This report reviews U.S. generally accepted accounting practices (GAAP) applicable to derivatives and hedging applications. Statement of Financial Accounting Standards no. 133, "Accounting for Derivative Financial Instruments and Hedging Activities" (FAS 133) was implemented originally in 1999. International Accounting Standard 39 (IAS 39) for international reporting became effective in 2001. Canadian Institute of Charted Accountants statements 3855 and 3865 (CICAs 3855 and 3865) became effective in 2006 for Canadian reporting.

Appendix 1 provides a high-level summary of the implications of these standards. While the standards applicable in different jurisdictions are a bit different, they generally align with the precedents established by FAS 133.

We focus on the application of FAS 133 to U.S. entities using exchange-traded derivatives such as those offered by CME Group; and, to over-the-counter (OTC) derivatives. We begin with a brief introduction to FAS 133, emphasizing the concepts relevant to our discussion. Specifically, why and how the concept of hedge effectiveness is important and the difficulties experienced by practitioners. It is followed by an examination of the impact of these standards on corporate usage of derivatives. We conclude with a discussion of recent developments in this regard. [1]

Historical Background - Prior to the deployment of the current standards, hedge accounting practices were outlined in a document known as FAS 80, Accounting for Futures Contracts. FAS 80 originally became effective in 1984.

But FAS 80 had several shortcomings. *E.g.,* its applicability was confined to exchange-traded futures and options and not to OTC derivatives. Further, accounting treatment for options per FAS 80 could be misleading insofar as the option cost or premium typically was amortized over the life of the contract, possibly obscuring significant gains/losses in option value.

FAS 133 superseded FAS 80. Further, it extended its reach to include OTC derivatives that previously were not generally recognized in publicly disclosed accounting statements, particularly by non-financial institutions.

Actually, there has been a large number of amendments, clarifications and interpretations to the requirements of FAS 133 over the years. Appendix 2 to this document provides a chronology of Statements of Financial Accounting Standards (SFAS) governing the disclosure and accounting requirements of derivative instruments. But FAS 133 remains at the core of current derivatives accounting practices.

Rationale for FAS 133 - While derivative instruments, such as forwards, futures and swaps, may result in significant gains or losses, they are often initially transacted at zero cost. Certainly in the case of futures, they may be transacted at a sizable notional value and may require initial performance bonds or "margins" to secure the financial surety of the transaction. But they may nonetheless be transacted absent any up-front cash expense.

This may be modified in the case of "non-par" swaps where the parameters of the trade are established at levels away from current market values, necessitating an up-front payment between the two counterparties. Further, options require an up-front payment of an option premium. But these up-front payments are typically small relative to the notional, nominal or principal value of the transaction.

Throughout the life of a derivative contract, its value may bear little or no resemblance to its initial cost. Under those circumstances, traditional accounting practices that require instruments to be booked and carried at historical cost in financial statements become essentially meaningless. As such, disclosure of their fair market replacement, liquidation or non-par value becomes a logical choice. *I.e.,* derivative contracts should logically be marked or recognized at their fair value.

The first major tenet of FAS 80 is a requirement that all derivative instruments that fall within the scope of the statement be recognized as an asset or liability at their "fair value." Ideally, this may be accomplished by a "mark-to-market" process. In some cases where market prices are unobservable, one must revert to a "market-to-model" process.

Fair value accounting for derivatives may give rise to distortions of true financial conditions when applied

[1] This document is intended to provide an appreciation and overview of the elements of derivatives and hedge accounting. It is not intended to be referenced as specific advice regarding any particular accounting situation. The applicability of particular accounting treatments is driven by the myriad specific circumstances affecting a practitioner and the complex interpretation of a large body of accounting prescriptions. Thus we recommend that practitioners consult their accountant or legal counsel regarding the application of specific accounting treatments.

to a hedging situation. Assume, for example, the derivative contract represents a "perfect hedge" for another item on the balance sheet, *e.g.,* commodity inventories or financial assets such as stocks and bonds. To the extent that the gains/losses in the derivative instrument offset precisely against those assets that are the subject of the hedge, there is no change or impact upon the financial condition of the reporting entity.

Difficulty arises to the extent that gains/losses in the derivative instrument are marked to fair value and recognized in current earnings while gains/losses in the hedged items are carried on the books at historical cost. This may result in an artificial volatility in reported earnings and a distortion of the value of the reporting entity.

The second major tenet of FAS 133 is to require "hedge accounting" treatment to match gains (losses) in a derivative instrument with losses (gains) in the hedged asset or liability. Hedge accounting treatment may be deployed under certain conditions where documentation is maintained regarding the hedge and the derivatives and hedged instrument correlate to a prescribed degree.

Recording of derivatives at their fair value and hedge accounting treatment that coordinates the recognition of (presumably) offsetting gains/losses in the hedging instrument and the hedged item represent the essence of FAS 133.

Fair Value Accounting – FAS 133 generally addresses accounting and reporting standards for derivative instruments. The statement defines a derivative as a financial instrument or contract that ... (i) has one or more underlying items; (ii) has one or more notional amounts or payment provisions; and (iii) requires little or no initial investment and that relies on a net settlement.

The statement includes a number of exemptions and recognizes that derivative instruments may be embedded in other "host" contracts such as structured notes, leases, purchase agreements, guarantees, etc. by contractual arrangement. The statement incorporates or excludes certain types of contracts that fall under its application as outlined in appendix 3 of this document.

The default assumption under FAS 133 is that any derivative instrument holdings represent speculative or investment items unless it may be demonstrated otherwise. And, as such, any gains or losses in the value of those derivatives must be presented at their fair market value, *i.e.,* they are marked to their fair value at the conclusion of the accounting period, and realized in current income.

Applying Hedge Accounting - To apply hedge accounting practices, one must identify the specific risk that is being addressed with the hedging transaction. The statement recognizes a number of different types of risks including ... (i) interest rate risk; (ii) price risk; (iii) exchange rate risk; and (iv) credit risk.

The statement generally recognizes three different types of risk exposures which may qualify for hedge accounting treatment.

1. *Fair Value Exposure* – Refers to the change in fair value of an on-balance sheet asset, liability item or a yet-to-be recognized firm commitment. In this situation, the derivative instrument must be marked to their fair value as if it were a speculative or investment item. Likewise, the risk exposure is marked to its fair value. Thus, the offsetting gains and losses are marked and recognized in current earnings contemporaneously.

2. *Cash Flow Exposure* – Represents the changes in cash flow of an on-balance sheet item or an expected future transaction. The financial results associated with the derivative instrument are categorized as either "effective" or "ineffective." The ineffective portion of those gains or losses is recognized in current earnings. The effective component is carried initially as "other comprehensive income" (OCI) but subsequently reposted as income during the accounting period in which forecasted cash flows are recognized. Note that FAS 133 will recognize hedges as ineffective when the hedge results exceed the expected cash flow.

3. *Net Foreign Investment* – Refers to the firm's exposure to changes in the value of net foreign investment or operations due to exchange rate risks. One may use derivative or non-derivative instruments (or assets/liabilities denominated in the same currency as the hedged investment) for hedging purposes. Gains or losses in the value of the hedge are reported as "other comprehensive income" outside of current earnings and subsequently recognized in current earnings when investment gains or losses are realized similar to a cash flow hedge.

Qualifying for Hedge Accounting – In order to qualify for hedge accounting treatment, one must

specifically identify the hedged item and the instrument used to accomplish the hedge. Further, one must document the objective and strategy associated with a hedge along with the methodology utilized to assess hedge effectiveness.

To qualify for hedge accounting treatment, it is necessary to demonstrate that the hedge is likely to be highly effective for addressing the specifically identified risk exposure. There are two generally accepted methodologies to demonstrate the effectiveness of a hedge ... (i) via a logical argument that considers the critical terms of the derivative instrument in question; or (ii) by statistical analysis.

Specific criteria demonstrating hedge effectiveness must be met prior to the application of the hedge (on an *ex ante* basis) and on a subsequent ongoing basis (on an "*ex post*" basis). Documentation of such demonstration is essential. If the criteria cannot be adhered to on an ongoing basis, hedge accounting must be discontinued. As such, gains and losses in the derivative would be marked to fair value and shown in current earnings. Adjustments in the value of the hedged item to sync with (presumably offsetting) gains and losses in the derivative instrument are discontinued.

Logically demonstrating the ex ante effectiveness of a hedge through a critical terms analysis requires that all the critical terms of the contract, *e.g.,* notional value, delivery grade, delivery date, delivery location, settlement procedure, etc., match up exactly with the hedged item. For example, crude oil futures traded at NYMEX may be deployed to hedge West Texas Intermediate, Low Sweet Mix, New Mexican Sweet, North Texas Sweet, Oklahoma Sweet, or South Texas Sweet crude oil with 0.42% sulfur by weight or less, with an API gravity or 37bp – 42 bp, deliverable at Crushing, OK.[2]

Futures contracts may be difficult to qualify via the critical terms analysis route to the extent that it may be rare that one wishes to hedge precisely or near precisely the item which may be delivered against a futures contract.

Application of a correlation analysis for the purpose of establishing *ex ante* effectiveness of the hedge requires that the derivatives and the hedged item exhibit a correlation coefficient of at least 0.90 (or an R-squared ≥ 0.80) with respect to their price fluctuations. This criterion was prescribed informally (but publicly) by the staff of the Securities and Exchange Commission (SEC). *E.g.,* if there is no liquid futures contract based on jet fuel, if the correlation between jet fuel and heating oil exceeds the threshold, the evidence validates hedge effectiveness. Hedge effectiveness in the context of futures contracts is most commonly demonstrated via the correlation methodology.

Ongoing application of hedge accounting further necessitates an *ex post* or retrospective evaluation of hedge effectiveness on a recurring basis. In other words, to qualify for hedge accounting treatment, it is necessary that the derivative(s) actually perform well.

While there is no single, definitive test prescribed by the Statement, Financial Accounting Standards Board had suggested the "80/125" rule, *viz.* the actual gains and losses of the derivative(s) should fall within 80% to 125% of the gains/losses for the hedged item. This form of *ex post* validation has been widely adopted by users of derivative instruments.

However, this ongoing evaluation may introduce some difficulties. *E.g.,* assume that a $500 million fixed-coupon bond portfolio is hedged with an interest rate swap designed to convert the coupon to floating rate coupon. In a low volatility environment, interest rates may remain reasonably stable. As such, it is perfectly conceivable that the bond position may advance in value by $10,000 while the swap is marked with a loss of say $4,000. Technically, the swap fails the test to the extent that the magnitude of fluctuations in swap value falls outside of the acceptable range of 80%-125%. However, the magnitude of these fluctuations may be regarded as insignificant "noise" relative to the aggregate value of the hedged portfolio.

Problems with Fair Value - The foregoing discussion side-steps an important consideration. Specifically, how do users identify the fair value at which to mark a derivatives instrument? The answer to this question ranges from trivial (for listed futures and options) to manageable (for standard OTC instruments) to outright perilous (for tailor-made structured products).

For listed derivatives, the fair market value is established on a daily basis by the listing exchange or the clearinghouse. Because exchanges and clearinghouses act as neutral third party facilitators, they have no incentive to distort or misrepresent fair value. Moreover, the value of most contracts is readily transparent. To the extent that listed derivatives frequently enjoy deep liquidity, there is

[2] Some crude oil of foreign origin with somewhat divergent characteristics may also qualify.

generally little dispute or controversy regarding the validity of the exchange's daily marks. Thus, the practitioner may mark-to-market based on a readily observable fair value.

Many standardized OTC derivatives including plain vanilla interest rate swaps (IRS), FX forwards, Forward Rate Agreements (FRAs), enjoy mature and liquid markets. Pricing mechanisms are generally well understood and the hurdles in valuing a seasoned derivative instrument are limited. Actionable quotes from multiple derivatives dealers may readily be surveyed for pricing purposes. Alternatively, the end-user intent on marking his books may establish the value themselves by applying a mechanical pricing convention although the burden may fall on that user to establish the validity of said method. Still, pricing difficulties are manageable.

However, there may be little hope on referencing a transparent, liquid market in the context of many customized derivatives. Thus, the process of establishing a daily fair value often relies on the application of mathematical models, i.e., the item must be "marked-to-model." But the validity of the model as well as the model inputs may become subject to question.

It is tempting to conclude that trading listed derivatives will solve the model risk problem. However, the fact that the hedger may select a customized product to address his hedging requirements inherently implies that there is a dearth of listed derivatives suitable for his needs. Or, that the execution of a strategy relying on listed products is either cost ineffective or gives rise to documentation problems that renders the strategy a worse option. Note that users must still needs to demonstrate that the hedging strategy is effective, on both an *ex ante* and *ex post* basis.

Recent Developments – In May of 2010, the FASB proposed changes to hedge accounting practices by issuing two Accounting Standards Updates (ASU) entitled "Accounting for Financial Instruments and Revisions to the Accounting for Derivatives Instruments and Hedging Activities – Financial Instruments (Topic 825)" and "Derivatives and Hedging (Topic 815)."

The proposed changes were a reaction, in part, to the subprime mortgage crisis. Thus, the changes are intended to produce more timely and representative measurements of the value of financial instruments as well as reduce the complexities inherent in such accounting. The changes may generally be categorized as follows.

- *Number of Categories & Measurement Methods* – Per current GAAP, there are multiple categories of financial instruments whose values may be measured and presented using a variety of methodologies. *E.g.,* under current GAAP, debt instruments may be carried on the books at an amortized cost, at fair value or at the lesser of cost or fair value. The proposed changes would require traded assets and liabilities to be accounted for at fair value with changes shown in net income. Assets and liabilities held for collection/payment of principal and interest could be presented in the balance sheet at either cost or fair value with changes reported as net and comprehensive income.

- *Loss Measurement* – Current GAAP utilizes various rules regarding the impairment of financial instruments based on the specific type of instrument, creating uncertainties regarding the probable magnitude of loss. The proposal would require that only instruments held in the collection/payment category would be tested for credit impairment and that such impairments could be recorded at an earlier stage in the process.

- *Qualifying for Hedge Accounting* – Current hedge accounting qualifications have been criticized as overly complex. The proposal would provide for less rigorous and more qualitative as opposed to quantitative measures to assess the *ex ante* effectiveness of the hedge. In particular, per the proposed standard, the *ex ante* expectation of hedge effectiveness would be reduced from a "highly" to "reasonably" effective. The proposal does not include any revised quantitative measures of hedge effectiveness.

The proposal remains the topic of comment and discussion and is not expected to be implemented until perhaps 2013. In particular, the broader application of fair value reporting standards is controversial in that it would introduce enhanced volatility in corporate and institutional balance sheets. This point, combined with a more liberal approach to qualifying for hedge accounting practices may portend of increase hedging activity using CME Group products.

International Developments - Note that these ASUs were developed as a part of a joint project between the FASB and the International Account Standard Board (IASB). This project was initiated in

2002 with the execution of a Memorandum of Understanding (MOU) aimed at converging international financial reporting standards (IFRS) and U.S. generally accepted accounting principles (GAAP) into a common standard.

Thus, the IASB issued an exposure draft entitled "Hedge Accounting" in December of 2010 with the intention of replacing to replace IAS 39, Financial Instruments: Recognition and Measurement.

In particular, the exposure draft proposes a complete elimination of the 80-125% standard to qualify a hedge as "highly effective." That standard would be replaced by an objective-based assessment of prospective hedge effectiveness. *I.e.,* the proposal would expand use of hedging accounting principles, similar to the reforms proposed by the FASB ASU discussed above.

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Appendix 1: Summary of Current Accounting Standards

	FAS 133	IAS 39	CICA 3855 & 3865
Title	Accounting for Derivative Instruments and Hedging Activities	Financial Instruments: Recognition and Measurement	Accounting for Derivative Instruments and Hedging Activities
Issuer	Financial Accounting Standards Board (FASB)	International Accounting Standards Board (IASB)	Canadian Institute of Chartered Accountants (CICA)
Effective Date	June 1, 1999	January 1, 2001	October 1, 2006
Region	US	International	Canada
Summary	FAS 133 states that all derivatives must be recorded at fair value as an asset or liability. The ability to apply hedge accounting is optional. If a derivative qualifies as a hedge, gains or losses from derivative will match or offset gains or losses from value of underlying transaction. To qualify for hedge accounting, FAS 133 provides rules and procedures for hedge effectiveness testing. If derivative is ineffective, it is marked at its fair value in the companies' earnings.	IAS 39 establishes principles for recognizing and measuring financial assets and liabilities. With respect to derivatives, IAS 39 requires companies to initially recognize their derivatives at fair value; fair value is defined as amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction. Derivatives that are designated as hedged items are subject to measurements under hedge accounting requirements of IAS 39.	CICA 3855 prescribes when you recognize a financial instrument on balance sheet and at what amount, sometimes using fair value; other times using cost based measures. It also specifies how to present financial instrument gains and losses. CICA 3865 specifies how to apply hedge accounting and what disclosures are necessary when it is applied. AcG-13 applies to private companies only and it deals with identification, documentation, designation and effectiveness of hedging relationships and with discontinuance of hedge accounting.

Appendix 2: Chronology of Derivatives Accounting

Year	FAS No.	Title	Requirements
1981	52	Foreign Currency Translation	Established process for valuing assets, liabilities denominated in foreign currencies.
1984	80	Accounting for Futures Contracts	Established accounting and reporting requirements for futures and options on futures, outlining accounting for fair value hedges and cash flow hedges.
1990	105	Disclosure of Information about Financial Instruments with Off-Balance Sheet Risk and Financial Instruments with Concentrations of Credit Risk	Required companies to make quantitative disclosures about market risks and credit risks related to unsettled financial instruments.
1991	107	Disclosure about Fair Values of Financial Instruments	Required companies to disclose fair market value of unsettled financial instruments.
1993	115	Accounting for Certain Investments in Debt and Equity Securities	Required that trading and available-for-sale securities be shown on balance sheet at fair market value, with changes in market value included in income or in equity section of balance sheet as component of other comprehensive income.
1995	119	Disclosure about Derivative Financial Instruments and Fair Value of Financial Instruments	Required disclosures about purposes of derivative financial instruments and about how derivatives are reported in financial statements. For derivatives used to hedge risks associated with anticipated transactions, required disclosure about nature of anticipated transactions and amounts of deferred hedging gains and losses.
1998	133	Accounting for Derivative Instruments and Hedging Activities	Required that all derivative instruments be shown on balance sheet at fair market value with accounting for changes in fair value depending on the purpose of derivative. Established new disclosure requirements superseding those in FAS 105 and 119 and amending those in FAS 107.
1999	137	Accounting for Derivative Instruments and Hedging Activities, Deferral of the Effective Date of FAS 133, an Amendment of FAS 133	Delayed the effective date of FAS 133 to fiscal years beginning after June 15, 2000.
2000	138	Accounting for Certain Derivative Instruments and Certain Hedging Activities, an Amendment of FAS 133	Made certain technical changes in way FAS 133 is to be applied to specific types of hedges.
2003	149	Amendment of FAS 133 on Derivative Instruments and Hedging Activities	Clarification to FAS 133 as well as treatment of Derivatives embedded in other contracts.
2006	155	Accounting for Certain Hybrid Financial Instruments - An amendment of FASB Statements No. 133 and 140	Permits fair value measurement of hybrid financial instrument that contains an embedded derivative that otherwise would require bifurcation; other clarifications regarding IO and PO strips, evaluation of securitized assets.
2006	157	Fair Value Measurements	Establishes a framework for measuring fair value as a market-based measurement and expands disclosures about fair value measurements.
2007	159	The Fair Value Option for Financial Assets and Financial Liabilities - Including an amendment of FASB Statement No. 115	Expands scope of assets and liabilities subject to fair value measurement per FAS 157
2008	161	Disclosures about Derivative Instruments and Hedging Activities – An amendment of FASB Statement No. 133	Requires enhanced disclosures for derivatives including CDS

Appendix 3: Contracts Impacted by FAS 133

Contract	FAS 133 Applies?	Comments
Exchange-traded stock options	Yes	
Employee stock options	No	Specifically excluded
Warrants to purchase exchange-traded securities	Yes	Marketability of exchange-traded security equivalent to net settlement provision
Warrants to purchase non-exchange-traded securities	No	No net settlement or equivalent
Exchange-traded commodity futures	Yes	
Exchange-traded financial futures	Yes	
FX forwards	Yes	
Forward contracts to purchase/sell manufactured goods	No	Normal purchases and sales of goods excluded
Interest rate / FX swaps	Yes	
Swaptions	Yes	
Casualty & life insurance contracts	No	Specifically excluded
Financial guaranty contracts	No	Specifically excluded
Mortgaged-backed securities	No	Requires an initial net investment
Options to purchase/sell real estate	No	No net settlement provision
Credit-indexed bonds or notes	Yes	
Royalty agreements	No	Specifically excluded
Weather-indexed contracts	No	If not exchange traded

Appendix 4: Applying FAS 133