



SEC market risk disclosures

To Our Clients and Other Friends

The Securities and Exchange Commission (SEC) requires accounting policy disclosures for derivatives in the notes to the financial statements and quantitative and qualitative disclosures about market risk inherent in derivatives, other financial instruments and certain derivative commodity instruments outside the financial statements (e.g., in Management's Discussion and Analysis). Registrants are afforded some flexibility regarding the quantitative disclosures. They can choose from the following three disclosure alternatives for each type of portfolio or market risk category for which disclosures are required:

- ▶ Tabular presentation of fair value information and contract terms relevant to determining future cash flows
- ▶ Sensitivity analysis assessing the potential loss in value of market sensitive instruments resulting from hypothetical changes in various market indices (e.g., interest rates)
- ▶ Value at risk analysis estimating the potential loss from market movements with specific likelihood of occurrence

Registrants are required to disclose assumptions and limitations inherent in the modeling techniques utilized to derive the quantitative disclosures, information about the reasons for material changes in the amounts reported when compared to the information reported in the prior year and certain qualitative information about primary market risk exposures.

This publication provides a summary of these requirements and discusses alternatives to complying with them. Our accounting, tax and advisory professionals are available to assist you in understanding and complying with the rules and are ready to answer your particular concerns and questions.

Ernst + Young LLP

May 2010

Contents

1 Overview	1-1
Accounting policy disclosures	1-1
Interpretative guidance	1-4
Business implications	1-4
Market risk disclosure decision tree	1-6
2 Underlying concepts.....	2-1
General requirements regarding exposures to market risks	2-2
Scope	2-3
Quantitative disclosures about market risk.....	2-3
Qualitative disclosures about market risk.....	2-3
Other general requirements.....	2-3
Types of market risk	2-4
Interest rate risk	2-4
Foreign currency risk.....	2-4
Commodity price risk.....	2-5
What is a market risk sensitive instrument?	2-5
Derivative financial instruments	2-7
Derivative commodity instruments.....	2-8
3 Quantitative disclosures – general requirements	3-1
Basic requirements	3-1
Materiality.....	3-4
Model assumptions	3-6
Comparative information	3-6
Alternative to reporting year-end information	3-7
Encouraged disclosures	3-7
Limitations.....	3-9
Interim disclosures.....	3-10
4 Tabular presentation.....	4-1
Assumptions	4-4
Examples of tabular presentation disclosures	4-4
I. Interest rate sensitivity of a company with operations only in the United States...	4-4
II. Foreign currency exchange rate sensitivity of a multinational company.....	4-6
III. Commodity price sensitivity of an oil refiner	4-10
IV. Interest rate sensitivity of a financial institution	4-11

5	Sensitivity analysis and value at risk	5-1
	Sensitivity analysis	5-1
	Alternative presentation	5-3
	Calculations impacted by multiple risk exposures	5-3
	Examples of sensitivity analysis disclosures	5-4
	Example – Exposure to short-term interest rates	5-4
	Example – Exposure to exchange rates as a result of foreign sales	5-4
	Value at risk	5-5
	Alternative presentation	5-8
	Multiple foreign currency exchange rate exposures	5-8
	Example of value at risk disclosure	5-9
	Example – Exposure to changes in fair value of trading positions	5-9
6	Qualitative market risk disclosures	6-1
	Requirements	6-2
	Primary market risk exposures	6-2
	Encouraged disclosures	6-4
	Examples of qualitative information about exposure to market risk	6-5
	Manufacturer with international operations	6-5
	Financial institution – trading activities	6-6
	Financial institution – risk management activities	6-6
7	Accounting policy disclosures	7-1
	GAAP accounting policy disclosure requirements	7-1
	SEC accounting policy disclosures	7-1
	Requirements	7-1
	Appendix – Value at risk	A-1
	What is “Value at Risk”?	A-1
	Computational approaches	A-2
	Methodology	A-2
	Step 1: Determine VAR amounts of individual items	A-3
	Step 2: Aggregate the individual VAR calculations	A-3
	Building a value at risk calculation	A-3
	Range of values	A-4
	Variance and standard deviation	A-5
	Probability distributions	A-6
	Covariance and correlation	A-10
	“Value at Risk” in perspective	A-16

1 Overview

Item 305 of Regulation S-K requires quantitative and qualitative disclosures related to derivatives and exposures to market risk (e.g., interest rate risk, foreign currency exchange rate risk, commodity price risk, equity price risk) from derivative financial instruments, other financial instruments and certain derivative commodity instruments. Derivative commodity instruments (including commodity futures, commodity forwards, commodity swaps, commodity options and other commodity instruments with similar features) for which the SEC's rules apply are those that are permitted by contract or business custom to be settled in cash or another financial instrument.

The disclosures required by Item 305 of Regulation S-K affect most registrants because nearly all registrants have financial instruments that expose them to market risk, even if they do not use derivative financial instruments or derivative commodity instruments. Registered investment companies and smaller reporting companies¹ are exempt from the market risk disclosure rules; however, both registered investment companies and smaller reporting companies must comply with the rule on accounting policy disclosures for derivative financial instruments and derivative commodity instruments.

The disclosure rules have two parts: accounting policy disclosures about derivatives in the notes to the financial statements and market risk disclosures (both quantitative and qualitative) about *all* financial instruments presented outside the financial statements (e.g., in Management's Discussion and Analysis or MD&A).

Accounting policy disclosures

The rules require detailed descriptions of specific aspects of a registrant's accounting policies for derivatives, including commodity derivatives, in the notes to the financial statements. Disclosures should address separately derivatives entered into for trading purposes and derivatives entered into for purposes other than trading. Those disclosures, to the extent material, should include:

- ▶ A description of each method used to account for derivatives (e.g., deferral, accrual or mark-to-market accounting)

¹ As defined in Regulation S K Item 10(f)(1), a smaller reporting company is an issuer, excluding an investment company, an asset-backed issuer, or a majority-owned subsidiary whose parent is not a smaller reporting company, that meets the applicable condition:

- ▶ For an SEC reporting company, less than \$75 million of worldwide public float as of the last business day of its most recently completed second fiscal quarter (i.e., the amount disclosed on the cover page of Form 10-K that also is used to determine whether the issuer is an accelerated filer)
- ▶ For an issuer filing its IPO of common equity, less than \$75 million of worldwide public float (calculated within 30 days of its filing using the estimated IPO price and the aggregate number of shares held by non-affiliates and the number of shares being offered)
- ▶ For an issuer without publicly traded equity and hence no public float (e.g., a company with only public debt or preferred stock), annual revenues of less than \$50 million during its most recently completed fiscal year for which audited financial statements are available

- ▶ The types of instruments accounted for under each method
- ▶ The criteria to be met for each method
- ▶ The accounting method used if the criteria are not met
- ▶ The methods used to account for terminations of derivatives designated as hedges
- ▶ The methods used to account for the derivatives upon sale, maturity or extinguishment of the designated hedged item
- ▶ Where and when derivatives and their changes in fair value are reported

Disclosure is required of the accounting policies used for derivatives and the methods of applying those policies that materially affect the determination of financial position, cash flows or the results of operations. The SEC's rule defines materiality for the accounting policy disclosures based upon the materiality guidance in ASC 235, *Notes to Financial Statements*, and Regulation S-X. ASC 235 requires disclosure of accounting policies that materially affect the determination of financial position, cash flows or results of operations. Regulation S-X limits the disclosure requirements to those matters about which an average prudent investor ought reasonably be informed. Furthermore, SAB 99, *Materiality*, notes that an assessment of materiality includes consideration of the substantial likelihood that the item in question would have been viewed by a reasonable investor as having significantly altered the "total mix" of information made available.

While these accounting policy disclosure rules remain part of Regulation S-K, the original reason for the rules has largely faded with the issuance of FASB Statement No. 133, *Accounting for Derivatives and Hedging Activities* (Statement 133) in 1998 and the expanded disclosure requirements issued ten years later with FASB Statement No. 161, *Disclosures about Derivative Instruments and Hedging Activities—an amendment of FASB Statement No. 133* (Statement 161). Many of these requirements are now addressed in the audited footnotes to the financial statements. (Both Statement 133 and Statement 161 are now codified in ASC 815, *Derivatives and Hedging*.)

The rules require quantitative and qualitative disclosures about each type of market risk (e.g., interest rate, foreign currency, commodity price and equity price) inherent both in derivatives and in other financial instruments. These disclosures are expected to be made separately for trading and other than trading portfolios outside the financial statements (e.g., in MD&A).

Registrants are permitted some flexibility regarding quantitative disclosures and can choose from the following three disclosure alternatives:

- ▶ **Tabular** presentation of fair value information and contract terms relevant to determining future cash flows – categorized by expected maturity dates

- ▶ **Sensitivity analysis** assessing the potential loss in future earnings, fair values or cash flows of market sensitive instruments resulting from hypothetical changes in various market indices (e.g., interest rates)
- ▶ **Value at risk analysis** estimating the potential loss in future earnings, fair values or cash flows from market movements with a specified likelihood of occurrence (See Appendix – *Value at risk* for additional information)

Registrants may utilize different quantitative disclosure alternatives for each type of portfolio (e.g., trading, non-trading) or market risk category (e.g., interest rate, foreign currency) analyzed. Also, the rules permit registrants utilizing the sensitivity analysis or value at risk analysis disclosure alternatives to present high, low and average amounts during the period rather than period-end information. In addition, the rules encourage, but do not require, aggregate sensitivity analysis or value at risk amounts for the trading and non-trading portfolios.

Registrants are required to disclose various elements of the modeling techniques utilized to derive the quantitative disclosures as well as relevant assumptions or limitations of the amounts. Also, the rules require disclosure of the reasons for material changes in the amount of reported market risk when compared to the information reported in the prior year.

Additionally, the rules require qualitative disclosures regarding the registrant's primary market risk exposures, how those exposures are managed, and actual or expected material changes in the registrant's primary market risk exposures and the related changes in how those risks are managed. These qualitative disclosures should provide a context for the required quantitative disclosures.

The disclosures are required only when the exposure to market risk is material. Under the SEC's rules, a materiality assessment must be made for each market risk exposure category (e.g., interest rate, foreign currency) within the trading and other than trading portfolios. Materiality assessments are based on the fair value of market risk sensitive instruments as of the end of the reporting period, as well as the materiality of the potential loss in future earnings, fair values or cash flows from reasonably possible near-term² market movements. Although the SEC intends that this analysis be performed on an aggregate rather than net basis (i.e., ignoring interrelationships between positions and transactions), registrants are permitted to net positions to the extent allowed under generally accepted accounting principles (GAAP)³. The SEC's rules provide the following guidelines for evaluating whether a potential loss is material: (i) the magnitude of past market movements, (ii) expectations about the magnitude of reasonably possible future market movements and (iii) potential losses that may arise from leverage, option and/or multiplier features.

² Consistent with the FASB codification, "near term" is defined as a period of time going forward up to one year from the date of the financial statements.

³ Refer to ASC 210-20, *Balance Sheet - Offsetting*.

The rules clarify that the required quantitative disclosures are, by definition, forward-looking, and registrants will be protected from liability in private litigation under the statutory safe harbor provisions. Accordingly, disclosures that comply with the rules will receive protection under the safe harbor for forward-looking statements without the registrant explicitly identifying the disclosures as forward-looking or providing meaningful cautionary language. (See EY's *SEC Annual Reports – Report to Shareholders Form 10-K* series, updated each year, for further discussion of the SEC's Safe Harbor provisions.)

The rules also clarify that the market risk disclosures must be updated in quarterly reports (i.e., Form 10-Q) only when there have been material changes in information reported for the most recently completed fiscal year.

Interpretative guidance

GAAP (e.g., ASC 815 and ASC 235) and the SEC's rules for MD&A already require certain disclosures about derivatives (e.g., accounting policy footnote disclosures, disclosures about the terms of derivatives and their effects on other disclosed items and disclosures about market risk in MD&A). Rule 4-01(a) of Regulation S-X, as well as Exchange Act Rule 12b-20 and Securities Act Rule 408, require disclosures, which may include disclosures about derivatives, to the extent necessary to prevent other required disclosures from being misleading. These rules apply to disclosures under GAAP in the notes to the financial statements, as well as to disclosures outside the financial statements that are required by the SEC's regulations (e.g., MD&A).

When derivatives effectively modify the terms of other disclosed items, the terms of those derivatives should be disclosed with equal prominence and in close proximity to the disclosures (e.g., the terms, fair values and cash flows) of the items they affect either directly or indirectly. For example, if interest rate swaps have been used to effectively change a fixed rate debt obligation to a variable rate debt obligation, the effect of those interest rate swaps should be identified with the disclosure of the debt's stated fixed interest rate.

Business implications

The scope of the SEC's rules was broader than any previously existing requirements at the time they were issued. For the first time, the rules applied to certain derivative commodity instruments (e.g., commodity futures, forwards, options or swaps) for which it is reasonably possible that settlement will be in cash or with another financial instrument. In addition, the guidance is applicable to all other financial instruments (except for trade receivables and payables when their carrying amount approximates fair value). For example, a grain processor that utilizes commodity futures contracts to manage its commodity price risk is affected by the rules. Similarly, a technology company with a portfolio of investments in corporate debt instruments or commercial paper is affected.

Most companies face market risks in their operations as a result of a variety of factors that have varying degrees of interrelationship. For example, many entities are exposed to risk from various commodity prices, interest rates and foreign currencies. In addition, these risks are present in existing assets, liabilities and commitments as well as future transactions with varying degrees of probability. The degree of risk is significantly affected by the actions management is able to take as market conditions change.

The required qualitative disclosures about market risk are intended to provide users with additional information about management's perceptions of its market risk arising from, at a minimum, derivative financial instruments, derivative commodity instruments and other financial instruments, as well as management's strategies to manage such risk. ASC 815 already requires such disclosures for derivative financial instruments, and therefore, unless properly integrated, disclosure may become overly complicated and burdensome. Further, considering the level of detail contemplated by the rules, some companies may be concerned as to whether this could result in a competitive disadvantage.

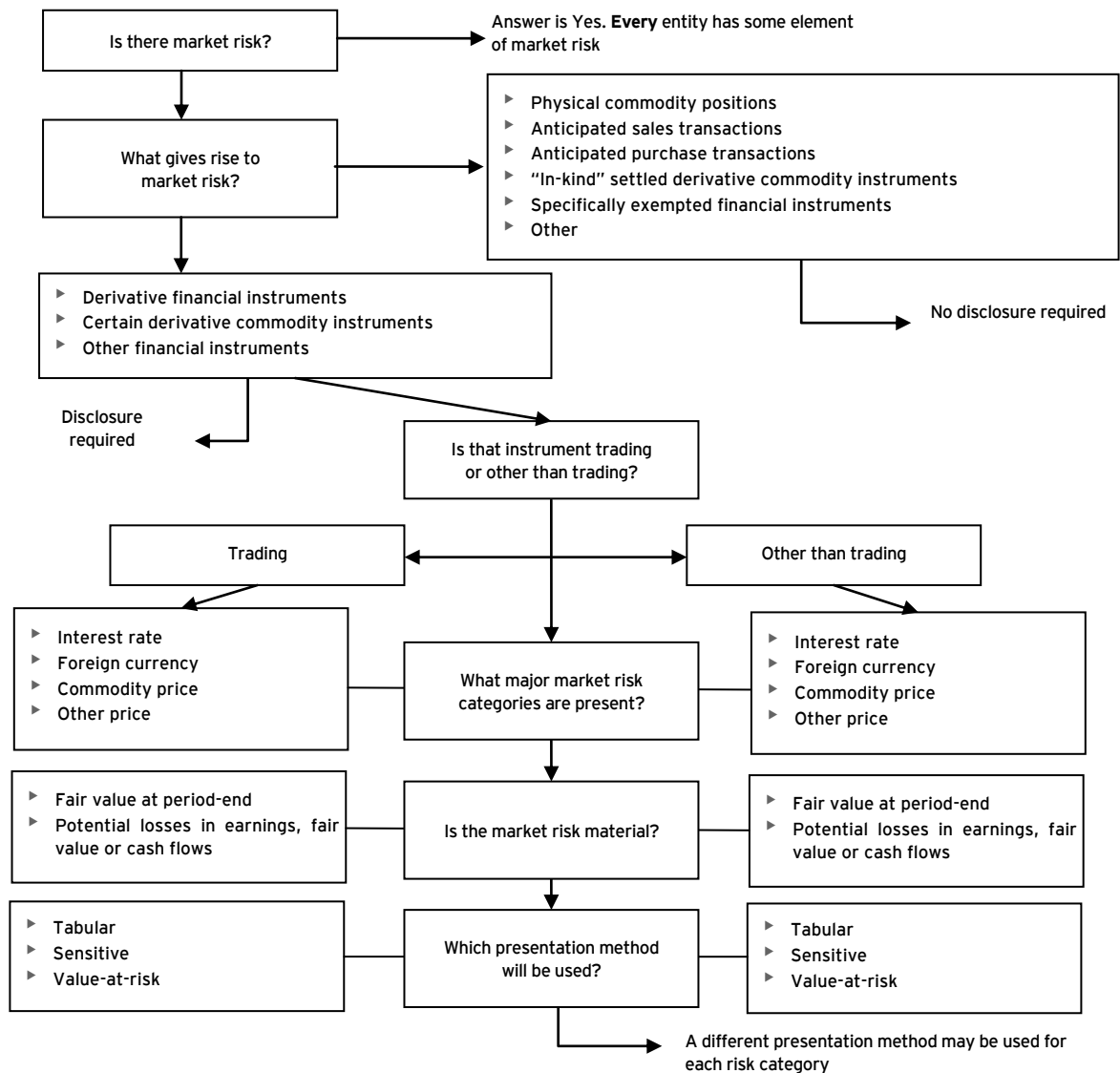
Companies are restricted to the three types of quantitative risk models described by the SEC's rules (i.e., tabular, sensitivity and value at risk). If a company uses a different model internally to manage risk, it will have to adapt that model to one of the 'approved' models in order to comply with the disclosure requirements. Some companies may find the 'approved' models less relevant and more costly to present; however, these models are required. For example, the alternatives do not accommodate the disclosure of maturity or duration gap analysis or stochastic analysis often used by banks and insurance enterprises to manage interest rate risk.

Certain requirements could limit a registrant's ability to change from one approach of presenting quantitative information to another. For example, a registrant might develop the ability during a period to comply with the requirement for presenting a sensitivity analysis but might not have a comparable sensitivity analysis for the prior year. While companies are not required to apply the new method to the prior year, some comparative information must be provided. As a result, companies are required to continue to maintain information and analyses under both their outdated methodology and their new methodology for the entire year of transition.

The requirements call for a great deal of information that may not be easily understood by investors and may be costly for many companies to develop. From a practical standpoint, many companies will be forced to use the tabular presentation approach, because they do not internally use sensitivity or value at risk analysis information to manage their risk. As a result, relief from detailed disclosures may only be available through the materiality determinations. Further, much of this basic information (e.g., a five year debt table) is already required by GAAP but in much less detail. It is important to challenge the information presented to ensure its relevancy and ease of understanding to the reader.

Clearly the market risk disclosures are quite complex. Most of the remainder of this publication explains the market risk rule in detail. The flowchart on the next page gives a high level overview of the process an entity may follow to begin addressing compliance with the rule.

Market risk disclosure decision tree



2 Underlying concepts

Historical perspective. The proliferation of innovation in financial instruments in the 1990s was not confined to derivatives. Innovation led to rapid expansion in the variety and means that corporations obtained financing as well as the related financial instruments available in the marketplace. While financial instruments, particularly derivatives, can be effective tools for managing a registrant's exposures to various risks, they can also expose the holder (issuer) to market risk. As a result, some registrants have experienced significant, and sometimes unexpected, losses. Those losses often resulted from changes in market factors such as interest rates, foreign currency exchange rates and commodity prices.

In light of those losses and the substantial growth in the use of market risk sensitive instruments, the adequacy of existing disclosures about market risk emerged as an important financial reporting issue. The SEC believed the financial statements should provide information to users as to what innovative financial instruments registrants were using, how registrants were accounting for those instruments, how that accounting had affected the financial statements and what risks the company had transferred or accepted. The SEC's rules responded to concerns that the then-current disclosure requirements and practices were not adequate to inform investors about the effects of derivatives on the financial statements and about the degree of market risk to which registrants were exposed.

This concern arose from the SEC staff's 1994 special project on derivative disclosure and accounting that involved the review of annual reports of approximately 500 registrants. (This review was several years prior to the FASB's then groundbreaking issuance of FASB Statement 133, which for the first time required the presentation of derivatives on the balance sheet, carried at fair value.) During 1995, the SEC staff again reviewed registrants' annual reports to assess their implementation of FASB Statement No. 119, *Disclosure about Derivative Financial Instruments and Fair Value of Financial Instruments*. Based on these reviews the SEC staff identified three principal areas of concern about registrants' disclosures:

- ▶ Accounting policy footnote disclosures were too general and did not communicate the diversity in accounting for derivatives
- ▶ Disclosures in the financial statement footnotes and MD&A did not reflect the associated effects of derivatives
- ▶ Disclosures about derivatives and other financial instruments were made in isolation and did not communicate the net exposure of a registrant to market risk

Of significant concern to the SEC prior to the issuance of the rules was the absence of market risk disclosures. Market risk is inherent in derivative as well as non-derivative financial instruments. For example, market risk is obviously present in currency or interest rate swap arrangements and debt or equity instruments. It is also present in commodity futures contracts as well as raw material procurement contracts and inventories. GAAP and the SEC's rules had previously required disclosure of certain quantitative information pertaining to some of these instruments that contain market risk. For instance, registrants had been required to disclose notional amounts of derivative financial instruments and the

nature and terms of debt obligations prior to the issuance of the rules. However, the SEC observed that this information often was abbreviated and - presented piecemeal in different parts of the financial statements. As a result, investors may have been unable to assess the net market risk exposures inherent in these instruments.

General requirements regarding exposures to market risks

The SEC's rules require companies to disclose market risk information about their market risk sensitive instruments. Specifically, Item 305 of Regulation S-K (the Market Risk Rule) requires both qualitative and quantitative disclosures outside the financial statements about a registrant's exposures to market risks, to the extent those exposures are material. The Market Risk Rule only considers an entity's exposure to market risk from certain market risk sensitive instruments and requires entities to separately address instruments held for trading purposes and instruments held for purposes other than trading.

The market risk disclosures *do not require* a registrant to address all instruments, positions and transactions that expose it to market risk. Specifically, market disclosures are not required to encompass derivative commodity instruments settled in kind, actual commodity positions, cash flows from anticipated transactions and operating cash flows from non-financial and non-commodity instruments (e.g., cash flows generated by manufacturing activities). However, registrants are encouraged to include these items in their market risk disclosures. In addition, to the extent these items are excluded from the quantitative disclosures about market risk, and such exclusion results in a failure to fully reflect the net market risk exposure of the entity, that exclusion must be disclosed as a limitation on the quantitative disclosures.

The Market Risk Rule differs slightly from the general market risk disclosure requirements of Item 303 of Regulation S-K. Item 303 requires discussion in MD&A of known events, trends or uncertainties that are reasonably likely to materially impact the registrant. As a result, if a known market risk affected reported trends or financial condition in the period presented, or it is reasonably likely to materially affect future reported results or liquidity, Item 303 requires discussion of the market risk and its effects in MD&A. However, Item 303 does not specify what to disclose.

Comparatively, the Market Risk Rule requires much more detailed discussion, including descriptive and quantitative disclosures about potential losses from market risk sensitive instruments attributable to reasonably possible market changes. For example, one of the disclosure alternatives responsive to the Market Risk Rule, a sensitivity analysis, presents quantitative information about possible future losses from reasonably possible near-term changes in market rates and prices.

Scope

The Market Risk Rule is applicable to all entities, except smaller reporting companies, that are required to provide MD&A including: non-public depository institutions that file financial statements with the SEC, non-public entities with public debt outstanding and foreign private issuers preparing financial statements in accordance with Item 18 of Form 20-F.

The Market Risk Rule is not applicable to registered investment companies or smaller reporting companies. However, smaller reporting companies still are required to discuss in MD&A the impact of market risk to the extent it represents a material known trend, event or uncertainty (Item 303 of Regulation S-K).

Quantitative disclosures about market risk

The quantitative disclosures are intended to provide an investor with a greater ability to assess the registrant's exposure to market risk. This information must be disclosed in one of three ways: (i) a comprehensive table (i.e., tabular presentation) that would schedule cash flow amounts by maturity dates for all instruments that are sensitive to future changes in interest rates, currency exchange rates, commodity prices or other market factors, (ii) a sensitivity or "shock" analysis that would quantify the impact of at least one hypothetical move in market conditions relating to each market risk factor or (iii) specified "value at risk" disclosures (the most complex of the three options) that are intended to measure the potential exposure to adverse market movements over a specified time period with a selected likelihood of occurrence. These disclosures are to be made outside the financial statements. Chapters 4 and 5 of this publication provide detailed discussion and examples of these requirements, as well as a short outline of the issues to be considered when deciding which of the three disclosure methods is the most appropriate.

Qualitative disclosures about market risk

The qualitative disclosures include discussion of a company's primary risk exposures, its objectives for managing those exposures, its strategies for achieving those objectives and the context needed to understand those objectives and strategies. Qualitative disclosures are required for derivative financial and commodity instruments and other financial instruments (e.g., investments, debt). These disclosures are also to be made outside the financial statements. Chapter 6 of this publication, *Qualitative market risk disclosures*, provides detailed discussion and examples of these requirements.

Other general requirements

To ensure applicability of the SEC's safe harbor statutes, the Market Risk Rule requires presentation of the quantitative and qualitative disclosures outside the financial statements. While the quantitative market risk information may be presented in a separate section outside MD&A, an entity may also elect to integrate the quantitative and qualitative disclosures with MD&A and the Description of Business section of its filing. Additionally, although it is not necessary to repeat duplicative information, it may be necessary to provide cross-references to ensure that particular disclosures are complete.

Any filing that includes the annual financial statements of a registrant must either include or, to the extent permitted by the applicable Form (e.g., Form S-4, 10-K), incorporate by reference, the Market Risk Rule disclosure requirements. Additionally, this information must be included in the registrant's Annual Report delivered to shareholders.

Types of market risk

Market risk is a broad term related to economic losses due to adverse changes in the fair value of a financial instrument. While market risk embodies several elements, including liquidity and basis risk, the SEC's Market Risk Rule focuses on only one element of market risk – that is, price risk. Price risk relates to changes in the level of prices due to changes in (a) interest rates, (b) foreign exchange rates or (c) other factors that relate to market volatilities of the rate, index or price underlying the financial instrument. Each of these elements of market risk is described below.

Interest rate risk

Many financial instruments, such as debt securities, interest rate swaps and debt obligations, are either interest-earning or interest-bearing instruments. For those instruments that are fixed rate in nature (i.e., interest payments made or received are based upon a predetermined rate that does not reset), the holder (or issuer) of the financial instrument faces a risk that interest rates will change in an unfavorable direction. For example, if an entity invests in a fixed rate bond, the investing entity is exposed to a decline in the value of its investment if market interest rates for bonds with a similar remaining term and face amount rise above the stated fixed rate on the bond. Alternatively, if an entity issues fixed rate debt, the entity runs the risk that market rates will decline and the related required payments will exceed those based on the current market rate. The magnitude of the gain or loss on a fixed rate financial instrument will be a function of the difference between the fixed rate of the financial instrument and the market fixed rate, the remaining term of the financial instrument and the face amount of the financial instrument.

Similarly, because an interest rate swap is tied to interest rates (i.e., one party receives fixed interest payments and the other party receives variable interest payments), both parties to the swap face a risk that interest rates will change in an unfavorable direction. As a result of these conditions, the market risk of a swap is comparable to that of a fixed rate bond with terms comparable to the swap. The receiver of the fixed rate on a swap faces the risk that interest rates will rise, while the payer of a fixed rate runs the risk that fixed rates will decline.

Foreign currency risk

Entities may have an exposure to foreign currency risk for a variety of reasons. An entity may own a security denominated in a foreign currency or have a debt obligation payable in a foreign currency. Currency exposures also may result from ownership of a foreign entity, commitments to purchase inventory or equipment or commitments to sell product. For example, if a US-based company enters into a firm commitment to procure parts from a

South Korean supplier for a predetermined amount of South Korean won, the US company faces the risk that the US dollar will decline in value as compared to the South Korean won during the commitment period, thereby increasing the company's inventory cost.

To the extent that purchases or sales in a foreign currency result in accounts payable or receivable, a foreign currency exposure may be present in the statement of financial condition. For instance, assume that the US company in the preceding example agrees to pay the South Korean supplier 90 days after delivery of the parts. The company faces the risk that the US dollar will decline in value as compared to the South Korean won during the period the foreign currency payable is outstanding, increasing the company's inventory cost.

Entities that own foreign subsidiaries are also exposed to foreign currency price risk. To illustrate, assume a US company owns an Australian subsidiary whose functional currency is the local currency, the Australian dollar. In consolidation, the US parent company must convert the accounts of its subsidiary from Australian to US dollars and faces the risk that the Australian dollar will have declined in value as compared to the US dollar, resulting in a foreign currency translation loss to the US parent.

Commodity price risk

Commodity price risk relates to changes in the value of a commodity as that product is in the process of being grown, produced or developed. For example, an oil company may commit to sell crude oil for a fixed amount at the beginning of its drilling process. Should unrest in an oil producing region result in a decline in the supply of crude oil, crude oil prices may rise during the production cycle. The oil company faces an opportunity cost, the risk that its crude oil will be sold for below market prices.

Commodity price risk is not confined to the producer of the commodity. For instance, a commercial baker uses wheat in its baking process, however, the baker has not committed to buy any specific quantities of wheat. If the wheat producers experience a difficult growing season resulting from flood or drought conditions, the supply of wheat will decline, exposing the baker to increasing costs to acquire wheat. In contrast, if the wheat producers experience a favorable growing season, the supply of wheat will be plentiful and the costs to acquire wheat may decline.

What is a market risk sensitive instrument?

The SEC has defined "market risk sensitive instruments" to include derivative financial instruments, other financial instruments and derivative commodity instruments (collectively, "market risk sensitive instruments"). Financial instruments for which fair value disclosures are required under GAAP, particularly derivative financial instruments, generally are included in the definition. Additionally, while some derivative commodity instruments do not meet the FASB's definition of a financial instrument, the SEC specifically included them.

The GAAP definition of a financial instrument is found in the FASB codification Master Glossary. Financial instruments are:

- ▶ Cash (including the currencies of other countries)
- ▶ Evidence of an ownership interest in an entity (e.g., common or preferred stock)
- ▶ A contract that both:
 - ▶ Imposes on one entity a contractual obligation to (a) deliver cash or another financial instrument to a second entity or (b) exchange other financial instruments on potentially unfavorable terms with the second entity
 - ▶ Conveys to that second entity a contractual right to (a) receive cash or another financial instrument from the first entity or (b) exchange other financial instruments on potentially favorable terms with the first entity

The first two categories are straightforward. The third category makes the definition very broad and encompasses most derivative financial instruments (further defined later in this section). Other instruments that meet this definition of a financial instrument include accounts receivable and payable, debt securities, deposit liabilities and debt obligations.

The definition of a financial instrument excludes assets such as inventories and fixed assets because no other entity has an obligation to deliver cash or another financial instrument as a result of their existence. Also excluded are rights or obligations to receive or deliver goods or services (e.g., inventory purchase orders, services contracts). In this regard, even if the contract is normally settled in, or is intended to be settled in, cash it still does not meet the definition of a financial instrument if it potentially can be settled by one party receiving a nonfinancial instrument.

Certain assets and liabilities that otherwise meet the definition of a financial instrument are specifically exempted from the SEC's market risk disclosure requirements. The list of exemptions is as follows:

- ▶ Pension benefit obligations, other postretirement benefit obligations, employee stock option and stock purchase plans and other forms of deferred compensation
- ▶ Insurance contracts, other than financial guarantees and investment contracts
- ▶ Lease contracts (a contingent obligation arising out of a canceled lease and a guarantee of a third-party lease obligation are not exempt)
- ▶ Investments accounted for under the equity method of accounting (generally those investments representing 20% to 50% ownership), equity investments in consolidated subsidiaries and noncontrolling interests in consolidated subsidiaries
- ▶ Equity instruments issued by the reporting entity and reported in its balance sheet as part of stockholders' equity (Note: Mandatory redeemable preferred stock of public companies does not qualify for this exemption.)

- ▶ Unconditional purchase obligations, as defined in paragraph ASC 440-10-50-2
- ▶ Warranty obligations and rights
- ▶ Substantively extinguished debt subject to the disclosure requirements of ASC 405-20, *Liabilities – Extinguishment of Liabilities*

Although accounts receivable and payable are not included on the list of exemptions, the SEC's rule states that no additional disclosures are required for trade receivables and payables when their carrying amount approximates fair value (i.e., most standard-term receivables and payables, such as those due within 30 days), even if those trade receivables or payables are subject to foreign currency risk.

Derivative financial instruments

The SEC defines derivative financial instruments to be consistent with GAAP. A derivative instrument is defined in ASC 815-10-15-83 as a financial instrument or other contract with all of the following characteristics:

- a. **Underlying, notional amount, payment provision.** The contract has both of the following terms, which determine the amount of the settlement or settlements, and, in some cases, whether or not a settlement is required:
 1. One or more underlyings
 2. One or more notional amounts or payment provisions or both
- b. **Initial net investment.** The contract 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.
- c. **Net settlement.** The contract can be settled net by any of the following means:
 1. Its terms implicitly or explicitly require or permit net settlement
 2. It can readily be settled net by a means outside the contract
 3. It provides for delivery of an asset that puts the recipient in a position not substantially different from net settlement

Certain contracts are excluded from the scope of ASC 815. See our Financial Reporting Developments publication, *Accounting for derivative instruments and hedging activities* for additional information on the specific scope exclusions.

Derivative commodity instruments

The definition of a derivative in ASC 815 requires net settlement, which may exclude some derivative commodity contracts (for example, those contracts whereby the commodity is delivered but is not readily convertible to cash). However, the SEC's rule specifically requires market risk disclosures for most derivative commodity instruments.

As defined by the SEC, derivative commodity instruments include commodity futures, commodity forwards, commodity swaps, commodity options and other commodity instruments with similar characteristics that are permitted by contract or business custom to be settled in cash or with another financial instrument. For purposes of the SEC's rules, settlement in cash includes settlement in cash of the net change in value of the derivative commodity instrument (e.g., net cash settlement based on changes in the price of the underlying commodity instruments). Accordingly, commodity derivatives used to manage price risk, but that permit cash settlement merely to avoid a delivery requirement that is outside an entity's normal delivery channels are included. Only those commodity transactions that are entered into to manage physical inventory flows are excluded from this disclosure requirement. The term "derivative commodity instruments" as used in this document refers to derivative commodity instruments that are not likely to be settled in kind.

3 Quantitative disclosures – general requirements

ASC 825, *Financial Instruments*, encourages, but does not require, disclosure of quantitative information about the market risk exposures of financial instruments that is consistent with the way an entity manages or adjusts those risks. ASC 825-10-50-23 provides five possible ways to provide these quantitative disclosures, which include (i) more details about current positions and perhaps activity during the period, (ii) the hypothetical effects on comprehensive income (or net assets), or annual income, of several possible changes in market prices, (iii) a gap analysis of interest rate repricing or maturity dates, (iv) the duration of the financial instruments and (v) the entity's value at risk from derivatives and from other positions at the end of the reporting period and the average value at risk during the year. This list is not exhaustive, and an entity is encouraged to develop other ways of reporting quantitative information.

SEC Item 305(a) of Regulation S-K and Item 11 of Form 20-F (the Quantitative Rules) are the SEC's response to concerns that investors were not receiving adequate quantitative market risk disclosures under then-existing requirements. A primary objective of the Quantitative Rules is to provide investors with forward looking information about a registrant's potential exposures to market risk. These quantitative disclosures are dependent on several choices about key model characteristics and assumptions (e.g., changes in future market prices). By their nature, these forward looking disclosures are only estimates and will differ from actual results in the future. Despite this limitation, the SEC believes that the reported market risk information should provide benefits to both investors and registrants. For example, the SEC believes that the quantitative disclosures should help investors better understand the specific market risk exposures of different registrants thereby allowing them to better manage market risks within their portfolios. Additionally, the quantitative disclosure requirements benefit registrants because they provide a mechanism for registrants to describe how they view and manage market risk as well as demonstrate, when applicable, that their use of derivative financial instruments actually reduces the registrant's overall risk position.

Basic requirements

Under the Quantitative Rules, the SEC *requires* extensive quantitative information outside the financial statements about market risk sensitive instruments (i.e., derivative financial instruments, certain derivative commodity instruments and other financial instruments). The Quantitative Rules require disclosures about financial instruments that may not be within the scope of ASC 815 (e.g., investments, loans and debt) and certain derivative commodity instruments. The Quantitative Rules also encourage, but do not require, quantitative disclosures about other sources of exposure to market risk such as anticipated transactions and commodities owned.

The Quantitative Rules require registrants to separate market risk sensitive instruments into two categories: instruments entered into for trading purposes and instruments entered into for purposes other than trading. Within both the trading and other than trading portfolios, separate quantitative information for each major market risk exposure (i.e., interest rate risk, foreign currency exchange rate risk, commodity price risk and other relevant market

risks, such as equity price risk), should be presented when such exposure is material. To summarize, each registrant must, at a minimum, consider if the following categories pose a material market risk:

Portfolio type	
Trading	Other than trading
Interest rate risk	Interest rate risk
Foreign currency risk	Foreign current risk
Commodity price risk	Commodity price risk
Other market risk	Other market risk

After separating the market risk sensitive instruments into categories (trading and other than trading) and market risk exposures, entities are required to present a quantitative analysis for each material category. Recognizing the need to accommodate different types of registrants, different degrees of market risk exposure and different means of measuring market risk, the Quantitative Rules permit registrants the flexibility of presenting quantitative market risk information utilizing any of three alternatives for each market risk exposure:

- 1) A **tabular presentation** would present quantitative information in a columnar format, grouped based on common market risk characteristics, for each of the next five years, and aggregate cash flows expected for the period thereafter. The required information includes fair value, principal or transaction cash flows, weighted-average rates or prices for market risk sensitive instruments presented separately by risk exposure category (e.g., interest rate risk, foreign currency exchange rate risk, commodity price risk).
- 2) A **sensitivity analysis** disclosure alternative permits registrants to express the potential loss in future earnings, fair values or cash flows from market risk sensitive instruments resulting from at least one hypothetical change in interest rates, foreign currency exchange rates, commodity prices or other relevant market rate or price change over a selected time period.
- 3) A **value at risk** analysis quantifies the potential loss in fair values, earnings or cash flows from market movements over a selected period of time with a selected likelihood of occurrence. Value at risk is defined as the maximum potential loss from adverse market movements within a specified confidence interval (e.g., 95%) of likely market movements over a specified time period (e.g., overnight, thirty days).

Each of these alternatives is discussed in detail in Chapters 4 and 5.

While limiting the analysis methods that may be utilized, the Quantitative Rules permit registrants the flexibility of presenting quantitative market risk information utilizing any one of these three alternatives or a *combination* of the three alternatives. For example, a registrant may use the *same* alternative for all market risk disclosures. Alternatively, a registrant may use one alternative, such as value at risk, for all disclosures related to instruments entered into for trading purposes, and another alternative, such as sensitivity analysis, for all disclosures related to instruments entered into for other than trading purposes. Moreover, this flexibility would permit a registrant to utilize different alternatives for each category of market risk within the trading and other than trading portfolios.

Factors the registrant may consider in deciding which (combination of) quantitative disclosure method(s) is the most appropriate are:

- 1) **Volume and complexity of transactions.** Generally, the simplest approach, that is – the tabular approach, is most appropriate for entities with limited portfolios of market risk sensitive instruments. However, as the volume and complexity of an entity's portfolio increase, either sensitivity analysis or value at risk presentations may be more appropriate.
- 2) **Nature of risk management activities.** If a registrant prepares the quantitative assessment of market risk solely to fulfill reporting requirements, the simplest approach would be the most appropriate (i.e., either tabular or sensitivity analysis). However, a registrant may utilize a quantitative assessment of market risk as a part of its ongoing risk management activity. In such case, the same information may also fulfill the reporting requirements. For example, a value at risk analysis may be used by an entity to understand its risk profile. In such a case, it would be logical to also utilize a value at risk analysis to meet the disclosure requirements.
- 3) **Competitive considerations.** Tabular presentations require the registrant to disclose detailed information about its positions, as well as characteristics of its financial instruments. Such detail could result in the company giving away certain competitive information (e.g., volumes of certain commodity positions). Comparatively, both value at risk and sensitivity analysis allow companies to aggregate information at a higher level and, as such, might mitigate concerns about reporting competitively harmful information.
- 4) **Cost.** The cost of preparing the disclosures is likely to increase as more sophisticated methodologies (i.e., sensitivity analysis or value at risk) are utilized, because these methodologies require more complex systems, calculations and interpretive analysis.
- 5) **Varied risk exposures.** When assessing which analysis method is more appropriate, entities should consider the types of risk they face. If an entity has multiple types of exposures within a risk category, value at risk may be more appropriate as it considers the correlation of the different risk exposures, acknowledging that risks are not additive. For example, if a US-based entity was exposed to various foreign currency risks, such as

the euro, British pound sterling and Norwegian kroner, a value at risk model would recognize that movements in the euro relative to the US dollar are not necessarily of the same magnitude as similar movements in the British pound sterling or Norwegian kroner. Value at risk, in effect, gives “credit” to any diversification of risk that might be achieved from multiple exposures within a risk category.

Materiality

The SEC’s market risk disclosures only are required when the exposure to market risk is material. In the SEC staff’s publication, *Questions and Answers About the New “Market Risk” Disclosure Rules*, the SEC clarified its rules on how materiality may be assessed. As described in that publication, once an entity has categorized market risk sensitive instruments between two basic portfolios, trading and all other instruments, and categorized market risk sensitive instruments within each of those categories by market risk (i.e., interest rate, foreign currency, commodity and other) the entity must assess the materiality of each discrete market risk exposure. That assessment must consider both:

- 1) The materiality of the fair values of market risk sensitive instruments as of the end of the latest fiscal year⁴
- 2) The materiality of potential, near-term losses in future earnings, fair values or cash flows resulting from reasonably possible⁵ near-term changes in market rates or prices. Consistent with GAAP⁶, the SEC defines “near term” as a period of time going forward up to one year from the date of the financial statements.

The Quantitative Rule provides only the following guidelines for evaluating whether a *potential* loss is material:

- 1) The magnitude of past market movements
- 2) Expectations about the magnitude of reasonably possible near-term market movements
- 3) The magnitude of potential losses that may arise from leverage, option, and/or multiplier features in derivative positions

The SEC intends that this analysis be performed on an aggregate (i.e., gross) rather than net basis (i.e., ignoring interrelationships between positions and transactions). Further, in performing this assessment the entity is not permitted to net favorable and unfavorable fair

⁴ It is our understanding that while the SEC staff’s publication, *Questions and Answers About the New “Market Risk” Disclosure Rules*, identifies this test as one of the two tests for materiality, in practice the SEC staff has indicated that it will place far greater emphasis on the assessment of materiality of potential, near-term losses in future earnings, fair value or cash flows resulting from reasonably possible near-term changes in market rates or prices.

⁵ As defined in ASC 450, *Contingencies*.

⁶ FASB Codification Master Glossary

values, except where permitted under GAAP⁷. If either of these two assessments (fair value at period end or forward looking measurements) results in the identification of a material market risk exposure, then the entity must disclose the quantitative and qualitative information for that particular, discrete market risk exposure.

To illustrate, assume a company has both a trading and a non-trading portfolio. The trading portfolio is comprised of derivative commodity contracts and exposes the company to changes in commodity prices. The non-trading portfolio is comprised of short-term debt securities and long-term borrowings, exposing the company to changes in interest rates. Accordingly, the company must address the materiality of two discrete categories: trading portfolio/commodity risk and non-trading portfolio/interest rate risk.

In our example, the company first evaluates the materiality of market risk in its trading/commodity risk portfolio. Initially, the company must determine whether the fair values of the derivative commodity instruments comprising that portfolio were material at *period end*. If the fair values of those instruments were material, disclosure of the company's market risk for the trading/commodity risk portfolio would be required. However, if the fair values at period end were *not* material, the company must then assess its exposure to potential changes in relevant commodity prices in the near term (i.e., one year). That assessment should consider potential changes in fair values, cash flows or earnings. If any of those measures result in a material exposure, disclosure of the company's market risk for the trading/commodity risk portfolio would be required. This same process would then be repeated for each remaining risk category (i.e., non-trading/interest rate risk).

Quantitative disclosures are required only for material exposures. Thus, if the company's only material exposure is to changes in interest rates in its non-trading portfolio, it must present quantitative information only for that specific exposure. Quantitative disclosures about other, immaterial exposures are elective. If the company determines that quantitative disclosures for a specific market risk exposure do not need to be presented, the SEC has stated that *qualitative* disclosures are not required for that particular exposure either.

If a company has a material risk of loss in earnings or cash flows, but only an immaterial risk of loss in fair values, it may *not* present its quantitative disclosure of market risk based on fair values. In this fact pattern, for a sensitivity analysis or value at risk disclosure the company must present the risk of loss in either earnings or cash flows as those are the *material* exposures. If two or more risks are material, the company may disclose the one that is most appropriate. The company also may supplement that disclosure by presenting other disclosures measuring risk of loss (e.g., fair value, cash flow or earnings).

⁷ ASC 210-20, *Balance Sheet - Offsetting* provides guidance in this area.

Model assumptions

Recognizing that permitting registrants to use any one or a combination of three alternatives is likely to make comparing the quantitative disclosures of different registrants difficult, the Quantitative Rules require disclosure of the key characteristics of models, assumptions and parameters used in preparing the quantitative market risk disclosures. As the nature of each alternative (tabular, sensitivity and value at risk) varies, the specific requirements vary.

In the SEC's view, such disclosures are necessary to enable investors to evaluate the potential impact of variations in the model characteristics and assumptions on the reported information. Further, because the reported quantitative information is highly dependent on assumptions, detailed disclosure is necessary to enable investors to assess the quality of those assumptions.

Comparative information

The SEC believes that information about market risk is most useful for investors when compared to one or more prior periods. For example, an evaluation of reported quantitative information about market risk within a historical context should help investors assess the dynamic nature of that risk. Similarly, for such information to be meaningful, the information should be prepared on a consistent basis from period-to-period.

To facilitate a comparative analysis, the Quantitative Rules require registrants to provide *summarized* quantitative information about market risk for both the current and the preceding fiscal year. Additionally, if changes in the quantitative market risk exposures between the current and preceding fiscal years are material, registrants are required to explain the reasons for those changes. This requirement argues strongly for registrants to select a disclosure alternative that closely correlates with the entity's risk management practices. Just imagine the difficulty explaining a significant increase in a value at risk amount if risk management activities do not utilize value at risk analysis methods but rather are limited to matching foreign currency cash flows for the ensuing three years.

When evaluating whether information to be provided for the preceding fiscal year is adequate, registrants should assess whether the amount and type of summarized information to be disclosed is sufficient to enable investors to analyze material trends in quantitative market risk information. At a minimum, the summarized information should include data relating to *each* market risk exposure category disclosed in the preceding or latest fiscal year.

Recognizing the evolutionary nature of risk management practices, the SEC believes that registrants should be permitted to change methods of preparing market risk information as they refine or adjust their risk management practices. Accordingly, the Quantitative Rules permit registrants to change among the three disclosure alternatives, as well as key model characteristics, assumptions and parameters used in providing quantitative information

about market risk. For example, registrants are permitted to change from a tabular presentation to a value at risk analysis. Similarly, registrants may change the scope of instruments included in the model (i.e., from excluding physical commodity inventory positions to voluntarily including such positions) or change the manner in which loss is defined (e.g., from fair values to earnings). However, to the extent the effects of such a change are material, registrants are required to explain the reasons for the change. In assessing materiality, the SEC believes that *all* changes from one disclosure alternative to another are material.

The above changes would also impact the comparability of the quantitative disclosures. As a result, the Quantitative Rules require registrants with material changes to provide comparable quantitative market risk disclosures for the current and preceding fiscal year. To mitigate the costs of preparing comparable prior period disclosures, the Quantitative Rules provide two alternatives for registrants that make a material change in their quantitative market risk disclosures. Under one alternative, a registrant may provide summarized comparable information under the *new* disclosure method for the prior year. However, registrants may find it difficult to recreate prior records and information necessary to prepare restated information. So, as another alternative, the registrant may provide the comparable disclosure for the current and prior fiscal years under the method used in the prior year as well as providing disclosure for the current year under the new method.

Alternative to reporting year-end information

The Quantitative Rules require disclosure of quantitative information about market risk as of the end of the latest fiscal year. However, acknowledging that registrants may have concerns about reporting proprietary year-end information under the sensitivity or value at risk methods, the Quantitative Rules do permit an alternative to reporting year-end information. For either the sensitivity analysis alternative or the value at risk alternative, registrants may report the average, high and low amounts during the year in lieu of the actual year-end amount. In determining the average, high and low amounts for the fiscal year, registrants should use sensitivity analysis or value at risk amounts relating to, at a minimum, four equal time periods throughout the reporting period (e.g., four quarter-end amounts). But 12 month-end amounts or 52 week-end amounts also can be used.

Encouraged disclosures

While the Quantitative Rules address specific market risk sensitive instruments, market risk exposures also may exist in other types of instruments, positions and transactions. For example, market risk may be inherent in the following items:

- ▶ Derivative commodity instruments that are not permitted by contract or business custom to be settled in cash or with another financial instrument – such as a commodity forward contract that *must* be settled in the commodity (i.e., requiring physical delivery)

- ▶ Physical commodity positions – such as investments in corn, wheat, oil, gas, lumber, silver, gold or other commodity inventory positions
- ▶ Cash flows from anticipated transactions⁸ – such as cash flows from anticipated purchases and sales of inventory, and operating cash flows from non-financial and non-commodity instruments (e.g., cash flows generated by manufacturing activities)
- ▶ Certain financial instruments not included among the required disclosure items – for example, insurance contracts, lease contracts and employers' and plans' obligations for pension and other postretirement benefits

While market risk may be inherent in these types of instruments, for practical reasons these instruments have been omitted from the requirements of the Quantitative Rules. For example, the amount and timing of the cash flows inherent in these types of market risk sensitive instruments, positions and transactions may be difficult to estimate. Also, at present, many risk measurement systems simply do not include these types of instruments, positions and transactions in their quantitative assessments of market risk. While not required, registrants are encouraged to voluntarily include such items in their quantitative market risk disclosures.

However, if presented the Quantitative Rules restrict how such information may be presented. If a registrant elects voluntarily to include a particular type of instrument, position or transaction in its quantitative disclosures about market risk, the registrant's disclosure should include all, rather than a portion, of those instruments, positions or transactions. For example, if a registrant holds in its physical inventory a specific commodity position, such as soybeans, and elects to include that soybean position within its market risk disclosures, the registrant should include the *entire* soybean position, rather than only the portion hedged or some other portion. This guidance applies even if a registrant hedged only a portion of its physical commodity position.

This restriction will be significant for many registrants that actively manage their risk exposures. For instance, if a registrant utilizes derivatives contracts, such as copper futures, to hedge its anticipated sales of copper, the registrant is required to include those derivative commodity instruments in its quantitative risk disclosures. To illustrate the effectiveness of its risk management strategy, the registrant also may choose to voluntarily disclose its market risk exposure resulting from the related anticipated sales of copper. However, if the registrant has hedged only 60% of its anticipated sales, it still would be required to disclose the market risk exposure resulting from *all* of its anticipated copper sales.

⁸ The Instruction 3 to Rule 4-08(n) defines anticipated transactions as transactions (other than transactions involving existing assets or liabilities or transactions necessitated by existing firm commitments) an entity expects, but is not obligated, to carry out in the normal course of business.

Registrants that choose the tabular presentation disclosure alternative should present voluntarily selected instruments, positions or transactions in a manner consistent with the requirements in the Quantitative Rules for market risk sensitive instruments (i.e., separately by category). However, registrants selecting the sensitivity analysis or value at risk disclosure alternatives are not required to provide separate market risk disclosures for any voluntarily selected instruments, positions or transactions. Instead, registrants selecting those disclosure alternatives are permitted to present *comprehensive* market risk disclosures reflecting the combined market risk exposures inherent in both the required and voluntarily selected instruments, positions or transactions. As a result, the tabular information that includes voluntarily included items will present significantly more information about the sources of risk an entity faces than the sensitivity analysis and value at risk alternatives based on the same information.

Limitations

The Quantitative Rules require disclosure of any limitations that cause the quantitative risk information presented not to fully reflect the net market risk exposures of the registrant. This discussion is to include a description of instruments, positions and transactions omitted from the quantitative market risk disclosure information, even if those disclosures were not required. Additionally, the discussion must include the features of instruments, positions and transactions that are included, but not reflected fully in the quantitative information disclosed.

For example, as described in the *Encouraged Disclosures* section above, registrants are not required to include certain instruments, positions or transactions in the quantitative disclosures about market risk, but may include such items on a voluntary basis. However, excluding those instruments, positions or transactions from the quantitative disclosures may be a “limitation” of the quantitative information provided. If omitting these items has a material impact, the limitation should be discussed.

In addition, a summarized description (but not necessarily their amounts) of the instruments, positions or transactions omitted should be provided. For example, the quantitative risk information may exclude detail regarding future expected transactions or commodity positions, but if these transactions or positions materially mitigate or exacerbate the risk implied in the disclosure, the registrant would be required to disclose that this information had been omitted.

In contrast, certain instruments that are *included* in a registrant's required quantitative disclosures may have unusual features such as leverage, option or prepayment, that heighten the degree of market risk. Instruments with such features include options (including written options), structured notes, mortgage loans and securities, collateralized mortgage obligations, leveraged swaps and swaps with embedded options. For these types of instruments, a registrant's quantitative disclosures may not adequately inform investors of the degree of market risk inherent in the instruments. For instance, tabular information on fair values and contract terms may not necessarily indicate that instruments have leverage or

option features. Similarly, if leverage, option or prepayment features may be triggered by changes in market rates or prices outside the range reflected in the value at risk and sensitivity analysis disclosures, the potential loss from such market rate or price changes may be significantly larger than would be implied by a simple linear extrapolation of the reported numbers. In order to make investors fully aware of the market risk inherent in instruments with such features, the Quantitative Rules require a discussion of these limitations, including a summarized description of the features of the instruments causing the limitation.

Interim disclosures

Interim disclosures must enable the reader to assess the sources and effects of material changes in market risk exposures that affect the quantitative and qualitative disclosures presented as of the end of the preceding fiscal year. For example, if a company enters into a significant amount of interest rate swaps for the first time in the first quarter, disclosure of the change in risk strategy would be disclosed. Interim information is not required until after the first fiscal year-end in which the rule is effective.

Companies are expected to have reasonable procedures in place to monitor whether material changes in market risk are likely to have occurred since year-end. The nature and extent of disclosures required for interim reports are considered consistent with customary management practices and information systems of companies that are exposed to material market risk.

4 Tabular presentation

The first of the three disclosure alternatives for the quantitative information, a tabular presentation of summarized information, requires disclosure of key terms and information (e.g., fair value, principal or transaction cash flows, weighted-average rates or prices) for market risk sensitive instruments. The SEC intends this alternative to be a less sophisticated means of providing information about market risk as compared to either the sensitivity analysis or the value at risk approaches. Because of the relative simplicity of applying this alternative, many entities with noncomplex exposures would be expected to select the tabular presentation alternative.

While the tabular approach is by far the simplest to prepare, it also has drawbacks, such as the amount of data that must be disclosed. Essentially, a tabular approach requires a company to summarize its outstanding market risk sensitive instruments by nature and type. As a result, companies opting for this presentation style may ultimately provide data regarding capital structure or hedging strategies to its investors (and the public) that leave the company at a competitive disadvantage. In addition, the tabular approach is a static analysis, focused at a point in time, and does not make any overt assessments about future risk. Rather, the SEC intended the presentation to provide enough data for users of the financial statements to make their own overall quantitative risk assessments. Accordingly, a company utilizing this presentation style runs the risk of having an analyst or investor arrive at a conclusion about the company's market risk exposure that the company might believe is invalid.

In developing the tabular disclosure requirements, the SEC focused on information essential to enable investors to make estimates of a registrant's market risk exposures. As with the other disclosure alternatives, the Quantitative Rules require that tabular information be grouped based upon common market risk characteristics. In particular, if material (see materiality discussion in Chapter 3, *Quantitative disclosures – General requirements*), tabular information for market risk sensitive instruments must be presented *separately*:

- 1) For instruments entered into for trading purposes and instruments entered into for other than trading purposes.
- 2) Within the major categories of trading and other than trading, instruments giving rise to various categories of market risk exposure (e.g., interest rate, foreign currency exchange risk and commodity price). Additionally, market risk sensitive instruments that are exposed to rate or price changes in more than one market risk exposure category (e.g., interest rate and foreign currency) should be presented within the tabular information for each of the risk exposure categories to which those instruments are exposed.

- 3) Within each risk exposure category, instruments grouped based on common characteristics (e.g., functional currencies⁹, underlying commodity exposures, instrument types, contractual rates or prices, common usage for managing risks inherent in anticipated transactions). For example, within the category of foreign currency exchange rate risk, instruments generally should be presented separately by functional currency (see discussion below for permitted groupings). Similarly, within the category of commodity price risk, instruments should be grouped by type of commodity.

The basic information required by the Quantitative Rules for the tabular presentation alternative includes the fair values of market risk sensitive instruments and sufficient detail of contract terms to determine the future cash flows from those instruments, categorized by expected maturity dates. For each instrument, the expected principal or transaction cash flow information should be presented separately for each of the next five years, with the remaining expected cash flows presented as an aggregate amount. The SEC developed these tabular disclosure requirements because expected cash flows are common inputs to market risk measurement methods and, therefore, are expected to help investors make estimates of a registrant's market risk exposures.

When preparing the tabular disclosures, registrants should consider whether differences in market risk would be more effectively reflected by separate presentation for a particular instrument or group of instruments. For example, in the case of options, limiting the degree of aggregation is essential, because option payouts can differ significantly depending how far the option is in or out of the money (i.e., how the current market price differs from the option's strike price). Accordingly, the separate presentation of tabular information for options with dissimilar strike prices is required and should enhance an investor's ability to determine the potential market risk inherent in those instruments. Registrants should perform similar evaluations when determining which other instruments should be grouped together within the tabular disclosures. However, the Quantitative Rules require the disaggregated reporting of instruments based on common characteristics only to the extent such disaggregation provides material information to investors.

While the SEC is concerned that highly summarized tabular information will not allow investors to analyze and develop an understanding of a registrant's market risk exposures, the Quantitative Rules do permit combined disclosures of some foreign currency risks. For example, the Quantitative Rules permit registrants to aggregate information regarding disclosure of foreign currency sensitive instruments exposed to different functional currencies, provided that those functional currencies are economically related, are managed together for internal risk management purposes, *and* have statistical correlations of greater than 75% over each of the past three years. Similarly, the Quantitative Rules exempt certain currency swaps and their related foreign currency denominated debt instruments from

⁹ For the purpose of the Quantitative Rules, functional currency means the currency of the primary economic environment in which the entity operates; normally, that is the currency of the environment in which an entity primarily generates and expends cash. This definition is the same as the definition of functional currency in the FASB Codification Master Glossary.

disclosure in the foreign currency risk exposure category if the currency swap eliminates all foreign currency exposure in the cash flows of the foreign currency denominated debt instrument. For example, a company that issues foreign currency denominated debt and uses a cross currency swap to synthetically convert both the principal and interest cash flows of the debt to a US dollar basis would not be required to disclose information about either the debt or the cross currency swap in the foreign currency exposure table. However, both the currency swap and the foreign currency denominated debt instrument still should be disclosed in the interest rate risk exposure table.

For the tabular approach, the following chart illustrates the level of aggregation permitted within each major risk category, organized by instrument type and by relevant characteristics (first three columns). In addition, the chart lists the typical contract terms that the SEC would expect to be disclosed to assist the reader in determining the future cash flows for each aggregated instrument category (last column).

Instrument aggregation guidance			Cash flow information
Market risk sensitive instrument	Common characteristics of the instrument	Other key characteristics to be disclosed separately ¹⁰	Contract terms
Debt instruments (assets and liabilities)	Fixed rate variable rate or index	Foreign currencies	Principal amounts and weighted-average effective interest rates
Forwards and futures	Long or short	Interest rate indices Foreign currencies Commodity types	Contract amounts and weighted-average settlement prices
Options written or purchased	Put or call similar strike prices	Foreign currencies Commodity types	Contract amounts and weighted-average strike prices
Swaps	Receive fixed and pay variable Receive variable and pay fixed Receive variable and pay variable	Foreign currencies Commodity types	Notional amounts, weighted-average pay rates or prices and weighted-average receive rates or prices
Complex instruments	Various characteristics in combination	Foreign currencies Commodity types	Likely to be a combination of the contract terms listed above as these instruments will have characteristics of more than one other market risk sensitive instrument

¹⁰ Separate presentation is required for each major risk category (interest rate, foreign currency, commodity price and other price risks). Some instruments may have risk characteristics attributable to more than one risk category and must be presented in each relevant risk category.

Assumptions

The Quantitative Rules do not define particular assumptions or parameters that must be utilized in developing a tabular presentation. Rather, the Quantitative Rules require disclosure of information regarding the contents of the table and related assumptions necessary to understand a registrant's market risk disclosures. For example, registrants should describe the nature of the different amounts reported in the table for the various categories of the market sensitive instruments (e.g., principal amounts for debt, notional amounts for swaps and the different types of reported market rates or prices) and key prepayment or reinvestment assumptions relating to the timing of reported amounts. Disclosures of these assumptions are incorporated in the following examples.

Examples of tabular presentation disclosures

Following are four examples of tabular presentations of quantitative information about market risk. As illustrated below, these disclosures will add a great deal more information to annual reports. (Note that all such disclosures should be outside of the financial statements and footnotes.)

I. Interest rate sensitivity of a company with operations only in the United States

The first example illustrates an entity that operates only in the United States, finances its operations with commercial paper and long-term debt, and utilizes interest rate swap and cap agreements to hedge the effects of increasing interest rates on interest expense. The tabular presentation displays the entity's interest rate risk.

It should be noted that the table only presents the entity's interest rate risk. If the company also was subject to foreign currency exchange rate risk, it also would be required to present the details of its foreign currency exchange rate risk in a *separate* tabular presentation.

Example

The following table provides information about the Company's derivative financial instruments and other financial instruments that are sensitive to changes in interest rates. For investment securities and debt obligations, the table presents principal cash flows and related weighted-average interest rates by expected maturity dates. Additionally, the company has assumed its available for sale securities, comprised of commercial paper and treasury bill securities, are similar enough to aggregate those securities for presentation purposes. Weighted-average variable rates¹¹ are based on implied forward rates as derived

¹¹ Observation: The Quantitative Rules do not provide specific guidance about presenting average rate information for variable rate instruments. However, the SEC's example bases such rates on the implied forward rates in the yield curve, which can be developed, obtained from investment bankers or accessed in a variety of market publications. Alternatively, we believe it would be acceptable to merely indicate the applicable floating rate index (e.g., LIBOR plus 1%).

from appropriate annual spot rate observations as of the reporting date. For interest rate swaps and caps, the table presents notional amounts and weighted-average interest rates or strike rates by contractual maturity dates. Notional amounts are used to calculate the contractual cash flows to be exchanged under the contract.

Interest rate sensitivity

Principal (notional) amount by expected maturity
Average interest (swap) rate and cap strike price

<i>(dollars in millions)</i>	20x5	20x6	20x7	20x8	20x9	Thereafter	Total	Fair value 12/31/xx
Assets								
Available for sale securities	\$ 5.0	\$ 5.0	-	-	-	-	\$ 10.0	\$ 9.5
Avg. interest rate	6.0%	6.0%	-	-	-	-		
Liabilities								
Commercial paper	\$ 10.0	-	-	-	-	-	\$ 10.0	\$ 10.0
Avg. interest rate	6.5%	-	-	-	-	-		
Long-term debt, including current portion								
Fixed rate	\$ 5.0	\$ 5.0	\$ 5.0	\$ 10.0	\$ 10.0	\$ 5.0	\$ 40.0	\$ 38.7
Avg. interest rate	7.8%	7.8%	7.8%	8.2%	8.2%	8.4%		
Variable rate	-	-	\$ 5.0	-	-	-	\$ 5.0	\$ 5.0
Avg. interest rate	5.4%	5.5%	5.7%	-	-	-		
Interest rate derivative financial instruments related to debt								
Interest rate swaps								
Pay variable/ receive fixed	-	\$ 3.0	\$ 3.0	\$ 5.0	\$ 5.0	\$ 4.0	\$ 20.0	\$ 0.5
Avg. pay rate	6.2%	6.3%	6.6%	6.8%	7.2%	7.5%		
Avg. receive rate	7.0%	7.0%	7.0%	8.0%	8.0%	8.0%		
Interest rate derivative financial instruments related to anticipated commercial paper issuance								
Interest rate swaps								
Pay fixed	-	\$ 10.0	-	-	-	-	\$ 10.0	\$ (0.1)
Avg. pay rate	-	6.0%	-	-	-	-		
Avg. receive rate	-	5.4%	-	-	-	-		
Interest rate caps								
Notional amount	-	-	-	-	\$ 10.0	-	\$ 10.0	\$ 0.2
Strike rate	-	-	-	-	7.0%	-		
Forward rate	6.2%	6.3%	6.6%	6.8%	7.2%	-		

II. Foreign currency exchange rate sensitivity of a multinational company

The second example is more complex but, compared to most multinational entities, it is still relatively simple. This example assumes that the entity's subsidiaries use two functional currencies (US dollars and Euros). The example also assumes that each subsidiary issues long-term debt, principally denominated in euro (EUR), Japanese yen (¥) and British sterling (£). Each subsidiary uses cross currency interest rate swaps to reduce the exposure of its earnings to foreign exchange risk. In addition, each subsidiary has firm sales contracts in these currencies and hedges a portion of the resulting future foreign currency cash flows. The entity has voluntarily included the firm sales contracts in its presentation.

As before, it should be noted that these tables only present the entity's exchange rate risk. If the company also was subject to interest rate risk, it also would be required to present the details of its interest rate risk in a separate tabular presentation.

Additionally, the Quantitative Rules permit entities that eliminate all foreign currency exposure in the cash flows of a foreign currency denominated debt instrument to exclude both the foreign currency denominated debt instrument and the currency swap from the foreign currency risk exposure category. In this example, the currency swaps utilized eliminate only a portion of the foreign currency exposure; therefore, both instruments are included in the tabular presentation.

Example

The following tables provide information about the Company's derivative financial instruments, other financial instruments and firmly committed sales transactions by functional currency and present such information in US dollar equivalents. The tables summarize information on instruments and transactions that are sensitive to foreign currency exchange rates, including foreign currency forward exchange agreements, foreign currency denominated debt obligations and firmly committed sales transactions. For foreign currency denominated debt obligations, the tables present principal cash flows, related weighted-average interest rates by expected maturity dates and applicable average forward foreign currency exchange rates.¹² For firmly committed foreign sales transactions, sales amounts are presented by the expected transaction date. For foreign currency forward exchange agreements, the tables present the notional amounts and weighted-average exchange rates by expected (contractual) maturity dates. These notional amounts generally are used to calculate the contractual payments to be exchanged under the contract.

¹² Observation: The Quantitative Rules require the inclusion of information for each item in the table to describe the expected cash flow of the item. The illustrative example uses the term average exchange rate without indicating how such amount is to be determined. Alternatively, we believe it would be acceptable to include the current forward foreign exchange rate in the presentation.

Balance sheet exposures – Operations with United States dollar functional currency

Principal (notional) amount by expected maturity
Average forward foreign currency exchange rate (USD/foreign currency)

<i>(dollars in millions)</i>	20x5	20x6	20x7	20x8	20x9	Thereafter	Total	Fair value 12/31/xx
Long-term debt denominated in foreign currencies								
<i>Euro</i>								
Fixed rate	–	–	\$ 10.0	–	–	\$ 10.0	\$ 20.0	\$ 22.0
Avg. interest rate	7.8%	7.8%	7.8%	8.0%	8.0%	8.0%		
Avg. forward foreign currency exchange rate			.175			.179		
<i>Japanese Yen</i>								
Fixed rate	–	–	–	–	\$ 15.0	–	\$ 15.0	\$ 13.6
Avg. interest rate	8.1%	8.1%	8.1%	8.1%	8.1%			
Avg. forward foreign currency exchange rate					.010			
<i>British Sterling</i>								
Fixed rate	–	\$ 3.0	–	–	\$ 2.0	\$ 2.0	\$ 7.0	\$ 6.3
Avg. interest rate	7.8%	7.8%	7.9%	7.9%	7.9%	8.1%		
Avg. forward foreign currency exchange rate		1.610			1.625	1.629		
Currency swap agreements related to long-term debt								
<i>Receipt of Euros</i>								
Notional amount	–	–	\$ 5.0	–	–	\$ 5.0	\$ 10.0	\$ 0.2
Avg. contract rate			.174			.177		
<i>Receipt of Yen</i>								
Notional amount	–	–	–	–	\$ 7.5	–	\$ 7.5	\$ (0.3)
Avg. contract rate					.013			
<i>Receipt of Sterling</i>								
Notional amount	–	\$ 1.5	–	–	\$ 1.0	\$ 1.0	\$ 3.5	\$ (1.2)
Avg. contract rate		1.622			1.623	1.625		

The following table presents firmly committed sales exposures¹³ and related derivative contracts for each of the next four years. The Company has no exposures in or commitments for year five or thereafter.

¹³ As previously mentioned, the firmly committed sales contract information is voluntary, but is intended to help readers understand the context of other forward contract disclosures.

Firmly committed sales exposures and related derivative contracts – Operations with United States dollar functional currency

Principal (Notional) amount by expected maturity
Average forward foreign currency exchange rate (USD/foreign currency)

<i>(dollars in millions)</i>	20x5	20x6	20x7	20x8	Total	Fair value 12/31/xx
<i>Firmly committed sales contracts</i>						
Euro	-	\$ 5.0	\$ 5.0	-	\$ 10.0	\$ -
Japanese Yen	-	-	\$ 7.5	-	\$ 7.5	-
British Sterling	\$ 1.5	-	\$ 1.0	\$ 1.0	\$ 3.5	-
Related forward contracts to sell foreign currencies for US \$						
<i>Euro</i>						
Notional amount	-	\$ 3.0	-	-	\$ 3.0	\$ 0.8
Avg. contract rate	-	.174				
<i>Japanese Yen</i>						
Notional amount	-	-	\$ 2.5	-	\$ 2.5	\$ 0.6
Avg. contract rate			.011			
<i>British Sterling</i>						
Notional amount	\$ 1.5	-	-	\$ 1.0	\$ 2.5	\$ 0.7
Avg. contract rate		1.607		1.631		
Purchase option contracts to sell foreign currencies for US \$						
<i>Euro</i>						
Notional amount	-	\$ 1.0	\$ 3.0	-	\$ 4.0	\$ 0.5
Avg. strike price		.180	.182			
<i>Japanese Yen</i>						
Notional amount	-	-	\$ 3.0	-	\$ 3.0	\$ 0.3
Avg. strike price			.014			
<i>British Sterling</i>						
Notional amount	-	-	\$ 0.8	-	\$ 0.8	\$ 0.3
Avg. strike rate			1.625			

The following tables provide information about the Company's derivative financial instruments, including foreign currency forward exchange agreements and options, other financial instruments and certain firmly committed sales transactions denominated in currencies other than the functional currency. The information is provided in US dollar equivalent amounts, as presented in the Company's financial statements. For debt obligations, the tables present principal amounts at current exchange rates by expected maturity dates and the applicable average forward foreign currency exchange rate. For forward foreign currency exchange agreements, the tables present the notional amounts at the current exchange rate and weighted-average contractual foreign currency exchange rates by contractual maturity dates. The tables do not include firmly committed transactions that have not been hedged or transactions which are not firmly committed, even though the probability of certain transactions occurring is high.

Balance sheet exposures – Operations with Euro functional currency

Principal (notional) amount by expected maturity
Average forward foreign currency exchange rate (Euro/foreign currency)

(dollars in millions)	20x5	20x6	20x7	20x8	20x9	Thereafter	Total	Fair value 12/31/xx
Long-term debt denominated in foreign currencies								
<i>United States dollar</i>								
Fixed rate	\$ –	\$ –	\$ 10.0	–	–	–	\$ 10.0	\$ 12.3
Avg. interest rate	5.7%	6.0%	6.3%					
Avg. forward foreign currency exchange rate			5.910					
<i>Japanese Yen</i>								
Variable rate	–	\$ 7.0	–	\$ 5.0	–	–	\$ 12.0	\$ 13.5
Avg. interest rate	6.3%	6.6%	6.9%	7.1%				
Avg. forward foreign currency exchange rate		.0492		.0495				

Firmly committed sales exposures and related derivative contracts – Operations with Euro functional currency

Principal (notional) amount by expected maturity
Average forward foreign currency exchange rate (Euro/foreign currency)

(dollars in millions)	20x5	20x6	20x7	20x8	20x9	Thereafter	Total	Fair value 12/31/xx
Firmly committed sales contracts								
United States dollar	\$ 2.0	\$ 1.5	–	–	–	–	\$ 3.5	–
Japanese Yen	\$ 1.2	\$ 0.8	–	–	–	–	\$ 2.0	–
British Sterling	\$ 1.6	\$ 1.0	–	–	–	–	\$ 2.6	–
Related forward contracts to sell foreign currencies for Euro								
<i>United States Dollar</i>								
Notional amount	\$ 1.0	\$ 1.5	–	–	–	–	\$ 2.5	\$ 0.7
Avg. contract rate	5.893	5.90	–	–	–	–	–	
<i>Japanese Yen</i>								
Notional amount	\$ 1.2	\$ 0.8	–	–	–	–	\$ 2.0	\$ (0.4)
Avg. contract rate	.0488	.0492	–	–	–	–	–	
<i>British Sterling</i>								
Notional amount	\$ 0.6	–	–	–	–	–	\$ 0.6	\$ 0.0
Avg. contract rate	9.470							

<i>(dollars in millions)</i>	20x5	20x6	20x7	20x8	20x9	Thereafter	Total	Fair value 12/31/xx
Purchase option contracts to sell foreign currencies for Euro								
<i>United States Dollar</i>								
Notional amount	\$ 1.0	\$ -	-	-	-	-	\$ 1.0	\$ 0.3
Avg. strike price	5.898	-	-	-	-	-	-	-
<i>British Sterling</i>								
Notional amount	\$ 1.0	\$ 1.0	-	-	-	-	\$ 2.0	\$ 0.1
Avg. contract rate	9.480	9.495	-	-	-	-	-	-

III. Commodity price sensitivity of an oil refiner

This example depicts an oil refiner that hedges the value of next year's crude oil sales with a combination of futures, forward and option contracts. This simple example assumes that while the entity has only one commodity exposure (e.g., crude oil), it utilizes three different instruments to manage that exposure. It should be noted that the table only presents the entity's market risk resulting from derivative financial instruments. If the entity chooses to provide the encouraged disclosures regarding existing or anticipated commodity positions, the entity's entire expected crude oil sales would have to be included.

Example

The table below provides information about the Company's forwards, futures and optional sales contracts that are based on crude oil prices. These contracts are used to manage the Company's exposure resulting from movements in crude oil prices. The anticipated sales of crude oil are not included. For the futures and forward sales contracts, the table presents the notional amounts in barrels, the weighted-average contract prices and the total dollar contract amount by expected maturity dates. The number of barrels subject to option contracts and the strike price of the contract are also indicated. Contract amounts are used to calculate the contractual payments and quantity of crude oil to be exchanged under the futures contracts.

<i>(dollars in millions)</i>	Expected Maturity		Fair Value 12/31/xx
	20X1	20X2	
Futures contracts (short):			\$ 2.05
Contract volumes (5,000 barrels)	200	250	
Weighted-average price (per barrel)	\$ 19.45	\$ 19.54	
Contract amount (millions)	\$ 19.45	\$ 24.43	

<i>(dollars in millions)</i>	Expected Maturity		Fair Value 12/31/xx
	20X1	20X2	
Over the counter forward sales agreements			\$ 2.15
Contract volumes (5,000 barrels)	800	300	
Weighted-average price (per barrel)	\$ 19.52	\$ 19.60	
Contract amount (millions)	\$ 78.08	\$ 29.40	
Optional sales contracts			\$ 2.30
Contract volumes (5,000 barrels)	1,000	200	
Weighted-average price (per barrel)	\$ 19.53	\$ 19.61	
Contract amount (millions)	\$ 97.65	\$ 19.61	

IV. Interest rate sensitivity of a financial institution

In some respects the tabular presentation alternative is similar to the gap analysis commonly provided by financial institutions. As a result, financial institutions could report their gap analysis, with modifications, and comply with the tabular information requirements.

The following disclosure example illustrates a bank that uses the tabular presentation to display the bank's interest rate risk. The bank operates only in the United States and uses swaps, caps and floors to manage interest rate risk. Excluded from this example are the qualitative or contextual disclosures necessary to explain what exposures the derivative financial instruments have modified.

Example

The following table provides information about the Company's derivative financial instruments and other financial instruments used for purposes other than trading that are sensitive to changes in interest rates. For loans, securities and liabilities with contractual maturities, the table presents principal cash flows and related weighted-average interest rates by contractual maturities as well as the Company's historical experience of the impact of interest rate fluctuations on the prepayment of residential and home equity loans and mortgage-backed securities. For core deposits (e.g., DDA, interest checking, savings and money market deposits) that have no contractual maturity, the table presents principal cash flows and, as applicable, related weighted-average interest rates based on the Company's historical experience, management's judgment and statistical analysis, as applicable, concerning their most likely withdrawal behaviors.

For interest rate swaps, interest rate caps and interest rate floors, the table presents notional amounts and, as applicable, weighted-average interest rates by contractual maturity date. Notional amounts are used to calculate the contractual payments to be exchanged under the contracts.

Weighted-average variable rates are based on the implied forward rates in the yield curve at the reporting date.

Principal and notional amount maturing in:

<i>(dollars in millions)</i>	20x5	20x6	20x7	20x8	20x9	Thereafter	Total	Fair value 12/31/xx
Rate sensitive assets:								
Fixed interest rate loans	\$ 370	\$ 310	\$ 250	\$ 170	\$ 40	\$ 100	\$ 1,240	\$ 1,210
Average interest rate	9.75%	9.78%	9.75%	9.95%	10.10%	10.54%	9.86%	
Variable interest rate loans	\$ 300	\$ 120	\$ 70	\$ 40	\$ 20	\$ 250	\$ 800	796
Average interest rate	8.60%	8.65%	8.81%	9.00%	9.20%	9.35%	8.90%	
Fixed interest rate securities	\$ 185	\$ 114	\$ 76	\$ 62	\$ 3	\$ 70	\$ 510	498
Average interest rate	6.21%	6.30%	6.39%	6.81%	8.00%	7.81%	6.56%	
Variable interest rate securities	\$ 67	\$ 31	\$ 14	\$ 12	\$ 8	\$ 108	\$ 240	239
Average interest rate	5.05%	5.22%	5.70%	6.00%	6.11%	5.98%	5.61%	
Other interest-bearing assets	\$ 5	\$ 2	-	-	-	-	\$ 7	7
Average interest rate	6.02%	7.00%	-	-	-	-	6.30%	
Rate sensitive liabilities:								
Non interest-bearing checking	\$ 105	\$ 85	\$ 61	\$ 53	\$ 50	\$ 67	\$ 421	\$ 421
Average interest rate	-	-	-	-	-	-	-	
Savings & interest-bearing checking	\$ 207	\$ 183	\$ 170	\$ 140	\$ 125	\$ 140	\$ 965	965
Average interest rate	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	
Time-deposits	\$ 910	\$ 100	\$ 54	\$ 26	\$ 4	\$ 1	\$ 1,095	1,090
Average interest rate	5.48%	5.53%	6.20%	6.31%	6.00%	6.50%	5.54%	
Fixed interest rate borrowings	\$ 11	\$ 10	-	-	-	-	\$ 21	24
Average interest rate	6.31%	6.50%	-	-	-	-	6.40%	
Variable interest rate borrowings	\$ 206	\$ 43	\$ 10	\$ 6	\$ 4	\$ 10	\$ 279	281
Average interest rate	5.33%	5.91%	6.00%	6.00%	6.00%	6.00%	5.49%	

Principal and notional amount maturing in:

<i>(dollars in millions)</i>	20x5	20x6	20x7	20x8	20x9	Thereafter	Total	Fair value 12/31/xx
Rate sensitive derivative financial instruments:								
Pay variable/received								
fixed interest rate								
swaps	\$ 6	\$ 12	\$ 4	\$ 5	–	\$ 18	\$ 45	2.1
Average pay rate	5.2%	5.6%	5.6%	6.2%	6.4%	6.6%		
Average receive rate	6.0%	6.0%	6.5%	6.5%	7.0%	7.0%		
Interest rate caps								
purchased	–	–	\$ 5	\$ 5	–	–	\$ 10	(0.1)
Average strike rate	–	–	6.5%	6.5%	–	–		
Forward rate	5.3%	5.6%	6.4%	6.6%	–	–		
Interest rate floors								
purchased	\$ 15	\$ 10	–	–	–	–	\$ 25	(0.7)
Average strike rate	3.6%	3.8%	–	–	–	–		
Forward rate	5.3%	5.6%	–	–	–	–		

As shown in this example, the required disclosures include information that typically was not presented in a traditional gap analysis. Two key differences between the tabular presentation and a gap analysis are the requirements to disclose the fair value of each of the financial instrument categories and the average interest rate for each disclosure period.

The tabular presentation also requires increased disaggregation based on contractual terms than typically are presented in a gap analysis. For example, fixed-interest-rate loans must be presented separately from variable-interest-rate loans, whereas a more traditional gap analysis might combine these items.

Another fundamental difference between the tabular presentation and a gap analysis is that the tabular presentation presents the financial instruments based on the date of the expected cash flows (that is, maturity or prepayment) while a gap analysis focuses on the repricing characteristics of the financial instrument. Accordingly, variable-interest-rate financial instruments will be categorized based on the expected maturity or prepayment (for example, three years or five years) in the tabular presentation versus the anticipated repricing period (for example, annual) in a gap analysis.

One other key difference between the tabular presentation and the gap analysis is the periods presented. The rules require tabular presentation of expected future cash flows for each of the next five years and the aggregate cash flows expected for the remaining years thereafter. While companies may voluntarily present additional reporting periods in the tabular presentation, the SEC's rules do not require companies to break down expected future cash flows in the first year by month or quarter.

The tabular presentation requires separate disclosure for the financial instruments in each of the five succeeding years.

5 Sensitivity analysis and value at risk

Sensitivity analysis

The second of the quantitative market risk disclosure alternatives, a sensitivity analysis, requires presentation of the potential loss of future earnings, fair values or cash flows from market risk sensitive instruments over a selected time period due to one or more hypothetical changes in interest rates, foreign currency exchange rates, commodity prices or other similar price changes (e.g., equity prices).

Rather than describe a specific model, the SEC intended the term “sensitivity analysis” to describe a *general class* of risk models. To assist in understanding the exposure an entity has to various market factors, sensitivity analyses model the interrelationships of defined market changes on various instruments to determine the aggregate or net effect of a key indicator. For example, depository institutions frequently utilize sensitivity analyses to estimate the potential effects of certain interest rate changes on their net interest margin by separately considering the effects of interest rate changes on interest income and interest expense and combining their effects.

While sensitivity analyses are more sophisticated than a tabular presentation, these models have certain limitations. First, sensitivity analyses focus on estimating the potential loss from a specified hypothetical market movement (e.g., a parallel shift upward of the US Treasury rate curve by 100 basis points) without specifically commenting on the probability of such a movement occurring. (The Quantitative Rules do require that registrants select hypothetical market movements that are reasonably possible in the near term.)

In addition, a sensitivity analysis cannot adjust the potential loss to reflect interrelationships between different market movements. For instance, while changes in foreign currency exchange rates frequently impact interest rate movements, either mitigating or exacerbating the effects of the change in the currency exchange rate, a sensitivity analysis would not incorporate those interrelationships into the measurement of market risk. For these reasons, sensitivity analyses are often used only by entities (typically financial institutions) that have a variety of assets, liabilities or cash flow streams that are affected by changes in a *single series* of closely related or positively correlated market indices (e.g., interest rates).

Entities that will find the sensitivity approach most useful will be those entities that are exposed to a single market risk category and manage risk by sensitivity analysis. For example, many banks and insurance companies are only exposed to United States dollar interest rates and manage their exposure by considering possible changes in their net interest margin given certain interest rate changes. Similarly, a commercial entity, such as a processor of a single commodity, might also find this approach useful.

The Quantitative Rules require sensitivity disclosures of earnings, fair values or cash flows *separately* for trading and other than trading and for each *type* of risk exposure category (e.g., interest rate risk, foreign currency exchange rate risk and commodity price risk). Companies that have exposures to changes in interest rates, exchange rates and one or more commodity prices, would be required to present a *separate* sensitivity analysis for each

of their exposures. Accordingly, entities whose operations are sensitive to more than one market risk factor may find this alternative particularly complex to comply with. In contrast, entities with a concern regarding revealing proprietary information may prefer this alternative as it does not require specific disclosures of the underlying hedged positions, such as commodity positions.

The Quantitative Rules require that registrants choose one or more hypothetical changes in market rates and prices that are expected to reflect *reasonably possible*¹⁴ near term (e.g., within one year) changes in those rates and prices. The magnitude of selected hypothetical changes in rates or prices may differ among and even within the market risk exposure categories. However, unless a registrant can economically justify a selection of a different change in rates and prices, it should use changes that are not less than 10 percent of end-of-period market rates or prices. Such “economic justification” might include historical trends or government restrictions. For example, if a registrant could demonstrate that market rates or prices have not varied from period-end rates by more than 8 percent for each of the past three years, the registrant may utilize this fact as economic justification for that threshold. However, if the registrant could not demonstrate that a different change in market prices or rates was more appropriate, the model would have to include a minimum change in market prices or rates of 10%.

Sensitivity analyses are highly dependent on the assumptions utilized. What might appear to be a minor change in market rates, prices or volatilities of the option elements may have a dramatic impact on the resulting estimated loss in earnings, fair values or cash flows. To enable investors to assess the quality of the registrant’s assumptions and evaluate the potential impact of variations in those assumptions on reported information, the Quantitative Rules require a description of the model, assumptions and parameters underlying the registrant’s sensitivity analysis. Model assumptions and parameters considered necessary to understand the registrant’s market risk disclosures should include, but are not limited to:

- ▶ How “loss” is defined by the model (e.g., loss in earnings, fair values or cash flows)
- ▶ A general description of the modeling technique (e.g., duration modeling, modeling that measures the change in net present values arising from selected hypothetical changes in market rates or prices and a description as to how optionality is addressed by the model)
- ▶ The types of instruments covered by the model (e.g., derivative financial instruments, other financial instruments, derivative commodity instruments, and whether other instruments are included voluntarily, such as certain commodity instruments and positions, cash flows from anticipated transactions and certain financial instruments excluded under the requirements of the Quantitative Rules)

¹⁴ FASB Codification Master Glossary defines reasonably possible as more than remote but less than likely.

- ▶ Other relevant information about the model's assumptions and parameters (e.g., the magnitude and timing of selected hypothetical changes in market rates or prices used, the method by which discount rates are determined and key prepayment or reinvestment assumptions)

Alternative presentation

Recognizing that certain of the quantitative market risk disclosures may result in a registrant revealing proprietary information regarding market positions held at the registrant's fiscal year-end, the SEC devised an alternative presentation. Instead of reporting year-end amounts, registrants may report the average, high *and* low sensitivity analysis amounts for the reporting period for each market risk exposure category within the trading and other than trading portfolios.

The Quantitative Rules specify that in determining the average, high and low amounts for the fiscal year, registrants should use sensitivity analysis amounts relating to at *least* four equal time periods throughout the reporting period (e.g., four quarter-end amounts, 12 month-end amounts or 52 week-end amounts).

Calculations impacted by multiple risk exposures

Registrants with multiple foreign currency exchange rate exposures should present foreign currency sensitivity analyses that measure the *aggregate* sensitivity to *all* changes in foreign currency exchange rate exposures, including the effects of changes in both transactional currency/functional currency exchange rate exposures and functional currency/reporting currency exchange rate exposures. For example, assume a Swedish subsidiary of a US based registrant invests in a Swiss franc denominated debt security. The *subsidiary* determines that:

- 1) The Swedish kroner is its functional currency under GAAP
- 2) The US dollar is the consolidated entity's reporting currency
- 3) The Swiss franc is the transaction currency

In preparing the foreign currency sensitivity analysis disclosures, this registrant should report the *aggregate* potential loss from hypothetical changes in both the Swiss Franc/Swedish kroner exchange rate exposure (transaction exposure) and the Swedish kroner/US dollar exchange rate exposure (translation exposure).

However, if a registrant has instruments that are exposed to market rate or price changes in more than one market risk category (e.g., interest rate risk and foreign currency exchange rate risk), that registrant should include the instrument in *each* market risk category to which the instrument is exposed. For example, an oil refiner that hedges anticipated crude oil purchases from an oil producer in Mexico would be exposed to changes in market prices on barrels of crude oil and the related hedging instrument, as well as changes in the US dollar/Mexican peso exchange rate. The oil refiner is required to present the two market risk

exposures arising from one transaction: a commodity price presentation for the hedging instrument related to purchase of crude oil and a separate sensitivity analysis for the foreign currency exchange rate risk (i.e., US dollar/Mexico peso).

Examples of sensitivity analysis disclosures

The following two examples illustrate the sensitivity analysis approach to disclosing quantitative information about market risk. The first example involves a company that does not conduct any of its activities in foreign currencies but is exposed to interest rate market risk as a result of issuing commercial paper, holding short-term investments and utilizing interest rate swap and cap agreements to manage its exposure to changing interest rates.

Example – Exposure to short-term interest rates

The Company's earnings are affected by changes in short-term interest rates as a result of its issuance of short-term commercial paper. However, due to its purchase of interest rate cap agreements, the effects of interest rate changes are limited. If market interest rates for commercial paper average 2% more in 20X2 than they did during 20X1, the Company's interest expense, after considering the effects of its interest rate swap and cap agreements, would increase, and income before taxes would decrease by \$XX. Comparatively, if market interest rates for commercial paper averaged 2% more in 20X1 than they did in 20X0, the Company's interest expense, after considering the effects of its interest rate swap and cap agreements, would increase, and income before taxes would decrease, by \$YY. These amounts are determined by considering the impact of the hypothetical interest rates on the Company's borrowing cost, short-term investment balances and interest rate swap and cap agreements. These analyses do not consider the effects of the reduced level of overall economic activity that could exist in such an environment. Further, in the event of a change of such magnitude, management would likely take actions to further mitigate its exposure to the change. However, due to the uncertainty of the specific actions that would be taken and their possible effects, the sensitivity analysis assumes no changes in the Company's financial structure.

The following example illustrates an approach to the disclosures of the foreign currency exchange rate risk arising from the sale of products in foreign currencies. It does not include any disclosures about interest rate or commodity price risk.

Example – Exposure to exchange rates as a result of foreign sales

The Company's earnings are affected by fluctuations in the value of the US dollar as compared to foreign currencies, predominately in European countries, as a result of the sales of its products in foreign markets. Foreign currency options and forward contracts are used to hedge against the earnings effects of such fluctuations. At 31 December 20X1, the result of a uniform 10% strengthening in the value of the dollar relative to the currencies in which the Company's sales are denominated would result in a decrease in gross profit of \$XXX for the year ending 31 December 20X2. Comparatively, at

31 December 20X0, the result of a uniform 10% strengthening in the value of the dollar relative to the currencies in which the Company's sales are denominated would have resulted in a decrease in gross profit of \$YYY for the year-ended 31 December 20X1. This calculation assumes that each exchange rate would change in the same direction relative to the US dollar. In addition to the direct effects of changes in exchange rates, which are a changed dollar value of the resulting sales, changes in exchange rates also affect the volume of sales or the foreign currency sales price as competitors' products become more or less attractive. The Company's sensitivity analysis of the effects of changes in foreign currency exchange rates does not factor in a potential change in sales levels or local currency prices.

Value at risk

The third approach for quantitative market risk disclosures permitted under the Quantitative Rules are "value at risk" disclosures. "Value at risk" is a measurement of the potential company-wide losses in fair values, earnings or cash flows from adverse market movements over a specified period of time with a selected likelihood of occurrence. As with both the tabular and sensitivity analysis alternatives, value at risk information must be presented at a discrete risk category level (for example, trading/commodity price risk and other than trading/equity price risk). Additionally, registrants are encouraged, but not required, to provide quantitative amounts that reflect the *aggregate* value at risk for the entire trading portfolio and the entire other than trading portfolio.

Rather than describe a specific model, the SEC intends the term "value at risk" to describe any probabilistic approach to measuring the exposure to market risk. Probabilistic approaches to risk measurements utilize statistical concepts to estimate the probability of the value of an instrument (typically a financial instrument) falling above or below a specified amount. A "simple" value at risk calculation utilizes the standard deviation of historical changes (or projected, "modeled" changes) in the value of a financial instrument to estimate the amount of change in the current value that could occur over a stated period at a specified probability level. The value at risk amounts for individual financial instruments are statistically combined in a manner that acknowledges correlation among such instruments to arrive at a portfolio-wide measure of value at risk for a given risk category. The appendix which follows, *Value at risk*, is intended to provide the reader a flavor of the mathematics involved in developing value at risk amounts.

There are a variety of different ways to estimate value at risk amounts. Some common methods are historical simulation, Monte Carlo simulation and an approach that relies on the variance/covariance of historical changes in values between instruments. (See Appendix – *Value at risk* for a description of these three methods.)

Currently, value at risk techniques are most often used by larger dealers and other entities (e.g., banks) whose earnings are significantly exposed to changes in the fair value of financial instruments. These entities generally include all of their exposures in the analysis and use the approach to manage the risk of their net positions. Because they are already using value at risk in managing their businesses, we expect these types of entities to adopt this alternative disclosure approach. Although dealers are logical users of value at risk techniques, many non-financial companies may find value at risk an appropriate approach for their companies. Many entities with multiple risk exposures (e.g., a variety of different interest rate indices or foreign currencies) find value at risk an appealing disclosure tool because of the ability of value at risk models to present the entity's risk profile in a single, concise measure, as well as the ability of value at risk models to capture the offsetting nature of certain risks.

Also, these companies may pursue these types of analyses for purposes beyond compliance with the SEC's disclosure requirements. Because a value at risk measurement provides a statistical assessment of *potential* risk, senior management may use this data to assess financial risks, thereby attaining a better understanding of the company's overall risk profile. While value at risk is recognized for assessing the interrelationship of risk attributes, this tool also has a drawback. Value at risk is "computationally intensive," meaning that more complex information systems are needed to complete the analysis than either of the other two disclosure methods.

The disclosures required by the Quantitative Rules are significantly more extensive than a single value at risk amount. In fact, the SEC assumes that entities adopting the value at risk disclosure alternative will develop value at risk amounts periodically during the reporting period. In addition to the requirement to disclose separate value at risk amounts for each market risk exposure (e.g., interest rates, commodity price, foreign currency) within the trading and other than trading categories, the Quantitative Rules also require registrants to provide one of the following for each market risk category for which value at risk disclosures are presented:

- ▶ The (i) average, high and low amounts or (ii) the distribution of value at risk amounts for the reporting period
- ▶ The (i) average, high and low amounts or (ii) the distribution of actual changes in fair value, earnings or cash flows from market risk sensitive instruments occurring during the reporting period
- ▶ The percentage or number of times the actual changes in fair value, earnings or cash flows exceeded the computed value at risk amounts during the reporting period

The required disclosures described above are referred to by the SEC as the “contextual” value at risk disclosures and are unique to this quantitative market risk disclosure method. The tabular presentation and sensitivity analysis methods do not have similar contextual disclosure requirements.

In the SEC staff’s publication, *Questions and Answers About the New “Market Risk” Disclosure Rules*, the SEC staff clarified its “contextual” disclosure requirements. Entities disclosing a value at risk measure at year-end¹⁵ must also provide *supplemental* quantitative information that enables investors to understand the context of the entity’s general risk levels. The Quantitative Rules specify the following eight contextual disclosure *options*:

- 1) The average value at risk amounts for the period
- 2) High and low value at risk amounts for the period
- 3) The distribution of value at risk amounts for the period
- 4) The average of actual changes in fair value, earnings or cash flows from market risk sensitive instruments during the reporting period
- 5) High and low amounts of actual changes in fair value, earnings or cash flows from market risk sensitive instruments during the reporting period
- 6) The distribution of actual changes in fair value, earnings or cash flows from market risk sensitive instruments during the reporting period
- 7) The percentage of times the actual changes in fair values, earnings or cash flows from market risk sensitive instruments exceeded the year-end value at risk measure during the reporting period
- 8) The number of times the actual changes in fair values, earnings or cash flows from market risk sensitive instruments exceeded the year-end value at risk measure during the reporting period

The Quantitative Rules state that when preparing value at risk disclosures registrants should select confidence intervals that reflect reasonably possible near-term changes in market rates and prices. In this regard, absent economic justification for the selection of different confidence intervals, the Quantitative Rules indicate that registrants should use intervals that are 95 percent or higher.

Similar to sensitivity models, value at risk analyses are highly dependent on the assumptions utilized. What might appear to be a minor change in market rates, prices or the volatility of the option elements may have a dramatic impact on the resulting estimated loss in earnings, fair values or cash flows. To enable investors to assess the quality of the registrant’s assumptions and evaluate the potential impact of variations in those assumptions on

¹⁵ These contextual disclosures are not required for the first fiscal year-end for which a company must present the quantitative and qualitative disclosures.

reported information, the Quantitative Rules require a description of the model itself, as well as the assumptions and parameters necessary to obtain an understanding of the value at risk disclosures. Model descriptions, assumptions and parameters necessary to understand the registrant's market risk disclosures should include, but are not limited to:

- ▶ How "loss" is defined by the model (e.g., loss in fair values, earnings or cash flows)
- ▶ The type of model utilized (e.g., variance/covariance, historical simulation or Monte Carlo simulation and a description as to how optionality is addressed by the model)
- ▶ The general types of instruments covered by the model (e.g., derivative financial instruments, other financial instruments, such as investments or long-term debt, derivative commodity instruments, and whether other items or transactions are voluntarily included, such as commodity inventory and cash flows from anticipated transactions)
- ▶ Other relevant information on model parameters (e.g., holding periods and confidence intervals)

Alternative presentation

Recognizing that certain of the quantitative market risk disclosures may result in a registrant revealing proprietary information regarding market positions held at the registrant's fiscal year-end, the SEC devised an alternative presentation. Instead of reporting year-end amounts, registrants may report the average, high and low value at risk amounts for the reporting period for each market risk exposure category within the trading and other than trading portfolios. Also, registrants who utilize this alternative presentation method are not required to provide the supplemental "contextual" disclosures.

The Quantitative Rules specify that in determining the average, high and low amounts for the fiscal year, registrants should use value at risk amounts relating to at least four equal time periods throughout the reporting period (e.g., four quarter-end amounts, 12 month-end amounts or 52 week-end amounts).

Multiple foreign currency exchange rate exposures

As with sensitivity analyses, registrants with multiple foreign currency exchange rate exposures should present foreign currency value at risk analyses that measure the *aggregate* sensitivity to all changes in foreign currency exchange rate exposures, including the effects of changes in both transactional currency/functional currency exchange rate exposures and functional currency/reporting currency exchange rate exposures. For example, assume a Swedish subsidiary of a US based registrant invests in a Swiss franc denominated debt security. The subsidiary determines that:

- 1) The Swedish kroner is its functional currency according GAAP
- 2) The US dollar is the consolidated entity's reporting currency
- 3) The Swiss franc is the transaction currency

In preparing the foreign currency sensitivity analysis disclosures, this registrant should report the *aggregate* potential loss from hypothetical changes in both the Swiss Franc/Swedish kroner exchange rate exposure (transaction exposure) and the Swedish kroner/US dollar exchange rate exposure (translation exposure).

Example of value at risk disclosure

The following example illustrates the value at risk disclosure that could be made by a financial institution that maintains trading accounts in interest rate, foreign currency, commodity and equity instruments. In this example, the Company does not have an “other than trading” portfolio.

Example – Exposure to changes in fair value of trading positions

The Company uses a value at risk methodology to estimate the potential daily earnings effect of adverse changes in fair value of its trading positions. The methodology determines a potential one-day loss in fair value that would be exceeded less than 5% of the time if the portfolio were not changed. The analysis includes derivative financial and foreign currency instruments, derivative commodity instruments and financial assets and liabilities that are classified in the Balance Sheet as Trading Positions. The calculation is based on proprietary modeling techniques that are based on a Monte Carlo simulation approach.

The following table indicates the calculated amounts for each of the years ended 31 December 20X0 and 20X1:

Market risk (amounts in millions)	20X0	31 December 20X0	20X1 Average	31 December 20X1
Interest rate	\$ 12	\$ 10	\$ 13	\$ 11
Currency	20	22	18	17
Commodity	8	10	9	8
Equity	6	3	4	5
Effects of correlation and statistical combination techniques	(4)	(6)	(3)	(5)
Entire trading account	\$ 42	\$ 39	\$ 41	\$ 36

6 Qualitative market risk disclosures

The disclosure requirements in Item 305(b) of Regulation S-K and Item 11 of Form 20-F (the Qualitative Rules) (i) *include* certain derivative commodity instruments, other financial instruments (e.g., long-term debt) and derivative financial instruments entered into for trading purposes and (ii) *require* registrants to evaluate and describe material changes in primary market risk exposures, as well as, material changes in how those exposures are managed. These requirements do not apply to registered investment companies and smaller reporting companies.

ASC 815-10-50 requires certain qualitative disclosures be provided in the audited financial statement footnotes. In particular, ASC 815-10-50 requires a company to disclose how and why an entity uses derivative instruments (or such nonderivative instruments), how derivative instruments (or such nonderivative instruments) and related hedged items are accounted for under ASC 815 and how derivative instruments (or such nonderivative instruments) and related hedged items affect an entity's financial position, performance and cash flows. In addition, ASC 815-10-50 requires disclosure of a company's objectives for holding or issuing derivative financial instruments, the context needed to understand those objectives and the company's strategies for achieving those objectives. ASC 815-10-50 also requires separate disclosures about derivative financial instruments used as hedges of anticipated transactions. However, these disclosure requirements do not apply to non-derivative financial instruments such as long-term debt.

Additionally, ASC 815 merely encourages, but does not require, disclosures regarding market risk. Specifically ASC 815 10-50-5 states that qualitative disclosures about an entity's objectives and strategies for using derivative instruments may be more meaningful if such objectives and strategies are described in the context of an entity's overall risk exposures relating to interest rate risk, foreign exchange risk, commodity price risk, credit risk and equity price risk and how such risks are managed. ASC 815 notes that those additional qualitative disclosures, if made, should include a discussion of those exposures even though the entity does not manage some of those exposures by using derivative instruments.

The SEC believes that *quantitative* information about a registrant's market risk is more meaningful when accompanied by *qualitative* disclosures about a registrant's market risk exposures and how those exposures are managed. Such qualitative disclosures generally help investors understand a registrant's market risk management activities and help place those activities in the context of the registrant's business. The disclosures will present a more complete discussion of a registrant's exposure to market risks and the way it manages those risks. Although the SEC's rules do not require integrated disclosures of qualitative and quantitative information about market risk, many registrants will find that the disclosures will be more comprehensible when the qualitative disclosures are included with the required quantitative disclosures. For example, many companies will choose to describe their overall exposure to interest rate changes and their objectives and strategies for managing that exposure as a lead in to a tabular presentation of the interest rate characteristics of their debt as required by the quantitative disclosure requirements.

Requirements

The Qualitative Rules require disclosure outside of the financial statements (e.g., in MD&A) of qualitative information about primary market risk exposures, particularly:

- ▶ A description of the registrant's primary market risk exposures at the end of the latest fiscal year, and how those exposures are managed. This description is to include but not be limited to, a discussion of the objectives, general strategies and instruments, if any, utilized to manage the exposure.
- ▶ Changes in either the primary risk exposures or in how those exposures are managed as compared to the most recent fiscal year and what is known or expected to be in effect in the future

The Qualitative Rules require discussion of primary market risk exposures identified during the Quantitative Rule analysis and are intended to provide context for those disclosures. Qualitative disclosures are not required for market risk exposures that are deemed to be immaterial.

Primary market risk exposures

The Qualitative Rules identify the categories of primary market risk exposure as interest rate risk, foreign currency exchange risk, commodity price risk and other similar, relevant market rate or price risks (e.g., prices of equity securities). The categories of market risk exposure are further defined as the particular market within each of these categories that present the primary risk of loss.

For example, a United States financial institution could have a material exposure to the market risk category of interest rate risk. Within this category, the financial institution may have a material exposure to the particular markets of:

- ▶ LIBOR interest rates because of the repricing characteristics of its deposit accounts
- ▶ Municipal interest rates because of its investment in municipal securities
- ▶ US prime rates because of the nature of its consumer loan portfolio yields
- ▶ Long-term US interest rates due to an investment in a portfolio of long-term mortgage loans

The financial institution should disclose each *material* exposure to which it is vulnerable. Similarly, a multi-national entity may have a *material* exposure to foreign currency exchange rate risk. Within this market risk category, the entity may be most vulnerable to the particular markets of US dollar/Canadian dollar, US dollar/British pound and Japanese yen/Australian dollar exchange rates and should disclose each of those exposures.

When identifying the primary currency risk exposures, it is necessary to consider both the currencies in which transactions occur as well as the functional currency of the entity entering into the transaction. In addition, the consideration should distinguish between market risk

exposures that arise from actual transactions and those that arise from the translation of foreign operations into the entity's reporting currency. For example, an entity with a US dollar reporting currency and a United Kingdom subsidiary (with a British pound functional currency) that has significant sales in Euros would have the following market risk exposure:

Transaction: Euro/British pound

Translation: British pound/US dollar

Qualitative market risk information must be presented separately for trading instruments and for instruments held for purposes other than trading.

Registrants also are required to describe material changes in their primary market risk exposures and material changes in how those risks are managed at the end of the reporting period as compared to (i) what was in effect during the most recently completed fiscal year and (ii) what is known or expected to be in effect in future reporting periods.

The SEC acknowledged the concerns raised by registrants about the proprietary nature of a discussion of primary market risk exposures and how those exposures are managed. However, it believes that without the required disclosures investors would be unable to understand a registrant's exposures to market risk and to place a registrant's market risk management practices within the context of its business. The SEC also points out that the qualitative disclosure requirements are not so specific as to require the disclosure of the type of information (e.g., current positions) that may harm a registrant's competitive position.

The requirement to describe actual and expected changes in risk exposures indicates the importance of preparing the required disclosures from information that is used in the normal course of operations. If the required disclosures are developed solely for purposes of complying with the requirements, it will be difficult to monitor changes in the risk exposures or their management, because they will not be naturally derived from an entity's risk management processes. For example, if a company generally attempts to limit the currency exposure to 30%-50% of its planned export sales, and it bases its disclosures on this approach, it will be very natural to explain changes in levels of derivatives as resulting from either changes in anticipated sales levels or changes in the targeted hedge coverages. Remember, these disclosure requirements exist regardless of whether the risks are hedged with derivatives. The required disclosures relate to market risks, not to hedging activities.

Changes in market risk exposures and in the management of those exposures can arise from a variety of sources. Accordingly, the identification of these items, which may require disclosure, will require the input of a variety of operating departments in an entity. They can arise from within a company or result from external sources over which the company has little or no control. Examples of factors that could change a company's market risk exposures are:

- ▶ Changes in underlying commodity prices or exchange rates

- ▶ Access to a previously unavailable or unused source of financing that changes the nature of financing of an entity's operations (e.g., access to a new source of long-term fixed rate debt)
- ▶ Changes in risk management or hedging strategies to rely more heavily on quantitative measures (e.g., a value at risk methodology) and to impose limits on such quantitative measures

External factors

- ▶ A devaluation of a currency in which a company incurs substantial operating expenses
- ▶ A significant change in the relationship between long-term and short-term interest rates

Internal factors

- ▶ Relocation of manufacturing facility or redirection of certain manufacturing operations with a resulting change in the currencies in which product development costs are incurred
- ▶ Renegotiation of long-term purchase or sales contracts
- ▶ A significant change in the volatility of currencies which has, or is expected to substantially increase the cost of a company's hedging programs
- ▶ The SEC's regulation requires a description of the effects of both actual and expected changes such as these. Accordingly, it will be important that individuals within an organization that have knowledge of matters that could affect a company's market risk exposures are involved in the preparation of the required disclosures.

Encouraged disclosures

To make market risk disclosures more comprehensive, the SEC encourages registrants to include within the qualitative disclosures about market risk, certain instruments, positions and transactions not explicitly required under the Qualitative Rules. Those instruments, positions and transactions include derivative commodity instruments not permitted by contract or business custom to be settled in cash or with another financial instrument, commodity positions, cash flows from anticipated transactions and certain financial instruments excluded from the required disclosures.

If a registrant elects not to include those instruments, positions and transactions in its qualitative disclosures about market risk, registrants are reminded to consider the SEC's other rules that implicitly require qualitative disclosures about market risk. For example, Item 101 of Regulation S-K requires disclosures relating to a "Description of the Business," Item 303 requires discussion of known risks and uncertainties within Management's Discussion and Analysis and Rule 12b-20 under the 34 Act and Rule 408 under the 33 Act, state that registrants should include in any filings or reports any material information necessary to make statements that are made, in light of the circumstances, not misleading.

Examples of qualitative information about exposure to market risk

The following examples illustrate the types of qualitative disclosures about market risk that could be made to comply with the proposed requirements.

Manufacturer with international operations

A US company with significant subsidiaries located in Mexico, Japan and Germany has primary market risk exposures in various foreign currency relationships. Accordingly, it enters into hedging transactions. (Note that a similar disclosure would be required *even if* the company did not engage in hedging activities.) Its qualitative disclosures might be:

A portion of the Company's operations consists of manufacturing and sales activities in foreign jurisdictions. The Company manufactures its products in the United States and Mexico and sells the products in those markets as well as Central European Markets (principally Germany) and Japan. As a result, the Company's financial results could be significantly affected by factors such as changes in foreign currency exchange rates or weak economic conditions in the foreign markets in which the Company distributes its products. The Company's operating results are exposed to changes in exchange rates between the US dollar and the Mexican peso, Japanese yen and German mark. When the US dollar or Mexican peso strengthen against the mark or yen, the value of nonfunctional currency sales decreases. When the US dollar or Mexican peso weaken, the functional currency amount of sales increases. Overall, the Company is a net receiver of currencies other than the US dollar and Mexican peso and, as such, benefits from a weaker dollar or peso, but is adversely affected by a stronger dollar or peso relative to major currencies worldwide.

To mitigate the short-term effect of changes in currency exchange rates on the Company's functional currency based sales, the Company regularly hedges by entering into foreign exchange forward and option contracts to hedge approximately 30%-50% of its budgeted (future) net foreign currency sales transactions over a period of five quarters.

The Company's interest income and expense are most sensitive to changes in the general level of US interest rates. In this regard, changes in US interest rates affect the interest earned on the Company's cash equivalents and short-term investments as well as interest paid on its debt. To mitigate the impact of fluctuations in US interest rates, the Company generally maintains 60%-80% of its debt as fixed rate in nature either by borrowing on a long-term basis or entering into interest rate swap and option transactions.

Financial institution – trading activities

The following example is for a financial institution that trades a variety of debt securities, interest rate and foreign currency derivatives.

The Corporation engages in trading activities by structuring and executing over-the-counter interest rate swap and option contracts, commitments to purchase or sell securities and foreign exchange contracts to accommodate its customers' capital, interest rate and foreign currency risk management requirements. The Corporation maintains active trading positions in foreign exchange forward and option contracts and limits its risk to changes in the value of its outstanding positions through the use of probabilistic models, establishment of offsetting positions and limit and monitoring procedures.

Financial institution – risk management activities

In this example, a financial institution invests in financial assets, issues financial liabilities and engages in asset and liability risk management activities.

The operations of the Company are subject to risk resulting from interest rate fluctuations to the extent that there is a difference between the amount of the Company's interest-earning assets and the amount of interest-bearing liabilities that are prepaid/withdrawn, mature or reprice in specified periods. The principal objective of the Company's asset/liability management activities is to provide maximum levels of net interest income while maintaining acceptable levels of interest rate and liquidity risk and facilitating the funding needs of the Company. The Company utilizes an interest rate sensitivity model as the primary quantitative tool in measuring the amount of interest rate risk that is present at the end of each week. The model quantifies the effects of various interest rate scenarios on the projected net interest margin over the ensuing one, three, twelve and twenty-four month periods. The Company uses derivative financial instruments, including interest rate swaps and options, with indices that correlate to on-balance sheet instruments to modify its indicated net interest sensitivity to levels deemed to be appropriate based on the Company's current economic outlook.

7 Accounting policy disclosures

GAAP accounting policy disclosure requirements

ASC 235-10, *Notes to Financial Statements – Overall* provides guidance regarding the disclosures about accounting policies. It requires the disclosure of accounting policies and principles that materially affect the financial statements, particularly those policies involving a selection from acceptable alternatives. The disclosure of accounting policies should identify and describe the accounting policies followed and the methods of applying those principles that materially affect the determination of financial position, cash flows or results of operations. In general, the disclosure should encompass important judgments as to the appropriateness of principles relating to recognition of revenue and allocation of asset costs to current and future periods. In particular, it should encompass those accounting principles and methods that have been selected from acceptable alternatives.

SEC accounting policy disclosures

The Rule 4-08(n) of Regulation S-X applies to all SEC registrants, including smaller reporting companies, registered investment companies and foreign private issuers of securities in the US markets filing under Item 18 of the Form 20-F rules. However, those issuers should consider Staff Accounting Bulletin Topic 1:D.

Requirements

The accounting policy rules require explicit disclosure in the financial statement footnotes about the accounting policies used for derivative financial instruments and derivative commodity instruments and the methods of applying those policies that materially affect the determination of financial position, cash flows and results of operations.

When the accounting policy rules were issued in 1997, there were not US GAAP accounting policy disclosure requirements focused specifically on derivatives. In addition, prior to the publication of Statement 133 by the FASB in 1998, there was not a consistent approach by registrants regarding the application of hedge accounting, because derivatives were not required in most cases to be accounted for on the balance sheet at fair value. The SEC perceived that, because of the absence of comprehensive guidance on the accounting for derivatives, accounting policy footnote disclosures often had been too general in nature and did not adequately reflect the choices made by registrants in their accounting for derivatives. Additionally, the SEC believed the underlying concepts and criteria used in determining the applicability of those accounting methods were not consistent. As a result, registrants with similar risk management objectives accounted for derivatives with similar economic characteristics in different ways. To enable investors to make a more informed assessment of the financial statement effects of derivatives, the SEC determined that enhanced accounting policy disclosures were necessary.

The issuance of Statement 133 and its various amendments, including the significant disclosure enhancement amendment of Statement 161 in 2008 (now all codified in ASC Topic 815), has largely addressed all of those mid-1990s SEC concerns, and furthermore, has

required such disclosures to be part of the financial statements rather than Management's Discussion and Analysis. Nevertheless, the Market Risk Disclosure Rules have not been amended. We believe that most registrants ensure compliance with the accounting policy disclosure requirements by reconciling those requirements with the ASC 815 disclosure requirements for the financial statements, and supplementing those disclosures if necessary in Management's Discussion and Analysis.

According to the SEC rules, the description of accounting policies is required to include, to the extent material, each of the following (the numbers below correspond to the related paragraphs of Rule 4-08(n)):

- 1) Each method used to account for derivatives. As previously mentioned, the SEC determined that essentially three methods of accounting for derivatives exist in practice: fair value accounting, deferral accounting and accrual accounting. Under the *fair value method*, derivatives are carried on the balance sheet at fair value with changes in that value recognized in earnings or stockholders' equity. Under the *deferral method*, gains and losses from derivatives are deferred on the balance sheet and recognized in earnings in conjunction with the earnings recognition of the designated items. Under the *accrual method*, each net payment/receipt due or owed under the derivative is recognized in earnings during the period to which the payment/receipt relates, and there is no recognition on the balance sheet for changes in the derivative's fair value. In addition, there may be other acceptable methods of accounting for derivatives. For example, interest rate swaps utilized to hedge available for sale debt securities would be recorded under a combination of methods: the fair value method would be utilized with unrealized gains and losses on the swap reflected in equity *and* the accrual method would be utilized for interest recognition. (Note: The three methods described above were superseded by the issuance of Statement 133, which requires a single accounting methodology for any instrument meeting the definition of a derivative. Arguably, this requirement may have occasional relevance for instruments that do not meet the US GAAP definition of a derivative but may have the "form" of a derivative (such as an equity option for a non-publicly-traded security).
- 2) The types of derivative instruments accounted for under each method. Disclosures for this attribute should distinguish between those derivatives used for trading purposes¹⁶ and those used for purposes other than trading. (The disclosures required in ASC 815-10-50-2, combined with 50-4D, generally satisfy this requirement.)

¹⁶ The SEC's rule defines trading purposes as having the same meaning as defined by generally accepted accounting principles. The Codification Master Glossary defines trading as an activity involving securities sold in the near term and held for only a short period of time. The term trading contemplates a holding period generally measured in hours and days rather than months or years. Therefore, dealers that enter into derivative contracts to manage the risks arising from trading account assets and liabilities (derivatives or other), do so as a part of their trading activities.

- 3) The criteria required to be met for each method used (e.g., whether and how risk reduction, correlation, designation and/or effectiveness tests are applied). Disclosures for this attribute should distinguish between those derivatives used for trading purposes and those used for purposes other than trading. (The disclosures required in ASC 815-10-50-1 through 1B, combined with 50-4C, generally satisfy this requirement.)
- 4) The accounting method used if the criteria specified in requirement 3 are not met. Disclosures for this attribute also should distinguish between those derivatives used for trading purposes and those used for purposes other than trading. (The disclosures required in ASC 815-10-50-1 through 50-1B, combined with 50-4C, generally satisfy this requirement.)
- 5) The method used to account for terminations of derivatives designated as hedges; or used to affect directly or indirectly the terms, fair values or cash flows of a designated item. (This disclosure was largely superseded by Statement 133, which brought uniformity to how the effects of derivatives eventually affect the income statement. The disclosures required in ASC 815-10-50-1 through 50-1B generally satisfy this requirement.)
- 6) The accounting for derivatives when the designated item matures or is sold, extinguished, terminated or if the designated anticipated transaction is no longer likely to occur. For purposes of this rule, anticipated transactions are transactions that a registrant expects, but is not obligated, to carry out in the normal course of business. Thus, anticipated transactions exclude existing firm commitments. (This disclosure was largely rendered unnecessary after Statement 133 brought uniformity to this accounting. The disclosures required in ASC 815-10-50-1 through 50-2, combined with 815-30-50-1 and 50-4, generally satisfy this requirement.)
- 7) Identification of where and when derivatives and related gains and losses are reported in the statements of financial position, operations and cash flows. Disclosures for this attribute should distinguish between those derivatives used for trading purposes and those used for purposes other than trading. (The disclosures required in ASC 815-10-50-4A through 50-4F generally satisfy this requirement.)

Appendix – Value at risk

The attention given to probability-based disclosures of the potential loss due to changes in market prices has increased during recent years. Initially, this interest was concentrated among dealers of financial instruments whose earnings are driven by changes in the fair value of their portfolios. Limiting the potential volatility in such values is an important management objective of these types of entities which naturally led to the use of “value at risk” concepts for risk management purposes. Subsequently, “value at risk” concepts have become a way to make disclosures about the potential market risk that exists at a balance sheet date.

“Value at risk” (VAR) also has gained significant notoriety because of the SEC’s requirements for registrants to include quantitative and qualitative disclosures about market risk inherent in market risk sensitive instruments. Of the three permitted disclosure methods, VAR is considered to be the most complex, but surprisingly, its resulting disclosure, once it is understood, may be the simplest for the average reader to interpret and use. As a result of these developments, there has been an increased level of interest among treasury and risk management professionals, at all types of companies, about VAR concepts and how they might be utilized.

This Appendix discusses the principles underlying this highly quantitative approach used to assess the risk of changes in values of a financial instrument (such as debt a company has issued) or a combination of instruments (such as the debt together with an interest rate swap) that are affected by a single market risk factor (e.g., interest rates). By illustrating the development of an entity-wide VAR amount (in a fairly simple hypothetical case), an example points out not only the complexity of this methodology, but also some of the principal underlying assumptions and limitations that are inherent in a value at risk calculation.

What is “Value at Risk”?

Value at risk measures the potential loss of value resulting from market movements over a specified period of time within a specified probability of occurrence. “Value” typically refers to fair values while “value at risk” typically refers to the risk of changes in fair values. However, the approach also can consider changes in reported earnings, cash flows or any other defined variable – it depends on the context in which it is used. VAR typically results in simple conclusions such as the following:

- ▶ “There is a 95 percent chance that the fair value of a securities portfolio will decline by no more than \$500,000 over the next 30 days as a result of changes in interest rates.”
- ▶ “There is no more than a one percent chance our foreign bond trading portfolio, including associated foreign currency swaps, will cause pre-tax earnings to decline by more than \$250,000 over a 24-hour period due to foreign exchange rate movements.”
- ▶ “There is no more than a five percent chance that the fair value of futures contracts the company has sold to manage the price risk of its expected harvest during the next growing season will fluctuate by more than \$50,000 over the next 90 days due to changes in commodity prices.”

Computational approaches

The SEC's rules discussing the expanded quantitative disclosures of market risk mention three computational methods for VAR: variance/covariance, historical simulation and Monte Carlo simulation.

The *Variance/Covariance* approach is now widely regarded as the generic VAR methodology. This approach seeks to quantify market volatility by taking a series of historical price changes of a financial instrument and constructing a normal distribution from the data in order to measure the probability of future changes of the price. Another key component of this method is the use of correlation statistics to measure how positions move in relation to one another. Many of the statistical measures required to complete this analysis are available through a variety of market sources, and are available on the Internet.

The *Historical Simulation* method uses historically observed changes in market risk factors (e.g., interest rates, foreign exchange rates) to determine VAR. It explicitly considers risk factors and calculates price sensitivities of various types of financial instruments rather than just observing the prices themselves and assumes the pattern will repeat in the same manner in the future. For example, for the interest rate risk factor, the values of all related positions affected by changes in interest rates (investments, futures/forwards, swaps, debt, loans receivable, etc.) would be measured at selected historically observed interest rates.

Monte Carlo Simulation contrasts with the previous methods, because it does not depend on historical data for its inputs. Rather, Monte Carlo simulation generates potential paths various market prices could take and tracks the hypothetical performance of a portfolio under each scenario. This method is used by the most sophisticated of companies, typically those that already have the program in place to price complex financial instruments rather than just for measuring VAR.

Methodology

"Value at risk" conclusions are rooted in statistics and probability theory. As noted above, they seek to describe exposures in terms of their likelihood of occurrence, based on past historical patterns, projected "modeled" patterns or some combination of past and projected occurrences. VAR seeks to quantify the outer point of a *range of potential* loss within a stated probability and over a defined future time horizon.

Although computer models are often used to develop VAR amounts, this Appendix will explain and illustrate the determination of a VAR amount for the fair values of a small portfolio of financial instruments using the variance/ covariance method. Our goal is to give readers a flavor of the mathematics that are involved in developing value at risk amounts.

There are two basic steps involved in preparing the VAR calculation:

Step 1: Determine VAR amounts of individual items

The first step in developing the VAR of an entity is to determine the VAR for each of its separate exposures, or groups of similar exposures. The variable to be evaluated (e.g., the fair value or change in fair value) is measured for each item as well as the variability of that value (e.g., the standard deviation or variance of the value). This information provides the basis to determine the individual instrument's VAR amount at the desired confidence level. Separate VAR calculations are also performed for each market risk factor. For example, a foreign currency denominated debt instrument would be subjected to separate VAR calculations with respect to its interest rate risk and its foreign exchange rate risk.

Step 2: Aggregate the individual VAR calculations

Since VAR is a statistical measure, and various degrees of correlation exist in the individual items being aggregated, the arithmetic sum of the individual VARs is not the VAR for the entity. For example, a company which invests in a fixed-rate debt security and has issued a long-term debt obligation with identical terms would calculate identical VARs for each exposure. But for a perfectly matched position such as this, the combined, entity-wide VAR is zero, not twice the individual amounts. In most cases, entity-wide value at risk is less than the arithmetic sum of the individual VAR amounts.

How do derivatives and hedging fit into this picture? Examined in isolation, a derivative position may have a large VAR. However, when combined with the VAR of the asset or liability that the derivative hedges, total value at risk is significantly less. In theory, entity-wide VAR disclosures provide the aggregate risk position considering both the derivatives and hedged positions. It also is important to note that companies that do not use derivatives could still have substantial value at risk.

Keep in mind that this analysis does not consider the relevance of potential changes in value of an entity's assets, liabilities or derivatives positions. For example, how important is it to a company, or its shareholders, that the risk of changes in value of outstanding debt is high if the proceeds were used to build a manufacturing facility and the debt will be retired in accordance with its terms rather than at market prices?

Building a value at risk calculation

The starting point for performing a simple value at risk calculation is to revisit basic statistical concepts. Regardless of whether the calculation is developed from historical information (as in the following examples), predictive models or some combination thereof, a company will start by measuring fair values of its financial instruments and the volatility of those fair values.

Range of values

The first concept to consider is the range of fair values. Range is a measure of dispersion (from low to high) present in a data set. For example, assume a company issued **fixed-rate debt** at par (100), and its fair values at the close of each of the last eight quarters (expressed in terms of a percent of par) have been:

Qtr	1	2	3	4	5	6	7	8
	101	103	99	101	103	107	98	92

The changes in fair value of the debt by quarter can be expressed as:

Qtr	1	2	3	4	5	6	7	8
	-1	-2	+4	-2	-2	-4	+9	+6

The range of the quarterly changes in fair value would be -4 to +9, with the *mean*, or average, at +1 (indicating an average change in fair value of +1). In other words, for each \$100 of principal amount, quarterly changes in fair value resulted in unrealized gains (from increases in market interest rates and the resulting declines in fair value of the debt) as high as \$9 (\$107-\$98), and unrealized losses (from decreases in market interest rates) as high as \$4 (\$103-\$107), with the average being a quarterly unrealized gain of \$1.

It should be noted that the frequency of measuring values governs the nature of the VAR conclusion that can be drawn. Since our example captures quarterly values and changes in those values, the VAR conclusion will only relate to the probability of changes in value over a quarterly time horizon. In practice, daily price observations typically are used to permit a VAR conclusion to relate to daily changes in value.

Our illustration is based on eight observations of value. Development of a statistical conclusion based on so few observations is not valid because it does not provide a representative sample of values. ASC 718, *Compensation – Stock Compensation*, describes factors to consider in estimating expected volatility.

To illustrate another financial instrument data set, consider that the above company also has an **interest rate swap** in place whereby the company receives a fixed rate (identical to the fixed rate it pays out on its issued debt) and pays a floating rate. Thus, the swap has converted the debt to a variable rate. The swap has similar cash flow patterns to the fixed-rate debt and remains outstanding until the debt matures. For each \$100 in notional amount, the company notes that unrealized gains/losses have ranged in a pattern that tends to offset changes in value of the fixed-rate debt – from an unrealized loss of \$8 to an unrealized gain of \$6. The extent of offset in each period is not assumed to be precise to reflect that the credit risk of the instruments, the exact timing of their cash flows or other factors may vary between the instruments. The observed fair value of the interest rate swap at the end of each of the past eight quarters was:

Qtr	1	2	3	4	5	6	7	8
	+2	+3	0	+2	+3	+6	-2	-8

Translating these observations into changes in fair value (assuming that the swap had a zero value at the beginning of the first quarter) results in this data set:

Qtr	1	2	3	4	5	6	7	8
	+2	+1	-3	+2	+1	+3	-8	-6

The mean of the data set is -1, or a change in fair value of a \$1 unrealized loss.

In addition, assume the company has a fixed-rate treasury portfolio of **medium-term investments** purchased at par at the beginning of the first quarter. Yet another set of data points for the fair value of the investments could be observed. Assume the following for the same eight quarters for which we are observing values:

Qtr	1	2	3	4	5	6	7	8
	100	101	100	102	99	103	103	102

The changes in fair value from quarter to quarter are:

Qtr	1	2	3	4	5	6	7	8
	0	+1	-1	+2	-3	+4	0	-1

The mean of this data set is .25, indicating an average unrealized gain of \$0.25. However, since the maturity of this portfolio is presumed to be shorter than the maturity of the fixed rate debt, the range of quarterly changes in fair value, as expected, is much narrower than that for the debt (from -\$3 to +\$4). Intuitively, this data set appears to demonstrate less volatility than the first one – and presumably, less value at risk.

Although the mean and range of the data set are indicators of the dispersion of the data, a more precise measure is needed.

Variance and standard deviation

The difference between each data point and the mean can be used as a measure of the “spread,” or dispersion of the data. The spreads in the fixed-rate debt data set for the eight quarters from the mean of +1 are as follows:

Qtr	1	2	3	4	5	6	7	8
	-2	-3	+3	-3	-3	-5	+8	+5

By definition, these spreads add up to zero. However, the statistical measure of variability around the average is uninterested in whether the change is positive or negative. Therefore, the negative signs must be eliminated.

A common statistical measure of variability around a mean is the *variance* which is statistically defined as the average of the squared difference of each value from the mean. Summing the squared deviations from the mean and dividing by the number of observations is the variance. The variance of changes in value of the fixed rate debt is calculated as follows:

$$\frac{(-2)^2 + (-3)^2 + (+3)^2 + (-3)^2 + (-3)^2 + (-5)^2 + (+8)^2 + (+5)^2}{8}$$

$$\frac{= 4 + 9 + 9 + 9 + 9 + 25 + 64 + 25}{8}$$

$$= 154/8 = 19.25 = \text{Variance}$$

The square root of the variance is the *standard deviation*. Therefore, the standard deviation of the changes in value of the fixed-rate debt is 4.39 ($\sqrt{19.25}$).

A similar analysis could be performed for the company's other financial instruments. Consider the spreads of the interest rate swap around the mean of -1. They are as follows:

Qtr	1	2	3	4	5	6	7	8
	+3	+2	-2	+3	+2	+4	-7	-5

These spreads are nearly the mirror opposites in sign of the spreads for the fixed-rate debt. This characteristic is indicative of the manner in which the swap acts as a hedge of the debt. The variance of this data set can be calculated to be 15.00 with a standard deviation of 3.87 ($\sqrt{15.00}$) – very similar statistics to that of the fixed-rate debt. This implies that the changes in value of the two items will be highly correlated.

Contrast the variances and standard deviations calculated above with similar calculations for the medium-term investments which had a narrower range of data points (from -3 to +4). The variance of this data set is 4.0, with a standard deviation of 2.0. By observing the data points, we can see that the changes in value of the medium-term investment are less volatile, and thus the variance and standard deviation are lower.

Probability distributions

The next step to determining the VAR is to use the concepts of range, variance and standard deviation to develop a graph of all possible values and the associated probabilities of each value occurring. Although this can be performed mathematically, our focus will be on visualizing the process. A significant underlying assumption of a VAR analysis is that the distribution of these possible values will have the familiar, bell shape. Such a curve is symmetrical around the mean, is "tallest" at the mean and approaches, but never reaches zero on either side. The position, height and breadth of the curve is based on the mean and standard deviation observed in our sample data. Refer to the graphs on page A-8.

Graph 1(a) shows the result of plotting the change in value of the fixed-rate debt. The frequency distribution is somewhat wide and skewed slightly in favor of an overall unrealized gain position. Graph 2(a) for the interest rate swap (receive fixed) shows a similarly wide frequency distribution, skewed slightly in favor of an overall unrealized loss position. These patterns are expected to the extent that the swap is effective as a hedge of changes in fair value of the fixed-rate debt. The frequency distribution for the medium-term investment in Graph 3(a) shows a narrower dispersion pattern.

Curves can be fitted, or presumed, for each of these distributions to provide a continuous set of data points. Essentially the (b) versions of all three graphs accomplish this. Although the number of observations we have made (eight) is not enough to provide a representative picture of the distribution of values, these examples illustrate that in some cases the assumption of a normal distribution is more true than at other times.

Note that the frequency distribution for the unrealized gain (loss) of the medium-term investment in Graph 3(a) appears to be more symmetrical than the others. The distributions for the fixed-rate debt (Graph 1(a)) and for the interest rate swap (Graph 2(a)) are less symmetrical given only the eight data points we are working with. In all cases a normal distribution is “forced” on the data to essentially fill in the holes and have more data points to work with.

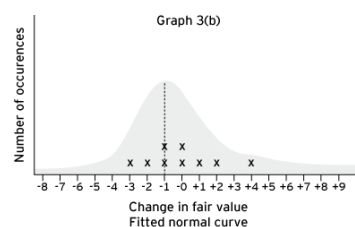
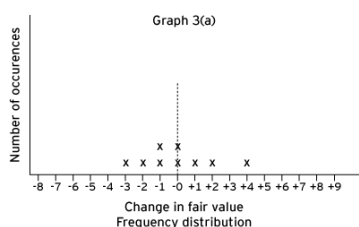
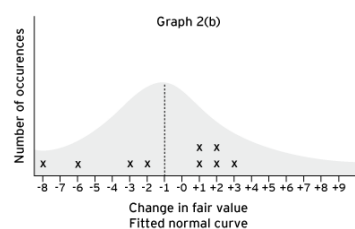
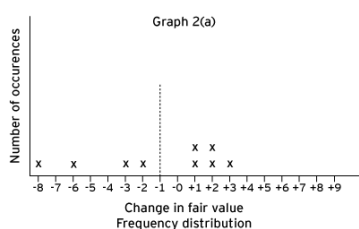
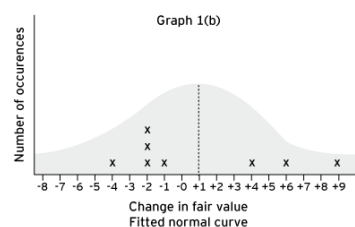
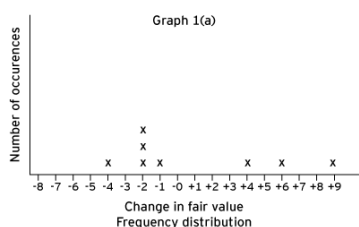
Normal distributions can be narrow, with a tall spike at the mean (like Graph 3(b)), or widely dispersed and short at the mean (like Graphs 1(b) and 2(b)). The distinguishing characteristic is the bell-shaped symmetry, not the height or breadth of the curve. Also note that the shapes of the (b) graphs for the fixed-rate debt and for the interest rate swap are nearly identical. However, the mean point of the fixed-rate debt is +1 while the mean of the interest rate swap is -1 – again illustrating how changes in value of the swap are an effective hedge of changes in value of the fixed-rate debt.

The significance of a normal distribution is the ease with which probabilities of various values occurring can be determined based on the calculated standard deviation. In a normally distributed set of values, 68% of the values fall within one standard deviation of the average (i.e. 34% on each side of the mean). Likewise, roughly 95% of the values will fall within two standard deviations of the mean, and approximately 99% will fall within three standard deviations of the mean.

This characteristic of normal distributions has an enormous impact on value at risk calculations.

Since a frequency distribution is presumed to include all possible changes in fair values, and is normally distributed, the area under the curves between any two points represents the probability of occurrence of a value between the two points. For example, if a vertical line is drawn at +5.39 on graph 1(b), approximately 84% of the area under the curve lies to the left, and 16% lies to the right. This observation implies that there is a 16% chance that the change in fair value of the fixed-rate debt will be greater than +5.4 and an 84% chance that it will be less.

Fixed-rate debt



Note that this conclusion is inconsistent with our simplified example since two of our eight (25%) observed changes in the fair value of the debt are greater than 5.39. This is the result of basing our analysis on a sample of too few items and should emphasize the importance of understanding the statistical requirements and limitations of the approach.

If we assume all of the above distributions are normal and that the experience of the past eight quarters is indicative of experience expected over the next quarter, we can make separate value at risk conclusions for each instrument.

Because the data used to develop the conclusions was based on quarterly values and changes in values, the conclusions must also refer to probable changes in value over a quarterly time horizon. In practice, VAR calculations and conclusions typically relate to daily changes in value.

In our example, the following conclusions result:

For each \$100 of fixed-rate debt (Graph 1(b)):

- ▶ There is a 95% chance that changes in the fair value of outstanding fixed-rate debt will range (in the next quarter) between an unrealized gain of \$9.78 and an unrealized loss of \$7.78 (representing two standard deviations on either side of the mean of changes in fair value of an unrealized gain of \$1-2 times \$4.39).

It should be observed that this also means 5% of the time the change could be outside of this range.

For each \$100 of interest rate swap (Graph 2(b)):

- ▶ There is a 95% chance that changes in the fair value of the interest rate swap position will range in the next quarter between an unrealized gain of \$6.74 and an unrealized loss of \$8.74 (representing two standard deviations on either side of the mean of changes in fair value of an unrealized loss of \$1-2 times \$3.87).

For each \$100 of medium-term investments (Graph 3(b)):

- ▶ There is a 95% chance that changes in the fair value of medium-term investments will range (in the next quarter) between an unrealized loss of \$3.75 and an unrealized gain of \$4.25 (representing two standard deviations on either side of the mean of changes in fair value of an unrealized gain of \$.25-2 times \$2.00)

Since value at risk disclosures most often focus on the downside, these statements also can be reformulated as follows:

- ▶ There is a 97.5% chance that changes in the fair value of the fixed-rate debt will not result in an unrealized loss in excess of \$7.78 of its face amount over the next quarter.
- ▶ There is a 97.5% chance that the changes in the fair value of the interest rate swap agreement will not result in an unrealized loss in excess of \$8.74 of its notional amount over the next quarter.
- ▶ There is a 97.5% chance that the changes in the fair value of the medium-term investments will not result in an unrealized loss in excess of \$3.75 of its face amount over the next quarter.

The 97.5% confidence level reflects the one-sided nature of the conclusion. It indicates the area under the curve at one of the ends. Since a normal distribution is assumed to be symmetrical, and 95% of the area under the curve lies within two standard deviations of the mean, 2.5% of the remaining area lies at each extreme.

Probability based conclusions can be drawn no matter how irregularly shaped the frequency distribution is. When a distribution is a normal distribution, the concept of standard deviation becomes extremely powerful. If the distributions are not normal (i.e., not bell shaped), similar VAR statements still can be made. However, more complex mathematical models must be used to develop them.

As previously illustrated, the individual values at risk for the three instruments under consideration have offsetting effects. That is, when there is a loss in value of the fixed-rate debt position, there would be an expectation of a gain in value from both the interest rate swap and medium-term investment portfolios. The opposite effects could also be expected if interest rates moved in the opposite direction.

The final step in developing an entity-wide VAR estimate involves combining the separate value at risk calculations into an entity-wide measure that considers these offsetting effects.

Covariance and correlation

It is critical to measure how much changes in the fair values of the assets, liabilities and derivatives move together when deriving an overall entity-wide value at risk. Covariance and correlation are statistical measures of the nature and extent of changes in fair value of instruments being combined relative to each other. A positive covariance means that fair values move together while a negative covariance means they vary inversely. The correlation coefficient measures the degree of such changes in fair values relative to each other.

This concept is best illustrated by more closely observing the changes in fair value of the previously discussed fixed-rate debt in conjunction with the interest rate swap that effectively converts it to a variable rate. Comparing the unrealized gains and losses in fair value for both instruments, quarter-by-quarter, illustrates that they generally offset one another (i.e., have a negative covariance). However, recall that the degree of offset was not perfect. In addition, the volatility of the swap also is slightly less than that of the debt, as indicated by a lower variance and standard deviation.

The negative covariance of the changes in unrealized gains/losses from the fixed-rate debt with the changes in unrealized gains/losses from the interest rate swap is calculated as the average of the product of the differences of observed values for each instrument from its mean. The following illustrates the calculation with respect to the fixed-rate debt and interest rate swap in our example.

Recall the following quarterly changes in unrealized gains/losses:

Qtr	1	2	3	4	5	6	7	8
Debt	-1	-2	+4	-2	-2	-4	+9	+6
Swap	+2	+1	-3	+2	+1	+3	-9	-6

Since the mean of the unrealized gain/loss of the fixed-rate debt is +1 and of the swap is -1, the difference (spread) of each observation from the mean for each instrument can be shown as follows:

Qtr	1	2	3	4	5	6	7	8
Debt	-2	-3	+3	-3	-3	-5	+8	+5
Swap	+3	+2	-2	+3	+2	+4	-7	-5

The average product of these differences is determined as follows:

Qtr	1	2	3	4	5	6	7	8
	-6	-6	-6	-9	-6	-20	-56	-25

The sum of these products is -134 and the average is -16.75(-134/8), which represents the covariance of the debt with the swap.

The *correlation coefficient* scales the covariance to a value between -1 (perfect negative correlation) and +1 (perfect positive correlation). The correlation coefficient is defined as the covariance divided by the product of the standard deviations of the respective data points. Recall that the standard deviation of changes in value of the debt was previously calculated to be 4.39 while the amount for the swap is 3.87. Accordingly, the correlation coefficient between the debt and swap is -.986, determined as follows:

$$\frac{-16.75}{(4.39)(3.87)} = \frac{-16.75}{16.9893} = -.986$$

In essence, the combination of the fixed rate debt and swap creates variable rate debt. Since variable rate debt is not expected to change in value as interest rates change, we would expect that the combined value at risk of the two instruments would be negligible. The correlation coefficient of -.986 quantitatively states the relationship between the debt and interest rate swap. The correlation coefficient is very close to -1.00, which indicates a high degree of negative correlation, or offset.

To determine the aggregate value at risk of the fixed-rate debt and swap, the covariance's and correlation coefficients of the fixed-rate debt and interest rate swap must be combined with the amounts of each instrument. For purposes of this illustration, let's assume that the company decided that it wanted to maintain a mix of fixed and variable rate debt of approximately 50%. Accordingly, the notional amount of the interest rate swap is for one half the amount of the fixed-rate debt. For illustrative purposes, let's assume that the debt totals \$100 million while the notional amount of the swap is \$50 million.

Before illustrating the approach to combining these amounts, let's review the amounts that we have already determined. They are as follows:

	Fixed-rate debt	Interest rate swap
Amount (\$mil)	\$100	\$50
Relative weighting (w):		
w1	1.0	
w2		-5
Average change in fair value (percent of amount)	+1%	
Variance (VR)	19.25	15.00
Covariance (COV)	-16.75	

Given what we know about these two instruments, the best estimate of their aggregate change in value is based on the average change in fair values we have already observed. This indicates that an overall change in fair value of +\$500,000 is expected from the combined debt and interest rate swap. This expected change in value is determined as follows:

(\$ millions)	Debt	Swap	Total
Amount	\$ 100	\$ 50	
Average percentage change in fair value	+1%	-1%	
Average estimated change in fair value	\$ 1	(\$.5)	<u>\$.5</u>

The variance of the portfolio of the fixed-rate debt together with the swap is the relevant measure of the variability of the estimated change in fair value. The variance of a portfolio, consisting of two items, considers both the relative amount and variance of each instrument as well as the covariance of the instruments with each other. It is calculated by the following formula:

$$(w_1)^2(VR_1) + (w_2)^2(VR_2) + 2(w_1)(w_2)(COV)$$

When more than two instruments are considered, matrix algebra is used to appropriately expand the formula.

This formula is applied to determine the variance of the portfolio of debt (Instrument 1) and interest rate swap (Instrument 2) as follows:

$$(1.0)(1.0)(19.25) + (0.5)(0.5)(15.00) + 2(1.0)(0.5)(-16.75) = 6.25$$

The standard deviation of the *portfolio* is the square root of the variance of 6.25, or 2.50. As expected, while the volatility, or standard deviation, of the fixed-rate debt (4.39) and the interest rate swap (3.87) may individually be significant, when considered together, the volatility as measured by the variance and standard deviation is reduced. The primary reason for the reduction is that there was nearly perfect negative correlation between the debt and the swap. Had the swap hedged the entire amount of the debt instead of only one half of it, the portfolio variance would have been even less. The portfolio-wide value at risk implications of this calculation are powerful.

Based on the portfolio standard deviation of 2.50, the company can conclude:

- ▶ There is a 95 percent chance that the change in fair value of our debt portfolio of \$100 million and related swaps of \$50 million notional amount will range over the next quarter between a \$5.5 million unrealized gain and a \$4.5 million unrealized loss (representing two standard deviations, or 5.00%, on either side of the portfolio mean of a \$500,000 unrealized gain).

The statement could also be phrased as:

- ▶ Within a 97.5% probability, combined *unfavorable changes in fair value* due to interest rate movements affecting the combined debt and swap portfolio should not exceed \$4.5 million over the next quarter.

This portfolio-wide VAR statement is a considerable contrast to the VAR statement for the fixed-rate corporate debt alone, for which the change in fair value at the 95% confidence level ranged from a \$7.78 unrealized loss to a \$9.78 unrealized gain.

As a final step, the company may want to evaluate the effect of interest rate risk on its *entire* balance sheet by now including the fair value of its medium-term investment portfolio and calculating a value at risk amount for all financial instruments. For illustrative purposes, let's assume that the company has \$75 million of medium-term investments.

In reality, an entity-wide measure should consider any position the company has that is subject to changes in value as a result of the market measure being considered (e.g., interest rate risk). The calculation for three or more variables is more complex than for two, but the same general principles which consider the relative amount of each instrument, covariance and correlation apply and the calculation follows a logical pattern.

First, it is necessary to calculate the expected unrealized gain (loss) of the three instrument portfolio.

Consider the following:

	Debt	Swap	Total
Amount (millions)	\$ 100	\$ 50	\$ 75
Average percentage change in fair value	+1%	-1%	.25%
Expected average change in fair value (millions)	\$ 1	(\$.50)	\$.19

The expected entity-wide unrealized gain(loss) is the sum of the expected amounts for each instrument or a \$690,000 gain in fair value.

The variance of a portfolio with more than two instruments requires that covariances (COV) be calculated for each instrument with respect to every other instrument in the portfolio. Remember that the variance of an item is a measure of the dispersion of its changes in value while the covariance measures the degree of change of two items relative to each other.

Although the process of determining the variance of a portfolio of more than two items is more complex, the approach is the same as the previous example that included only the debt and interest rate swap. Consideration of the variance of each instrument as well as covariances of each instrument with respect to the others is necessary to determine an entity-wide value at risk measure.

The following matrix will be used to capture the variances (VR) and covariances (COV) necessary for the computation. Note that the matrix inputs for an instrument compared with itself is its variance.

	Debt	Swap	Investment
Debt	VR	COV	COV
Swap	COV	VR	COV
Investment	COV	COV	VR

The development of the amounts to complete this matrix can be performed using the same approach as previously illustrated with respect to the debt and swap position. You can appreciate the complexity of completing the matrix for the three positions in our example, not to mention the larger number of instruments companies actually have. As previously mentioned, companies generally use computer models to perform the calculations.

For purposes of illustrating the development of the entity-wide VAR amount for the hypothetical three instrument portfolio, the values to complete the matrix are provided as follows:

<i>Weight</i>		1.0	.5	.75
		Debt	Swap	Investment
1.0	Debt	19.25	-16.75	-3.5
.5	Swap	-16.75	15	3.125
.75	Investment	-3.5	3.125	4

As expected, the debt and the investment have a negative covariance because changes in interest rates will have the opposite effect on changes in their values. The swap and the investment have a positive covariance because they will move in the same direction as interest rates change.

The variance of the entire portfolio is calculated by moving through each variance or covariance in the matrix above and multiplying each value by the appropriate weights of the two instruments being compared and summing this total.

Numerically, the calculation is as follows:

Instrument		Instrument weight		COV/VR		
A	B	A	B	A:B	Product	
Debt	Debt	1.00	1.00	19.250	19.250	
Debt	Swap	1.00	0.50	-16.750	-8.375	
Debt	Investment	1.00	0.75	-3.500	-2.625	
Swap	Debt	0.50	1.00	-16.750	-8.375	
Swap	Swap	0.50	0.50	15.000	3.750	
Swap	Investment	0.50	0.75	3.125	1.1719	
Investment	Debt	0.75	1.00	-3.500	-2.625	
Investment	Swap	0.75	0.50	3.125	1.1719	
Investment	Investment	0.75	0.75	4.000	2.25	
Portfolio variance						5.5938
Portfolio standard deviation (square root of variance)						2.3651

Note that adding the medium-term investment to the portfolio further reduces the volatility (standard deviation) of changes in fair value from 2.50 to 2.37. Like the interest rate swap, changes in value of the medium-term investment will be in an opposite direction as changes in fair value of the debt.

As before, we can translate this standard deviation into fair value terms. Considering the balance sheet in its entirety, we expect an overall fair value change in the next quarter of an unrealized gain totaling \$690,000. In addition, we can now also conclude, with 95% confidence, that the range of changes in fair value will be within two standard deviations of this expected result, or +/- \$4.73 million (2.3651% x 2 x \$100 million). The total quarterly unrealized gain or loss of all financial instruments should, 95% of the time, range from a \$4.04 million loss to a \$5.42 million gain (\$690,000 ± \$4.73 million).

The entity-wide VAR is lower than the VAR for just the debt and swap alone. This was expected because of the offsetting risk profile of having issued fixed-rate debt and owning a medium-term investment. The VAR analysis allows us to quantify the extent of offset we expect between these instruments.

The following table summarizes our “value at risk” results (in terms of the potential unrealized loss) for the company’s exposure to changes in interest rates.

	Value at risk
Fixed-rate debt (alone)	\$ 7.78 million
Fixed-rate debt plus swap	\$ 4.50 million
Fixed-rate debt, swap and investment security	\$ 4.04 million

Keep in mind that each of these estimates is at the 97.5% confidence level. So we can expect that the actual change in value will result in a loss exceeding these estimates 2.5% of the time. Since the data underlying our analysis was quarterly changes in value, we could expect the actual quarterly unrealized losses to exceed our estimate one quarter out of every forty quarters or once every ten years.

“Value at Risk” in perspective

The above example illustrates a simple VAR computation using the variance/covariance method built from historical values of individual financial instruments and their relationships to each other. The analysis relied on obvious, but very basic, assumptions: it assumed (1) that historical data points are valid predictors of future data points and that historical variances and covariances will be present in the future and (2) the data points are normally distributed. In addition, the analysis in our simple example was based on too few price observations to be statistically valid and the price observations were too infrequent to render a meaningful result.

In the simple example our focus was narrow – only one market risk factor, interest rate risk, was applicable. In addition, the interest rate risk in our example was symmetrical resulting in gains or losses when interest rates changed in either direction. In many situations, multiple market risk factors such as commodity prices or currency exchange rate fluctuations also affect an entity’s exposure to risk. Or the risk might be limited as a result of optional types of instruments (e.g., a callable debt instrument). And more than one market risk factor can affect the same financial instrument. For example, corporate debt denominated in a foreign currency is affected by both interest rate movements and currency exchange rate fluctuations.

A VAR computation for an entity exposed to a variety of market risks must consider each source of risk. This analysis is performed by first determining an entity-wide amount with respect to each risk and then combining the amounts by considering the variance and covariances between the risk factors.

An important consideration in evaluating a value at risk disclosure is understanding the assumptions underlying the analysis and the context in which it is used. The SEC’s rules regarding market risk disclosures require companies electing to present value at risk quantitative market risk disclosures to disclose their model assumptions and parameters necessary to an understanding of the disclosure.

Ernst & Young

Assurance | Tax | Transactions | Advisory

About Ernst & Young

Ernst & Young is a global leader in assurance, tax, transaction and advisory services. Worldwide, our 144,000 people are united by our shared values and an unwavering commitment to quality. We make a difference by helping our people, our clients and our wider communities achieve their potential.

Ernst & Young refers to the global organization of member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organizations, please visit www.ey.com.

Ernst & Young LLP is a client-serving member firm of Ernst & Young Global and of Ernst & Young Americas operating in the US.

© 2010 Ernst & Young LLP.
All Rights Reserved.

SCORE no. BB0688
(Revised May 2010)

This and many of the publications produced by our US Professional Practice Group, are available free on AccountingLink at ey.com/us/accountinglink

This publication has been carefully prepared but it necessarily contains information in summary form and is therefore intended for general guidance only; it is not intended to be a substitute for detailed research or the exercise of professional judgment. The information presented in this publication should not be construed as legal, tax, accounting, or any other professional advice or service. Ernst & Young LLP can accept no responsibility for loss occasioned to any person acting or refraining from action as a result of any material in this publication. You should consult with Ernst & Young LLP or other professional advisors familiar with your particular factual situation for advice concerning specific audit, tax or other matters before making any decision.