not always consistent with that which is apparent from their legal form. For example, an enterprise may sell an asset to another party in such a way that the documentation declares to pass legal ownership to that party. Nevertheless, there might exist agreements that make sure that the enterprise continues to have the future economic benefits embodied in the asset. In such circumstances, the reporting of a sale would not represent faithfully the transaction they entered into (if indeed there was a transaction).

Comparability and consistency of presentation: users must be able to compare the financial statements of an entity through time in order to identify trends in its financial position and performance. Users must also be able to compare the financial statements of different entities in order to evaluate their relative financial position. Guidance has been designed to enhance the comparability of financial information between entities. This is only possible when each entity uses a set of accounting and reporting policies and procedures similar to those being used by the other entities.

Materiality: information is material if its omission or misstatement could influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size of the item or error judged in the particular circumstances of its omission or misstatement. Materiality thresholds or cut-off points for the Group are provided in the

FAR¹⁶⁶ 05-01 policy. It is not a primary qualitative characteristic required in order for information to be useful. Accounting decisions made based on materiality must be discussed with the APG. The materiality threshold of reporting units when aggregated may be significant at Group level.

Neutrality: To be reliable, the information contained in financial statements must be neutral, that is, free from bias. Financial statements are not neutral if, by the selection or presentation of information, they influence the making of a decision or judgement in order to achieve a predetermined result or outcome.

Prudence: The policies and procedures included in the APH have been designed with the concept of prudence in mind. In certain instances estimates will need to be used at the reporting unit level in regards to items such as provisions, bad debts, etc. These estimates must be made in a prudent manner. Prudence is the inclusion of a degree of caution in the exercise of the judgments needed in making the estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities or expenses are not understated. **Completeness:** To be reliable, the information in financial statements must be complete within the bounds of materiality and cost. An omission can cause information to be false or misleading and therefore unreliable and deficient in terms of its relevance. Information included in the reporting forms is to be as complete as possible.

4. FINANCIAL ACCOUNTING PERIODS

The consolidated financial statements of the Group are prepared as of December 31 based on individual company financial statements prepared as of that date. In some cases information is included with a time lag of up to three months.

The Group publishes interim financial statements at half-year. In the first and third quarter certain financial information for the shareholders is prepared.

The Swiss Stock Exchange Authority (SIX) requires certain information to be disclosed in interim financial statements for first and third quarter. Such information includes but is not limited to:

- For interim financial statements:
 - a) Likely future developments for the remaining 6 months;
 - b) Major related parties' transactions.

¹⁶⁶ Financial Accounting Reporting

- For Q1 and Q3: material events and transactions that have taken place during the relevant period.

5. FINANCIAL INSTRUMENTS – RECOGNITION AND MEASUREMENT AT ZFS

5.1 TYPES OF DEBT INVESTMENTS WITHIN THE GROUP

Government bonds (UK, US, Swiss, etc.) are interest-bearing obligations issued by federal governments of various countries. Government bonds usually have very little credit risk and are backed by the full faith and credit of the issuing country's government.

Municipal securities are interest-bearing obligations issued by local governments or their political subdivisions (such as cities, towns, villages, counties, or special districts) or by state governments, agencies, or political subdivisions. These governmental entities can borrow at favourable rates because the interest income from most municipal securities generally receives advantageous treatment under federal income tax rules.

Corporate bonds are debt obligations issued by corporations. Bondholders, as creditors, have a prior legal claim over common and preferred stockholders as to both income and assets of the corporation for the principal and interest due them and may have a prior claim over other creditors if liens or mortgages are involved. Corporate bonds contain elements of both interest-rate risk and credit risk. Corporate bonds usually yield more than government or agency bonds due to the presence of credit risk.

Mortgage-backed bonds are corporate bonds which are general obligations of the issuer. These bonds are credit enhanced through the pledging of specific mortgages as collateral. Mortgage-backed bonds involve no sale or conveyance of ownership of the mortgages acting as collateral. Mortgage-backed securities include participations in (i.e., actual ownership of) organized pools of residential mortgages, the principal and interest payments on which are passed from the mortgage originators through intermediaries (usually quasi-governmental agencies) that pool and repackage them in the form of securities, to investors. Such quasi-governmental agencies, which guarantee the payment of principal and interest to investors, include GNMA and others. The mortgage originator converts long-term mortgage receivables into cash. The investor receives a good yield with relative safety, as the interest and principal are guaranteed by a government agency on most types of pass-through.

Fixed coupon debt is issued with a stated coupon interest rate which will stay the same until the maturity of the debt instrument. Interest accruals should be based on this stated interest rate.

Floating coupon debt is issued with stated coupon interest which changes quarterly, semi-annually or annually as a result of the change in the underlying benchmark interest rate (i.e. LIBOR). Every time the coupon interest rate changes, an entity holding the debt must adjust its interest accrual rate for the future periods.

Zero coupon bonds are issued without stated coupon interest rate and as such do not pay interest periodically. Zero coupon bonds are usually sold at a deep discount from face value and the investor must use implied effective interest rate to accrete zero-coupon bonds from their discounted issuance price to their fair values. The buyer of a zero coupon bond receives an investment return by the gradual appreciation of the bond, which is redeemed at face value at maturity.

Asset-backed securities (ABS) are debt instruments that represent an interest in a pool of assets. The term “ABS” is generally used to refer to securities in which underlying collateral consists of assets other than residential first mortgages such as credit card and home equity loans, leases, or commercial mortgage loans.

Collateralized Mortgage Obligation (CMO) is an instrument generally issued by a special-purpose entity (SPE) collateralized by a pool of mortgages. The SPE may be legally organized as a trust, corporation, or partnership and may issue CMO instruments in equity or non-equity form. Accordingly, an investor may purchase a CMO instrument in equity form (for example, trust interests, stock, or partnership interests) or non-equity form (for example, participating debt securities). The SPE purchases a group of mortgages using the proceeds of an offering collateralized by the mortgages. The SPE uses the underlying cash flows of the collateral to fund the return on the instruments required by investors. The instruments are priced based on their own maturity and rate of return rather than that of the underlying mortgages.

Some CMO instruments, regardless of legal form, are most like debt instruments because those CMO instruments have stated principal amounts and traditional defined interest rate terms. Purchasers of certain other CMO instruments are entitled to the excess, if any, of the issuer's cash inflows, including reinvestment earnings, over the cash outflows for debt service and administrative expenses. Those CMO instruments, regardless of legal form, may include instruments designated as residual interests and are "high-risk" in that these CMO instruments could result in the loss of a portion of the original investment.

Redeemable preferred shares while generally preferred shares are accounted for as equity instruments, the terms of particular preferred shares will cause them to be classified as financial liabilities rather than equities. A preferred share meets the definition of a liability and should be classified as such when it:

- a. provides for mandatory redemption by the issuer for a fixed or determinable amount at a fixed or determinable future date;
- b. gives the holder the right to require the issuer to redeem the share at or after a particular date for a fixed or determinable amount;
- c. gives the holder an option to require redemption upon the occurrence of a future event that is highly likely to occur, or;

d. indirectly gives the holder the contractual right to receive either cash or another financial instrument or to exchange another financial instrument with the issuer under conditions that are potentially unfavourable.

5.2 INVESTMENTS IN EQUITY INSTRUMENTS

Investments in equity instruments include investments in common stocks of public and private enterprises, mutual funds and unit trust shares. Please note that investments in equity instruments that are 20% up to and including 50% of the total outstanding shares of the issuer should be reviewed for accounting under *IAS 28 Investments in Associates*, those above 50% should be reviewed for potential consolidation under *IAS 27 Consolidated and Separate Financial Statements*. Please note that warrants and options to purchase common stock are considered derivative instruments. Generally, equity securities generate cash dividends or dividends paid in the form of additional shares of stock.

Common stocks represent shares or units of ownership in a public or private enterprises.

Investments in mutual funds represent equity ownership interests (shares) in funds or investment companies whose primary business is to invest in bonds, stocks, real estate and other investments of worldwide public and private enterprises.

Unit trusts generally represent ownership interests (units or shares) in trusts (or mutual funds) whose primary purpose is to invest in bonds, stocks, real estate and other investments or a pool of investments managed by a trust.

Non-redeemable preferred stocks are stocks which are not redeemable or are redeemable solely at the option of the issuer.

Hedge funds are portfolios of investments that use advanced investment strategies such as leverage, long, short and derivative positions in both domestic and international markets with the goal of generating high returns (either in an absolute sense or over a specified market benchmark).

Private equity is equity capital that is made available to companies or investors, but not quoted on a stock market.

5.3 COMMON TYPES OF DERIVATIVES

Option is a contract between two counterparties with an option to buy/sell an asset for an agreed price (strike price) in the future.

The buyer of an option has the right, but is not obliged, to exercise the option at maturity. The seller of an option is obliged to deliver the underlying at the strike price if the buyer demands it. When the contract is initiated the buyer usually pays a premium to the seller. Therefore the buyer's exposure is limited to the premium paid, whereas the seller's exposure is not limited.

There are two basic types of options which can be bought or sold: Call options and Put options.

A call option is the right (not an obligation) to buy an underlying. Such an underlying could be equities, interest rates, foreign currencies, etc. The buyer of a call option (= call long) has the right, but is not obliged to buy the underlying at strike price. The seller of a call option (= call short) is obliged to sell the underlying at strike price if the option is exercised.

A put option is the right to sell an underlying. Such an underlying could be equities, interest rates, foreign currencies, etc. A buyer of a put option (= put long) has the right, but is not obliged to sell the underlying at strike price. A seller of a put option (= put short) is obliged to buy the underlying at strike price if the option is exercised.

Option is one of the few derivative instruments that will actually have an initial investment that needs to be recorded – premium paid or received on the option call or put is recorded on the balance sheet as an asset or liability on the date when the holder or writer of the option becomes a party to the contract. This becomes the option's initial fair value.

Options are required to be carried at fair value, with changes in fair value booked to profit and loss account. Options should be revalued at fair value at least on every balance sheet date.

On de-recognition of the option, i.e. when it is exercised or it expires, the gain or loss is booked straight to the profit and loss account using the *Options – net trading result* accounts.

Forwards are financial contracts in which two counterparties agree to exchange a specified amount of a designated product for a specified price on a specified future date or dates. Forwards differ from futures in that their terms are not standardized and they are not traded on organized exchanges. Because they are individually negotiated between counterparties, forwards can be customized to meet the specific needs of the contracting parties. Forwards are over-the-counter (OTC) contracts in which a buyer agrees to purchase from a seller a specified product at a specified price for delivery at a specified future time. While forward contracts can be arranged for almost any product, they are most commonly used with currencies, securities, commodities, and short-term debt instruments. Commitments to purchase a product are called long positions, and commitments to sell a product are called short positions.

The value of a forward contract is zero at inception and typically does not require an initial cash outlay. However, over time, movement in the price or rate of the underlying results in a change in value of the forward contract. The total change in the value of a forward contract is measured as the difference between the forward rate and the spot rate "at the forward date." The forward price or rate is a function of a number of variables, including the length of the forward period and the current spot rate. As these variables change over the life of the contract, the value of the forward contract also changes.

Forwards are required to be carried at fair value, with changes in fair value booked to profit and loss account *Forwards – net trading result*. Therefore forwards should be fair valued at least on every balance sheet date.

On de-recognition of the forward, i.e. when it matures or when it is sold, the gain or loss is booked straight to the profit and loss account using *Forwards – net trading result* accounts.

Futures contract is exactly like a forward contract in that it too provides for the receipt or payment of a specified amount of an asset (commodity or financial asset) at a specified price with delivery at a specified future point in time. However futures contracts have the following distinguishing characteristics:

- Unlike forward contracts, futures are traded on organized exchanges. The exchange clearinghouse actually becomes an intermediary between the buyer and seller of the contract.
- The formal regulation of futures contracts results in contracts that are standardized in nature versus customized, such as forwards. For example, the exchange specifies the quantity and quality of commodities traded, as well as the delivery place and date.
- A futures contract requires an initial deposit of funds with the transacting broker. This deposit is referred to as a margin account; it serves as collateral to help ensure that the parties to the contract are able to perform. Each day the contract is valued and marked-to-market. If the contract loses too much value, the holder will have to contribute additional cash to the margin account. If the margin account balance falls below a minimum balance, called the maintenance margin, the investor is required to replenish the account through what is called a margin call.

The party that has written a futures contract is said to be short, and the party that owns the contract is said to be long.

Swap is a type of forward contract represented by a contractual obligation, arranged by an intermediary that requires the exchange of cash flows between two parties. Swaps are customized to meet the needs of the specific parties and are not traded on regular exchanges.

Common examples of swaps include:

- A - Interest Rate Swaps;
- B - Currency swaps, foreign currency swaps and cross-currency swaps;
- C - Credit Derivatives - Credit Default Swaps;
- D - Total return swaps.

Interest-rate swaps are over-the-counter (OTC) derivative contracts in which two parties agree to exchange interest cash flows or one or more notional principal amounts at certain times in the future according to an agreed-on formula. The cash flows may be in the same currency or a different currency. The formula defines the cash flows using one or more interest rates and one or more hypothetical principal amounts called notional principal amounts.

In an interest-rate swap, only the interest payments are exchanged; the notional principal is not exchanged, it is used only to calculate the interest payments. Each counterparty's set of payments is called a leg or side of the swap. The fixed-rate payer has bought the swap, or is long the swap. Conversely, the floating-rate payer has sold the swap, or is short the swap. The counterparties make

service payments at agreed-on periods during the swap's tenor. The payer of a fixed leg makes service payments at a fixed price (or rate). The payer of a floating leg makes payments at a floating price that is periodically reset using a reference rate, which is noted on specific reset dates. The actual dates on which payments are made are payment dates. The reference floating rate in many interest rate swap agreements is the London Interbank Offered Rate (LIBOR). LIBOR is the rate of interest offered on short-term interbank deposits in Eurocurrency markets.

Generally, there is no exchange of principal on the interest rate swaps - only interest is exchanged periodically.

A currency swap is a private over-the-counter (OTC) contract which commits two counterparties to exchange, over an agreed period, two streams of interest payments denominated in different currencies, and, at the end of the period, to exchange the corresponding principal amounts at an exchange rate agreed upon at the start of the contract. The term "currency swap" is used to describe interest-rate swaps involving two currencies. The strict application of the term is limited to fixed-against-fixed interest-rate swaps between currencies.

The term "currency swap" can sometimes be used to refer to foreign exchange swaps. Foreign-exchange swaps refer to the practice of buying or selling foreign currency in the spot market and simultaneously locking in a forward rate to reverse that transaction in the future. Foreign-exchange swaps, unlike currency swaps, do not involve interest payments, only principal amounts at the start and maturity of the swap.

Cross-currency swaps, a generic variation of the currency swap, involve an exchange of interest streams in different currencies, at least one of which is at a floating rate of interest. Those swaps that exchange a fixed rate against a floating rate are generally referred to as cross-currency coupon swaps, while those that exchange floating-against-floating using different reference rates are known as cross-currency basis swaps.

A credit derivative is an OTC derivative designed to transfer credit risk from one party to another. By synthetically creating or eliminating credit exposures, they allow institutions to more effectively manage credit risks. Credit derivatives take many forms, one of which is a credit default swap.

In a credit default swap two parties enter into an agreement whereby one party pays the other a fixed periodic coupon for the specified life of the agreement. The other party makes no payments unless a specified credit event occurs. Credit events are typically defined to include a material default, bankruptcy or debt restructuring for a specified reference asset. If such a credit event occurs, the party makes a payment to the first party, and the swap then terminates. The size of the payment is usually linked to the decline in the reference asset's market value following the credit event.

In a total return swap two parties enter an agreement whereby they swap periodic payment over the specified life of the agreement. One party makes payments based upon the total return coupons plus capital gains or losses of a specified reference asset. The other makes fixed or floating payments as

with a vanilla interest rate swap. Both parties' payments are based upon the same notional amount. The reference asset can be almost any asset, index or basket of assets.

In general, the fair value of a swap at inception is zero and thus, no initial accounting entry needs to be recorded on the balance sheet. Sometimes upfront principal amounts are exchanged at inception between two parties of the cross currency and foreign currency swaps. Such payments should be at current exchange rates and thus, should produce no P&L effect at inception.

Swaps are required to be carried at fair value, with changes in fair value booked to profit and loss account *Swaps– net trading result*.

Swaps should be fair valued at least on every balance sheet date. The valuation of swaps is complex and dependent on assumptions regarding future rates or prices. For example, if a fixed interest payment is swapped for a variable interest payment, the value of the swap is a function of how future variable rates are expected to compare to the fixed rate. Therefore, an estimate of future variable rates is required. Furthermore, the differences between the future variable rates and the fixed rate represent future differences that need to be discounted in order to produce a present value of the differences.

On de-recognition of the swap, i.e. when it matures or when it is sold, the gain or loss is booked straight to the profit and loss account using *Swaps – net trading result accounts*.

5.4 BIFURCATION – EXCEPTIONS TO THE ‘CLOSELY RELATED’ RULE

Some important exceptions to the “closely related” rule:

1. A call, put, or prepayment option embedded in a host debt contract or host insurance contract is not closely related to the host contract unless the option’s exercise price is approximately equal on each exercise date to the amortised cost of the host debt instrument or the carrying amount of the host insurance contract.
2. An embedded derivative in which the underlying is an interest rate or interest rate index that can change the amount of interest that would otherwise be paid or received on an interest-bearing host debt contract or insurance contract is closely related to the host contract unless the combined contract can be settled in such a way that the holder would not recover substantially all of its recognised investment or the embedded derivative could at least double the holder’s initial rate of return on the host contract and could result in a rate of return that is at least twice what the market return would be for a contract with the same terms as the host contract.
3. An embedded floor or cap on the interest rate on a debt contract or insurance contract is closely related to the host contract, provided the cap is at or above the market rate of interest and the floor is at or below the market rate of interest when the contract is issued, and the cap or floor is not leveraged in relation to the host contract. Similarly, provisions included in a contract to purchase or sell an asset (e.g. a commodity) that establish a cap and a floor on the price to be paid or received for the asset are

closely related to the host contract if both the cap and floor were out of the money at inception and are not leveraged.

4. An embedded foreign currency derivative in a host contract that is an insurance contract or not a financial instrument (such as a contract for the purchase or sale of a non-financial item where the price is denominated in a foreign currency) is closely related to the host contract provided it is not leveraged, does not contain an option feature, and requires payments denominated in one of the following currencies:

- the functional currency of any substantial party to that contract;
- the currency in which the price of the related good or service that is acquired or delivered is routinely denominated in commercial transactions around the world (such as the US dollar for crude oil transactions); or
- a currency that is commonly used in contracts to purchase or sell non-financial items in the economic environment in which the transaction takes place (e.g. a relatively stable and liquid currency that is commonly used in local business transactions or external trade).

5. A unit-linking feature embedded in a host financial instrument or host insurance contract is closely related to the host instrument or host contract if the unit-denominated payments are measured at current unit values that reflect the fair values of the assets of the fund. A unit-linking feature is a contractual term that requires payments denominated in units of an internal or external investment fund.

6. A derivative embedded in an insurance contract is closely related to the host insurance contract if the embedded derivative and host insurance contract are so interdependent that an entity cannot measure the embedded derivative separately (i.e. without considering the host contract).

Please find few examples on bifurcation of hybrid instruments in the table below.

Please also note that this list of examples is not exhaustive and there is a great variety of complex hybrid instruments that may require additional analysis and consideration.

Hybrid instrument containing an embedded derivative	Is there an embedded derivative?	Is embedded derivative closely related to host?	Is Bifurcation required for embedded derivative?
Floating –rate debt – bond with interest rate tied to an interest index (i.e. LIBOR, prime) or can include some leverage but which does not double the initial rate of return.	Yes - Interest rate swap	Yes	No
Floating –rate debt – bond with a leveraged interest rate (i.e. LIBOR x 3) where the initial return of the holder could be doubled	Yes - interest rate swap	No	Yes – embedded derivative will be recorded at fair value as a separate asset on the balance sheet.
Fixed-rate debt – bond with fixed interest rate.	No - There is no embedded derivative.	N/A	N/A
Callable debt instrument – issuer holds an option to call (prepay) the debt instrument at a predetermined price which is close to face value.	Yes – A call option for issuer to prepay debt instrument.	Yes – the underlying to the call option is market interest rates, which is closely related to an interest-bearing host debt instrument.	No
Convertible debt investment (from holder point of view) – the investor receives the option to convert the debt instruments into the equity of the issuer	Yes – equity conversion feature is a derivative (i.e. a put option) regardless of how the conversion works e.g. fixed vs variable number of shares (equity instrument)	No	Yes – embedded derivative will be recorded at fair value as a separate asset on the balance sheet.
Convertible debt investment (from issuer point of view) investor receives the option to convert the debt instruments into the equity of the issuer - a fixed number of shares.	No – equity conversion feature is not a derivative (equity instrument)	N/A	N/A

6. RECOGNITION AND MEASUREMENT OF FINANCIAL INSTRUMENTS

This paragraph does not cover the recognition or measurement of assets and liabilities which are covered by other policies, such as:

- Investments in joint ventures or associates – Associates and Joint Ventures;
- Finance lease receivables or payables – Leases;
- Investment Property – Investment property;
- Intangible assets – Intangible assets;

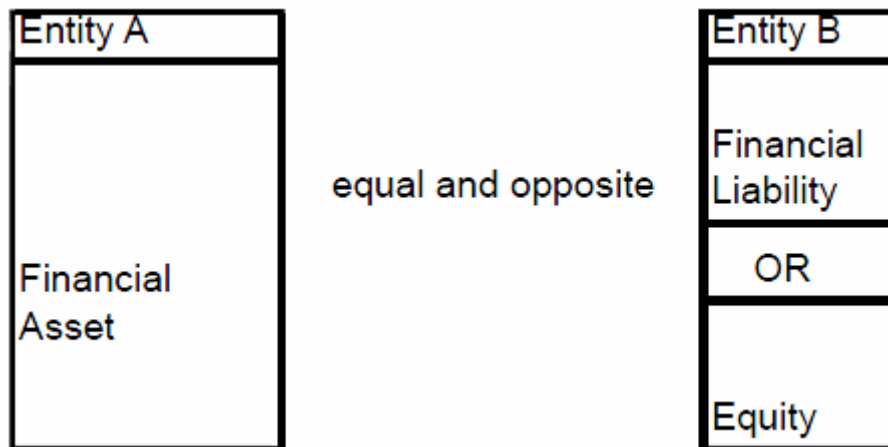
- Deferred Tax assets or liabilities – Tax;
- Reinsurance receivables - Reinsurance;
- Reserves for insurance contracts –Insurance contracts – Classification;
- Employers’ obligations under employee benefit plans – Pensions and other post employment benefits;
- Financial obligations under share-base payments – Share-based payments;

Let’s get started with some definitions:

1. Derecognition is the removal of a previously recognized financial asset or financial liability from an entity’s balance sheet.
2. Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm’s length transaction.
3. A regular way purchase or sale is a purchase or sale of a financial asset under a contract whose terms require delivery of the asset within the time frame established generally by regulation or convention in the marketplace concerned.
4. Transaction costs are incremental costs that are directly attributable to the acquisition, issue or disposal of a financial asset or financial liability.
5. An incremental cost is a cost that would not have been incurred if the entity had not acquired, issued or disposed of the financial instrument. Transaction costs include fees and commissions paid to agents (including employees acting as selling agents), advisers, brokers and dealers, levies by regulatory agencies and securities exchanges, and transfer taxes and duties. Transaction costs do not include debt premiums or discounts, financing costs or internal administrative or holding costs.
6. Embedded derivative is a derivative that is a component of a hybrid (combined) financial instrument that includes both a derivative and a host contract, with the effect that some of the cash flows of the combined instrument fluctuate in a similar way to a stand-alone derivative.
7. Host contract is the underlying contract into which a derivative is embedded. For example, in a convertible bond, the bond is the host contract into which a conversion option is embedded.

6.1 IDENTIFICATION OF FINANCIAL INSTRUMENTS

A financial instrument is a contract that gives rise to both a financial asset in one entity and a financial liability or equity instrument in another entity.



Financial assets are any of the following assets:

- Cash;
- Contractual right to receive cash;
- Contractual right to receive another financial asset;
- Contract that will or may be settled in ZFS's own equity;
- An equity instrument of another entity;
- Derivative assets.

Examples of financial assets include investments in debt securities, common shares in a listed company, shares in an unlisted company (private equity), preferred stock – non-redeemable of a listed company, shares in a unit trust, investment in a hedge fund and mortgage loans.

Generally, the substance of a financial instrument, rather than its legal form, governs its classification on the entity's balance sheet. Substance and legal form are commonly consistent, but not always. Some financial instruments take the legal form of equity but are liabilities in substance and others may combine features associated with equity instruments and features associated with financial liabilities.

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities.

Examples of equity instruments include common shares, units in a unit trust, preferred stock – not redeemable either by issuer or holder and derivatives on own shares settled by the exchange of a fixed amount of cash for a fixed number of own shares.

Conversely, financial liabilities are any contractual obligation to:

- Deliver cash or another financial asset, or
- Exchange financial instruments with another entity under conditions that are potentially unfavorable, or
- A contract that will or may be settled in the entity's own equity instruments under certain conditions.

Contracts that will or may be settled in the issuer's own equity instruments include:

- Non-derivative contracts that include no contractual obligation for the issuer to deliver a variable number of its own equity instruments; or
- Derivative contracts that will be settled only by the issuer exchanging a fixed amount of cash or another financial asset for a fixed number of its own equity instruments. For this purpose the issuer's own equity instruments do not include instruments that are themselves contracts for the future receipt or delivery of the issuer's own equity instruments.

A critical feature in differentiating a financial liability from an equity instrument is the existence of a contractual obligation to pay cash. That is, although the holder of an equity instrument may be entitled to receive a pro rata share of any dividends or other distributions of equity, the issuer does not have a contractual obligation to make such distributions because it cannot be required to deliver cash or another financial asset to another party. Financial liabilities include issued debt such as bonds, preferred stocks – redeemable either by issuer or holder, and negative derivatives.

A preferred share is a preference share that provides for mandatory redemption by the issuer for a fixed or determinable amount at a fixed or determinable future date, or gives the holder the right to require the issuer to redeem the instrument at or after a particular date for a fixed or determinable amount, is a financial liability.

A puttable instrument is a financial instrument that gives the holder the right to put it back to the issuer for cash or another financial asset (a 'puttable instrument') is a financial liability. This is so even when the amount of cash or other financial assets is determined on the basis of an index or other item that has the potential to increase or decrease, or when the legal form of the puttable instrument gives the holder a right to a residual interest in the assets of an issuer. The existence of an option for the holder to put the instrument back to the issuer for cash or another financial asset means that the puttable instrument meets the definition of a financial liability.

For example, open-ended mutual funds, unit trusts, partnerships and some co-operative entities may provide their unit holders or members with a right to redeem their interests in the issuer at any time for cash equal to their proportionate share of the asset value of the issuer.

In other words if an entity does not have an unconditional right to avoid delivering cash or another financial asset to settle a contractual obligation, the obligation meets the definition of a financial liability. For example:

- A restriction on the ability of an entity to satisfy a contractual obligation, such as lack of access to foreign currency or the need to obtain approval for payment from a regulatory authority, does not negate the entity's contractual obligation or the holder's contractual right under the instrument.
- A contractual obligation that is conditional on a counterparty exercising its right to redeem is a financial liability because the entity does not have the unconditional right to avoid delivering cash or another financial asset.

A financial instrument that does not explicitly establish a contractual obligation to deliver cash or another financial asset may establish an obligation indirectly through its terms and conditions. For example:

- A financial instrument may contain a non-financial obligation that must be settled if, and only if, the entity fails to make distributions or to redeem the instrument. If the entity can avoid a transfer of cash or another financial asset only by settling the non-financial obligation, the financial instrument is a financial liability.
- A financial instrument is a financial liability if it provides that on settlement the entity will deliver either:
 - i. Cash or another financial asset; or
 - ii. Its own shares whose value is determined to exceed substantially the value of the cash or other financial asset.
 - iii. Although the entity does not have an explicit contractual obligation to deliver cash or another financial asset, the value of the share settlement alternative is such that the entity will settle in cash. In any event, the holder has in substance been guaranteed receipt of an amount that is at least equal to the cash settlement option.

6.2 COMPOUND INSTRUMENTS

Sometimes an instrument may contain a financial liability and an equity component (known as compound instruments). Examples include convertible bonds, redeemable preference shares and perpetual debt.

Both components shall be split out and accounted for separately. In order to determine whether the instrument contains both a liability and an equity component the contractual terms have to be evaluated.

As an example let's consider debt issued that is convertible into ordinary shares:

- First determine the carrying amount of the liability by measuring the FV of similar liability that does not have an associated equity component and
- Then the carrying amount of the equity instrument, represented by the option to convert the instrument into ordinary shares, is determined by deducting the fair value of the financial liability from the fair value of the compound instrument as a whole.

7. FINANCIAL ASSETS: CLASSIFICATION

The five main categories of financial assets are:

- Held to Maturity (HtM);
- Trading;

- Designated at Fair Value – (Fair Value Option – FVO);
- Available for Sale (AFS);
- Loans and Receivables.

7.1 HELD TO MATURITY (HTM)

HtM investments are non-derivative financial assets with fixed or determinable payments and fixed maturity that an entity has the positive intention and ability to hold to maturity.

An entity does NOT have a positive intention to hold to maturity an investment in a financial asset with a fixed maturity (and thus, HfM classification would not be appropriate) if:

1. The entity intends to hold the financial asset for an undefined period;
2. The entity stands ready to sell the financial asset (unless a situation arises that is non-recurring and could not have been reasonably anticipated by the entity) in response to changes in market interest rates or risks, liquidity needs, changes in the availability of and the yield on alternative investments, changes in financing sources and terms or changes in foreign currency risk; or
3. The issuer has a right to settle the financial asset at an amount significantly below its amortized cost.

A reporting entity cannot classify any financial assets as HtM, if during the current financial year or during the two preceding financial years the entity has sold or reclassified more than an insignificant amount of HtM investments before maturity (so-called tainting rule). This rule applies at the ZFS Group consolidated level, that is, if the tainting rule is broken by one reporting unit than ZFS as a Group will not be able to classify any of its financial assets as HtM for two years.

As a result of the tainting rules, reporting entities require approval from Investment Management in order to classify assets as HTM. In addition if an entity wishes to transfer or dispose of a HTM asset then they must obtain approval from Investment Management and the Accounting Policy Group.

In the rare case that the HtM classification is no longer deemed appropriate due to the change in intention or ability, the investment shall be reclassified as AfS and remeasured at fair value. The difference between its carrying amount and fair value shall be recognize through shareholders' equity (other comprehensive income).

The following sales or reclasses of HtM investments are the **allowable exceptions** which will NOT cause ZFS to lose its ability to classify its remaining investments as HtM:

- a. Those that are so close to maturity or the financial asset's call date (for example, less than three months before maturity) that changes in the market rate of interest would not have a significant effect on the financial asset's fair value,
- b. Those that occur after the entity has collected substantially all of the financial asset's original principal through scheduled payments or prepayments, or

c. Those that are attributable to an isolated and non-recurring event that is beyond the entity's control and could not have been reasonably anticipated by the entity.

7.2 TRADING

A financial asset (but also financial liability) is classified as held for trading if it is:

- a) Acquired or incurred principally for the purpose of selling or repurchasing it in the near term or
- b) Part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking or
- c) A derivative (except for a derivative that is a designated and effective hedging instrument for cash flow hedge relationships for which change in FV is booked in Shareholders' Equity).

7.3 DESIGNATED AT FAIR VALUE (FVO)

An entity may use the FVO only when permitted by the paragraph below, or when it can be demonstrated that by doing so results in more relevant information, because either:

- It eliminates or significantly reduces a measurement or recognition inconsistency (sometimes referred to as 'an accounting mismatch') that would otherwise arise from measuring assets or liabilities or recognising the gains and losses on them on different bases or
- A group of financial assets, financial liabilities or both is managed and its performance is evaluated on a fair value basis, in accordance with a documented risk management or investment strategy, and information about the group is provided internally on that basis to the entity's key management personnel.

If a contract contains one or more embedded derivatives, an entity may designate the entire hybrid (combined) contract as a financial asset or financial liability at fair value through profit or loss unless:

- (a) The embedded derivative(s) does not significantly modify the cash flows that otherwise would be required by the contract or
- (b) It is clear with little or no analysis when a similar hybrid (combined) instrument is first considered that separation of the embedded derivative(s) is prohibited, such as a prepayment option embedded in a loan that permits the holder to prepay the loan for approximately its amortized cost.

Investments in equity instruments that do not have a quoted market price in an active market, and whose fair value cannot be reliably measured shall not be designated as at fair value through profit or loss.

ZFS automatically designates the following at fair value through profit or loss:

- assets and liabilities held in respect of unit linked insurance and unit linked investment contracts and
- investments in hedge funds.

Designations of financial assets and financial liabilities that are not automatically designated as described above have to be approved by APG entities should therefore complete a FVO Approval Form.

7.4 AVAILABLE FOR SALE (AFS)

The AFS category shall be used for those non-derivative financial assets that are not classified as loans and receivables, HtM, trading or FVO.

Note that investments in private equity shall be classified as AFS as such investments are purchased and held by entities of the Group with a view of long term investment return. Any deviation from this classification rule must be approved by Investment Management.

7.5 LOANS AND RECEIVABLES

These are non-derivative financial assets with fixed or determinable payments that are NOT quoted in an active market, other than:

- Those that the entity intends to sell immediately or in the near term, which shall be classified as held for trading, and those that the entity upon initial recognition designates as at fair value or
- Those that the entity upon initial recognition designates as AFS or
- Those for which the holder may not recover substantially all of its initial investment, other than because of credit deterioration, which shall be classified as AFS.

An interest acquired in a pool of assets that are not loans or receivables (for example, an interest in a mutual fund or a similar fund) is not a loan or receivable.

Any non-derivative financial asset with fixed or determinable payments (including loan assets, trade receivables, investments in debt instruments and deposits held in banks) could potentially meet the definition of loans and receivables.

8. DERIVATIVES

An instrument has to meet all of the following criteria to be a derivative:

- (a) Its value changes in response to the change in a specified interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index, or other variable, provided in the case of a non-financial variable that the variable is not specific to a party to the contract (sometimes called the ‘underlying’);
- (b) It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors; and
- (c) It is settled at a future date.

9. HYBRID INSTRUMENTS

A hybrid instrument is an instrument which has both a host contract and an embedded derivative. For example, a debt instrument that has interest payment that fluctuates with the changes in the Standard and Poor's (S&P) 500 index (i.e. an equity linked note) would be considered a debt instrument with an embedded derivative.

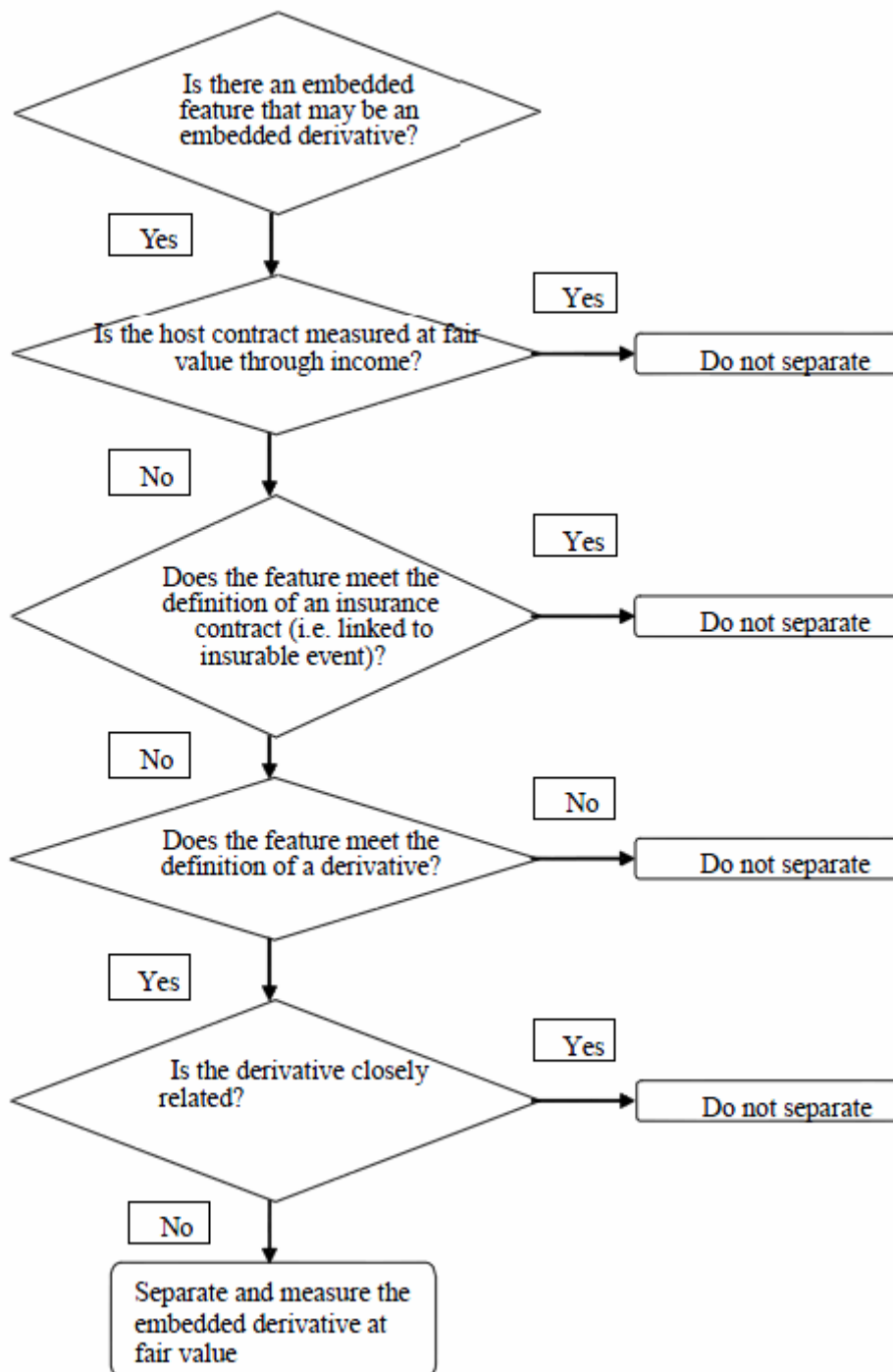
In certain circumstances embedded derivatives must be bifurcated (separated) from the host contract and accounted for separately.

An embedded derivative should be separated from the host contract and accounted for as a derivative if all of the following conditions are met:

- a. The economic characteristics and risks of the embedded derivative are not closely related to the economic characteristics and risks of the host contract. The closely related evaluation generally refers to a comparison of the nature of the underlying in the embedded derivative to the host instrument. If the nature of both the underlying and the host contract are similar, then they are closely related and no bifurcation is required.
- b. A separate instrument with the same terms as the embedded derivative would meet the definition of a derivative. In order for an embedded derivative to satisfy this requirement, the instrument should meet the definition of a derivative.
- c. The hybrid (combined) instrument is not measured at fair value with changes in fair value reported in income. When the hybrid instrument is already recognized on the balance sheet at fair value, with fair value gains and losses recognized through income, there is no need to bifurcate the embedded derivative. In other words, fair value of the hybrid instrument already contains the fair value of the embedded derivative element.

It is important to remember that not all embedded derivatives have to be bifurcated and accounted for separately.

Bifurcation decision tree:



If a hybrid instrument is eligible for designation at fair value, then bifurcation is unnecessary. Please note that designation at fair value should not be made if:

- (a) The embedded derivative(s) does not significantly modify the cash flows that otherwise would be required by the contract; or

(b) It is clear with little or no analysis when a similar hybrid instrument is first considered that separation of the embedded derivative(s) is prohibited, such as a prepayment option embedded in a loan that permits the holder to prepay the loan for approximately its amortized cost.

The exception for bifurcation does not apply to AFS financial instruments, since their fair values are recognized through Shareholders' equity (other comprehensive income). Thus, the embedded derivatives in AFS instruments would need to be bifurcated provided the other requirements are met.

If an embedded derivative meets all of the criteria for bifurcation, it should be bifurcated. It is then measured and reported as a freestanding derivative, while the host contract is accounted for under the relevant accounting principle. It is important to note that appropriate allowance will need to be made for embedded derivatives when calculating the value at initial recognition of the host contract. Where embedded derivatives are present, the initial value of the host contract is calculated in the following way:

- Initial cost of the host instrument = Proceeds received – transaction costs – FV of the embedded derivative at inception.

If a separate measurement of the embedded derivative is not possible, the combined contract should be designated at fair value. For instance, if in the above example the bond is indexed to future returns of another company or the parent, fair valuing the option may represent difficulties. As such, the bond would be required to fair valued together with the option and the option would not need to be bifurcated.

In addition assessment of whether an embedded derivative needs to be bifurcated should only be performed when ZFS has become party to the contract, i.e. at inception of the contract.

Subsequent reassessment is prohibited unless there is a:

- Change in the terms of the contract that significantly modify the cash flows of the contract, OR
- Reclassification of a financial asset out of the fair value through profit and loss.

The assessment whether an embedded derivative is required to be separated from the host contract and accounted for as a derivative upon reclassification of a financial asset out of the fair value through profit or loss category shall be made on the basis of the circumstances that existed on the later date of:

- (a) When the entity first became a party to the contract; and
- (b) A change in the terms of the contract that significantly modified the cash flows that otherwise would have been required under the contract.

If an entity is unable to measure separately the embedded derivative that would have to be separated on reclassification of a hybrid (combined) contract out of the fair value through profit or loss category, that reclassification is prohibited. In such circumstances the hybrid (combined) contract remains classified as at fair value through profit or loss in its entirety.

10. RECOGNITION

An entity shall recognise a financial asset or a financial liability on its balance sheet when, and only when, the entity becomes a party to the contractual provisions of the instrument.

A regular way purchase or sale of financial assets is recognized using trade date accounting. The trade date is the date that an entity commits itself to purchase or sell an asset and trade date accounting refers to:

- a. The recognition of an asset to be received and the liability to pay for it on the trade date, and
- b. Derecognition of an asset that is sold, recognition of any gain or loss on disposal and the recognition of a receivable from the buyer for payment on the trade date.

Generally, interest does not start to accrue on the asset and corresponding liability until when title passes (i.e., the settlement date).

Based on market practice, there may only be a maximum three day period between a trade date and a settlement date of the trade. If this is the case, no gains or losses need to be recorded in the books on instruments carried at fair value between the trade date and the settlement date. However, if the trade date and settlement date falls in different reporting periods (i.e., trade date December 30, 20X0 while the settlement date is on January 2, 20X1) fair value gains and losses on instruments should be recognized up to the end of the reporting period (so the gains/losses for December 31, 20X0 should be recognized and recorded).

Accounting Policy Group must be contacted in case of any unusual trades or trades settling outside the time frame established by marketplace conventions or regulations as, for the period between trade date and settlement date, these trades potentially have to be accounted for as derivatives.

Note that a contract that requires or permits net settlement of the change in the value of the contract is not a regular way contract. Instead, such a contract is accounted for as a derivative in the period between the trade date and the settlement date. All transactions that are not for regular-way purchases or sales have to be recognized using settlement date accounting. The settlement date is the date that an asset is delivered to or by an entity (e.g., a mortgage loan is recognized upon payment of cash to the borrower).

11. INITIAL AND SUBSEQUENT MEASUREMENTS

Upon initial recognition, HtM assets, loans and receivables, AFS and amortized cost liabilities shall be measure at fair value plus (minus) the transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability.

However, assets and liabilities that are classified as trading or FVO are initially recognized on the books at fair value and any transaction costs recognized directly in profit or loss.

Derivative assets and liabilities are initially recognized on the balance sheet at fair value. Since the net initial investment for derivatives is generally “nil” (or other immaterial amount), most derivative assets and liabilities will have initial trade date book value on of nil. An exception would be initial accounting for an option, which would have small initial fair value as a result of the price paid to acquire it.

Subsequent measurement work as follows:

CATEGORY	SUBSEQUENT MEASUREMENT	RECOGNITION
Trading and FVO	At their fair values, without any deduction for transaction costs that may incur on sale or other disposal.	<p>Changes in fair value from one reporting date to another are recognized directly through the profit or loss.</p> <p>Dividend income on trading equity securities should be recognized in profit in accordance with Accounting Policy when the shareholder's right to receive payment is established.</p> <p>Interest income on trading debt securities is recognized in profit or</p>

		loss.
AFS debt and equity investments	At their fair values, without any deduction for transaction costs that may incur on sale or other disposal.	<p>Changes in fair value are recognized in Shareholders' equity (other comprehensive income).</p> <p>It is very important to note the differences in the treatment of FX between AFS debt and AFS equity instruments. For further details please refer to accounting policy "§ 7 Foreign currency transaction and translation".</p> <p>Fair value gains and losses are realized when the assets are sold and the accumulated unrealized gains/losses are reclassified from Shareholders' equity to the income statement.</p> <p>Dividend income on AFS equity securities should be recognized in the income statement when the shareholder's right to receive payment is established.</p> <p>Interest income on AFS debt securities shall be recognized in the income statement.</p> <p>Impairment test on AFS debt and equity investments needs to be performed quarterly and if impaired, an impairment loss shall be recycled from Shareholders' equity to the income statement (see "§ 15.4 Financial Instruments - Impairment")</p>
HtM investments	Measured at amortized cost using the effective interest method (see below section on the EIR method)	<p>Amortisation is recorded directly into the income statement.</p> <p>Impairment test needs to be performed quarterly and if impaired, loss is recognized through the P&L. (see §15.4 Financial Instruments: Impairment)</p> <p>Interest income is recognized in profit and loss in accordance with Accounting Policy.</p>
Loans and receivables	Measured at amortized cost using the effective interest method (see below section on the EIR method)	<p>Interest income is recognized in profit and loss in accordance with Accounting Policy.</p> <p>Impairment test needs to be performed quarterly and, if impaired, impairment should be recognized through the</p>
		income statement (see " § 15.4 Financial Instruments - Impairment ")
Amortized cost liabilities	Measured at amortized cost using the EIR method. Special accounting allowed if an hedge accounting is applied (see " § 15.2 Financial Instruments - Hedging ")	<p>Amortization expense is recognized using the EIR method.</p> <p>Interest expense is recognized in the income statement.</p>

Investments in equity instruments that do not have a quoted market price in an active market and whose fair value cannot be reliably measured and derivatives that are linked to and are settled by delivery of such unquoted equity instruments shall be measured at cost and classified as AFS.

Financial assets and financial liabilities that are designated as hedged items are subject to measurement under the hedge accounting requirements.

All financial assets except those measured at fair value through profit or loss are subject to review for impairment.

In case of derivatives subsequent to the initial recognition, relevant assets and liabilities shall be measured at fair value. Derivative financial instruments shall be fair valued in accordance with ZFS Group's Fair Value Accounting Policy, which requires observable market prices and parameters to be used for the valuation when available. Changes in fair value of derivative assets and liabilities are recognized in profit and loss accounts.

When a derivative instrument has a positive fair value, it should be classified as a derivative asset.

When a derivative instrument has a negative fair value it should be classified as a derivative liability.

The amortized cost of a financial asset or financial liability means recording the asset or liability so that the recorded income or expense (including amortization of any discount or premium, or directly attributable acquisition or issue expenses, or fees received at inception) is equal to the EIR or yield.

The EIR is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument or, where appropriate, a shorter period to the net carrying amount of the financial asset or financial liability.

For example, for a floating rate instrument it would be a period before the re-set of the interest rate.

When calculating the EIR, an entity shall estimate cash flows considering all contractual terms of the financial instrument (for example, prepayment, call and similar options) but shall not consider future credit losses.

The calculation includes all fees and points paid or received between parties to the contract that are an integral part of the EIR, transaction costs, and all other premiums or discounts. There is a presumption that the cash flows and the expected life of a group of similar financial instruments can be estimated reliably.

However, in those rare cases when it is not possible to estimate reliably the cash flows or the expected life of a financial instrument (or group of financial instruments), the entity shall use the contractual cash flows over the full contractual term of the financial instrument (or group of financial instruments).

If an entity revises its estimates of payments or receipts, the entity shall adjust the carrying amount of the financial asset or financial liability (or group of financial instruments) to reflect actual and revised estimated cash flows. The entity recalculates the carrying amount by computing the present value of

estimated future cash flows at the financial instrument's original EIR. The adjustment is recognized as income or expense in profit or loss.

Example:

On January 1, 20X0 ZFS purchases a \$1,000,000 5 year bond at a price of 92% (8% discount). The bond pays annual coupon of 5%, with the effective yield on the day of the purchase of 6.95% (calculated as the rate that discounts future cash flows on the bond, such as interest and principal payments, to the present value of the bond, 92%). The following is the calculation of amortized cost at the end of each year, based on EIR method:

Date	Beginning of the period amortized cost	Interest Income paid (coupon rate of 5%)	Accretion of discount (effective interest)	End of period amortized cost
31.12.X1	920,000	(50,000)	63,926	933,926
31.12.X2	933,926	(50,000)	64,893	948,819
31.12.X3	948,819	(50,000)	65,928	964,747
31.12.X4	964,747	(50,000)	67,035	981,782
31.12.X5	981,782	(1,050,000)	68,218	0

12. MINIMUM PROCESS REQUIREMENTS

Any deviation from classifying private equity as AFS must be approved by Investment Management. Reporting units shall set up an alert in the Significant Finance Judgements (SFJ) database for any of the following:

Distinction of financial instrument between liability and equity (if uncertain/complex)

- Designation of a financial asset to HtM and any contemplated subsequent transfer that is not covered by an allowable exception;
- Designation of a financial asset or liability to fair value through profit or loss if not covered by the default designation under the provision of this accounting policy;
- Split accounting for compound instruments;
- Bifurcation of embedded derivatives;
- Use of a derivative (Derivative Review Program).

In addition when an entity wishes to purchase a derivative they must get approval from Group Risk Management (GRM). GRM have developed a standard template ("Derivative Program") which all Business Units must use to document why the derivative is needed and to provide an impact assessment detailing the risks etc.

13. HEDGING POLICY

This paragraph addresses the various types, criteria and the accounting for qualifying hedges.

A hedging relationship is a derivative or non-derivative transaction which is entered into and maintained to reduce the risk of an adverse change in the fair value, yield, price, currency exchange rate, or cash flow of assets or liabilities which the company has acquired or incurred or anticipates acquiring or incurring.

The firm commitment is a binding agreement for the exchange of a specified quantity of resources at a specified price on a specified future date or dates. A firm commitment is not recognized in the balance sheet until at least one of the parties has performed (shipment, delivery, etc.).

Forecast transaction is an uncommitted but highly probable anticipated future transaction. While net investment in a foreign operation is the amount of the RU's interest in the net assets of that operation.

The Hedged Item is an asset or a liability that generates a risk exposure which is designated under a qualifying hedge relationship.

Hedging instrument is a derivative or an other asset/liability that is designated under a qualifying hedge relationship to offset risk exposure on the hedged item.

Effectiveness testing is a regular test to ensure that hedged risk has been offset to a sufficient level.

Economic hedge is a hedge where a hedge accounting designation is not sought or the hedge relationship fails to meet the qualification criteria for a hedge accounting designation.

13.1 FAIR VALUE HEDGE

The objective of a fair value hedge is to reduce or eliminate the exposure to the change in fair value of an existing recognized asset or liability or an unrecognized firm commitment. Specifically, fair value hedge accounting allows that fair value changes attributable to the risk exposure being hedged on the hedged item being recorded together with the offsetting effects of the fair value changes on the hedging instrument through profit or loss.

The following table summarizes in general terms how a fair value hedge is accounted for:

	P&L	Balance Sheet
Hedged Item	Fair value gain/loss attributable to the hedged risk (even if changes in fair value are otherwise recognized in equity – for example with AFS assets)	Carrying amount adjusted for fair value gain/loss attributable to the hedged risk
Hedging Instrument – a derivative	No change in accounting - FV Gain/loss	No change in accounting - Recorded at fair value

Some examples could be the following:

Hedged Item	Hedging Instrument
Debt liability at amortised cost paying fixed interest	Interest Rate Swap (fixed to floating)
Debt liability at amortised cost paying floating interest	Interest Rate Swap (floating to floating)
Available for sale equity security	Purchase put option
A firm commitment to buy a property in 6 months time for a fixed CHF amount	CHF/USD forward contract (assuming entity has a USD functional currency)
GBP - Debt Liability – pays floating interest YEN - AFS debt asset – pays fixed interest	Cross Currency Interest Rate Swap Receive float GBP/pay fixed YEN (assuming entity has a USD functional currency i.e. both asset and liability are in a foreign currency)

Hedging a portfolio of similar items is permitted, but the change in fair value of each item within the portfolio must move within a specified range to qualify for inclusion in the portfolio. The specified range is between of 90 % to 110 % of the change in the fair value of the entire portfolio. If the content of the portfolio is changed, the ineffective portion has to be recognized immediately in income.

13.2 CASH FLOW HEDGE

The objective of a cash flow hedge is to mitigate exposure to the variability in cash flows associated with an existing recognized asset or liability or a forecasted transaction. Specifically, cash flow hedge accounting allows entities to move certain fair value changes out of profit or loss into shareholders' equity and subsequently reclassify those into profit or loss in tandem with earnings effects of the hedge items (e.g., receipt of interest income or receipt of disposal proceeds).

In summary, a cash flow hedge is accounted for as follows:

	P&L	Balance Sheet	Shareholders' equity
Hedged Item	No change in accounting treatment. E.g. if hedged item was an AFS equity asset the interest income calculated on an amortised cost basis continues to flow through profit or loss.	No change in accounting treatment. E.g. if hedged item was an AFS equity asset, then it would be recorded at fair value	No change in accounting treatment E.g. if hedged item was an AFS equity asset then the fair value movement would continue to be recorded through shareholder's equity If hedged item is an AFS bond asset then the FV movement not related to FX goes to Equity, the FX movement goes to the income statement. The FX movement is calculated based on the amortised cost during the holding period.
Hedging Instrument – a derivative	Ineffective portion of the gain/loss from re-measuring the hedging instrument at fair value.	Recorded at fair value	Effective portion of the gain/loss from re-measuring the hedging instrument at fair value. Subsequently, amounts deferred recycled through profit or loss in tandem with earnings effects of the hedged item. The amount included in shareholders' equity associated with the hedged item should be adjusted to the lesser of: i. the cumulative gain or loss on the hedging instrument which is expected to offset the cumulative change in the future cash flows on the hedged item, and ii. the cumulative fair value change in the expected future
			cash flows on the hedged item.
Hedging Instrument – not a derivative	No change in accounting treatment	No change in accounting treatment	No change in accounting treatment

Some examples could be the following:

Hedged Item	Hedging Instrument
Debt liability at amortised cost paying fixed interest	Cross currency Interest Rate Swap (fixed to fixed)
Debt liability at amortised cost paying floating interest	Interest rate swap (receive floating/pay fixed)
FX Debt liability at amortised cost paying fixed interest	Currency Forward
Unrecognised firm commitment - sale of a property in CHF	CHF/USD forward contract (assuming entity has a USD functional currency)
AFS asset – bond pays floating/variable interest	Interest rate swap (receive fixed pay floating)
HTM debt asset denominated in FX	Cross Currency Swap

At the time the firm commitment or forecasted transaction creates an asset or a liability, the gains and losses of the hedging instrument that were previously recognized in shareholders' equity shall be removed from shareholders' equity and included in the initial measurement of the firm commitment or forecasted transaction.

13.3 HEDGE OF A NET INVESTMENT IN A FOREIGN ENTITY

The objective of a hedge of a net investment in a foreign operation is to hedge the foreign currency effects resulting from translation of the amount of the RU's interest in the net assets of that operation.

The accounting treatment for a hedge of a net investment in a foreign entity can be summarized as following (it is similar to the cash flow hedge model):

- a. The portion of the gain or loss on the hedging instrument that is determined to be an effective hedge should be recognized directly in shareholders' equity through CTA (part of Other Comprehensive Income (OCI)), and
- b. The ineffective portion should be reported immediately in net profit or loss if the hedging instrument is a derivative; or to shareholders' equity if hedging instrument is not a derivative.

Please note that foreign exchange differences between the functional currency of a foreign operation and the presentation currency of the parent's consolidated financial statements is an exposure to which hedge accounting cannot be applied.

14. CRITERIA FOR HEDGE ACCOUNTING

Qualification criteria: In order to able to designate a hedge and to qualify for hedge accounting the following criteria must be met:

- Fundamentally, both the hedged item and the hedging instrument must be external to ZFS or be lined to external transactions (special rules apply to certain foreign currency hedges).
- At inception of the hedge and for the period of the hedge relationship, formal documentation of the terms and strategy of the hedging relationship is required.
- The hedge is expected to be highly effective in achieving offsetting changes in fair value or cash flows attributable to the hedged risk.
- The effectiveness must be tested and documented at inception and at least quarterly, to determine whether it actually has been highly effective during the financial reporting period.
- The effectiveness of the hedge can be reliably measured.

If a hedge does not qualify for hedge accounting because it fails to meet any of the criteria above (or because there is no intention of applying hedge accounting), the hedged item is accounted for under the relevant accounting principle. Fair value movements of a hedging instrument that is a derivative would be reported in profit or loss.

A hedging relationship qualifies for hedge accounting if, and only if, at the inception of the hedge there is formal documentation of the hedging relationship. The formal hedge documentation mentioned above must identify the following:

- The risk management objectives and strategy for undertaking the hedge;
- The nature of the risk being hedged;
- The identification of the hedging instrument, related hedged item and hedging period;
- How the hedging instrument's effectiveness in offsetting the exposure to the hedged risk will be assessed (prospectively and retrospectively); and
- How effectiveness will be measured.

If assistance is required in order to meet these documentation requirements the Accounting Policy Group (APG) has to be involved. APG can provide sample documentation and advice; however, the documentation shall be prepared and maintained by the reporting unit requesting the hedge or the unit managing the hedge. Therefore it is imperative that each department identifies who will be responsible for ensuring that the documentation requirements are complied with on initial designation of the hedge and going forward.

Adequate documentation is required so as to ensure that an audit trail for each single transaction is maintained with respect to:

- Counterparty confirmation;
- Dealership;
- Contracts related to the transaction;
- Valuation of the instruments.

Hedging instruments: derivatives are always deemed held for trading unless they are part of a hedging relationship that qualifies for hedge accounting. Hedge accounting requires designating a

derivative or a non-derivative financial instrument (the hedging instrument) as an offset, in whole or in part, to the change in fair value or cash flows of another instrument (the hedged item). Non-derivative instruments can only be used in special circumstances for FX hedging.

A derivative need not be designated as a hedging instrument at the time it is first entered into. However, designating a derivative other than at its inception may give rise to some ineffectiveness.

Summary of permitted hedging instruments:

Allowed
Instruments issued by an external party (i.e. external to the group, segment, or individual entity that is being reported)
Using a proportion of the entire hedging instrument, such as 50 per cent of the notional amount
A single hedging instrument may be designated as a hedge of more than one type of risk provided that (a) the risks hedged can be identified clearly; (b) the effectiveness of the hedge can be demonstrated; and (c) it is possible to ensure that there is specific designation of the hedging instrument and different risk positions.
Two or more derivatives, or proportions of them (or, in the case of a hedge of currency risk, two or more non-derivatives or proportions of them, or a combination of derivatives and non-derivatives or proportions of them), may be viewed in combination and jointly designated as the hedging instrument, including when the risk(s) arising from some derivatives offset(s) those arising from others.
Not permitted
Non derivative financial asset/liability (unless it is for a hedge of a foreign
currency risk)
Hedging a portion of time during which a hedging instrument remains outstanding.
An interest rate collar or other derivative instrument that combines a written option and a purchased option does not qualify as a hedging instrument if it is, in effect, a net written option (for which a net premium is received). Similarly, two or more instruments (or proportions of them) may be designated as the hedging instrument only if none of them is a written option or a net written option.

Hedged items: A hedged item is an asset, liability, firm commitment, highly probable forecast transaction or net investment in a foreign operation that (a) exposes the entity to risk of changes in fair value or future cash flows and (b) is designated as being hedged.

If the hedged item is a non-financial asset or non-financial liability, it shall be designated as a hedged item (a) for foreign currency risks, or (b) in its entirety for all risks, because of the difficulty of isolating and measuring the appropriate portion of the cash flows or fair value changes attributable to specific risks other than foreign currency risks.

If the hedged item is a financial asset or financial liability, it may be a hedged item with respect to the risks associated with only a portion of its cash flows or fair value (such as one or more selected contractual cash flows or portions of them or a percentage of the fair value) provided that effectiveness can be measured. For example, an identifiable and separately measurable portion of the interest rate exposure of an interest-bearing asset or interest-bearing liability may be designated as the hedged risk (such as a risk-free interest rate or benchmark interest rate component of the total interest rate exposure of a hedged financial instrument).

An asset or liability need not be designated as a hedging item at the time it is first entered into. However, designating an asset or liability other than at its inception may give rise to some ineffectiveness.

Summary of permitted hedged items:

Allowed
Loans and receivables (interest rate risk and credit risk)
Held-to-maturity investment (in respect to currency risk or credit risk)
An intra-group monetary item (e.g. a payable/receivable between two subsidiaries) may qualify as a hedged item in the consolidated financial statements if it results in an exposure to foreign exchange rate gains or losses that are not fully eliminated on consolidation in accordance with accounting policy § 7.1 Foreign currency transactions and translation.
Only assets, liabilities, firm commitments or highly probable forecast transactions that involve a party external to the entity
Similar assets or similar liabilities shall be aggregated and hedged as a group only if the individual assets or individual liabilities in the group share the risk exposure that is designated as being hedged. Furthermore, the change in fair value attributable to the hedged risk for each individual item in the group shall be expected to be approximately proportional to the overall change in fair value attributable to the hedged risk of the group of items.
Fixed or floating rate borrowings (interest rate risk)
Highly probable forecast sales or purchases in a foreign currency (FX risk)
Available for sale equity instruments (equity price risk)
Foreign currency receivables, payables, borrowings and investments (FX risk)
Net Investment in a Foreign Operation
In a portfolio hedge of interest rate risk only, a portion of the portfolio of financial assets or financial liabilities that share the risk being hedged.

Not permitted
Held-to-maturity investment (in respect to interest rate risk or prepayment risk)
Assets/Liabilities carried at fair value through earnings
Transactions between entities or segments in the same group only in the individual or separate financial statements of those entities or segments and not in the consolidated financial statements of the group (refer to section 6).
Equity method investments
Netting-off of financial assets and liabilities for the purpose of determining the net cash flow exposure to be hedged (in other words a hedge of an overall net position) is not permitted.
Net income
Business combinations / Minority interest in consolidated subsidiary / Equity investment in a consolidated subsidiary
Equity instrument issued and classified as “equity” of the issuer
Derivatives

Assessment of effectiveness: a cornerstone of the hedge accounting model is that special hedge accounting is provided only if the hedging instrument is expected to be, and actually is, effective at offsetting changes in the fair value, cash flows or foreign currency exposure of the hedged items. There is an expectation, at the outset and on an ongoing basis, that the hedging instrument will be highly effective at achieving offset for the designated risk exposure

Thus, hedge effectiveness is the degree to which changes in the fair value or cash flows of the hedged item that are attributable to a hedged risk are offset by changes in the fair value or cash flows of the hedging instrument.

Hedge ineffectiveness can arise for a number of reasons, including when the hedge item and the hedging instrument:

- are in different currencies;
- have different maturities;
- use different underlying interest or equity indices;
- are subject to different counter-party risks

Reporting units within the Group are required to perform two kinds of effectiveness tests:

1) A prospective effectiveness test, which is a forward-looking test of whether a hedging relationship is expected to be highly effective in future periods.

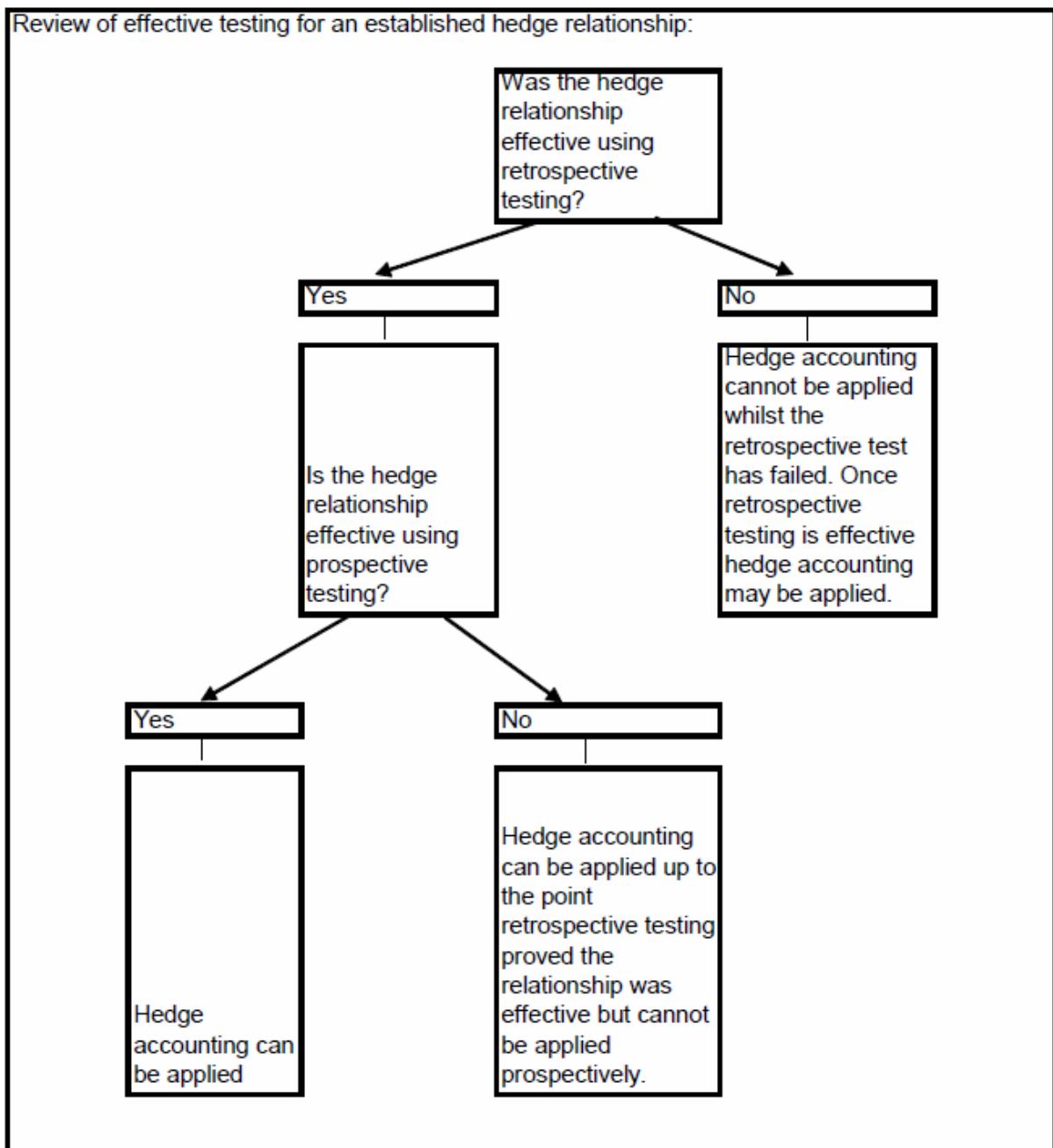
2) A retrospective effectiveness test, which is a backward-looking test on whether a hedging relationship has actually been highly effective in a past period.

At inception of a hedge a prospective test (only) is required to assess whether the hedge is expected to be highly effective during the period for which the hedge is designated. Provided this test is passed, a hedge relationship can be established and subsequently both tests need to be met for hedge accounting to be available in the reporting period. If this test is not passed, hedge accounting cannot be used.

Subsequently, the timing of the tests is as follows:

(a) As a minimum, a retrospective test is required at every reporting date (quarterly) to assess whether a hedge has actually been highly effective in the period under review. If this test is not passed for a particular period, hedge accounting cannot be used for that period.

(b) A further prospective test is also required at every reporting date (quarterly) to assess whether the hedge is still expected to be highly effective during the remaining period for which the hedge is designated. If this test is not passed, hedge accounting must be discontinued prospectively.



A hedge is highly effective if the actual results of effectiveness testing are within a range of 80 per cent to 125 per cent.

An effectiveness ratio is usually expressed through one of two measures:

- by dividing the change in fair value of the derivative by the change in fair value of the hedged item (dollar offset), 0.80 to 1.25;
- by applying a correlation coefficient or r-squared statistic resulting from a regression analysis of the derivative's underlying and the underlying of the hedged item or the regression of other relevant data, ratio of .80 or higher.

Generally, all gains/losses or cash flows on a hedging instrument must be included in the assessment of hedge effectiveness.

In certain cases, however, a component of the hedging instrument's gain/loss or cash flows may be excluded from the assessment of hedge effectiveness:

- The change in the time value of an option contract may be excluded if effectiveness is measured based on changes in the option's intrinsic value;
- The change in the volatility value of an option contract may be excluded if effectiveness is measured based on changes in the option's minimum value (minimum value equals intrinsic value plus the effect of discounting);
- The change in the fair value of a forward or futures contract related to the difference between the spot price and the forward or futures price may be excluded if effectiveness is measured based on changes in fair value attributable to changes in spot prices.

Also, when assessing effectiveness the effects from payments received or made and accrued interest should be excluded as they do not represent changes in fair value due to changes in market rates. Further, any pre-existing fair value of either the hedged item or the hedging instrument at the inception of the hedge relationship shall be excluded as this difference will gradually decrease and by the time the instrument or item matures.

The documentation of the hedging strategy includes the procedures for assessing hedge effectiveness. The assessment is carried out, at a minimum, on a quarterly basis. The hedge must relate to a specific identifiable risk that can be reliably measured, and cannot merely relate to overall enterprise business risks.

If the hedge is ineffective (outside of the range of 80 % to 125 %), changes in fair value of the current quarter must be recorded immediately in earnings. If the hedge is determined to be effective in the following quarter, it can be recorded once again as a hedge, provided that the other conditions continue to be met as well.

The methodology must be determined at inception. In the event of a subsequent change in the methodology, the hedge should be redesignated.

The company may choose between cumulative effectiveness testing or discrete period effectiveness testing. However once a method has been chosen it must be applied consistently to all similar hedges entered into afterwards.

Measurement of effectiveness/ineffectiveness: ineffectiveness must be measured for disclosure purposes. Note that ineffectiveness is not necessarily the same as the total profit or loss volatility from the hedge caused by the difference, for example, between the (full) change in fair value of the hedging instrument and the partial fair value of the hedged item for the risk being hedged.

Any amounts excluded from assessment of effectiveness are considered hedge ineffectiveness and are recorded immediately in profit or loss.

Impairment: all assets designated as hedged items remain subject to impairment testing. Therefore the fact that the hedged item is hedged does not impact the assessment of whether the item is impaired or not i.e. impairment is assessed first then hedge accounting is applied.

However the fact that the impaired item is hedged may offset some of the impairment that is recorded. There is one exception where hedge accounting must be applied before the impairment assessment and that is for fair value hedges (such as an interest rate hedge) of amortised cost assets. The carrying amount of the asset and the Effective Interest Rate (EIR) are adjusted to take account of recognised changes in fair value attributable to the hedged risk. The impairment assessment should be based on the carrying amount of the asset after any adjustments as a result of applying hedge accounting.

Discontinuing hedge accounting: hedge accounting ceases prospectively when any of the following occurs:

- a hedge fails an effectiveness test;
- the hedged item is sold or settled;
- the hedging instrument (i.e. derivative) is sold, terminated or exercised;
- management decides to revoke the designation; or
- for a hedge of a forecast transaction, the forecast transaction is no longer highly probable.

If a hedge relationship fails an effectiveness test, hedge accounting ceases from the last date on which the hedge was demonstrated to be effective, which will usually be the beginning of the period in which the hedge fails the effectiveness test.

If the entity determines the event or change in circumstances that caused the hedging relationship to fail the effectiveness criteria and demonstrates that the hedge was effective before the event or change in circumstances occurred, hedge accounting ceases from the date of the event or change in circumstances.

All future fair value changes in a derivative hedging instrument are recognised in the income statement. Future changes in the fair value of the hedged item, and any non-derivative hedging instruments, are accounted for as they would be without hedge accounting. For example, if the hedged item is an available-for-sale asset, future changes in fair value other than impairment and currency differences on monetary items are recognised in shareholders' equity; if the hedged item is a loan or receivable, future changes in fair value other than impairment are not recognised unless the item is sold.

Treatment of any existing hedge accounting gains/losses already recorded in previous reporting periods: the objective is to ensure that hedging gains and losses that arose in a period when hedge accounting was used continue to be matched with the hedged item.

In case of fair value hedge the carrying value of the hedged item will have been adjusted for changes in the hedged risk. If the hedged item is a debt instrument, the accumulated hedging adjustment is amortised over the remaining life of the instrument by recalculating the effective interest rate. If the hedged item is an equity instrument classified as available for sale, the accumulated hedging adjustment is not amortised but will affect the amount of any impairment loss, or gain or loss on sale.

In addition, according to the hedged instrument, all the fair value movement is recognised in the income statement.

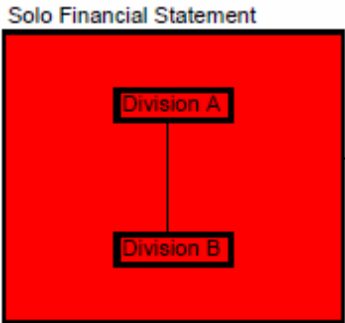
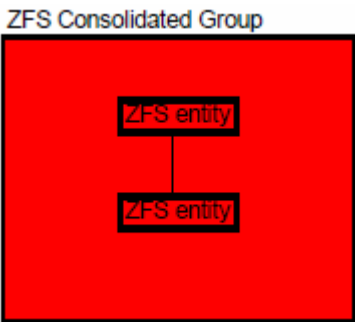
In case of cash flow hedge: gains or losses arising in the effective period of a cash flow hedge will have been recognised in shareholders' equity. These gains remain in equity until the related cash flows occur (when interest received, or asset is sold etc). Where a forecast transaction is no longer highly probable but still expected to occur, hedging gains and losses previously deferred in equity remain in equity until the transaction affects profit or loss. Once a forecast transaction is no longer expected to occur, any gain or loss is released immediately to the income statement.

Even in this case all the fair value movement is recognised in the income statement.

15. INTERNAL HEDGES

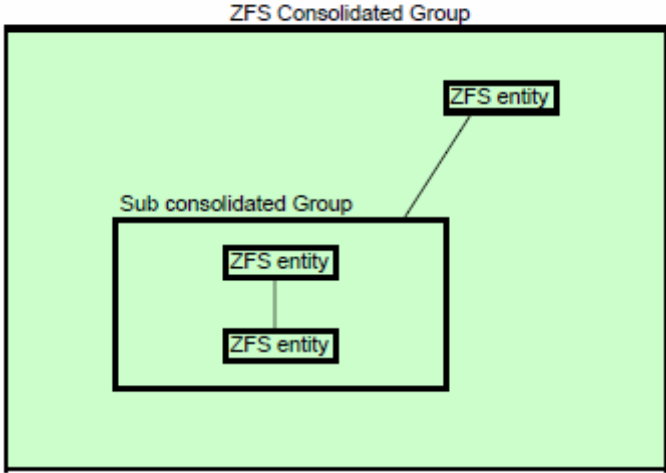
Internal hedging transactions do not qualify for hedge accounting in the following situations:

- In consolidated financial statements for intra-group hedging transactions. However, internal derivative contracts between two separate entities within a consolidated group can qualify for hedge accounting by those entities in their individual or separate financial statements, even though the internal contracts are not offset by derivative contracts with a party external to the consolidated group.
- In the individual or separate financial statements of a legal entity for hedging transactions between divisions in the entity i.e. intra-entity.

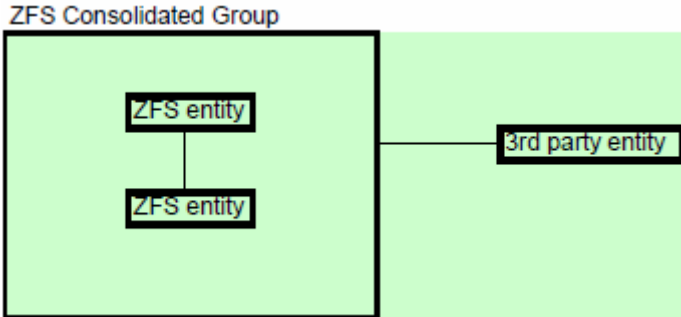


However the following three exceptions apply:

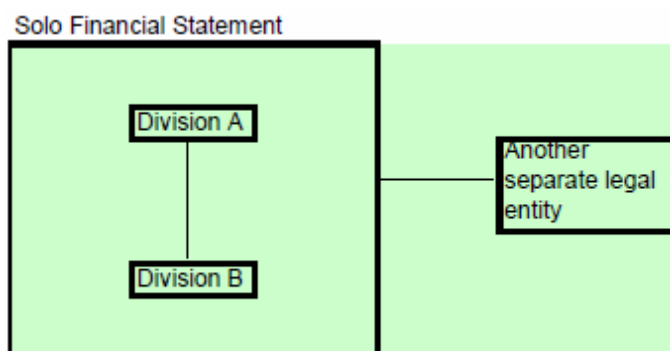
1. An intra-group hedging transaction may be designated as a hedge in the individual or separate financial statements of a group entity, if the intragroup transaction is an external transaction from the perspective of the group entity (i.e. with a legal entity outside of the Group – could be a ZFS entity or a third party entity). For example, ZF (US) enters into a hedge with ZIC (Europe) to mitigate some FX exposure from debt issuances.



2. If the internal contract is offset with an external party the external contract may be regarded as the hedging instrument and the hedging relationship may qualify for hedge accounting.



3. Internal derivative contracts between two separate divisions within the same legal entity (intra-entity) can qualify for hedge accounting in the individual or separate financial statements of that legal entity only if those contracts are offset by derivative contracts with a party external to the legal entity.



If the internal derivative contracts are not offset by derivative contracts with external parties, the use of hedge accounting by group entities and divisions using internal contracts must be reversed on consolidation.

In any case Accounting Policy Group should be consulted before designating an accounting hedge. If hedge accounting designation is sought then the business unit must identify a person responsible for preparing and maintaining the hedge documentation over the life of the hedge relationship.

16. DERECOGNITION OF FINANCIAL INSTRUMENTS

This paragraph gives guidance for the derecognition of financial instruments. However what follows does not cover the derecognition of assets and liabilities which are covered by other policies, such as:

- Investments in joint ventures or associates;
- Finance lease receivables or payables;
- Investment Property;
- Intangible assets;
- Deferred Tax assets or liabilities;
- Reinsurance receivables;
- Reserves for insurance contracts;
- Employers' obligations under employee benefit plans;
- Financial obligations under share-based payments – § 25 Share-based payments.

Derecognition is the removal of a previously recognised financial asset or financial liability from an entity's balance sheet.

An entity shall derecognise a financial asset when and only when:

- a) The contractual rights to the cash flows from the financial asset expire, or
- b) It transfers the financial asset, and the transfer qualifies for derecognition, or
- c) An entity retains the contractual rights to receive the cash flows of the financial asset, but assumes a contractual obligation to pay the cash flows to one or more recipients.

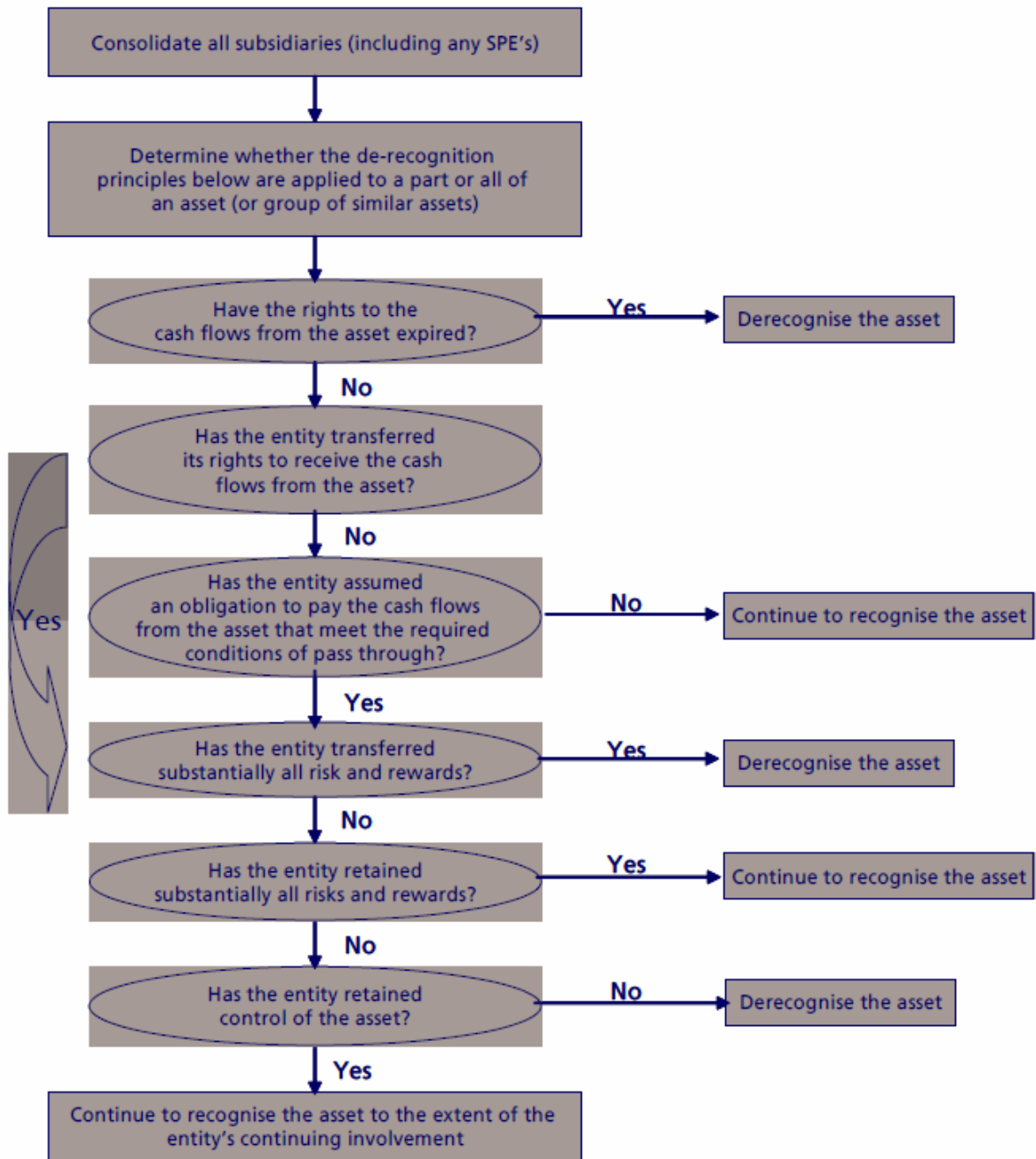
When an entity transfers a financial asset, it shall evaluate the extent to which it retains the risks and rewards of ownership of the financial asset. In this case if the entity transfers substantially all the risks and rewards of ownership of the financial asset, the entity shall derecognise the financial asset and recognise separately as assets or liabilities any rights and obligations created or retained in the transfer. If the entity retains substantially all the risks and rewards of ownership of the financial asset, the entity shall continue to recognise the financial asset.

While if the entity neither transfers nor retains substantially all the risks and rewards of ownership of the financial asset, the entity shall determine whether it has retained control of the financial asset. In case control is retained, the entity shall continue to recognize the financial assets.

Note: on derecognition of a financial asset in its entirety, the difference between the carrying amount and the sum of

- The consideration received (including any new asset obtained less any new liability assumed) and
- Any cumulative gain or loss that had been recognised directly in equity

shall be recognised in profit or loss.



Additionally when an asset is swapped, the cash flows expires because legally the Group no longer has entitlement to the cash flows on the original asset. The original asset should be derecognised and the replacement asset should then be recognised on the balance sheet.

So when the original asset is derecognised a realised gain/loss on disposal should be recognised. This involves recycling the accumulated unrealised gains/losses from shareholders' equity through the income statement.

However, if the replacement asset is virtually the same as the original asset (i.e. the maturity, amount, coupon and issuer is the same) then in substance there has been no expiration on the original cash flows and as a result there should be no derecognition of the asset nor any recognition of realized

gains/losses on disposal. This situation is more likely if the exchange is at the request of the issuer and is deemed compulsory. Anyhow looking at whether the exchange is voluntary or compulsory should not be the basis for assessing how to account for the exchange.

In such cases the exchange of assets results in no change on the balance sheet, the new asset should be recorded at the book value of the original asset.

In case of liabilities, an entity shall remove a financial liability (or a part of a financial liability) from its balance sheet if, and only if, it is extinguished—i.e., when the obligation specified in the contract is discharged, cancelled or expired.

An exchange between an existing borrower and lender of debt instruments with substantially different terms shall be accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability. Similarly, a substantial modification of the terms of an existing financial liability or a part of it (whether or not attributable to the financial difficulty of the debtor) shall be accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability.

The difference between the carrying amount of a financial liability (or part of a financial liability) extinguished or transferred to another party and the fair value of the consideration paid (including any non-cash assets transferred, liabilities assumed or equity instruments issued) shall be recognised in profit or loss at the date the financial liability (or part of that liability) is extinguished.

If the fair value of the consideration paid cannot be reliably measured then the consideration paid shall be measured to reflect the fair value of the part of the financial liability extinguished. We do not expect that these situations arise often.

If an entity repurchases a part of a financial liability, the entity shall allocate the previous carrying amount of the financial liability between the part that continues to be recognized and the part that is derecognized based on the relative fair values of those parts on the date of the repurchase. The difference between (a) the carrying amount allocated to the part derecognized and (b) the fair value of the consideration paid, including any non-cash assets transferred, liabilities assumed or equity instruments issued, for the part derecognized, shall be recognised in profit or loss.

However, if some of the consideration paid relates to a modification of the terms of the liability that remains outstanding, the reporting entity shall allocate the consideration paid between the part of the liability extinguished and the part of the liability that remains outstanding. The difference between the carrying amount of the part of the liability extinguished and the allocated portion of the consideration paid shall be recognized in profit or loss. The consideration allocated to the part that continues to be recognized shall form part of the assessment of whether or not the terms of that remaining liability have been substantially modified. If the remaining part has been substantially modified, the reporting entity shall account for the modification as the extinguishment of the original liability and the recognition of a new liability.

17. FAILED SALES/TRANSFERS

The following are examples of transactions where an entity has retained substantially all the risks and rewards of ownership and so assets subject to these transactions are not derecognised:

- A securities lending agreement (Sec Lending),
- A sale and repurchase transaction where the repurchase price is a fixed price or the sale price plus a lender's return (Repo transactions),
- A sale of a financial asset together with a total return swap that transfers the market risk exposure back to the entity,
- A sale of a financial asset together with a deep in-the-money put or call option (i.e. an option that is so far in the money that it is highly unlikely to go out of the money before expiry),
- A sale of short-term receivables in which the entity guarantees to compensate the transferee for credit losses that are likely to occur.

The difference between Sec Lending and Repo transactions is the legal set up, however for accounting purposes they are treated in the same manner.

The main differences between Sec Lending/Repos and Sale and buy-backs include:

- The securities cannot be replaced during the term of the trade by other securities of the same quality and value;
- The beneficial interest is transferred with the sale of the securities;
- There is no possibility of early termination.

Therefore group entities considering entering into any of the following transactions should consult Accounting Policy Group:

- Repos and Reverse Repos;
- Sec Lending;
- Sale and buybacks;
- Wash sales;
- Securitizations.

Sec Lending and Repo transactions cannot be entered into until business, credit, legal, regulatory, accounting and tax reviews have been performed and the appropriate approval obtained.

17.1 SECURITIES LENDING (SEC LENDING)

Sec Lending is a temporary transfer of legal ownership of financial instruments such as equities and bonds ('securities') from one party ('lender') to another ('borrower') with an obligation to redeliver the same quantity of the same securities to the lender in the future. The following two-step analysis should be followed in determining the accounting for Securities Lending programs:

Step 1: Evaluate whether the securities on loan should be derecognized from the books of Group entities (i.e., determine whether substantially all risks and rewards are transferred to the Lending Agent or the borrower).

- If ‘yes’, the transfer should be treated as a sale of securities.
- If ‘no’, nothing should be done on loaned securities and Step 2 should be followed.

Please note that if it is determined that the Group retains substantially all risks and rewards of ownership for securities on loan, no changes in accounting for these securities should be made. In other words, they would continue to be accounted for as Trading, Available for Sale (AFS) or Held to Maturity (HTM), with interest or dividend income recognized in the respective profit or loss accounts as prescribed by ZFS Accounting Policy.

Step 2: Evaluate whether the collateral received for the loaned securities will create ‘‘future economic benefits’’ and whether substantially all risks and rewards of ownership of this collateral are transferred to the Group.

- If ‘yes’, recognize the collateral and the related liability (this will usually be the case for cash collateral, but not for non-cash collateral).
- If ‘no’, nothing should be recognized.

17.2 REPURCHASE AGREEMENTS (REPOS)

A repo is a transaction whereby the seller (borrower of cash) sells a security to the buyer (cash provider), with a simultaneous agreement to repurchase the security at a specific future date at a stipulated price.

Most commonly, the Group enters into plain vanilla repos. These are accounted for as a secured financing transaction, i.e., as a loan liability to the Group as the Group has received cash from a 3rd party which has to be repaid in the future.

The following two conditions should generally be met in order to account for a Repo as a financing transaction:

1. Both the lender and the borrower of cash should never run a credit risk in these transactions. This is achieved through the margining requirement that ensures that in the case of default, both parties can recover almost the full amount that was initially invested. The lender of cash can sell the securities in the market and the proceeds of this sale would be an amount not materially different from the cash loan granted. The margining requirement should ensure that the value of the securities always represents between 95% and 105% of the cash.
2. Control of the securities is not transferred from the borrower of cash to the lender. This is the case if the borrower has the contractual right of short term substitution of the securities with other securities of the same quality and value or if the borrower has the right to ask at any time for an early termination of the contract, i.e. a premature repurchase of the securities.

17.3 REVERSE REPURCHASE AGREEMENTS (REVERSE REPOS), SALE AND BUY-BACK OF SECURITIES (SALE-BUYBACK) AND SECURITIZATION

Reverse Repos are the purchase of a security at a specified price with an agreement to resell the identical security at a specified price on a specific future date i.e. a loan asset to the Group as the Group has lent cash to a 3rd party.

Sale-Buyback transactions are separate sale and buy trades that are entered into at the same time. The sale trade is a spot transaction whereas the buy trade is a forward transaction with settlement in the future. Unlike Sec Lending or Repos, the sale is a true sale with tax consequences. Sale-Buybacks have different financial, accounting and regulatory consequences than Sec Lending, Repos and Reverse Repos, which render it preferable in some jurisdictions.

A “wash sale” as the repurchase of a financial asset shortly after it has been sold. For any such transactions it is critical to carefully assess whether the financial asset sold can be de-recognized from the balance sheet.

Financial assets do not qualify for de-recognition if the seller of a financial asset simultaneously enters into an agreement to repurchase the same asset at a fixed price or at the sale price plus a lender’s return. In addition, de-recognition is not allowed if any of the below criteria is met:

- At the point of sale a repurchase price of the financial asset is agreed with the broker.
- The transactions (both the sale and the repurchase) are not evidenced by a separate deal ticket.
- The transaction is not (separately) recorded in the sub-ledger.
- Cash does not flow out on the sale and then on the repurchase, but rather the transactions are settled on a net cash basis.
- The transactions do not give rise to the exchange of the title of the financial asset.
- In the period between sale and repurchase, the Group is no

Securitization programs involve selling the Group's outstanding receivables or loans to a 3rd party (often a Special Purpose Entity). Securitization programs are generally entered into in order to provide the selling entity with more liquidity. Group entities considering entering into securitization programs should consult Accounting Policy Group.

Accounting Policy Group should be consulted before entering into Repos/Reverse Repos, Sec Lending, Sale and buybacks, Wash sales or Securitizations.

Note Sec Lending and Repo transactions cannot be entered into until business, credit, legal, regulatory, accounting and tax reviews have been performed and the appropriate approval being obtained.

18. CASH AND CASH EQUIVALENTS

This paragraph provides definitions to assist with the production of the cash flow statement.

- Cash - comprises cash on hand and demand deposits.
- Cash equivalents - are short-term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value.

Cash comprises the following:

1. Cash on hand (petty cash)
2. Available funds at bank current accounts
3. Cheques
4. Money orders

The cash balance at period end should reconcile to cash on hand plus the cash per the bank statements, adjusted for outstanding deposits and checks. Outstanding deposits and checks are items which have been written or issued by the company but which have not yet cleared the bank.

Cash received from a third party entity which the Group has the obligation to pay over to another third party entity is not cash that belongs to the Group, for example, where a Group entity is acting as an agent or cash collection service provider.

Therefore this should not be reported as cash but instead be reported as a receivable and a payable which may be offset if they meet the criteria described in the accounting policy about assets and liabilities offsetting.

Cash equivalents are included in the cash flow statement i.e. they exist as a disclosure concept only.

Cash equivalents must meet all 4 of the following criteria:

- Have a short-term maturity (3 months or less) from the date of acquisition.
- Are highly liquid investments that are readily convertible to known amounts of cash.
- Are subject to an insignificant risk of changes in value.
- Held for the purpose of meeting short-term cash commitments rather than for investment or other purposes (i.e. they are operational).

Examples of items commonly considered to be cash equivalents are (all with a maturity of less than 3 months):

- Treasury bills
- Commercial paper
- Investments in money market funds
- Shares – ONLY for example preferred shares acquired within a short period of their maturity and with a specified redemption date
- Cash received as collateral for securities lending

Cash purchases and sales of these investments generally are part of the enterprise's cash management activities rather than part of its operating, investing, and financing activities.

Short-term investment instruments are not cash equivalents. Short-term investment instruments are instruments purchased with an original maturity of more than 3 months but less than one year and which are used for investment purposes.

Any bank deposits which meet both of the following criteria should be classified as cash equivalents even if the maturity date is longer than three months:

- are available on demand (irrespective of whether penalty charges are levied or interest income is reduced as a result of "demand"),
- are used for cash management purposes.

18.1 MEASUREMENT

Cash and cash equivalents are financial instruments and so are classified and measured according to the accounting policy on Financial Instruments - Recognition and measurement, for example some cash equivalents may be available for sale (AFS) assets.

However for disclosure purposes we are asked to produce a cash flow statement (an important primary statement) which reconciles to the total cash and cash equivalents (as defined above) held at the reporting date.

Cash and cash equivalents are stated at face value because by their definition they are subject to an insignificant risk of changes in value.

Therefore for example if money market investments or deposits with banks are subject to credit risk of the counterparties then the measurement in accordance with the accounting policy on Financial Instruments - Recognition and measurement should reflect this but these instruments are unlikely to be cash equivalents.

Note Restricted as to use cash is included in cash and cash equivalents.

The Group is required to disclose separately the amount of significant cash and cash equivalent balances held that are not available for use by the group (i.e. amounts that have a restriction).

Restricted as to use can include any restriction which is placed on the use of the cash and cash equivalents by the Group (i.e. the cash is put aside for a purpose by the Group) or from a party which is external to the Group (such as a Regulator). Please note that the assets must still meet the definition of cash equivalents above i.e. short term, highly liquid and readily convertible to cash. The cash and cash equivalents balances should not be held for investment purposes.

Examples of restricted as to use cash include the following:

- cash held to meet local regulator requirements.
- cash held in deposit in order that the reporting entity may do business in a particular jurisdiction, for example Dubai.
- cash collateral held generally for derivative contracts counterparties. This is not contract specific as the derivative agreements allow the counterparties to aggregate their exposures to us and the

exposure value at any time is the sum of all contracts outstanding calculated in line with the agreements.

If there is uncertainty about which balances to include in restricted cash and cash equivalents local units should contact the Accounting Policy Group by setting up an alert on the Significant Finance Judgements (SFJ) database.

19. IMPAIRMENT: SCOPE AND DEFINITIONS

The following paragraph addresses the impairment testing, measurement and recognition as it applies to all financial assets with the exception of:

- Financial assets measured at fair value through profit or loss (e.g., investments for unit-linked contracts designated at fair value through profit or loss are excluded from the scope of this policy) and
- Reinsurance assets (in the scope of policy § 22.2 Impairment of reinsurance assets).

As such, guidance is provided for the following categories of assets:

- Available-for-sale (AFS) equity investments (including unit trusts and alternative investments);
- Available-for-sale (AFS) debt investments;
- Financial assets carried at amortized cost, e.g. held-to-maturity (HTM) debt investments, mortgage loans, policy collaterals, other loans;
- Financial assets carried at cost.

At the end of each quarter it shall be assessed whether there is any evidence that a financial asset or group of financial assets is impaired.

Assessment of impairment entails exercising significant judgment. Assistance and support will be provided by Investment Management and Accounting Policy Group.

The purpose of impairment testing, measurement and recognition is to recognize in profit or loss impairment losses in the period in which they occur.

Generally, a financial asset or a group of financial assets is impaired and impairment losses are incurred if, and only if:

- There is objective evidence of impairment as a result of one or more events that occurred after the initial recognition of the asset (a 'loss event'), and
- That loss event (or events) has an impact on the estimated future cash flows of the financial asset or group of financial assets that can be reliably estimated.

It may not be possible to identify a single, discrete event that caused the impairment. Rather the combined effect of several events may have caused the impairment.

Losses expected as a result of future events may not be recognized, no matter how likely they are¹⁶⁷.

Experience, judgment and all other applicable historical and current market information must be used to conclude on whether the impairment has taken place.

Objective evidence that a financial asset or group of assets is impaired includes observable data that comes to the attention of the holder of the asset, such as but not limited to the following loss events:

- a. Significant financial difficulty of the issuer or obligor due to, for example, a loss of a key supplier, customer or available financing line;
- b. A breach of contract, such as a default or delinquency in interest or principal payments;
- c. The lender, for economic or legal reasons relating to the borrower's financial difficulty, granting to the borrower a concession that the lender would not otherwise consider;
- d. It becoming probable that the borrower will enter bankruptcy or other financial reorganization;
- e. The disappearance of an active market for that financial asset because of financial difficulties;
- f. For investments in funds, a decrease in the value of fund' units or NAV due to a deterioration in the quality of its underlying investments; or
- g. Observable data indicating that there is a measurable decrease in the estimated future cash flows from a group of financial assets since the initial recognition of those assets, although the decrease cannot yet be identified with the individual financial assets in the group, including:
 - Adverse changes in the payment status of borrowers in the group (e.g. an increased number of delayed payments); or
 - National or local economic conditions that correlate with defaults on the assets in the group (e.g. an increase in the unemployment rate in the geographical area of the borrowers, a decrease in property prices for mortgages in the relevant area, or adverse changes in industry conditions that affect the borrowers in the group).

The following types of events on their own are not necessarily evidence of impairment, although they could indicate that impairment has occurred:

- The disappearance of an active market because an entity's financial instruments are no longer publicly traded;
- A downgrade of an entity's credit rating;
- A decline in the fair value of a financial instrument below its cost or amortized cost.

¹⁶⁷ It is not allowed to recognize impairment losses expected to be triggered by future events, the triggering event must have occurred at the reporting date (incurred loss model). Expectations, however, may be factored into the assessment and calculation process of impairment losses (e.g. estimating projected cash flows for investments carried at amortized cost), as they are the result of events that have already happened.

Further specific impairment assessment criteria for different types of financial assets are provided in the following sections.

19.1 ASSESSMENT OF IMPAIRMENT

In addition to the events mentioned above, objective evidence of impairment for an investment in an equity instrument includes information about significant changes with an adverse effect that have taken place in the technological, market, economic or legal environment in which the issuer operates, and indicates that the cost of the investment in the equity instrument may not be recovered.

Note that the fact that the decline in fair value of an equity investment is consistent with the overall level of decline in the relevant market does not constitute objective evidence that impairment did not occur.

Generally, a significant or prolonged decline in the fair value of an investment in an equity instruments below its cost is considered as an objective evidence of impairment.

Objective evidence of impairment exists and AFS equity investments are impaired when their fair value:

- (a) Is below the weighted average acquisition cost by more than the applicable impairment threshold; or
- (b) Has been below the weighted average acquisition cost for the last 24 consecutive months or longer.

Both conditions above reflect declines in fair value that are considered either significant or prolonged. For the purpose of the impairment test contemplated under (a), the applicable impairment thresholds are those determined and communicated by Investment Management.

In addition, Investment Management performs a qualitative assessment of impairment that aims at identifying declines in value that are not captured by the above quantitative impairment tests.

Local Reporting Units retain the responsibility for the calculation and booking of all impairment losses in the quarterly financial statements.

Note assessment of impairment of AFS investments in Unit Trusts follows the same assessment criteria as equity securities. Further evaluation of impairments shall be performed based on the nature of the fund and the assets it contains.

In case of alternative investments include hedge funds, real estate partnerships as well as private equity investments. In order to determine whether or not a significant or prolonged decline in fair value has occurred, the following assessment criteria shall be applied:

- If an alternative investment is highly leveraged (i.e., the ratio of debt to total assets exceeding 75%) and the ratio of market value to cost is below 25% (i.e., unrealized losses exceed 75% of the cost base), then the investment should be further evaluated in order to determine whether any

circumstances exist to rebut the impairment presumption. In the absence of qualitative factors to the contrary, the investment shall be considered impaired.

- If an alternative investment is not highly leveraged, the same assessment criteria as for equity securities apply.

19.2 ACCOUNTING FOR IMPAIRMENT

Step 1: Measurement of impairment loss

When there is objective evidence that an AFS equity security is impaired, the amount of the impairment loss shall be the difference between the acquisition cost and the current fair value, less any impairment loss on that equity instrument previously recognized through profit or loss.

Any gain/loss attributable to foreign currency changes deferred in shareholders' equity shall also be considered in determining the impairment loss.

24 Illustrative example 1 – AFS Equity

ZZZ Company holds 100 shares of ABC Company in its AFS portfolio, the acquisition cost of those shares was \$ 20'500 (205 per share). At June 30, 20X7 the fair value of the investment in ABC shares amounted to \$ 16'000 (160 per share). At September 30, 20X7 the fair value of the investment in ABC shares declines to \$ 11'200 (112 per share) and ZZZ Company determines that it is impaired. ZZZ functional currency is \$.

The unrealized loss for the period June 30 to September 30, 20X7 is calculated as follows:

Fair value at Jun. 30, 20X7	\$ 16'000
<u>Less: Fair value at Sep. 30, 20X7</u>	<u>(\$ 11'200)</u>
Unrealized loss	\$ 4'800

The impairment loss at September 30, 20X7, equal to the cumulative unrealized losses, is calculated as follows:

Acquisition cost	\$ 20'500
<u>Less: Fair value at Sep. 30, 20X7</u>	<u>(\$ 11'200)</u>
Impairment loss	\$ 9'300

Since Reporting Units have different acquisition costs for the same equity security, actual impairment charges for the various Reporting Units may differ from each other.

Step 2: Recognition of impairment loss

Impairment losses shall be recognized by recycling the amount attributable to impairment loss from shareholders' equity, where the unrealized losses had been recorded, through profit or loss.

In the above illustrative example, first the unrealized losses for the period June 30 to September 30, 20X7 should be recorded through shareholder's equity:

Dr. Unrealized Losses (Shareholders' equity)	4'800	
Cr. Equity securities – Available for sale (BS)		4'800

Then the impairment loss is recorded by reclassifying the cumulative unrealized losses to profit or loss:

Dr. Equity securities - Available for sale (BS)	9'300	
Cr. Unrealized Losses (Shareholders' equity)		9'300

Dr. Impairment of equity securities (P&L)	9'300	
Cr. Equity securities - Available for sale (BS)		9'300

Step 3: Subsequent decreases in fair value

Any subsequent decreases in fair value of previously impaired AFS equity investments, including any portion attributable to foreign currency changes, are also recorded in profit or loss as impairment losses until the asset is derecognized.

To continue with the above illustrative example, if the fair value of ABC shares further decreases to \$ 10'000 at December 31, 20X7, such decrease is recorded as follows:

Dr. Impairment of equity securities (P&L)	1'200	
Cr. Equity securities - Available for sale (BS)		1'200

Step 4: Reversal of impairment

Impairment losses recognized in profit or loss for an investment in an AFS equity security shall not be reversed through profit or loss. If the fair value of a previously impaired equity instruments increases, such increase shall be recorded through shareholders' equity as an unrealized gain.

In the above illustrative example, if at March 31, 20X8, the fair value of ABC shares recovers to \$ 12'000, such increase is recorded as follows:

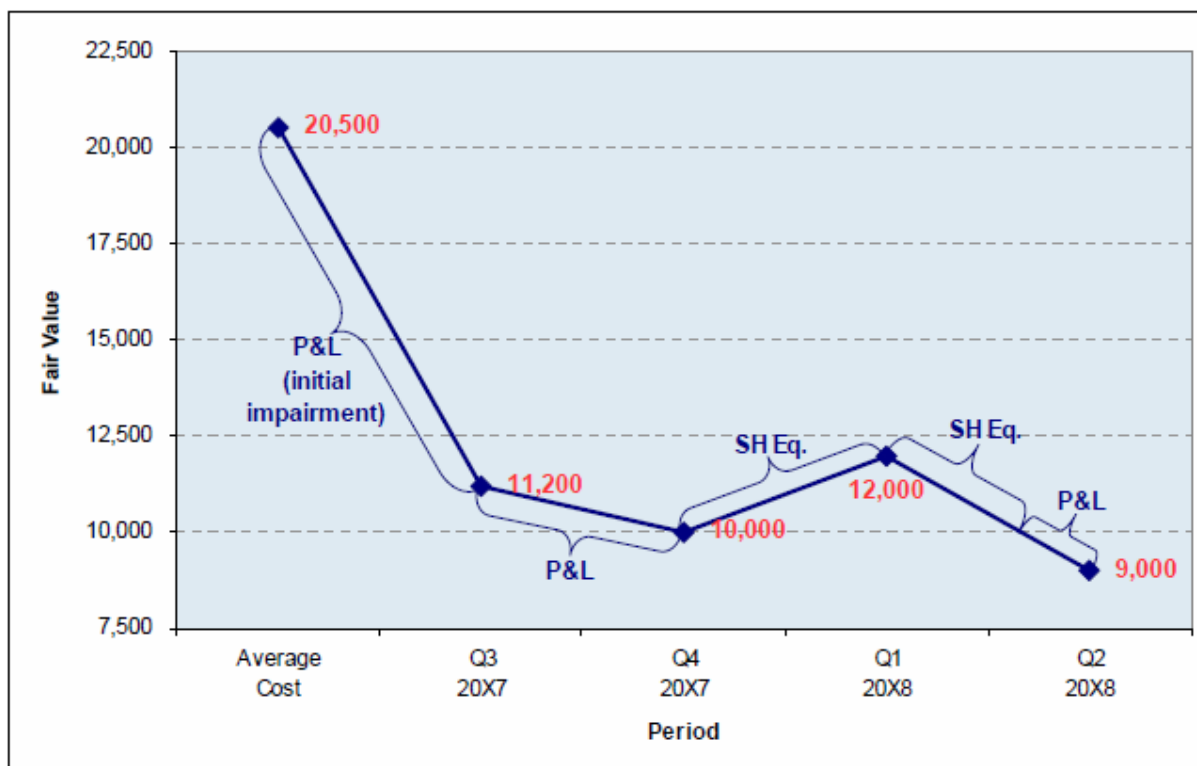
Dr. Equity securities - Available for sale (BS)	2'000	
Cr. Unrealized gains (Shareholders' equity)		2'000

If, after a subsequent increase in fair value recorded in shareholders' equity, there is again decline in the fair value of the security, such decline in value should be recorded through shareholders' equity to the extent that unrealized gains were recorded in shareholders equity. If the decline in value exceeds the unrealized gains recorded in shareholder's equity, then the excess is recorded through profit or loss as impairment.

To continue with the illustrative example above, if at June 30, 20X8 the fair value of ABC shares drops to \$ 9'000, such decrease is recorded as follows:

Dr. Unrealized gains (Shareholders' equity)	2'000	
Cr. Equity securities - Available for sale (BS)		2'000
Dr. Impairment of equity securities (P&L)	1'000	
Cr. Equity securities - Available for sale (BS)		1'000

Below the same example is demonstrated graphically:



19.3 IMPAIRMENT OF AVAILABLE-FOR-SALE DEBT INVESTMENTS

Step 1: Identification of impairment candidates

AFS debt investments held at quarter-end, for which a loss event that has an impact on future cash flows and that can be reliably estimated has occurred should be identified and evaluated for impairment as outlined in Step 2 below.

Such loss event could be reflected in practice when fair value is lower than amortized cost, although this is not necessarily evidence of impairment.

A fall in the fair value of a debt investment as a result of cyclical, broad based market movements, such as changes in interest rates, is not in itself evidence of impairment. Such broad based movements do not reflect prospects regarding the recovery of future cash flows that are specific to any debt security.

In addition the absence of liquidity in the market of a debt investment is also not necessarily evidence of impairment.

Step 2: Impairment review

Debt investments identified in Step 1 should be further reviewed for impairment. Impairment is considered to have occurred:

- a) If it is probable that a Reporting Unit will be unable to collect all amounts due under the contractual terms of a debt security (i.e. both principal and interest); or
- b) If objective evidence does not support prospects of future recovery in value. In assessing objective evidence Reporting Units must weigh positive factors against negative factors.

Positive evidence may include, but is not limited to:

- Recoveries in fair value subsequent to the balance sheet date;
- The issuer's financial performance and near-term prospects (as indicated by factors such as earnings trends, dividend payments, asset quality and specific events);
- The financial condition and prospects for the issuer's geographic region and industry.

In addition Reporting Units should also consider their ability and intent to hold the investment for a period of time sufficient to allow for any anticipated recovery in fair value.

When positive factors are cited as the reasons that impairment did not occur, those factors must be objectively verifiable and properly documented.

Positive factors must be weighed against any negative factors that are gathered about the investment.

Some of those factors and circumstances include, but are not limited to, the following:

- The issuer's deteriorating financial condition and a decrease in the quality of its assets, without positive near-term prospects (e.g., adverse changes in key ratios and/or factors, such as the current ratio, quick ratio, debt/equity, the ratio of stockholders' equity to assets, return on sales, and return on assets; with respect to financial institutions, examples of adverse changes are large increases in non-performing loans, repossessed property, and loan charge-offs);
- The issuer's level of earnings or the quality of its assets is below that of its peers;
- Severe losses sustained by the issuer in the current year or in both current and prior years;
- A reduction or cessation in the issuer's dividend payments;
- A change in the economic or technological environment in which the issuer operates that is expected to adversely affect its ability to achieve profitability in its operations;
- Suspension of trading in the security;
- A qualification in the accountant's report on the issuer because of its liquidity or due to problems that compromise its ability to continue as a going concern;
- The issuer's announcement of adverse changes or events, such as changes in senior management, salary reductions and/or freezes, elimination of positions, sale of assets, or problems with equity investments;

- A downgrading of the issuer's debt rating;
- A weakening of the general market condition of either the geographic area or industry in which the issuer operates, with no immediate prospect of recovery;
- Factors, such as an order or action by a regulator, that require an issuer to reduce or scale back operations or dispose of significant assets or impair its ability to recover the carrying amount of assets;
- Unusual changes in reserves (such as loan losses, product liability, or litigation reserves), or, inventory write-downs due to changes in market conditions for products;
- The issuer's loss of a principal customer or supplier;
- Any specific events that may influence the operations of the issuer such as changes in technology that may impair the earnings potential of the investment or the discontinuance of a segment of the business that may offset the future earnings potential.

19.4 IMPAIRMENT OF INVESTMENTS CARRIED AT AMORTIZED COST

Impairment measurement and recognition criteria for investments carried at amortized cost are described further below.

Step 1: Assessment of impairment of individual financial assets

Reporting Units should assess whether objective evidence of impairment exists individually for financial assets that are individually significant and individually or collectively for financial assets that are not individually significant.

Assets that are individually assessed for impairment and for which an impairment loss is or continues to be recognized are excluded from collective assessment of impairment.

If there is no objective evidence of impairment for an individually assessed financial asset, whether significant or not, this should be included in a group of financial assets with similar credit risk characteristics and collectively assessed for impairment.

Step 2: Assessment of impairment of groups of financial assets with similar credit risk

For the purpose of a collective evaluation of impairment, financial assets should be grouped on the basis of similar credit risk characteristics that are indicative of the debtors' ability to pay all amounts due according to the contractual terms (for example, on the basis of a credit risk evaluation or grading process that considers asset type, industry, geographical location, collateral type, past-due status and other relevant factors). The chosen characteristics should be relevant to the estimation of future cash flows by being indicative of the debtors' ability to pay all amounts due.

If the Reporting Unit does not have a group of assets with similar risk characteristics, it does not make the additional assessment described in Step 2, it only performs the assessment described in Step 1.

As soon as information is available that specifically identifies losses on individual assets assessed in a group, those assets are removed from the group and assessed individually in accordance with Step 1.

Future cash flows in a group of financial assets that are collectively evaluated for impairment are estimated on the basis of historical loss experience of assets with similar credit risk characteristics to those in the group. Reporting Units that have no entity-specific loss experience or insufficient experience use peer group experience for comparable groups of financial assets. Historical loss experience is adjusted on the basis of current observable data to reflect the effects of current conditions that did not affect the period on which the historical loss experience is based and to remove the effects of conditions in the historical period that do not exist currently. Estimates of changes in future cash flows reflect and are directionally consistent with changes in related observable data from period to period (such as changes in unemployment rates, property prices, commodity prices, payment status or other factors that are indicative of incurred losses in the group and their magnitude). The methodology and assumptions used for estimating future cash flows are reviewed regularly to reduce any differences between loss estimates and actual loss experience.

When using historical loss rates in estimating future cash flows, it is important that information about historical loss rates is applied to groups of assets that are defined in a manner consistent with the groups for which the historical loss rates were observed.

If there is objective evidence that an impairment loss on loans, receivables or HTM debt investments carried at amortized cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount (amortized cost at period end) and the present value of estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate (i.e. the effective interest rate computed at initial recognition) or current effective interest rate for variable rate investments.

For collateral dependent financial assets, the calculation of the present value of the estimated future cash flows should reflect the cash flows that may result from foreclosure less costs for obtaining and selling the collateral, whether or not foreclosure is probable.

It is not permitted to recognize bad debt losses in addition to those that can be attributed to individually identified financial assets or identified groups of similar financial assets as described above.

59 Illustrative example 3 – HTM Bond	
ZZZ Company holds 100 bonds issued by ABC Company in its HTM portfolio. On September 30th, 20X7, based on the criteria discussed above it was determined that ABC's bonds with carrying value of \$ 89'500 are impaired. Present value of estimated future cash flows discounted at the original effective interest rate is \$ 79'500. The impairment loss is calculated as follows:	
Carrying value	\$ 89'500
PV of future cash flows	(\$ 79'500)
Impairment loss	\$ 10'000

Step 2: Recognition of impairment loss

The carrying amount of investments carried at amortized cost shall be reduced by the amount of the impairment loss through the use of an allowance¹⁶⁸. The impairment loss shall be recognized in profit or loss.

In the illustrative example above, the impairment loss on the HTM bonds is recorded as follows:

Dr. Impairments on HTM bonds	\$ 10'000
Cr. HTM investments – Impairment allowance	\$ 10'000

Step 3: Reversal of impairment

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognized (such as improvement in the debtor's credit rating), the previously recognized impairment loss shall be reversed in the respective balance sheet accounts, with the amount of reversal recognized in profit or loss.

The reversal shall not result in a carrying amount of the financial asset that exceeds what the amortized cost would have been had the impairment not been recognized at the date the impairment is reversed.

To continue with the illustrative example above, if at December 31, 20X7 ABC's credit rating improves substantially, as there is no longer evidence of impairment, the previously recognized loss shall be reversed, but only up to the amortized cost determined according to the original amortization pattern at December 31, 20X7 (assumed to be \$ 87'000). Assuming that the amortized cost of the investment in ABC's bond calculated on the new basis is \$ 79'000 and that a new assessment of present value of future cash flows equals \$ 89'000, the reversal of impairment is calculated as follows:

Carrying value (Amortized cost new basis)	\$ 79'000
PV of future cash flows	(\$ 89'000)
Reversal of impairment	\$ 10'000
\$ 87'000 (Amort. cost old basis) < \$ 89'000 (PV fut. cash flows)	(\$ 2'000)
Allowable write-up of impairment	\$ 8'000

Such reversal is recorded as follows:

Dr. HTM investments - Impairment allowance	\$ 10'000
Cr. Debt securities - Held to Maturity	\$ 2'000
Cr. Reversal of Impair. on HTM bonds	\$ 8'000

¹⁶⁸ Starting Q3/2009 the use of allowance is required for all investments carried at amortized cost, including HTM debt investments.

19.5 IMPAIRMENT OF INVESTMENTS CARRIED AT COST

If there is objective evidence that an impairment loss has been incurred on an unquoted equity instrument that is not carried at fair value because its fair value cannot be reliably measured, the amount of the impairment loss is measured as the difference between the carrying amount of the financial asset and the present value of estimated future cash flows discounted at the current market rate of return for a similar financial asset.

Such impairment losses shall be recognized in profit or loss and shall not be reversed.

The primary responsibility for assessing impairment and recording impairment losses on financial assets rests with the local Reporting Units.

Detailed documentation of the quarterly impairment testing is required and must include all relevant analyses, judgments, assumptions and conclusions. Documentation should be provided to Investment Management prior to the booking of any impairment for a centralized review, including the impact of such impairments on profit or loss. Reference should be made to the application guidance accompanying this policy.

Note also AFS equity securities for which impairment losses had been recognized under pre-existing rules shall not be re-assessed and remain impaired.

19.6 IMPAIRMENT OF AVAILABLE-FOR-SALE EQUITY INVESTMENTS

In order to complete the quarterly impairment processes on timely basis, assessment of impairment for available-for-sale (AFS) equity investments is usually based on information available in the working week before the quarter-end.

Step 1: Definition of impairment thresholds at Corporate Center

Thresholds for the assessment of impairment of AFS equity investments for the purposes of the quarterly financial statements are determined by Investment Management.

AFS equity securities are clustered into exposure types according to market regions. The Group has identified the following exposure types:

- North American stocks
- European stocks (other than UK and Swiss)
- UK stocks
- Swiss stocks
- Asia/Pacific stocks
- Other stocks

For each exposure type impairment thresholds are determined on the basis of average volatilities of a representative sample of the securities included in the respective exposure type.

Average volatilities are then exponentially time weighted over a five years historical period (with a two years half-life), to ensure that the most recent market developments are most influential in setting the thresholds used, and multiplied by a factor attributing statistical significance to them.

In addition Investment Management performs a qualitative assessment based on the review of a number of other impairment indicators. Such additional assessment aims at identifying declines in value that are not captured by the application of the impairment thresholds. If objective evidence of potential additional impaired securities is gathered, Investment Management compiles a list of such additional impairment candidates.

Once the impairment thresholds and the list of additional impairment candidates, if any, have been determined and documented, they are communicated to the Local Finance Teams, Senior Management and the External Auditors.

Step 2: Analysis of impairment at the local Reporting Unit level

Local Reporting Units shall assess impairment of all AFS equity investments held. Impairment should be assessed on a security-by-security basis (no thresholds apply).

AFS equity investments are impaired when their fair value:

- a) Is below the weighted average acquisition cost by more than the applicable impairment threshold, as communicated by Investment Management; or
- b) Has been below the weighted average acquisition cost for the last 24 consecutive months or longer.

In order to apply impairment thresholds appropriately, AFS equity investments shall be classified according to the exposure types described in step 1.

Local Reporting Units retain the responsibility for the calculation and recording of all impairment losses resulting from the above assessment in the quarterly financial statements.

Reporting Units are not allowed to apply impairment thresholds different from those communicated or delete any positions from the list of additional impairment candidates for any reason.

Previously impaired securities should be further impaired to the extent that there has been a further reduction in value from the impaired amount.

Impairment of available-for-sale debt and investments carried at amortized cost: in order to complete the quarterly impairment processes on a timely basis, Group best practice encourages an assessment of impairment for AFS debt and investments carried at amortized cost throughout the quarter based on information (e.g. Asset Manager watch lists) as and when available.

The primary responsibility for assessing impairment of AFS debt and investments carried at amortized cost (e.g. HTM debt investments, loans and receivables) rests with the local Reporting Units.

Local Finance Officers are expected to work closely on impairments of debt with the Local Investment Officers. Local Finance Officers may request the support of Investment Management for matters relating to policy and consistency.

Investment Management at Corporate Centre are responsible for reporting impairments of debt to the Group's Chief Investment Officer and for this reason they should be informed of any identified impairments of AFS and HTM debt investments in order to understand the basis of assessments and ensure consistency across the Group. Furthermore local Reporting Units must inform Investment Management of the impact of any impairment of debt on profit or loss. Assessment throughout the quarter facilitates this process.

Any decision of impairing, as well as not impairing, any investments identified as impairment candidates as a result of the impairment review shall be documented.

In the case of reversal of impairment, any evidence supporting the conclusion that the event that had initially caused the impairment has reversed shall also be documented.

Such documentation must be provided to Investment Management.

Impairment assessments for foreign currency denominated investments shall be performed in the reporting entity's functional currency. This principle ensures consistency between assessment and recognition of impairment losses.

Upon recognition of impairment losses, any gains/losses attributable to foreign currency changes deferred in shareholders' equity shall be recycled through profit or loss as part of the impairment loss.

VII INVESTMENT PERFORMANCE ATTRIBUTION AND MEASUREMENT SYSTEM AT ZFS

1. PERFORMANCE ATTRIBUTION CALCULATION

“In order to delineate investment responsibility and measure performance contribution, we need a clear and relevant method of attributing returns to those activities that compose the investment management process – investment policy, market timing, and security selection¹⁶⁹”

Various investment attribution models have since been developed to identify the factors that impact investment performance and to assess the contribution of each factors.

There is no “one size fits all” approach to investment performance attribution as the method and the underlying assumptions to be used will depend on investment management process which is unique for each asset owners i.e. where in the process the investment policy has been developed, when and where the decisions have been made and which are the strategies that have been implemented.

As part of the business strategy, Investment Management (IM) at ZFS has a clear defined value chain which includes asset liability analysis, strategic asset allocation, tactical asset allocation, manager selection, local adaption and portfolio construction, security selection and trade execution, and asset manager oversight and investment reporting. The investment decisions and investment activities made through this value chain will shape the performance attribution method used to identify value contribution.

As of 30 September 2009, there are more than 600 portfolios identified in the ZFS Shareholder and Unit Linked assets. Of which, 385 portfolios are performance measured while 310 portfolios reported their returns against the assigned benchmark returns. The question is how we can decompose and interpret the excess return¹⁷⁰ of these portfolios against their benchmarks into active investment management decisions and activities so that

¹⁶⁹ ‘Determinants of Portfolio Performance’ by G. Brinson, L. Hood, and G. Beebower published in Financial Analysts Journals (July/August 1986).

¹⁷⁰ Return rate on an investment relative to the return rate on risk free investment. If a return rate is 5 percent and the risk free rate is 1.5 percent, then the investment's excess return is 3.5 percent.

we can identify the sources of the excess returns – tactical asset allocation¹⁷¹ and asset manager skill through security selection. To be able to evaluate the effect of the current asset allocation against Strategic Asset Allocation¹⁷² and to verify the performance of individual asset managers, Investment Management has developed an in-house performance attribution

¹⁷¹ Tactical asset allocation is a method of investing in which investors modify their asset allocation according to the valuation of the markets in which they are invested. Thus, someone invested heavily in stocks might reduce his position when he perceives that other securities, such as bonds, are poised to outperform stocks. Unlike stock picking, in which the investor predicts which individual stocks will perform well, tactical asset allocation involves only judgments of the future return of complete markets or sectors. As such, it is a natural supplement to mutual fund investing, including passive management investing.

Cyclical Tactical Asset Allocation involves monitoring the economic environment for patterns that have historically led to trends in stock market movements in order to reallocate assets favorably in an investor's portfolio.

There are no well set rules for tactical asset allocation. Like most other portfolio allocations strategies, the investor set a long-term portfolio goal and allocates specific proportions to different instruments and markets. The investor, then evaluate his plan with respect to short-term evaluations and predictions and make necessary changes to the portfolio. For example if there is more profit opportunity in stock market, the investor shall withdraw real-estate invested money and shall invest in stocks. Once the opportunity diminishes, the investor shifts back to the original allocation plan.

There are many things with determine the success of a tactical asset allocation strategy. The investor should have a flexible portfolio where money can be easily transferred one security to other. He/she should also have enough ability and resources to predict the short-term future and to identify new opportunities. Other things like the risk tolerance, market timing, portfolio size, investing costs, etc can also affect the portfolio performance.

In other words TAA is active management portfolio strategy that rebalances the percentage of assets held in various categories in order to take advantage of market pricing anomalies or strong market sectors.

This strategy allows portfolio managers to create extra value by taking advantage of certain situations in the marketplace. It is as a moderately active strategy since managers return to the portfolio's original strategic asset mix when desired short-term profits are achieved.

¹⁷² Strategic Asset Allocation is the process of dividing investments among different kinds of assets, such as stocks, bonds, real estate and cash, to optimize the risk/reward trade-off based on the investor's specific situation and goals. It is a portfolio strategy that involves periodically rebalancing the portfolio in order to maintain a long-term goal for asset allocation.

At the inception of the portfolio, a "base policy mix" is established based on expected returns. Because the value of assets can change given market conditions, the portfolio constantly needs to be re-adjusted to meet the policy.

measurement system which collects the performance bottom up from the portfolio level, aggregates the investment performance up to the Group level and decomposes the relative return into that created by tactical under or overweight of individual asset class/type (allocation effect) and those generated from the skill of internal and external asset managers (selection effect).

Investment performance attribution is an important part of the portfolios' performance evaluation relative to its investment objectives. When implemented properly, the performance attribution can provide an insight into the sources of the relative return. It can also be used to enhance the effectiveness of the investment management process by acting as a feedback and control mechanism.

Therefore, the main objective of this chapter is to assess the framework of the performance attribution method used by Investment Management and identify other attribution methods used by practitioners that may be adopted by Investment Management to determine which aspects of investment decisions and activities add value to or subtract value from ZFS portfolios' total return and active return which may be useful for monitoring and evaluating the effectiveness of investment management activities.

2. PERFORMANCE ATTRIBUTION METHOD

2.1 PAMS PERFORMANCE ATTRIBUTION FRAMEWORK

Investment Management use Brinson, Hood, and Beebower (BHB)¹⁷³ model for performance attribution method in its system. The framework of this return attribution is to break down the excess return into a standard investment decision process in which the value can be added through both asset allocation and security selection as depicted in the attribution grid below.

¹⁷³ Brinson G., Hood R., and Beebower G. Determinants of portfolio performance. *Financial Analyst Journal* (July/August 1986) and Brinson G., Singer B., and Beebower G. Determinants of portfolio performance II. An update. *Financial Analyst Journal* (May/June 1991).

		Selection	
		active	passive
Asset allocation/Timing	active	Q4 Actual portfolio return	Q2 Asset allocation/ Timing return
	passive	Q3 Policy and security selection return	Q1 Policy return (passive portfolio benchmark)

Quadrant I (Q1): Policy return (passive portfolio benchmark) is a consequence of investment policy which Investment Management identifies the long-term Strategic Asset Allocation (SAA) including asset class and SAA weight. The policy benchmark return is calculated as the SAA weight of asset class (Wb) time its benchmark return (Rb). IM makes SAA decisions which are maintained and monitored on a legal entity level.

$$= Wb * Rb$$

Below there is an example of SAA target set for individual asset class as of 30 September 2009.

Exposure Description	Market Value	Adj.	Exp. No Deri	Exposure	Lower Limi	SAA	Upper Limit
Net Economic Surplus	5,844,477,987						
Assets	28,117,204,709		0	100.00%		100.00%	
Equities	519,421,360			1.85%		1.50%	
Fixed Income & Loans	21,685,433,069	(874,089,243)		74.02%	68.50%	70.50%	71.00%
By Currency							
Statistics							
Duration	9.18				7.5	9.5	10.5
Rating	AA-				AA-	AA-	AAA
AAA	13,450,900,775	(874,089,243)		60.43%		58.00%	
AA	3,849,215,119			18.50%		21.00%	
A	3,287,001,893			15.79%		15.00%	
BBB	949,014,689			4.56%		6.00%	
Less Than BBB	12,463,292			0.06%		0.00%	0.00%
Not Rated	136,837,302			0.66%		0.00%	
Alternative Investments	13,670,961			0.05%		2.00%	
Cash & Short Term	494,474,395			1.76%	0.50%	1.00%	3.00%
Cash for Operations							
Mortgages	4,584,731,932	874,089,243		19.41%		20.00%	
Real Estate	819,472,991			2.91%		5.00%	
Other							
Liabilities	(22,272,726,722)						
Other Assets							
Unit Linked Products	5,645,409,472						
Net Affiliated Holdings	1,434,593,782						

SAA target set for individual asset class

Quadrant II (Q2): Asset allocation/Timing return reflects the strategic asset class under or overweighting relative to the SAA weight for the purpose of return enhancement and/or risk reduction while passively select investments within the asset class (indexing the benchmark).

The asset allocation and timing return is calculated as the actual weight of asset class (Wp) time its benchmark return (Rb).

$$= W_p * R_b$$

Below is an example of actual exposure vs. SAA target for individual asset class.

As Of	30 Sep 2009	Path	Zurich Financial Services		
Reporting Unit	030054 - Zurich Deutscher Herold Lebensvers. AG	Business Unit	Zurich (Germany)	Country	Germany
Business Line	[No Business Line]	zCore	Life Insurance	zRegionSub	Germany
Currency	EUR	zRegion	Europe & Africa	zRegionSubSub	Germany
Remarks	Repoed mortgages (financed by loan = bond short position), Bonnsecur Immobilien +163m ...				

Exposure Description	Market Value	Adj.	Exp. No Deri	Exposure	Lower Limi	SAA	Upper Limit
Net Economic Surplus	5,844,477,987						
Assets	28,117,204,709		0	100.00%		100.00%	
Equities	519,421,360		1.85%	1.85%		1.50%	
Fixed Income & Loans	21,685,433,069	(874,089,243)	74.02%	74.02%	68.50%	70.50%	71.00%
By Currency							
Statistics							
Duration	9.18				7.5	9.5	10.5
Rating	AA-				AA-	AA-	AAA
AAA	13,450,900,775	(874,089,243)	60.43%	60.43%		58.00%	
AA	3,849,215,119		18.50%	18.50%		21.00%	
A	3,287,001,893		15.79%	15.79%		15.00%	
BBB	949,014,689		4.56%	4.56%		6.00%	
Less Than BBB	12,463,292		0.06%	0.06%		0.00%	0.00%
Not Rated	136,837,302		0.66%	0.66%		0.00%	
Alternative Investments	13,670,961		0.05%	0.05%		2.00%	
Cash & Short Term	494,474,395		1.76%	1.76%	0.50%	1.00%	3.00%
Cash for Operations							
Mortgages	4,584,731,932	874,089,243	19.41%	19.41%		20.00%	
Real Estate	819,472,991		2.91%	2.91%		5.00%	
Other							
Liabilities	(22,272,726,722)						
Other Assets							
Unit Linked Products	5,645,409,472						
Net Affiliated Holdings	1,434,593,782						

Actual exposure vs. SAA target for individual asset class

Quadrant III (Q3): Policy and security selection return reflects an active selection of investments within an asset class while maintaining investment policy (i.e. holding asset class at the SAA weight). The policy and security selection return is calculated as the SAA weight of asset class (Wb) time the return of asset class (Rp).

$$= W_b * R_p$$

Quadrant IV (Q4): Actual portfolio return represents the actual return of the total fund and is calculated as the actual weight of asset class (Wp) time the return of asset class (Rp).

$$= W_p * R_p$$

In the performance application the return of asset class and the return of benchmark are aggregated and weighted at portfolio level based on the actual weight at the beginning of the period for portfolio return and SAA weight for benchmark return.

Current Database: PamsZFS Current Settings: ACT v. SAA Period: Sep 2009 - Sep 2009 Currency: USD attribution anal

Portfolio Mandate (old) = Cash, Finance Leases, Short Term, Balanced, Equities, Fixed Income

1 - 20 of 94 records Excel PDF

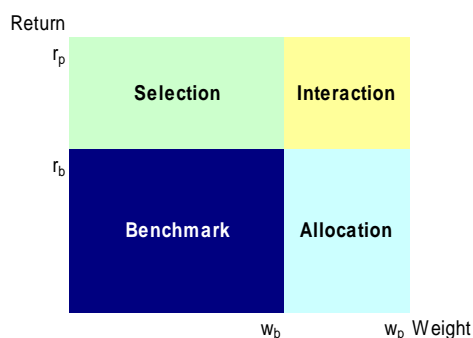
Hierarchy		Invested (Own) Assets						
Portfolio Mandate (old)	Portfolio	Actual Weight	Beg SAA Weight	Portfolio Return (L)	Weighted Return (L)	Benchmark Return (L)	Weighted BM Return (L)	
-	-	100.0	100.0		1.18		1.15	
Balanced	-	0.12	0.12		0.002		0.002	
Cash	-	1.14	1.14		0.008		0.007	
Equities	-	3.93	3.74		0.16		0.15	
-	A0016	0.01	0.02	4.34	0.0005	4.35	0.0007	
-	AR-ZIL-EQ	0.0009	0.001	16.19	0.0001	16.46	0.0002	
-	AR-ZNL-EQ	0.0009	0.002	16.17	0.0001	16.46	0.0004	
-	AT-ZLF-GF66	0.02	0.04	3.22	0.0008	5.32	0.002	
-	AT-ZNLF-ATX	0.004	0.004	4.87	0.0002	5.32	0.0002	

Therefore, active contribution to total performance can be calculated as follow:

Total performance is equal to $(W_p)(R_p) - (W_b)(R_b)$ which can be further analyzed through:

- Asset Allocation: $II - I$ or $(W_p)(R_b) - (W_b)(R_b)$ or $(W_p - W_b) * R_b$;
- Security selection: $III - I$ or $(W_b)(R_p) - (W_b)(R_b)$ or $W_b * (R_p - R_b)$;
- Interaction: $IV - III - II + I$ or $(W_p)(R_p) - (W_b)(R_p) - (W_p)(R_b) + (W_b)(R_b)$ or $(W_p - W_b) * (R_p - R_b)$.

This can be easily displayed in a graphical format below.



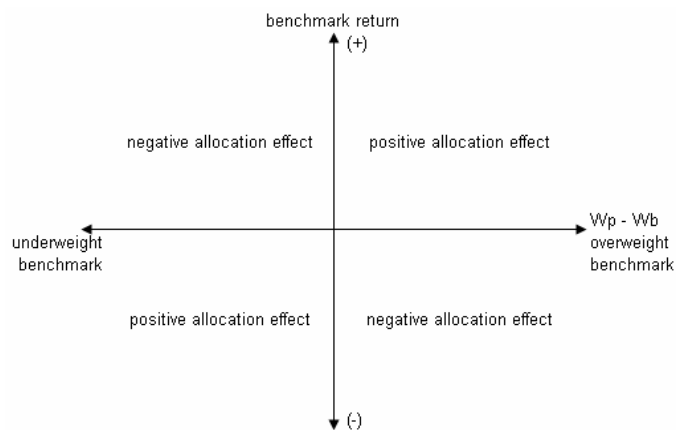
Investment Management has applied this framework in its application to formalize the analysis of Group performance attribution at a Group level because it is intuitively simple, easy to understand, feasible to apply, and it identifies or measures the value creation.

2.2 ASSET ALLOCATION EFFECT

The allocation effect explains part of the relative return that results from the investment decisions to over or underweight our long-term Strategic Asset Allocation, which is used as a weight for the benchmark return, assuming the portfolios are earning their assigned benchmark return. This can easily be seen from the formula:

$(W_p - W_b) * R_b$ where $(W_p - W_b)$ indicates whether that particular asset class has been over or underweighted relative to the SAA and R_b is the benchmark return of the same asset class.

The interpretation is also immediate. For example, as indicated in the graph below, if an asset class that has a positive return is overweighted, then the allocation effect will be positive and it will positively contribute to the relative return. On the contrary, if an asset class that has a positive return is underweighted, the allocation effect will be negative and hence it will negatively contribute to the relative return.



A simplified example below shows positive allocation effect for both equities and fixed income as we underweight (4.37% actual vs. 5.47% SAA target) negatively performing equities (-0.06% aggregate weighed benchmark return) while overweight (95.63% actual vs. 94.53% SAA target) positively performing fixed income (1.14% aggregate weighted benchmark return).

Hierarchy		Actual Weight		SAA Weight		Weighted Return (L)		Weighted BM Return (L)		Relative Return (L)		Allocation Effect		Total Selection	
Portfolio Mandate (old)	Exp. Asset Type	100.0	100.0	1.08	1.08	0.0	0.032	-0.031							
Equities	-	4.37	5.47	-0.03	-0.06	0.029	0.016	0.012							
Fixed Income	-	95.63	94.53	1.11	1.14	-0.029	0.015	-0.044							

2.3 SELECTION EFFECT

The selection effect explains part of the relative return that results from the skill of our internal and external asset manager in actively making an investment decisions on security selection and trade execution. This can easily be seen in the Brinson formula: $R_p - R_b$ assuming the portfolios are hold at the benchmark weight (W_b). If the portfolio return is

greater than that of the benchmark, the selection effect is positive and the outperformance of the asset manager relative to the benchmark contributes positively to the relative return and vice versa.

A simplified example below shows negative total selection effect due to a negative selection effect from fixed income as aggregate weighted portfolio return of 1.11% is less than aggregate weighted benchmark return of 1.14%. The performance of equity asset managers on the other hand is positive (-0.03% aggregated weighted portfolio return vs. -0.06% aggregate weighted benchmark return) and contributed positive selection effect. However, as SAA target for equities is only 5.47% vs. 94.53% for fixed income, the positive selection effect from equities only partially offset the negative selection effects from fixed income.

Hierarchy		Invested (Own) Assets								
Portfolio Mandate (old)	Exp. Asset Type	Actual Weight	Target SAA Weight	Weighted Return (L)	Weighted BM Return (L)	Relative Return (L)	Allocation Effect	Total Selection		
-	-	100.0	100.0	1.08	1.08	0.0	0.032	-0.031		
Equities	-	4.37	5.47	-0.03	-0.06	0.029	0.016	0.012		
Fixed Income	-	95.63	94.53	1.11	1.14	-0.029	0.015	-0.044		

2.4 INTERACTION EFFECT

The interaction effect is a little more complicated concept as it is a combination of both asset allocation and security selection effect. In general, if the benchmark is set appropriately for each portfolio, there should not be persistently large interaction effects. As the primary mandate of asset managers is the selection of attractive securities and not the asset classes, it is appropriate to combine the interaction effect with the selection effect. Hence, Investment Management uses total selection effect (selection effect + interaction effect) to evaluate the performance of both internal and external asset managers.

3. CALCULATION METHOD WITHIN THE PERFORMANCE APPLICATION

The calculation method in the performance tool determines how the performance of an individual portfolio is aggregated up to a higher level and across time.

Aggregation of portfolio/benchmark returns in a single period and over time is made up of three steps:

- Aggregate performance of many portfolios in a single period which is calculated *geometrically linking* the performance of individual portfolio weighted returns.

$$TR_{t1} = ((1+R_{x_{t1}})*(1+R_{y_{t1}})*(1+R_{z_{t1}}))-1 \text{ where } TR = \text{total weighted return of all portfolios}$$

$$TR_{t2} = ((1+R_{x_{t2}})*(1+R_{y_{t2}})*(1+R_{z_{t2}}))-1 \text{ where } R_x = \text{weighted return of portfolio X}$$

$TR_{t3} = ((1+R_{X_{t3}})*(1+R_{Y_{t3}})*(1+R_{Z_{t3}}))-1$ where R_y = weighted return of portfolio y, R_z = weighted return of portfolio z and $t_{1,2,3}$ = time period 1, 2, 3 respectively.

- Performance of individual portfolio across time which is calculated by geometrically linking the performance of individual portfolio weighted return as follows:

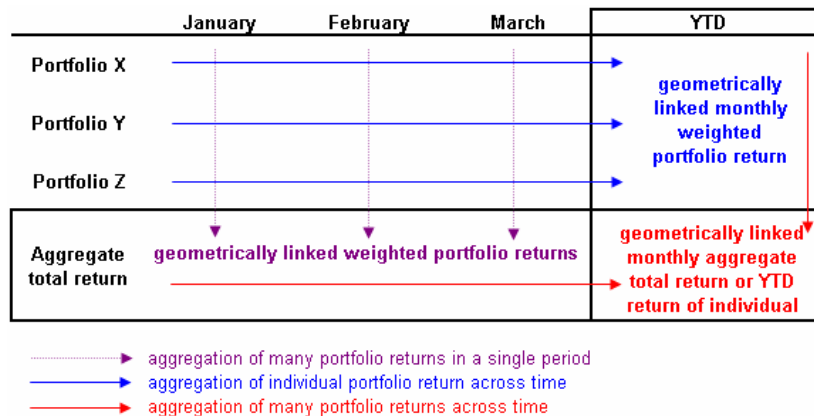
$$R_{X_{YTD}} = ((1+R_{X_{t1}})*(1+R_{X_{t2}})*(1+R_{X_{t3}}))-1$$

- Aggregate performance of many portfolios across time which can be calculated either by geometrically linking the aggregate total return across time or across portfolio year to date (YTD):

$$TR_{YTD} = ((1+TR_{t1})*(1+TR_{t2})*(1+TR_{t3}))-1 \text{ or}$$

$$TR_{YTD} = ((1+R_{X_{YTD}})*(1+R_{Y_{YTD}})*(1+R_{Z_{YTD}}))-1$$

This can be depicted by the diagram below.



Arguably, this is rather a complex aggregation as another common practice to aggregate total return is to simply sum all weighted portfolio returns for each month and YTD. Despite its simplicity and easy to understand, the additive calculation does come with limitation when the returns are aggregated up and across time. With this alternative approach (geometrical links both across individual portfolio and across time), the aggregate YTD total return will generate the same result regardless of the way total returns are linked and viewed (either linked by portfolio first or through time first).

The example below illustrates the differences in aggregate total return calculated geometrically and additively.

From geometric calculation, the aggregate YTD total return of 18.23% can be derived either by geometrically linked monthly aggregate total return or YTD return of individual portfolio. So returns are linked regardless of dimension and it will generate the same result:

- Aggregation through time: $[(1.0608)(1.0609)(1.0505)]-1 = 18.23\%$
- Aggregation through portfolio: $[(1.0664)(1.1087)]-1 = 18.23\%$

Aggregation based on geometric calculation				
	January	February	March	YTD
Portfolio X	2.0000%	3.0000%	1.5000%	6.6359%
Portfolio Y	4.0000%	3.0000%	3.5000%	10.8692%
Total	6.0800%	6.0900%	5.0525%	18.2264%

Aggregation based on additive calculation				
	January	February	March	YTD
Portfolio X	2.0000%	3.0000%	1.5000%	6.6359%
Portfolio Y	4.0000%	3.0000%	3.5000%	10.8692%
Total	6.0000%	6.0000%	5.0000%	17.5051%

On a contrary, if additive calculation is used, the summation of YTD returns of individual portfolio (17.51%) will not be the same as the geometrically linked of monthly total return of 17.98% = $[(1.06)(1.06)(1.05)] - 1$.

3.1 RELATIVE RETURN CALCULATION

The additive relative return is simply a difference between portfolio return and benchmark return at any level; therefore:

- Relative return of individual portfolio in a single period => additive ($R_p - R_b$);
- Relative return of individual portfolio across time => additive ($R_p - R_b$);
- Relative return of many portfolios in a single period => additive ($R_p - R_b$);
- Relative return of many portfolios across time => additive ($R_p - R_b$).

3.2 ALLOCATION EFFECT CALCULATION

		Selection	
		active	passive
Asset allocation/Timing	active	Q4 Actual portfolio return	Q2 Asset allocation/ Timing return
	passive	Q3 Policy and security selection return	Q1 Policy return (passive portfolio benchmark)

From the framework of BHB model above, allocation effect is asset allocation/timing return (Q2) less policy return (Q1) or $(W_p)(R_b) - (W_b)(R_b)$ or $(W_p - W_b) * R_b$.

Allocation effect of single portfolio in a single period calculation is additive.

$$\text{Allocation effect}_{Xt1} = Q2_{Xt1} - Q1_{Xt1} \quad Q1 = W_b * R_b$$

$$\text{Allocation effect}_{Yt1} = Q2_{Yt1} - Q1_{Yt1} \quad Q2 = W_p * R_b$$

Aggregate allocation effect of many portfolios in a single period calculation is additive and geometric (geometrically linked Q2 minus geometrically linked Q1 across portfolios).

$$\text{Aggregate allocation effect}_{t1} = [(1+Q2_{Xt1})(1+Q2_{Yt1})] - [(1+Q1_{Xt1})(1+Q1_{Yt1})]$$

$$\text{Aggregate allocation effect}_{t2} = [(1+Q2_{Xt2})(1+Q2_{Yt2})] - [(1+Q1_{Xt2})(1+Q1_{Yt2})]$$

Allocation effect of individual portfolio across time calculation is additive and geometric (geometrically linked Q2 of a portfolio minus geometrically linked Q1 of a portfolio across time).

$$\text{Allocation effect}_{X YTD} = [(1+Q2_{Xt1})(1+Q2_{Xt2})] - [(1+Q1_{Xt1})(1+Q1_{Xt2})]$$

$$\text{Allocation effect}_{Y YTD} = [(1+Q2_{Yt1})(1+Q2_{Yt2})] - [(1+Q1_{Yt1})(1+Q1_{Yt2})]$$

Aggregate allocation effect of many portfolios across time calculation is additive and geometric (geometrically linked Q2 across time and portfolios minus geometrically linked Q1 across time and portfolios).

$$\text{Aggregate allocation effect}_{YTD} = [(1+Q2_{Xt1})(1+Q2_{Xt2}) (1+Q2_{Yt1})(1+Q2_{Yt2})] - [(1+Q1_{Xt1})(1+Q1_{Xt2}) (1+Q1_{Yt1})(1+Q1_{Yt2})].$$

3.3 SELECTION EFFECT CALCULATION

		Selection	
		active	passive
Asset allocation/Timing	active	Q4 Actual portfolio return	Q2 Asset allocation/ Timing return
	passive	Q3 Policy and security selection return	Q1 Policy return (passive portfolio benchmark)

From the framework of BHB model above, selection effect is policy and security selection return (Q3) less policy return (Q1) or $(Wb)(Rp) - (Wb)(Rb)$ or $Wb * (Rp - Rb)$

- Selection effect of single portfolio in a single period calculation is additive.

$$\text{Selection effect}_{Xt1} = Q3_{Xt1} - Q1_{Xt1} \quad Q1 = Wb * Rb$$

$$\text{Selection effect}_{Yt1} = Q3_{Yt1} - Q1_{Yt1} \quad Q3 = Wb * Rp$$

- Aggregate selection effect of many portfolios in a single period calculation is additive and geometric (geometrically linked Q3 minus geometrically linked Q1 across portfolios).

$$\text{Aggregate selection effect}_{t1} = [(1+Q3_{Xt1})(1+Q3_{Yt1})] - [(1+Q1_{Xt1})(1+Q1_{Yt1})]$$

$$\text{Aggregate selection effect}_{t2} = [(1+Q3_{Xt2})(1+Q3_{Yt2})] - [(1+Q1_{Xt2})(1+Q1_{Yt2})]$$

- Selection effect of individual portfolio across time calculation is additive and geometric (geometrically linked Q3 of a portfolio minus geometrically linked Q1 of a portfolio across time).

$$\text{Selection effect}_{X YTD} = [(1+Q3_{Xt1})(1+Q3_{Xt2})] - [(1+Q1_{Xt1})(1+Q1_{Xt2})]$$

$$\text{Selection effect}_{Y\ YTD} = [(1+Q3_{Yt1})(1+Q3_{Yt2})] - [(1+Q1_{Yt1})(1+Q1_{Yt2})]$$

- Aggregate selection effect of many portfolios across time calculation is additive and geometric (geometrically linked Q3 across time and portfolios minus geometrically linked Q1 across time and portfolios).

$$\text{Aggregate selection effect}_{YTD} = [(1+Q3_{Xt1})(1+Q3_{Xt2}) (1+Q3_{Yt1})(1+Q3_{Yt2})] - [(1+Q1_{Xt1})(1+Q1_{Xt2}) (1+Q1_{Yt1})(1+Q1_{Yt2})]$$

3.4 INTERACTION EFFECT CALCULATION

		Selection	
		active	passive
Asset allocation/Timing	active	Q4 Actual portfolio return	Q2 Asset allocation/ Timing return
	passive	Q3 Policy and security selection return	Q1 Policy return (passive portfolio benchmark)

From the framework of BHB model above, interaction effect is actual portfolio return (quadrant IV = Q4) less policy and security selection return (quadrant III = Q3) less asset allocation return (quadrant II = Q2) plus policy return (quadrant I = Q1) or $(Wp)(Rp) - (Wb)(Rp) - (Wp)(Rb) + (Wb)(Rb)$ or $(Wp - Wb)(Rp - Rb)$. Therefore:

- Interaction effect of single portfolio in a single period calculation is additive.

$$\text{Interaction effect}_{Xt1} = Q4_{Xt1} - Q3_{Xt1} - Q2_{Xt1} + Q1_{Xt1} \quad Q1 = Wb * Rb$$

$$\text{Interaction effect}_{Yt1} = Q4_{Yt1} - Q3_{Yt1} - Q2_{Yt1} + Q1_{Yt1} \quad Q2 = Wp * Rb$$

$$\text{Where } Q3 = Wb * Rp \text{ and } Q4 = Wp * Rp$$

- Aggregate interaction effect of many portfolios in a single period calculation is additive and geometric (geometrically linked Q4 minus geometrically linked Q3 minus geometrically linked Q2 plus geometrically linked Q1 across portfolios).

$$\text{Aggregate interaction effect}_{t1} = [(1+Q4_{Xt1})(1+Q4_{Yt1})] - [(1+Q3_{Xt1})(1+Q3_{Yt1})] - [(1+Q2_{Xt1})(1+Q2_{Yt1})] + [(1+Q1_{Xt1})(1+Q1_{Yt1})]$$

$$\text{Aggregate interaction effect}_{t2} = [(1+Q4_{Xt2})(1+Q4_{Yt2})] - [(1+Q3_{Xt2})(1+Q3_{Yt2})] - [(1+Q2_{Xt2})(1+Q2_{Yt2})] + [(1+Q1_{Xt2})(1+Q1_{Yt2})]$$

- Interaction effect of individual portfolio across time calculation is additive and geometric (geometrically linked Q3 of a portfolio minus geometrically linked Q1 of a portfolio across time).

$$\text{Interaction effect}_{X\ YTD} = [(1+Q4_{Xt1})(1+Q4_{Xt2})] - [(1+Q3_{Xt1})(1+Q3_{Xt2})] - [(1+Q2_{Xt1})(1+Q2_{Xt2})] + [(1+Q1_{Xt1})(1+Q1_{Xt2})]$$

$$\text{Interaction effect}_{Y \text{ YTD}} = [(1+Q4_{Yt1})(1+Q4_{Yt2})] - [(1+Q3_{Yt1})(1+Q3_{Yt2})] - [(1+Q2_{Yt1})(1+Q2_{Yt2})] + [(1+Q1_{Yt1})(1+Q1_{Yt2})]$$

- Aggregate interaction effect of many portfolios across time calculation is additive and geometric (geometrically linked Q3 across time and portfolios minus geometrically linked Q1 across time and portfolios).

$$\text{Aggregate interaction effect}_{YTD} = [(1+Q4_{Xt1})(1+Q4_{Xt2}) (1+Q4_{Yt1})(1+Q4_{Yt2})] - [(1+Q3_{Xt1})(1+Q3_{Xt2}) (1+Q3_{Yt1})(1+Q3_{Yt2})] - [(1+Q2_{Xt1})(1+Q2_{Xt2}) (1+Q2_{Yt1})(1+Q2_{Yt2})] + [(1+Q1_{Xt1})(1+Q1_{Xt2}) (1+Q1_{Yt1})(1+Q1_{Yt2})]$$

4. MACRO ATTRIBUTION – ALTERNATIVE PERFORMANCE ATTRIBUTION¹⁷⁴

Macro attribution is the attribution conducted on the fund sponsor level in which total fund consists of investments in various asset classes and that investments are also managed by various investment managers. The attribution at a macro level takes into account different variables fund sponsor controls which have an impact on the performance of the fund such as investment policy on a broad allocation of assets and investment managers selection. The foundation of macro attribution requires three key inputs:

- 1) Policy allocations – SAA weight assigned to asset classes and to individual asset managers within each asset class. Policy allocations should reflect
 - risk tolerance;
 - long term expectations on investment risks and rewards offered by each asset class and asset managers;
 - liabilities fund sponsor is expected to satisfy.
- 2) Asset category and manager benchmark returns – the benchmark should represent the characteristics of asset category or manager’s investment style. The fund sponsor can use narrowly focused indexes to represent asset managers’ investment style while use broad market indexes or weight the managers’ benchmarks based on the policy allocation as the benchmarks for each asset class.
- 3) Portfolio returns, account valuations and external cash flows:

¹⁷⁴ "Evaluating Portfolio Performance," Jeffery V. Bailey, Thomas M. Richards, and David E. Tierney, Chapter 12 in *Managing Investment Portfolios: A Dynamic Process*, 3rd edition, edited by John L. Maginn, Donald L. Tuttle, Dennis W. McLeavey, and Jerald E. Pinto (CFA Institute, 2007).

- Portfolio returns at the level of asset managers are required to calculate macro attribution in a return-metric;
- To calculate value-metric, the account valuations and external cash flows are needed.

Portfolio performance can be attributed into 6 components of investment policy decision making which represents a typical investment decision making process. Macro attribution applied incremental approach in which each decision making level is treated as an investment strategy and its investment results are compared to the cumulative results of previous levels so that each level represents a valid benchmark (unambiguous, appropriate, and specified in advance). Each level are ordered in terms of increasing volatility and complexity.

4.1 NET CONTRIBUTIONS

During the month, cash may be contributed or withdrawn from the portfolio. The net contributions investment strategy assumes that the net inflows are invested at 0% return so the portfolio's value changes by the net amount of cash flows. It is unlikely that the fund sponsor follow this investment strategy but this provides a good foundation for further analysis.

4.2 RISK FREE ASSET

This is a highly conservative investment strategy which assuming fund sponsor invests all assets in risk-free asset (i.e. T-bills) – portfolio's beginning value and net external cash inflows are invested at risk-free rate so the portfolio's value increase by additional amount over the value achieved under net contributions investment strategy with zero percent return.

4.3 ASSET CATEGORIES

This level represent an investment strategy in which fund sponsor choose to invest in risky assets assuming that the portfolio's beginning value and net external cash inflows are invested passively in various asset category benchmarks with specific asset allocation to each benchmark based on SAA weight.

Incremental return contribution = $\sum W_i * (r_i - r_f)$ where W_i = SAA weight assigned to each asset class, r_i = return on asset i and r_f = risk free return.

4.4 BENCHMARKS

This investment strategy level assumes the portfolio's beginning value and net external cash inflows are passively invested in the aggregate of asset managers' benchmarks (weighted

average of individual asset managers' benchmark returns). This strategy is a passively managed investment in the benchmarks of asset managers. Incremental return contribution = $\sum w_i * w_{ij} * (r_{Bij} - r_i)$ where: w_i = SAA weight assigned to i^{th} asset category, w_{ij} = SAA weight assigned to j^{th} asset managers in asset category i , r_{Bij} = benchmark return of j^{th} asset manager in asset category i and r_i = return on i^{th} asset category.

The difference between the aggregate asset managers' benchmarks and the aggregate of the asset category benchmark is style bias which can be significant in the case where fund sponsor has asset managers within various asset categories that have sizable style biases relative to their asset category benchmarks.

4.5 INVESTMENT MANAGERS

This level shows the impact of asset managers' active management decisions on the change in the portfolio's value assuming the portfolio's beginning value and net external cash inflows are invested in the aggregate asset managers' actual return. This represents the contribution of asset managers to the portfolio's performance if the fund sponsor consistently maintains the SAA weight. Incremental return contribution = $\sum w_i * w_{ij} * (r_{Aij} - r_{Bij})$ where: w_i = SAA weight assigned to i^{th} asset category, w_{ij} = SAA weight assigned to j^{th} asset managers in asset category i , r_{Aij} = actual return of j^{th} asset manager in asset category i and r_{Bij} = benchmark return of j^{th} asset manager in asset category i .

4.6 ALLOCATION EFFECT

Allocation effect is the difference between the portfolio's ending value and value calculated at Investment managers level. This level represents the contribution as a result of the deviation from SAA weight in both asset managers and asset categories.

5. MACRO-ATTRIBUTION PROS AND CONS

Positive aspects:

- Integrates investment policy to investment performance – shows how each decision in investment policy adds value to or subtracts value from the performance;
- Allows to understand how well investment strategy has been implemented and how much each strategy contributes to the performance.

Negative aspects:

- The approach requires the use of market value which can be difficult especially for alternative investments to have a timely reasonable valuation;
- Appropriate benchmarks may be difficult to find.

6. FAMA AND FRENCH'S RETURN DECOMPOSITION¹⁷⁵

Fama decomposition is the first attempt to attribute excess return over risk free rate into different factors. The framework of Fama decomposition is to break down the excess return above risk free rate into selectivity (Jensen's alpha or excess return adjusted for systematic risk) and return due to systematic risk. $R_p - R_f = \text{selectivity} + \text{systematic risk}$ and Risk premium = $R_p - R_f - \beta_p (R_m - R_f) + \beta_p (R_m - R_f)$. Where: R_p = portfolio return, R_f = risk free return, R_m = market return, β_p = portfolio beta and β_t = target beta.

6.1 SELECTIVITY

Diversification

Diversification is return required to specific risk taken by portfolio manager and is calculated as follow:

$$= [R_f + \{(\sigma_p/\sigma_m) (R_m - R_f)\}] - [R_f + \beta_p(R_m - R_f)]$$

where σ_p = standard deviation of portfolio return and σ_m = standard deviation of market return.

Net selectivity

Net selectivity is total selectivity less diversification or return required to justify not being fully diversified. If negative, the portfolio manager has not justified the loss of diversification.

6.2 SYSTEMATIC RISK

Manager's risk

$$= [R_f + \beta_p (R_m - R_f)] - [R_f + \beta_t (R_m - R_f)]$$

Investor's risk

Investor's risk is total systematic risk less manager's risk. The following example should clarify what just stated.

Given Portfolio return = 10%, Market return = 5%, Standard deviation of portfolio return = 15%, Standard deviation of market return = 8%, Portfolio beta = 2%, Target beta = 1.5 and Risk free rate = 3%:

¹⁷⁵ Practical portfolio performance measurement and attribution, by Carl Bacon (2004).

- Risk premium = $R_p - R_f = 10\% - 3\% = 7\%$
- Systematic risk = $\beta_p(R_m - R_f) = 2(5\% - 3\%) = 4\%$
- Manager's risk = $[R_f + \beta_p(R_m - R_f)] - [R_f + \beta_t(R_m - R_f)] = [3\% + 2(5\% - 3\%)] - [3\% + 1.5(5\% - 3\%)] = 1\%$
- Investor's risk = total systematic risk – manager's risk = $4\% - 1\% = 3\%$
- Selectivity = $R_p - R_f - \beta_p(R_m - R_f) = 10\% - 3\% - 2(5\% - 3\%) = 3\%$
- Diversification = $[R_f + \{(\sigma_p/\sigma_m)(R_m - R_f)\}] - [R_f + \beta_p(R_m - R_f)] = [3\% + \{(20\%/8\%)(5\% - 3\%)\}] - [3\% + 2(5\% - 3\%)] = 1\%$
- Net selectivity = total selectivity – diversification = $3\% - 1\% = 2\%$.

Investment performance attribution methodologies are evolving from the Brinson, Hood, and Beebower model as a common practice which is broadly employed and practiced. The application may be differed depending on the preference of arithmetic or geometric calculation but the framework remains based on BHB model – the breakdown of excess return over benchmark into allocation and selection effect. The application is also dependent on the availability of the input data and the system needed to implement which can be expensive and time consuming. Most important of all, the applicability of performance attribution should depend greatly on the investment management process and, when implemented, should be able to explain the excess return in term of the value creation along investment management process.

Investment Management at ZFS has developed an in-house performance attribution measurement system based on BHB framework which reflects the best practice currently available in the market. The performance attribution based on BHB framework sufficiently allows to attributes of excess return into two keys value chain within Investment Management process – tactical asset allocation and security selection. However, pending on the availability of the input data and supporting system, more detail analysis of investment performance attribution can be done at a macro level, which involves net contributions, strategic asset allocation beside risk free asset, and manager selection.

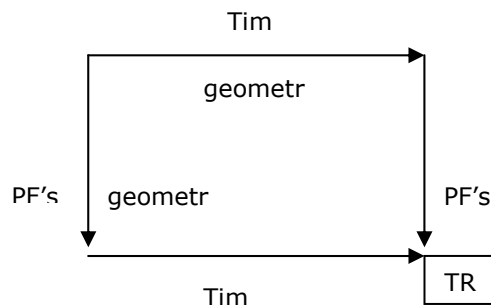
Investment performance attribution is an evolving concept that each fund sponsor needs to be flexible when adopting the framework as business model and investment management process are different among fund sponsors. For example, all fund sponsors might start defining strategic asset allocation but how the assets are managed and allocated (i.e. internal vs. external and by how much) could be different. This chapter assesses the robustness of attribution method adopted by Investment Management at ZFS and also suggests other

methods which may be applied in attribution analysis to gain more understanding of how each investment activities add to or subtract from value creation. The efficiency of current attribution method used by Investment Management and other methods available in the market should be regularly assesses as the market evolves and new ideas develop to ensure that Investment Management has the best approach to analyse and attribute the performance of portfolio return relative to the benchmark.

7. PERFORMANCE APPLICATION - CALCULATION METHODS

7.1 DEFAULT CALCULATION METHOD

- Excess Returns: additive = $R_p - R_b$;
- Attribution Effects: additive attribution = Brinson;
- Attribution Effects of many portfolios, single period additive= Attribution effects per portfolio are calculated and then added to obtain attribution effects of composite portfolio, Q's are added (normal Brinson procedure);
- Aggregation of portfolio and benchmark returns over time geometric
 - ⇒ $(1 + R1) * (1 + R2) * \dots$
 - ⇒ $(1 + wR1) * (1 + wR2) * \dots$



- Aggregation of many portfolio and benchmark returns over time:
 - ⇒ Many portfolio and benchmark returns geometric
 - ⇒ over time geometric
- Attribution effects of one portfolio multiple periods geometric:
 - ⇒ Attribution effects per portfolio are calculated and then compounded to obtain attribution effects of portfolio over time (Q's are compounded).
- Attribution effects of many portfolios, multiple periods additive/geometric:
 - ⇒ Attribution effects per portfolio are calculated and then added to obtain attribution effects of composite portfolio. Attribution effects are then compounded to obtain attribution effects of composite portfolios over time.

7.2 ADDITIVE CALCULATION METHOD

- Excess Returns: additive = $R_p - R_b$;
- Attribution Effects: additive attribution = Brinson;
- Attribution Effects of many portfolios, single period additive
 - ⇒ Attribution effects per portfolio are calculated and then added to obtain attribution effects of composite portfolio, Q's are added (normal Brinson procedure).
- Aggregation of portfolio and benchmark returns over time geometric
 - ⇒ $(1 + R_1) * (1 + R_2) * \dots$
 - ⇒ $(1 + wR_1) * (1 + wR_2) * \dots$
- Aggregation of many portfolios and benchmark returns over time
 - ⇒ Many portfolio and benchmark returns additive and equal to $wR_1 + wR_2$;
 - ⇒ over time geometric;
- Attribution effects of one portfolio multiple periods geometric
 - ⇒ Attribution effects per portfolio are calculated and then compounded to obtain attribution effects of portfolio over time (Q's are compounded).
- Attribution effects of many portfolios, multiple periods additive/geometric:
 - ⇒ Attribution effects per portfolio are calculated and then added to obtain attribution effects of composite portfolio. Attribution effects are then compounded to obtain attribution effects of composite portfolios over time.

7.3 RUSSELL CALCULATION METHOD

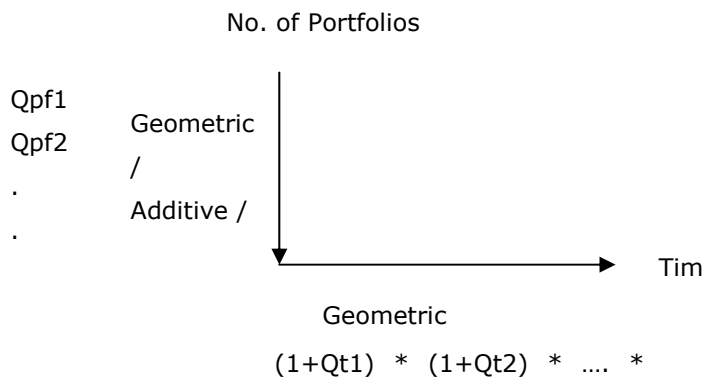
- Excess Returns: additive = $R_p - R_b$;
- Attribution Effects: additive attribution = Brinson;
- Attribution Effects of many portfolios, single period k/additive¹⁷⁶
 - ⇒ Attribution effects per portfolio are calculated, multiplied by factor k and then added to obtain attribution effects of composite portfolio (Q's are multiplied by k and added).
- Aggregation of portfolio and benchmark returns over time geometric:

¹⁷⁶ The standard of the performance application is to compound effects and returns over time (Time Aspect is always GEOMETRIC). In order to avoid to have a separate time aggregation calculation per method chosen (RPA or default or additive), the Q's multiplied by factor k in the RPA method are effectively first transformed into multiplicative method by using $e^x - 1$ and then the effects can be compounded over time. As the relative returns and effects are calculated using logs in RPA this is the same as simply adding the logged effects.

$$\Rightarrow (1 + R1) * (1 + R2) * \dots$$

$$\Rightarrow (1 + wR1) * (1 + wR2) * \dots$$

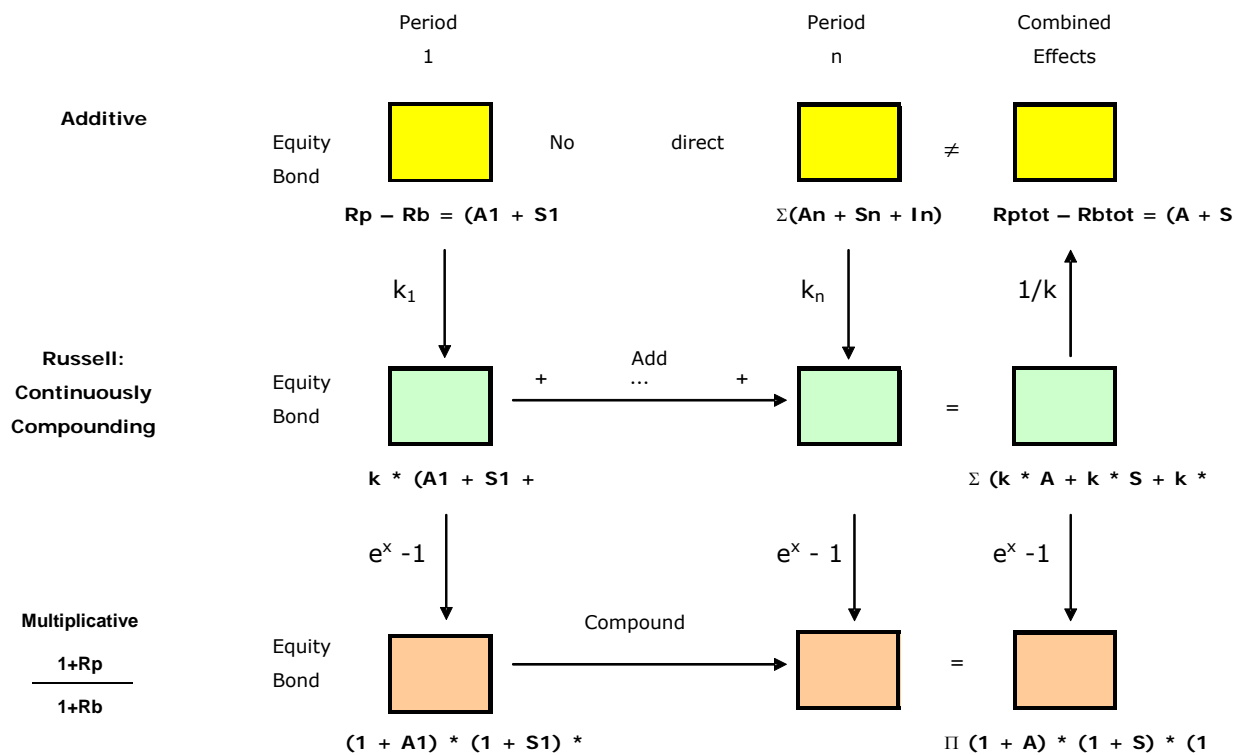
- Aggregation of many portfolios and benchmark returns over time:
 - ⇒ Many portfolio and benchmark returns effectively geometric (logs of returns are added) $\ln(1+wR1) + \ln(1+wR2)$;
 - ⇒ over time geometric;
- Attribution effects of one portfolio multiple periods k/additive:
 - ⇒ Attribution effects per portfolio are calculated, multiplied by factor k and then added to obtain attribution effects of portfolio over time (Q's are multiplied by k and added);
- Attribution effects of many portfolios, multiple periods k/additive:
 - ⇒ Attribution effects per portfolio and per period are calculated, multiplied by factor k and then added (over portfolios as well as over time) to obtain attribution effects of composite portfolios over time.



8. OVERVIEW OF PERFORMANCE ATTRIBUTION CALCULATION METHODOLOGIES

The arrows in the chart below that go up and down between the boxes indicate how to translate the effects into the other calculation methods. In other words, these arrows show the relationships between the various methodologies.

The arrows pointing to the right indicate the aggregating of returns/attribution effects of many portfolios over many periods (over time).



9. SAA WEIGHTS CALCULATIONS

SAA Target weights are entered in a separate application per legal entity and per business line (BL) and are usually entered for all asset classes. Within an asset class, the SAA Target weights are defined per exposure asset type. These SAA Target weights are broken down to different levels in the performance application: exposure asset type level, portfolio level, etc.

In order to highlight the process of the breakdown of the SAA weights to an exposure asset type and portfolio level in the tool some examples will be shown in each step of the calculation process.

To calculate the SAA weight of each exposure asset type the exposure asset type's SAA Target weight is first weighted to the asset class and then adjusted to reflect the fact that performance application does not cover all assets classes. In other words, the sum of the SAA weights is scaled back up to 100%.

The first step is to calculate the Exposure Asset Type SAA weights after taking into account that not all asset classes are loaded into the tool, the Exposure Asset Type SAA Target weights need to be adjusted as follows:

- Exposure Asset Type SAA weight = (Exposure Asset Type SAA Target weight × Asset Class SAA Target weight) / Σ of Asset Class SAA Target weights of the assets classes which exist in PAMS.

Note: Σ of Asset Class SAA Target weights of the asset classes which exist in the application is in effect only taking into account the asset classes which are performance measured and also loaded into itself.

The sum of the SAA weights over all exposure asset types calculated above is equal to the SAA weight of the asset class. Hence the Asset Class SAA weight is obtained as follows:

- Asset Class SAA weight = Σ of the Exposure Asset Type SAA weights of the exposure asset types which are part of the asset class.

Note: This is in effect the same as scaling the Asset Class SAA Target weight so that the sum of the Asset Class SAA weights equals 100%:

- Asset Class SAA weight = Asset Class SAA Target weight / Σ of Asset Class SAA Target weights of the assets classes which exist in the tool.

When a legal entity has more than one business line (BL), the SAA weights of the exposure asset type and asset class are weighted according to the business line they belong to. This reflects the weighting of that business lines' exposure asset type and asset class within the whole reporting unit.

Note: when calculating the BL weight, only the assets classes which are in the application are taken into account, hence Total Assets currently only includes the asset classes equities, fixed income, cash & short term and mortgages.

Also note that the Total Assets of a BL include the adjustments made to the assets in other IM applications.

- BL weight = Total Assets of the BL / Σ of Assets in the reporting unit RU (assets of all BL's in the RU);
- Exposure Asset Type SAA weight on BL level = Exposure Asset Type SAA weight \times BL weight;
- Asset Class SAA weight on BL level = Asset Class SAA weight \times BL weight.

These calculations are made for every business line in the RU.

To aggregate these new SAA weights to the RU level, the Exposure Asset Type SAA weights on BL level of every BL are summed up to form the Exposure Asset Type SAA weight of every exposure asset type within the RU (on RU level).

- Exposure Asset Type SAA weight on RU level = Σ of the Exposure Asset Type SAA weights on BL Level of every BL.
- Asset Class SAA weight on RU level = Σ of the Asset Class SAA weights on BL level of every BL.

Should not all exposure asset types within an RU be performance measured in the application, the SAA weights calculated in the step above are scaled to sum up to 100%. Only exposure asset types of the RU which are performance measured and loaded into the tool are scaled as follow:

- Scaling ratio = Σ of Exposure Asset Type SAA weights on RU level of the exposure asset types with performance;
- Scaled Exposure Asset Type SAA weight = Exposure Asset Type SAA weight on RU level / Scaling ratio * 1;
- Scaled Asset Class SAA weight = Σ of Scaled Exposure Asset Type SAA weights of exposure asset types with performance and within the asset class.

When no SAA Target is defined in any other application for an exposure asset type, asset class or even RU, the current exposure weights are used in the calculations instead of the SAA Target weights. The SAA weight of each exposure asset type is then the exposure asset type's current exposure in a dedicated tool weighted to the asset class and then adjusted to the asset classes covered in the performance application.

- Exposure Asset Type SAA weight = (Exposure Asset Type Current Exposure weight \times Asset Class Current Exposure weight) / Σ of Current Exposure weights of assets classes which exist in the tool.

In some cases, the Asset Class SAA Target weight may be defined for an RU but the Exposure Asset Type SAA Targets are empty. In this case, the Asset Class Current Exposure weights are simply replaced by the Asset Class SAA Target weights:

- Exposure Asset Type SAA weight = (Exposure Asset Type Current Exposure weight \times Asset Class SAA Target weight) / Σ of Asset Class SAA Target weights of the asset classes which exist in the tool.

Note: the current exposure weights used in the calculations are the current exposure weights at the beginning of the month (Actual Weight Begin).

The SAA Targets are broken down to a portfolio level according to the RU, business line and exposure asset type. Therefore the SAA weight of a portfolio is dependent on the business line to which it belongs.

The business lines are usually defined in a separate application when a portfolio is created. When no business line is defined, the performance tool uses standard core BL as the default (e.g. if the RU is in General Insurance, the business line "General Insurance" is allocated to the portfolios within that RU). Once the SAA weight of an exposure asset type has been calculated on a BL level the portfolios within this exposure asset type and business line are assigned an SAA weight according to the asset size of the portfolio (asset weighting).

- Portfolio weight = Portfolio Asset Value / Σ of Portfolio Asset Values of portfolios with the same exposure asset type and business line;
- Portfolio SAA weight = Portfolio weight \times Exposure Asset Type SAA weight on BL level.

Should for a specific filter the sum of all the Portfolio SAA weights not equal 100%, the Portfolio SAA weights calculated above are scaled up so that the sum of the weights is equal to 100%.

- Scaling ratio = $100 \% / \Sigma$ of all Portfolio SAA weights;
- Scaled Portfolio SAA weight = Portfolio SAA weight \times Scaling ratio.

Note, there are only two cases where the SAA weight of a portfolio could be 0:

- The SAA Target of the exposure asset type or asset class is equal to 0 in the application used as information source;
- The exposure asset type or asset class of the portfolio is not covered by the performance tool when calculating SAA weights.

The above calculations of SAA weights do not change when a portfolio is owned by two different RU's. The reason is that the portfolios are loaded into the system in combination with the RU owners; hence if there are 2 owners, the portfolio will appear twice in the database and will be treated as two separate portfolios for the SAA calculations.

SAA Target weights are entered in a separate application per RU and per business line (BL) and are usually entered for all asset classes. Within an asset class, the SAA Target weights are defined per exposure asset type. The portfolios SAA weights are therefore calculated according to the business line, asset class and exposure asset type. All calculations are based on a dedicated application's data.

To calculate the SAA weight of each exposure asset type, the exposure asset type's SAA Target weight in SATURN2 is weighted to the asset class. The first step is to calculate the Exposure Asset Type SAA weights:

- Exposure Asset Type SAA weight = (Exposure Asset Type SAA Target weight \times Asset Class SAA Target weight).

When an RU has more than one business line, the SAA weights of the exposure asset type and asset class are weighted according to the business line they belong to. This reflects the weighting of that business lines' exposure asset type and asset class within the whole reporting unit.

- BL weight = Total Assets of the BL / Σ of Assets in the RU (assets of all BL's in the RU);
- Exposure Asset Type SAA weight on BL level = Exposure Asset Type SAA weight \times BL weight;
- Asset Class SAA weight on BL level = Asset Class SAA weight \times BL weight

These calculations are made for every business line in the RU.

When no SAA Target is defined for an exposure asset type, asset class or even RU, the current exposure weights are used in the calculations instead of the SAA Target weights. The SAA weight of each exposure asset type is then the exposure asset type's current exposure in the dedicated system weighted to the asset class.

- Exposure Asset Type SAA weight = (Exposure Asset Type Current Exposure weight \times Asset Class Current Exposure weight).

In some cases, the Asset Class SAA Target weight may be defined for a BL but the Exposure Asset Type SAA Targets are empty. In this case, Exposure Asset Type SAA Target weights are simply replaced by the Exposure Asset Type Current Exposure weights:

- Exposure Asset Type SAA weight = (Exposure Asset Type Current Exposure weight \times Asset Class SAA Target weight).

The SAA Targets are broken down to a portfolio level according to the RU, business line and exposure asset type. Therefore the SAA weight of a portfolio is dependent on the business line to which it belongs. The business lines information is already integrated in all applications.

Once the SAA weight of an exposure asset type has been calculated on a BL level (see calculations above), the portfolios within this exposure asset type and business line are assigned an SAA weight according to the asset size of the portfolio (asset weighting).

- Portfolio weight = Portfolio Asset Value / Σ of Portfolio Asset Values of portfolios with the same exposure asset type and business line;
- Portfolio SAA weight = Portfolio weight \times Exposure Asset Type SAA weight on BL level.

For portfolios with multiple exposure asset types, the different exposure asset types SAA weights are calculated separately (i.e. as if they were different portfolios) but the total weight (i.e. Σ of the SAA weights of the different exposure types) on the portfolio level is assigned to the main exposure asset type when the portfolio itself is defined in the system. For example, if a portfolio holds 80% of UK stocks and 20% of NA stocks, the UK stocks and NA stocks SAA weights are summed up and assigned to the exposure asset type UK stocks in PAMS.

If PAMS coverage relative to an RU's portfolios is not complete (i.e. not all portfolios that belong to an RU are performance measured), the application does an automatic scaling of the SAA weights calculated above so that the sum of SAA weights on an RU level are always 100%.

- Scaling ratio = Σ of portfolios SAA weights on RU level with performance;
- Scaled portfolio SAA weight = portfolio SAA weight on RU level / Scaling ratio;
- Scaled Exposure Asset Type SAA weight = Σ of scaled portfolios SAA weights of the same exposure asset type;
- Scaled Asset Class SAA weight = Σ of Scaled Exposure Asset Types SAA weights within the asset class.

The Weighted YTD performance for a given period can be calculated at any level (Group, Core, BU, RU and etc) in the performance application. Below are the steps to calculate the YTD return at any of the levels.

1. **Asset weights:** to calculate the asset weight of a portfolio within a Group/Core/... for a particular month, the ending asset values of the portfolios at the end of the previous month is taken. Below in table 1 the asset weights from Jan 08 to June 08 for RU 910000 are calculated by taking the ending asset values of December 07 to May 08.

Table 1

Asset Weights						
Portfolio	Jan-2008	Feb-2008	Mar-2008	Apr-2008	May-2008	Jun-2008
RU 910000	100.00	100.00	100.00	100.00	100.00	100.00
ZS0012	2.50	2.78	3.11	3.10	3.15	3.21
ZS0013	0.32	0.49	0.51	0.48	0.52	0.52
ZS0014	1.07	0.92	0.92	0.87	0.94	0.95
ZS0015	1.08	1.16	1.17	1.12	1.19	1.20
ZS0016	0.59	0.55	0.56	0.55	0.58	0.58
ZS002	68.80	68.65	67.19	66.91	64.91	64.60
ZS0022	10.44	10.17	10.26	10.88	11.63	11.49
ZS005	12.27	12.02	12.02	11.73	12.17	12.06
ZS0051	0.37	0.94	1.97	1.96	2.40	2.95
ZS012				0.13	0.13	0.13
ZS013	1.04	1.04	1.05	1.06	1.05	0.97

Note: If there is no asset value for the previous month (it could happen when the performance report and asset mapping started in the same month.), the asset value of the current month will be taken.

2. **Monthly Weighted return:** is calculated by multiplying the monthly assets weights calculated in the first step by their respective monthly return. Below is an example for RU910000.

Table2

Weighted portfolio return (Asset Weight*Portfolio Return)						
Portfolio	Jan-2008	Feb-2008	Mar-2008	Apr-2008	May-2008	Jun-2008
RU 910000	0.36	-0.18	-1.07	0.47	-0.12	-1.31
ZS0012	-0.23	-0.02	-0.11	0.15	0.05	-0.19
ZS0013	-0.03	-0.01	-0.04	0.06	0.02	-0.03
ZS0014	-0.06	-0.03	0.00	0.04	0.01	-0.08
ZS0015	-0.11	0.03	-0.02	0.05	0.00	-0.11
ZS0016	-0.08	-0.01	-0.01	0.03	0.01	-0.07
ZS002	0.87	-0.03	-0.13	-0.35	-0.12	-0.31
ZS0022	0.16	0.03	-0.11	0.06	-0.07	-0.12
ZS005	0.06	-0.16	-0.51	0.31	-0.06	-0.24
ZS0051	-0.01	0.02	-0.06	0.03	0.06	0.01
ZS012	0.00	0.00	0.00	0.00	0.00	0.00
ZS013	0.00	0.00	-0.01	0.00	-0.06	-0.03
ZS021	-0.20	-0.01	-0.06	0.09	0.04	-0.14

In the above example we see the weighted return of RU910000 from Jan 08 to June 08 and the contribution of each of the portfolios within the RU to the monthly weighted return.

3. **YTD weighted return:** the YTD weighted return is a geometrically linked return of the monthly weighted returns calculated in step two. For example in table 3 below the monthly weighted returns from Jan 08 to June 08 are geometrically linked to get the YTD weighted returns of the portfolios and the RU.

Table 3

Weighted portfolio return (Asset Weight*Portfolio Return)							
	Jan-2008	Feb-2008	Mar-2008	Apr-2008	May-2008	Jun-2008	YTD
RU910000	0.36	-0.18	-1.07	0.47	-0.12	-1.31	-1.85
ZS0012	-0.23	-0.02	-0.11	0.15	0.05	-0.19	-0.36
ZS0013	-0.03	-0.01	-0.04	0.06	0.02	-0.03	-0.03
ZS0014	-0.06	-0.03	0.00	0.04	0.01	-0.08	-0.12
ZS0015	-0.11	0.03	-0.02	0.05	0.00	-0.11	-0.16
ZS0016	-0.08	-0.01	-0.01	0.03	0.01	-0.07	-0.13
ZS002	0.87	-0.03	-0.13	-0.35	-0.12	-0.31	-0.09
ZS0022	0.16	0.03	-0.11	0.06	-0.07	-0.12	-0.05
ZS005	0.06	-0.16	-0.51	0.31	-0.06	-0.24	-0.59
ZS0051	-0.01	0.02	-0.06	0.03	0.06	0.01	0.05
ZS012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ZS013	0.00	0.00	-0.01	0.00	-0.06	-0.03	-0.10
ZS021	-0.20	-0.01	-0.06	0.09	0.04	-0.14	-0.28

Note: it will be wrong to calculate the YTD weighted return by simply multiplying the YTD return by the average YTD assets weights since by doing so we are assuming that the weight of the portfolios are constant for the give period and we ignore the monthly underweighting/ overweighting effects in YTD weighted return.

Below is an example of YTD weighted returns calculated based on a geometrically linked monthly weighted return (Met.1) and by multiplying the YTD return by the average YTD assets weights (Met.2).

	YTD	
	Met.1	Met.2
RU910000	-1.85	-1.94
ZS0012	-0.36	-0.40
ZS0013	-0.03	-0.05
ZS0014	-0.12	-0.11
ZS0015	-0.16	-0.17
ZS0016	-0.13	-0.12
ZS002	-0.09	-0.13
ZS0022	-0.05	-0.04
ZS005	-0.59	-0.59
ZS0051	0.05	-0.01
ZS012	0.00	0.00
ZS013	-0.10	-0.09
ZS021	-0.28	-0.25

9.1 PERFORMANCE ATTRIBUTION AND MEASUREMENT SYSTEM

Zurich financial services (ZFS) calculates its investment performance through a web-based tool, which collects data and calculates performance attribution on a multitude of aggregated levels. It is available

The Global Data Warehouse feeds performance calculation application with market values on an individual portfolio level while the Monthly Asset Reporting System feeds the monthly performance figures into the performance database. In addition to this information, the application collects some portfolio details (Portfolios Under Control) database such as asset manager and benchmark information. In a next step, the tool calculates the composite portfolio and benchmark returns for the aggregation levels defined by the user. In order to be able to compare the composite performances with the model portfolios and hence calculate attribution effects, this application also receives the benchmark allocation (Strategic Asset Allocation - SAA) from another application.

The tool then calculates the contribution and attribution effects of the performance figures. The contribution effects show how and by how much, for example, individual reporting units have added to the performance of the country or division to which they belong.

The attribution effects (selection, allocation and interaction effects) explain the excess return of the portfolios or composites compared to the benchmarks and hence quantify the success or added value of an investment strategy.

Finally, the investment departments prepare an analysis of the performance results calculated by the application and generate investment asset and performance reports which provide a valuable feedback to the investment process. This performance tool as an instrument of performance analysis provides a monitoring instrument for the implementation of investment strategies and allows for their evaluation. In addition, results calculated by the tool are a basis for asset manager selection decisions as well as an important basis for incentive compensation.

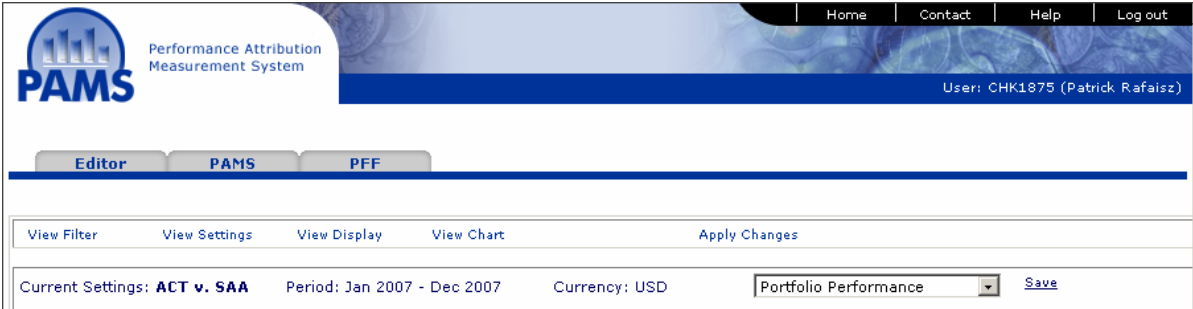
The database is for internal use only, primarily for employees within Investment Management. Employees who need to obtain access to this database must ask for access and submit a relevant application that will be eventually approved by investment department.

New users will then receive a user-ID and password with which they can then access the database.

A user can log into the performance application database via the Intranet portal.

9.2 PERFORMANCE ATTRIBUTION SYSTEM FEATURES

Once you have accessed the application you will find the following page:



As you can see above, there are four main buttons which you need to use to navigate the tool:

- View Filter,
- View Settings,
- View Display and
- View Chart.



What these functions are for and how to use them will be explained later on.


9.3 DISPLAY TABLE

All data is shown in display tables. The data in the display table is defined by the components in “Displayed Columns” and in “Displayed Values” that will be discussed afterwards. The aim of this section is to disclose the navigation mechanism that allows to display the data according to user needs.

This is how a display table looks like:

1 - 14 of 14 records														
Hierarchy		Portfolio	Equities				Fixed Income				Balanced			
zfSubCore			Asset Value	Weighted Return (L)	Weighted BM Return (L)	SAA Weight	Asset Value	Weighted Return (L)	Weighted BM Return (L)	SAA Weight	Asset Value	Weighted Return (L)	Weighted BM Return (L)	SAA Weight
-			10,312.0	6.45	5.97	100.0	134,138.5	0.55	0.49	100.0	3,434.1	1.49	1.38	100.0
+	Alternative Investments	-						-0.0	-0.0					
+	Centrally Managed Businesses	-					1,797.9	0.02	0.02		1.36			
+	Centre	-					3,924.8	0.05	0.05		2.95			
+	Farmers Mgmt Services	-	30.8	0.02	0.02	0.3	21.4	0.02	0.02		0.02			
+	Farmers Re	-		0.05	0.01		922.0	0.01	0.01		0.69			
-	EQ-FRC			0.05	0.01									
-	FI-FRC-BR						922.0	0.01	0.01		0.69			
+	General Insurance	-	3,075.4	2.22	2.1	29.64	52,422.9	0.48	0.47		39.1	1,422.3	0.46	0.54
+	Global Corporate	-	231.5	0.16	0.15	2.27	3,719.4	0.01	0.01		2.76			
+	Headquarters	-		-0.01	-0.0		1,279.8	0.02	0.02		0.95			
+	Holding & Financing	-					259.1	0.003	0.003		0.1			
+	Life Insurance	-	6,963.2	3.91	3.59	67.68	69,786.1	-0.06	-0.11		52.07	2,011.8	1.02	0.83
+	Other	-	11.1	0.007	0.007	0.11	5.3	0.00007	0.00007		0.004			

Note it is possible to drill down to the next hierarchy level by clicking on the plus button . Alternatively, you can drill up a hierarchy level by clicking on the minus button . Both examples are shown in the display table above.

If you click on the magnifying glass  the application will open a new browser window and filter the data in the display table using the value in the row in which you clicked.

For example, clicking on the magnifying glass next to “Centre” the tool filters the data with the criteria “Centre” and adds this filter to the “Current Filter” table.

In addition, the application recalculates the weights: assets values on the hierarchy level we clicked on (here: Centre) are now equal to 100% and the sub-hierarchy level weights are recalculated in relation to this level.

Current Settings: **ACT v. SAA** Period: Jan 2007 - Apr 2007 Currency: USD [Save](#)

zfsSubCore = Centre

1 - 12 of 12 records Excel PDF

Hierarchy		Fixed Income				Cash			
zfsSubCore	Portfolio	Asset Value	Weighted Return (L)	Weighted BM Return (L)	SAA Weight	Asset Value	Weighted Return (L)	Weighted BM Return (L)	SAA Weight
-	-	3,924.8	1.83	1.84	100.0	56.2	1.66	1.66	100.0
Centre	-	3,924.8	1.83	1.84	100.0	56.2	1.66	1.66	100.0
-	CR-FI-Ockham	35.2	0.01	0.01	1.05				
-	CRE BARC	12.7	0.005	0.006	0.38				
-	CRELIFE MONY	436.1	0.2	0.24	12.95				
-	ELAS	1,564.7	0.66	0.82	39.6				
-	EURO CRE					6.3	0.17	0.16	11.26
-	LIAB CLIN	90.2	0.05	0.09	3.41				
-	LIAB CS	1,468.5	0.73	0.63	34.64				
-	MCIC TEM	252.7	0.11	-0.01	6.29				
-	STG CRE					49.9	1.49	1.51	88.74
-	ZCSPEC	64.6	0.03	0.04	1.68				

The Filter applied is shown in the "Current Filter" table.

The sum of the asset values on the hierarchy level "Centre" is equal to 100%

will be explained how to change data displayed and how to modify the way data contained in the database is displayed in order to match your requirements.

9.4 SETTINGS FUNCTIONS

Clicking on "View Settings" the following view will be displayed:

View Filter View Settings View Display View Chart [Apply Changes](#)


<ul style="list-style-type: none"> zfsRegion zfsSubRegion zfsCore zfsDivision zfsBusinessLine zfsCore8 zfsCore5 zfsCountry zfsCompany zfsBusinessUnit 	<p>Hierarchy:</p> <ul style="list-style-type: none"> Portfolio Mandate zfsSubCore Portfolio 	<p>Time Range:</p> <p>Jan 2007 - Apr 2007</p> <p>Currency: USD</p> <p><input type="checkbox"/> Values in Mio.</p>	<p>Calculation Settings:</p> <p>Actual - SAA</p> <p>End of Period</p> <p><input type="checkbox"/> Arithmetic Calc.</p> <p><input type="checkbox"/> Russell Mode</p> <p><input type="checkbox"/> ΣWeights per Col.= 100%</p> <p><input type="checkbox"/> Accumulation</p> <p><input type="checkbox"/> Complete > 1Y Periods</p>
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The "Hierarchy" box is conceived to define the structure with which users would like data to be shown, for example: performance of sub-cores by asset class, or performance and attribution by investment unit and portfolio.

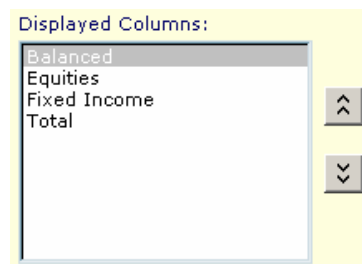
There are many different ways to combine fields listed in the very left box within "View Settings" and all of them allow users to display the data accordingly. This is why it is not an easy choice to define the actual data setting (e.g., Local portfolio return, SAA weights, etc) and therefore such topic will be disclosed in a separate paragraph.

Note it is always possible to add levels to the hierarchy shown in the display table by clicking on the required field(s) in the leftmost selection. In order to confirm the changes you have made, users must click on the "Apply Changes" button in the title bar. [Apply Changes](#)

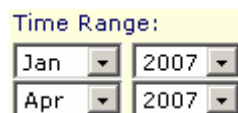
At the same time, to reduce the amount of hierarchy levels displayed in the display table, select the field(s) that must be eliminated from the display table in the selection box "Hierarchy". Then by

clicking on the Remove button , the undesired field(s) will be removed and appear in the leftmost selection box. Note: The field at the top of the hierarchy box will be displayed across the top of the display table.

In addition, the values shown in the “Displayed Columns” selection box under “View Display” depend on what field is at the top of the hierarchy. In other words if “Portfolio Mandate” is at the top of the hierarchy, the portfolio mandates Equities, Balanced, Fixed Income etc. are shown in the “Displayed Columns” selection box under the View Display button:



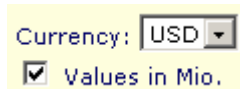
Choosing a different field to be at the top of the hierarchy will change the values, which will appear in the “Displayed Columns” selection box and which will be displayed across the top of the display table. Time range section has been conceived to define the time range users would like to see the performance and/or attribution data for. Select the start of the period in scope from the top drop down boxes and select the end of the time range from the bottom drop down boxes.



The performance application can calculate and display the asset values and performances in different currencies. Currencies can be chosen by selecting them from the drop down list. The choice is among the following four currencies: USD, CHF, EUR and GBP.



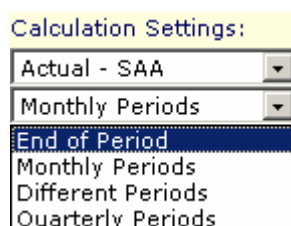
In conclusion asset values can be displayed rounded to the nearest million by checking the tick-box next to “Values in Mio.” followed by “Apply Changes”.



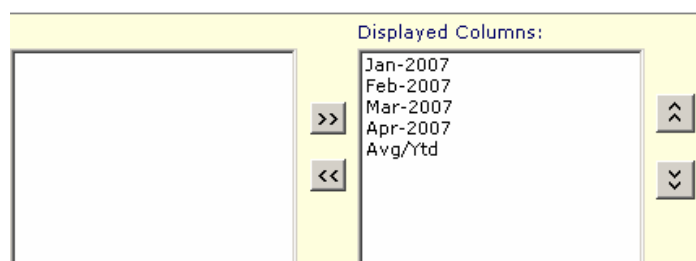
9.5 CALCULATION SETTINGS

The application has integrated different ways to calculate performance data, weightings and attribution. With this assumption please note options “Accumulation” and “Complete >1Y Periods” are part of special reports and will be explained later on in a subsequent paragraph.

For what concerns period calculations it is possible to select from the below drop down list the way the tool has to calculate performance data shown in the display table.



- **“End of Period”** calculates the accumulated performance over the time period chosen under time range. For example, if the time range is March 2002 – June 2002, the application will calculate the total performance over that period using the monthly performances: $(1 + \text{Total_Performance}/100) = (1 + \text{Perf_March}/100) * (1 + \text{Perf_April}/100) * (1 + \text{Perf_May}/100) * (1 + \text{Perf_June}/100)$
- **“Monthly Periods”** displays the monthly performances of the portfolios for the time range selected under time range. For example, if the time range is March 2002 – June 2002, the tool will display the month end performances for the months March, April, May and June. Note: under “View Display”, it is possible to select and rearrange the months given in the “Displayed Columns” list.

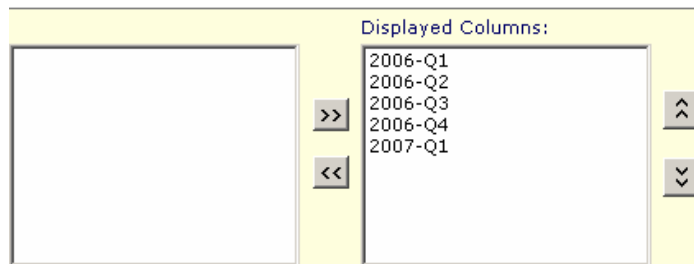


- **“Different Periods”** calculates certain predefined performance values for the time range specified, such as 3-month, 6-month, 9-month, or average performance. After applying the

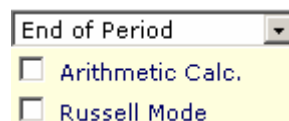
above changes users can select, under “View Display”, exactly which predefined performance value they want to see displayed:



- **“Quarterly Periods”** calculates the performance for each quarter separately within the chosen time range. Additionally under “View Display” specific quarters can be added, taken out, and rearranged.



“Attribution calculation method” options allow users to choose the way in which individual period performances on a portfolio level are aggregated to composite period performances.



The option “Arithmetic Calc.” calculates the period composite performance by taking the arithmetic sum of the individual weighted portfolio performances as follow:

- Period Composite Performance = Σ (period portfolio weight * period portfolio return)

In “Russell Mode”, the composite period performance is calculated by first multiplying the weighted period performances by a factor k. Then the resulting weighted returns are aggregated to the period composite return as in the “Arithmetic Calc.” method.

The default option in PAMS is to calculate composite performance by compounding individual performances geometrically:

- Period Composite Performance = Π (period portfolio weight * period portfolio return)

Note: The attribution figures may not reconcile with numbers received from other sources due to different methods used to calculate attribution.

According to weights calculations the option “Weights Total per Column = 100%” defines the way weights are calculated.

Σ Weights per Col.= 100%

When the option is not ticked, the total weight of the top row is equal to 100% and it is the sum of assets over all columns as shown in the below example.

Current Settings: **ACT v. SAA** Period: Jan 2007 - Apr 2007 Currency: USD Portfolio Performance

Portfolio Mandate = Equities,Fixed Income

Hierarchy	Equities				Fixed Income				Total			
	Asset Value	Weighted Return (L)	Weighted BM Return (L)	Actual Weight Bsp	Asset Value	Weighted Return (L)	Weighted BM Return (L)	Actual Weight Bsp	Asset Value	Weighted Return (L)	Weighted BM Return (L)	Actual Weight Bsp
-	10,312.0	0.46	0.36	6.94	134,138.5	0.51	0.46	93.06	144,450.5	0.97	0.83	100.0
Corporate Functions	30.8	0.001	0.001	0.02	1,538.8	0.02	0.02	0.98	1,538.8	0.01	0.02	0.98
Farmers	30.8	0.001	0.001	0.02	21.4	0.02	0.02	0.01	52.1	0.02	0.02	0.04
General Insurance	3,307.0	0.17	0.14	2.21	56,142.3	0.45	0.45	38.97	59,449.3	0.63	0.59	41.18
Life Insurance	6,963.2	0.28	0.22	4.69	69,786.1	-0.06	-0.1	48.45	76,749.3	0.22	0.12	53.14
Other Businesses	11.1	0.004	-0.0	0.008	6,650.0	0.08	0.08	4.66	6,661.1	0.09	0.08	4.66

100% = total over all columns = weight of total balanced + weight of total equities + weight of total fixed income = 4.29% + 10.09% + 85.62%

On the other hand, by ticking the option “Weights Total per Column = 100%”, the total weight of each column (Equities, Fixed income) is equal to 100%.

View Filter View Settings View Display View Chart Apply Changes

Hierarchy: Portfolio Mandate zfsCore

Time Range: Jan 2007 Apr 2007

Calculation Settings: Actual - SAA End of Period Arithmetic Calc. Russell Mode ΣWeights per Col.= 100% Accumulation Complete > 1Y Periods

Current Settings: ACT v. SAA Period: Jan 2007 - Apr 2007 Currency: USD Portfolio Performance Save

Portfolio Mandate = Equities,Fixed Income

Hierarchy	Equities				Fixed Income			
	Asset Value	Weighted Return (L)	Weighted BM Return (L)	Actual Weight Beg	Asset Value	Weighted Return (L)	Weighted BM Return (L)	Actual Weight Beg
-	10,312.0	6.45	5.97	100.0	134,138.5	0.55	0.49	100.0
Corporate Functions		-0.01	-0.0		1,538.8	0.02	0.02	1.05
Farmers	30.8	0.02	0.02	0.3	21.4	0.02	0.02	0.02
General Insurance	3,307.0	2.38	2.26	31.91	56,142.3	0.49	0.48	41.87
Life Insurance	6,963.2	3.91	3.59	67.68	69,786.1	-0.06	-0.11	52.06
Other Businesses	11.1	0.06	0.02	0.11	6,650.0	0.09	0.08	5.0

100% = total assets of column fixed income = sum of weight of each row (here: division) = 46.86% + 0 + 0.35% + 6.67% + 29.91% + 7.09% + 9.12%.

9.6 DISPLAY FUNCTIONS

Display functions can be accessed by clicking on “View Display” and the relevant section looks as follows:

Balanced

Displayed Columns: Equities Fixed Income


Displayed Values: Asset Value Weighted Return (L) Weighted BM Return (B) SAA Weight



Under this section users can choose the columns (defined by the top level of the hierarchy) and values that need to be shown in the display table.


In the example above, the top level of the hierarchy is “Portfolio Mandate”.



The number of mandates that will finally be displayed can change according to settings.

To reduce the amount of columns users have to select the field(s) to be eliminated from the display table in the selection box “Displayed Columns”. To add columns back to the display table, they will

have to click on the required field(s) in the leftmost selection box and use the Add button:  selected field(s) will appear in the selection box “Displayed Columns”.


The order of the columns can be rearranged by selecting a column title and moving it up or down a level in the selection box using the Shift Up  and the Shift Down  buttons followed by “Apply Changes”.

To add values (including calculated values) to the display table, it is necessary to click on the required value(s) in the third selection box from the left and click on the Add button:  selected value(s) will appear in the selection box “Displayed Values”.

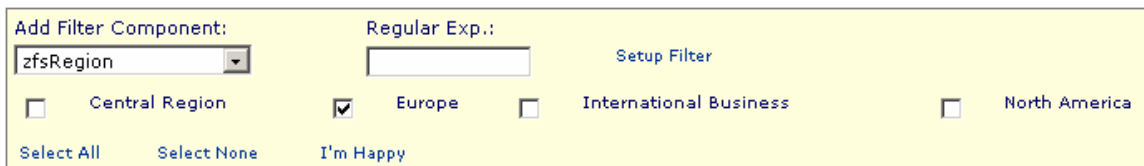
To rearrange the order of the values, users can select a value and move it up or down a level in the selection box (which will move the value further left or further right respectively) by clicking on the Shift Up  or on the Shift Down  button respectively.

9.7 FILTER FUNCTION

“View Filter” allows to reduce the entity of the database in scope for performance analysis. Through this functionality it is possible to circumscribe data selection to reach further level of detail. This is how filter view looks like:



From the “Add Filter Component” dropdown box users should select filter. In this example we have selected the field zfsRegion. The next step is to click on “Setup Filter” and all components that are part of the selected field will be listed.



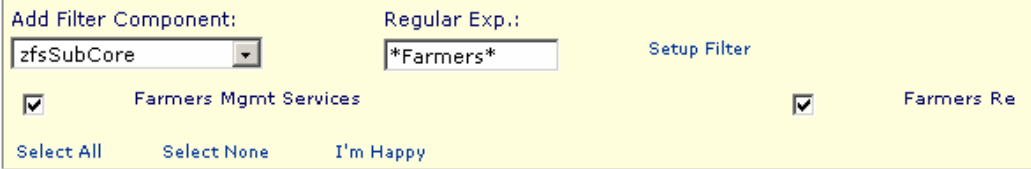
Select the filter values by checking the appropriate tick-boxes (in the example above, the data will be filtered by “Europe”). The buttons “Select All” and “Select None” facilitate. To complete the operation such selection must be validated by clicking on “I’m Happy” button.

The same procedure will have to be repeated in case additional filters were required.

It is only possible to set up one filter at a time. Each filter must be confirmed with the “I’m Happy” button separately. Also, an already existing filter cannot be modified and disappears from the drop-

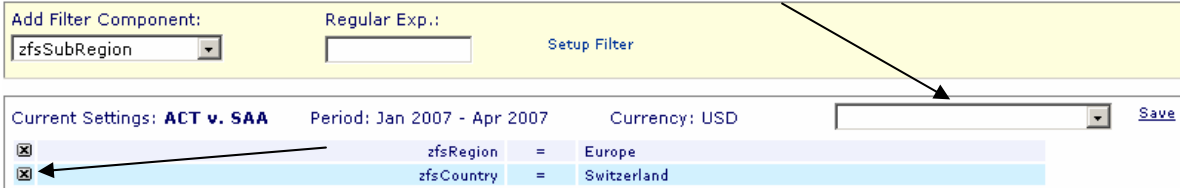
down menu. In order to change a filter the pre-existing one has to be removed first and then needs to be reset from the beginning.

Note the “Regular Exp.” box allows users to pre-select filter values using a wildcard. For example, to select all zfsSubCores¹⁷⁷ that include Farmers¹⁷⁸ in the name, users can enter “*Farmers*” in the “Regular Exp.” field and click on “Setup Filter”:



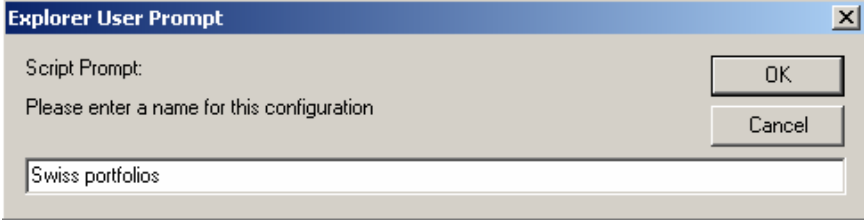
Filters are removed from the “Current Filter” table by clicking on beside the filter that needs to be removed followed by “Apply Changes”.

In order to clear all filters users can select the blank field in the filter drop-down menu.



In order to save a set of filters there is a “Save” button on the right side of the page. This will open a prompt requesting user to enter the name of the filter. To re-use a predefined set of filters, select the filter name in the drop-down menu next to the “Save” button.

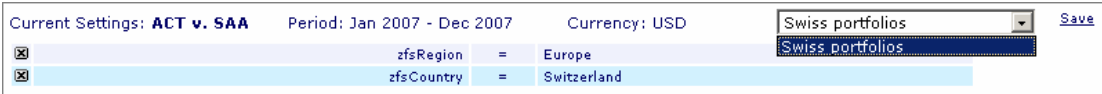
In other words to save the filters shown above, user has to click on the “Save” and the following prompt will appear:



¹⁷⁷ ZFS business split. It includes General Insurance, Global Life, Farmers, Other operating businesses and Non core businesses.

¹⁷⁸ North American insurance company which holding entity is 100% owned by ZFS.

Enter a name for the selected set of filter values (e.g., “Swiss portfolios”). The filter “Swiss portfolios” will then be listed in the drop down box next to the “Save” button:

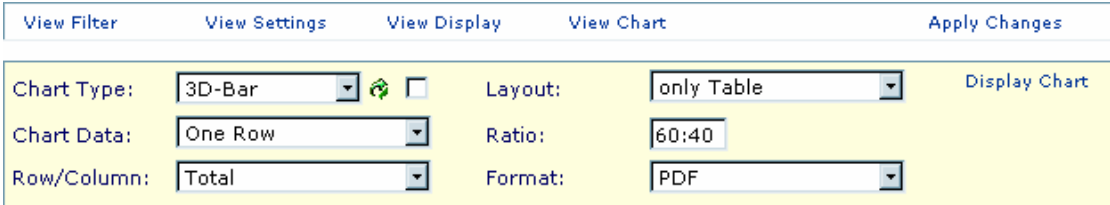


Selecting a filter from the drop-down list will immediately apply all pre-defined filters and settings. Note: when logging into the application the filter last saved will be applied as the default filter. Again, to clear all filters select the empty field in the drop-down list. Additionally data can be exported to an excel-file or a pdf-document by clicking on the “Excel” and “PDF” buttons.

Hierarchy		Jan-2007			Feb-2007			Mar-2007		
	Portfolio	Asset Value	Portfolio Return (L)	Benchmark Return (L)	Asset Value	Portfolio Return (L)	Benchmark Return (L)	Asset Value	Portfolio Return (L)	Benchmark Return (L)
	-	151,118.0			153,099.6			152,327.5		
	A001	23.7	2.85	2.17	22.6	-1.55	-1.4	23.5	2.29	2.97
	A007	246.3	-0.33	-0.25	251.8	0.96	0.94	252.5	-0.28	-0.32
	AP-2TG-FT	2.3	2.76	1.88	2.3	-0.36	-0.91	2.3	0.65	-0.13

9.8 VIEW CHART

The “View Chart” function allows to create charts from the data in the display table.



Users can alter the chart type as well as the type of data that must be shown in the chart. First step is to select the from the “**Chart Type**” dropdown box the type of chart. There are multiple possibilities: 3D-Chart, Bar chart, Bar, Stacked Bar, Line Chart, or Pie Chart. Note that checking the tick-box transposes the chart axes. Subsequently, from the “**Chart Data**” dropdown box users should select the type of data needed among: One Row, One Category (RS), One Category (CS) and One Value.

View Filter View Settings View Display View Chart Apply Changes

Chart Type: 3D-Bar Layout: only Table Display Chart

Chart Data: One Row Ratio: 60:40

Row/Column: North America Format: PDF

Current Settings: ACT v. SAA Period: Jan 2007 - Apr 2007 Currency: USD Save

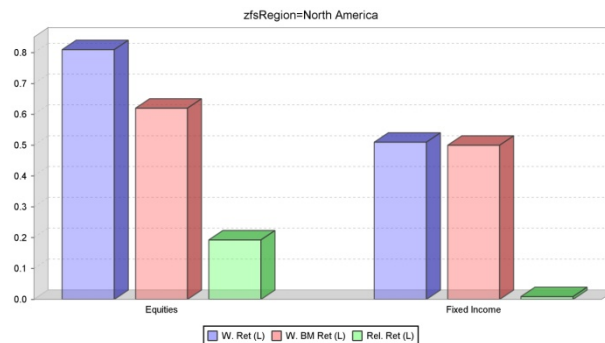
Portfolio Mandate = Equities,Fixed Income

1 - 5 of 5 records Excel PDF

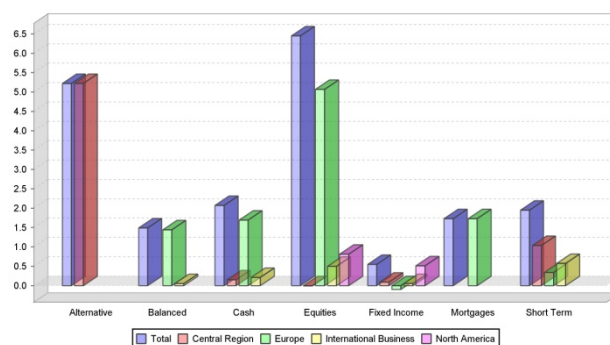
Hierarchy	Equities			Fixed Income		
	Asset Value	Weighted Return (L)	Weighted BM Return (L)	Asset Value	Weighted Return (L)	Weighted BM Return (L)
zfsRegion	10,558.4	6.5	5.93	134,489.2	0.55	0.4
Central Region	11.1	-0.01	0.004	7,375.8	0.09	0.09
Europe	8,394.5	5.03	4.69	89,734.6	-0.1	-0.23
International Business	631.3	0.5	0.47	4,803.2	0.05	0.04
North America	1,521.5	0.9	0.71	32,575.6	0.51	0.5

Rows Displayed Columns

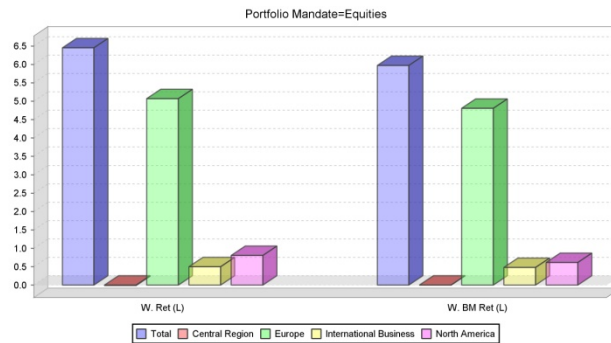
One Row: This option allows to select a specific row from the “Row/Column” drop-down list (including the total). In the example above “North America” was selected.



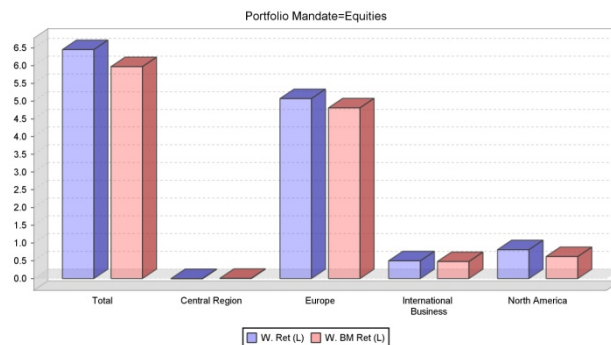
One Value: This option allows to select a specific displayed value from the “Row/Column” drop-down list (here: Asset Value) which will be displayed per row.



One Category (RS): this option will show, for a specific column selected in the “Row/Column” drop-down list, the rows grouped by the displayed values (e.g., Equities).



One Category (CS): this option will show, for a specific column selected in the “Row/Column” drop-down list, the displayed values grouped by the rows (e.g., Equities)



In the “**Layout**” drop-down list the following options are given: only Table, only Chart, 1 Table 1 Chart, 1 Table 2 Charts. The “**Ratio**” box allows to set the desired ratio (100:0, 60:40, or 50:50) when including the display table and chart in one file.

Note: the “only Table” option is an alternative way to export the display table to PDF.

Finally, it is possible to choose whether to present the table/chart/combination in pdf- or html-format in the “**Format**” drop-down list.

To produce the chart after all settings have been made click on “Display Chart”.

9.9 SPECIAL REPORTS

The performance application provides the user with few standard reports listed under calculation settings:

- Accumulation
- Complete > 1Y Periods

By ticking the “Accumulation” option, user can show the monthly accumulated (year-to-date) performance data. This provides a quick comparison of the year-to-date development of a portfolio without changing the time period.

For example, to show the year-to-date development of a Swiss portfolio from January 2007 to April 2007, user can tick the “Accumulation” box under “View Settings” and select the displayed values “Acc. Portfolio Return (L)” and “Acc. Benchmark Return (L)”.

Hierarchy	Jan-2007		Feb-2007		Mar-2007		Apr-2007		Avg/Ytd	
Portfolio	Acc. Portfolio Return (L)	Acc. Benchmark Return (L)	Acc. Portfolio Return (L)	Acc. Benchmark Return (L)	Acc. Portfolio Return (L)	Acc. Benchmark Return (L)	Acc. Portfolio Return (L)	Acc. Benchmark Return (L)	Acc. Portfolio Return (L)	Acc. Benchmark Return (L)
-										
A001	2.85	2.17	1.26	0.73	3.57	3.72	8.62	7.41	8.62	7.41

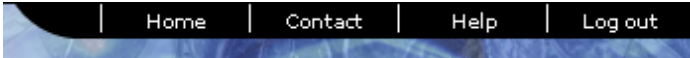
Option “Complete >1Y Periods” allows to create a report showing the year-to-date, 1 year, 2 year, and 3 year accumulated performance of portfolios with at least 1 year of reported performance.

For example, in order to show the accumulated performance of portfolios in Switzerland, users must do the following: In “View Display” they have to select the performance values, e.g., “Portfolio Return (L) and “Benchmark Return (L)”. In “View Settings” set the appropriate 3 year time period (here: May 2004 – April 2007) and check the “Complete >1Y Periods” tick-box. Also, select “Different Periods” under “Calculation Settings”.

Hierarchy	Avg/Ytd			1 Year			2 Years			3 Years		
Portfolio	Asset Value	Portfolio Return (L)	Benchmark Return (L)	Asset Value	Portfolio Return (L)	Benchmark Return (L)	Asset Value	Portfolio Return (L)	Benchmark Return (L)	Asset Value	Portfolio Return (L)	Benchmark Return (L)
-	18,894.1			19,785.9			21,870.5			23,226.5		
A001	23.7	8.62	7.41	22.0	16.5	17.92	18.0	59.72	59.78			
A007	251.9	0.16	0.29	239.8	2.15	2.38	221.8	3.19	3.21	218.3	10.39	10.9
EZ0011	50.8	7.53	7.53	46.3	14.83	18.79	41.3	48.99	57.16			
EZ0012	40.9	8.56	9.45	39.9	18.71	21.12	32.7	64.2	70.0	31.1	74.11	78.56
EZ0013	21.1	1.62	1.78	21.1	2.67	2.68	20.0	62.39	62.07			

The Avg/Ytd column in the above report displays the year-to-date performance; the 1 year column shows the past 12 months performance, and the 2 year and 3 year columns the past 24 and 36 months, respectively.

In case of need the Help tab at the top of the screen will provides any information to support users to use this application.



9.10 CONSIDERATIONS ABOUT

This performance application is usually used internally by investment management (IM) department at ZFS. Therefore strong checks are required when reports are produced externally. Then the disclaimer relative to the use of such tool is a very strict one as the division does not account for any responsibility in case data have been disclosed without previous check by any IM unit. The main reasons have been listed below:

- Each month new data are uploaded in the tool and several checks are performed to ensure data are correct. Therefore, before using this new set of information, users should ensure that all checks have been performed and that the application is ready for use.
- IM strives to constantly improve data quality in its performance application; therefore information relative to same period may be subject to changes.
- Interpreting the data can be challenging. IM is therefore happy to assist user with any analysis to avoid conflicting results due to wrong interpretations.

10. DEFINITIONS AND GLOSSARY

Displayed Value	Definition
Acc. Benchmark Return (L)	Accumulated benchmark performance in local currency for the time period defined under “View Settings”. To be used when producing the “Accumulation” report.
Acc. Portfolio Return (L)	Accumulated portfolio performance in local currency for the time period defined under “View Settings”. To be used when producing the “Accumulation” report.
Active Asset Allocation (L)	Benchmark returns weighted with portfolio weights
Active Stock Selection (L)	Portfolio returns weighted with benchmark weights
Actual Weight Beg	Weighting calculated using the asset values at beginning of month

Actual Weight End	Weighting calculated using the asset values at end of month
Allocation Effect	Part of relative return which can be attributed to asset allocation decisions. Calculated as: benchmark return * (portfolio weight – benchmark weight)
Asset Value	Asset value at end of month in base currency from Global Warehouse
Benchmark Return (B)	Benchmark performance in base currency USD
Benchmark Return (L)	Benchmark performance in local currency
Count	Number of months with performance for a portfolio given the selected time range
Currency Effect	Part of relative return which can be attributed to the choice of currency assets are invested in. Calculated as: Q5-Q6
Excess Return (L)	Portfolio return minus the benchmark return in local currency
Information Ratio	Annualized excess return divided by the tracking error
Interaction Effect	Part of relative return which is a result of the combined effects of allocation and selection effects. Calculated as: (portfolio return – benchmark return) * (portfolio weight – benchmark weight)
Portfolio Return (B)	Portfolio performance in base currency USD
Portfolio Return (L)	Portfolio performance in local currency
Q5 (PW*CR)	Currency return weighted with portfolio weight
Q6 (BW*CR)	Currency return weighted with benchmark weight
Relative Return (L)	Weighted relative return = weighted portfolio return (L) – weighted benchmark return (L)
SAA Weight	Strategic Asset Allocation from Saturn
SAA Weighted BM Return (B)	Benchmark return in USD weighted with the strategic asset allocation weighting at beginning of month
Selection Effect	Part of relative return which can be attributed to stock picking decisions of portfolio managers. Calculated as: benchmark weight * (portfolio return

	– benchmark return)
Total Selection	Combined Selection and Interaction Effects. Calculated as: portfolio weight * (portfolio return – benchmark return)
Buy/Hold Weight	Buy and Hold weight at beginning of the year
Buy/Hold Weighted BM Return (B)	Benchmark return in USD weighted with the Buy and Hold weighting at beginning of the year
Tracking Error	Annualized standard deviation of excess returns
Weighted BM Return (B)	Benchmark return in base currency (USD) weighted with SAA / Buy-and-Hold weight
Weighted BM Return (L)	Benchmark return in local currency weighted with SAA / Buy-and-Hold weight
Weighted Return (B)	Portfolio return in base currency (USD) weighted with beginning of month asset value
Weighted Return (L)	Portfolio return in local currency weighted with beginning of month asset value

Note: All weighted returns are weighted with beginning month assets values or weights compliant with ZFS GIPS.

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SERVICE PROVIDERS:

- Mellon Analytical Solutions - Provider of performance measurement, analytics, and attribution services to fund sponsors, investment managers, and consultants.
- Standard & Poor - Mutual fund information and analysis
- The Spaulding Group - Provider of various products and services related to investment performance as well as publisher of the 'Journal of Performance Measurement' . David Spaulding is also writing an interesting blog about performance measurement and related issues.
- BI-SAM Technologies - Performance measurement, analysis and reporting software
- Wilmott - Resources for quantitative finance: books, articles, magazines, forums, job postings and more.
- Mathworks - The company behind MATLAB, a powerful calculation engine with lots of high-level functions and resources available for free.
- MATLAB Econometrics Toolbox - MATLAB code by James P. LeSage.
- Contingency Analysis - Family of websites maintained by Glyn Holton about trading, risk management and financial engineering; extensive glossary.
- Yield Book - Citigroup's fixed income analytics
- Performa - UK-based provider of software solutions for achieving compliance with national and international performance presentation standards.
- Mcube Investment Technologies - decision support products for institutional investment management.
- StatPro - Portfolio analytics software solutions.
- PriBIL - Private Banking Index Ltd., development and promotion of a series of indices tailored to the needs of the private banking world.
- Meridian - UK-based solutions provider. The main business areas are the "Meridian Investment Performance Survey" (MIPS), the software "Investment Reporting and Accountancy System" (IRAS) and "Meridian Investment Consulting".
- swissQuant AG: Independent provider of cutting-edge quantitative decision tools, systematic trading signals and comprehensive risk management for financial institutions, multi-national corporations, hedge funds and the energy sector.
- Orfival: Belgian software company offering innovative performance and risk analytics to fund management clients. The flagship product includes ALM, reporting and accounting functionality.

- Financial Navigator: Software solutions focusing on the reporting needs of ultra high-net-worth individuals and family offices.

ORGANIZATIONS:

- SEC - Security Exchange Commission. The primary mission of the SEC is to protect investors and maintain the integrity of the securities markets. The Investor Information section on their website contains a lot of materials for non-professionals.
- CFA Institute (previously "AIMR") - a US-based international organization of investment professionals issuing and promoting global performance presentation standards.
- IMCA - 'Investment Management Consultants Association', principal professional association of the investment consulting industry. Publisher of the 'Journal of Investment Consulting', issuer of performance reporting and other standards, provider of free educational materials.
- IOSCO - International Organisation of Securities Commissions
- Risk Standards Working Group - issues risk standards for institutional investors
- KGAST - Performance data of institutional funds in Switzerland
- EDHEC-Risk Asset Management Research - A platform mostly about alternative investments run by the EDHEC Business School Lille-Nice.

INTERNET SITES:

- http://www.andreassteiner.net/performanceanalysis/?External_Performance_Analysis:Risk-Adjusted_Performance_Measures:M3_Measure
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