

Reporting on financial derivatives—A Law and Economics perspective

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Abstract Fearing Enron-like financial fiascos concerning derivatives, accounting standards boards have issued new standards aimed at promoting higher transparency and reducing information asymmetries.

After persistent reluctance, and despite significant criticism, the pertinent International standard, with some exceptions, was finally adopted by the E.U., for the sake of intra-European and cross-Atlantic accounting harmonization, for which the standard constituted *sine-qua-non*.

These reluctance and criticism are not unfounded, as the standards might paradoxically result in increased information asymmetries, not easily mitigated by additional disclosure, and ultimately resulting in distortion of capital allocation and corporate governance mechanisms.

Suggestions for more efficient solutions are outlined herein.

Keywords Corporate governance · Corporate finance · Derivatives · Hedge accounting · Regulation 1606/2002 · Regulation 1725/2003

JEL Classification G34 · M40

*Sunlight is said to be the best of disinfectants;
Electric light the most efficient policeman.*¹

Introduction

Records concerning usage of derivatives go back millennia ago to biblical ages, as Laban sold Jacob the option to marry Rachel in return for 7 years of labor.² Further evidence

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¹Louis D. Brandeis, the U.S. Congress, 1933; On the importance of transparency and accurate disclosure in financial statements.

²The Bible, Genesis 29.

is reported regarding the usage of commodity forward reminiscent transactions in ancient Greece and ancient Rome (Poitras, 2000, p. 338). Nevertheless, extensive trade in derivatives has been followed only during the past 3 decades and particularly during the past decade, as derivatives trade underwent substantial growth rates in the volume of trade and the types of traded derivatives (Kolb, 1999, pp. 20–26). Covering a wide range of underlying assets, from pork bellies to interest rates, from minerals to foreign currencies, from livestock to stocks and stock indexes, the Over-The-Counter (“**OTC**”) market for derivatives has been estimated as of the end of June 2003 in over \$169.7 trillion—more than the entire market for stocks.³

In addition, regardless of their volume of trade, financial derivatives constitute very powerful and very complex financial instruments, taking numerous forms, at times, very esoteric to the common investor. Nevertheless, for decades, trade in financial derivatives was less regulated than other types of financial trade. A complementary effect to the scarcity in regulation, germane to this paper, was the lack of clear accounting standards governing reporting on derivatives. A possible outcome of these effects is the fact that financial derivatives were the subject matter of several financial fiascos in the ‘90s, such as Gibson Greetings, Procter & Gamble, Orange County, as well as the infamous Enron case.

All the above resulted in increased awareness in regards to the importance of derivatives. Efforts in the course of regulation have yielded very little results, so far.⁴ Reporting standards, though, took a different turn. On June 1998, the U.S. Federal Accounting Standard Board (“**FASB**”) issued SFAS 133. Shortly after, in 1999, the International Accounting Standards Committee (“**IASC**”), now called the International Accounting Standards Board (“**IASB**”), issued IAS 39 (jointly referred to as “**the New Standards**”). The common thread throughout these standards and their proclaimed aim is higher transparency—decreasing information asymmetries between the various stakeholders of firms, and specifically, exposing managers and risk management policy to stakeholder scrutiny.

The standards recently made the headlines, by underlying one of the major barriers in the process of Globalization by constituting an obstacle to international accounting rules harmonization. French president, Chirac, has personally written to the European Commission, arguing that the new standards “*would have harmful consequences on financial stability*”. This appeal is indicative of much of the criticism for the standards on behalf of the European banking industry and other industries in Continental Europe. This criticism has underlay the E.U.’s reluctance to include IAS 39 in the entire set of IASB standards (now referred to as International Financial Reporting Standards—“**IFRS**”) which is to be adopted as compulsory in the E.U., as of January 2005, as prescribed by E.U. Regulations 1606/2002 and 1725/2003. Failure to adopt IAS 39 by January 2005 had born 2 repercussions. One is the failure of having one uniform standard governing derivatives in the E.U. by January 2005, thereby, and due to derivatives’ importance, frustrating the entire project of accounting rules harmonization in the E.U. Another repercussion underlay the mutual recognition project concerning accounting rules between the E.U. and the U.S. This project is meant to allow companies from any side of the Atlantic to be publicly traded in the other side, without any accounting adjustments, thereby conducting to the process

³ The IASB web-site.

⁴ See, for example, the Commodity Futures Modernization Act, 2000, that was passed in the U.S. Congress as a response to pressure towards derivatives regulation. The act is considered to be very lax and ineffective. Any corresponding attempts in Europe have not been more fruitful.

of Globalization. Adoption of IAS 39 was a sine-qua-non for this project. Due to these 2 repercussions, notably the former, and pursuant to IAS 39's modifications during 2004, following the Commission's requests, IAS 39 was eventually adopted by the Commission on 19 November 2004, subject to 2 exceptions on the application of full fair-value option and some hedge accounting provisions, and pursuant to a declaration that further modifications are to be incorporated in it.

This paper is concerned with analyzing consequences that arise from these standards in the realms of information asymmetries and corporate governance, outlining suggestions for more efficient solutions, while examining the modifications put to IAS 39 in light of these suggestions.

The specific realm that this paper is concerned with is the analysis of reporting on financial derivatives, which were purchased in the aim of hedging a risk faced by the reporting entity ("**Financial Risk**"). For example, a European firm facing the risk of appreciation of the \$U.S. due to raw material it has to purchase in \$U.S. within 2 years time, hedges that risk by buying a derivative that appreciates in tandem with the \$U.S. The issue in question is how to report on the value of such derivatives. One extreme is to measure them at fair-value. The other extreme, which was followed widely prior to the issuance of the standards, allowed measuring them at their cost, thus allowing having no effect on reported earnings before the maturity of the hedged transaction.

The main findings of this paper yield that the above desire for higher transparency and reduction of information asymmetries, as a means of inducing efficient capital allocation, would result in excessive and even misleading information that might result in exactly the opposite outcome, thereby leading to social loss.

Attempts on behalf of firms to promote further disclosure, so as to mitigate these information deficiencies and any potential "Market for Lemons", are expected to have limited success. This is due to various reasons: transaction costs involved in extracting such further disclosure, the current structure of financial statements and the high credence related to the figures lying in the main part of the financial statements. Managers may, therefore, attempt to mitigate the above volatility, due to its adverse effects on their firms' securities. Any such attempts will fall short of alleviating the social loss caused by the above volatility. Moreover, some of them might exacerbate the situation further more.

This paper is structured as follows. Part I is engaged with an overview of the relevant provisions. Chapter 1 elaborates on the dynamics of derivatives—factors underlying pricing of derivatives, hedging strategies and the market for derivatives. Chapter 2 overviews the accounting standards in question.

Part II is engaged with the analysis of the potential consequences of those standards. Chapter 3 outlines the pertinent factors which conduce to the maximization of social welfare, namely: engagement in value-maximizing projects, pursuit of efficient hedging strategies, minimization of financial distress costs, mitigation of agency costs, and minimization of transaction costs involved with complying with the standards. Chapter 4 depicts the direct consequences of the new standards—**higher volatility** in reported earnings. Limited volatility, ensuing under hedge accounting, results from the recording to earnings of fluctuations of both the derivative and its hedged item and stems from the fact that the two would not necessarily fluctuate in tandem. Full volatility occurs when the conditions for hedge accounting, mainly high correlation between the derivative and the hedged item, are not met. Full volatility derives from asymmetric measurement—only the derivative is recorded to earnings.

Chapter 5 contends that since markets are not perfectly efficient, earnings volatility, although having no effect over cash flow schedule, might result in several adverse effects on firm market value. These effects are mainly higher cost of equity and higher expected costs of financial distress, including higher cost of debt. Chapter 6 explains why the volatility prescribed by the standards does not reflect real and due earnings volatility. In the case of full volatility, due to inconsistent measurement of the derivative in contrast to the hedged item, any high or low reported earnings do not constitute any real net profit from the derivative and the hedged item. In addition, even under hedge accounting, when both the derivative and the hedged item are recorded to earnings, any value fluctuations do not indicate profits that could be reaped as is. The reason for that lies in the requirements the standards impose for complying with hedge accounting—no possibility to realize profits until the end of the entire transaction and high correlation between the hedged item and the derivative. Chapter 7 elucidates on why this undue volatility would also result in social loss. Capital allocation mechanisms would malfunction, since firms' reported earnings will not be indicative of their true risk and value. In addition, corporate governance mechanisms will malfunction. Managers will be evaluated and incentivized according to earnings, which contain ephemeral fluctuations, for which they do not have and cannot have any control of. In other words, the above aspiration for higher transparency might result in increased information asymmetries. Attempts on behalf of firms to promote further disclosure, so as to mitigate these information deficiencies and any potential "Market for Lemons" outcome, are expected to have limited success. Chapter 8 contents that due to this limited amount of success, managers would try to mitigate this volatility using other measures. The crux is that these mitigation measures, although alleviating the above malfunctions and social loss of volatility, bear social loss for their own sake. Such measures include, for instance, not pursuing projects involving financial risks or following different hedging strategies resulting in less volatility. Furthermore, another measure is pursuing projects involving financial risks, while refraining from hedging. In addition, capital allocation and corporate governance mechanisms will continue to malfunction. Although their earnings are now absent of volatility, they are also absent of hedging. Consequently, this absence of volatility is undue, thereby inflicting an overall social loss, while imposing a negative externality on society.

Chapter 9 views briefly sources of transaction costs associated with compliance with the standards. These transaction costs are estimated as being high.

Chapter 10 concludes and argues that hedging is a socially beneficial activity. It allows trading risks, higher efficiency of the underlying asset markets, as well as the division of labor—a manager could pursue the operational activity of his firm without being judged by any realization of risks that he does not have any control of. Suggestions for amendments to the standards are outlined. These amendments coincide with both lower barriers to hedging, and the maintaining of transparency.

Part I: Provisions overview

1. Overview of derivatives

1.1. General

The definition of a derivative is: *a financial instrument whose value depends on the values of other, more basic underlying variables* (Hull, 2000, p. 1). This wide definition gives rise

to a wide range of derivatives. The basic types of derivatives include forwards, futures and options. Nevertheless, besides these basic types of derivatives, there exist numerous other types of derivatives, referred to as *Exotic Derivatives* (Hull, 2000, p. 10).

Several characteristics of derivatives are important for the sake of the matter in question. Derivatives entail an immense power. They constitute a superb tool for hedging, but also pose danger for infinite losses which might accrue considerably faster than in the case of any other securities.

Pricing of derivatives is highly complex, as many factors underlie their pricing. Not all derivatives have one definite and unambiguous price. In any case, many factors, besides the price of its underlying asset, influence the price of a derivative. A very important consequence of that fact is that no derivative would ever fluctuate exactly in tandem with the asset which it was purchased to hedge against, even if the latter is its exact underlying asset.

The above power and complexity of derivatives is the reason which gave rise to the issuance of specially designated accounting standards concerning derivatives and for the endeavor reflected in those standards for higher transparency.

1.2. The market for derivatives

The exchange-traded market for financial derivatives in the U.S., for example, has been estimated to be in the range of \$13 to \$14 trillion in notional amount. A conservative estimation of the notional amount of the OTC market for financial derivatives in the U.S., was estimated, as of year 2000, by over \$95 trillion—more than the market for stocks in the U.S. (Partnoy, 2002). The overall OTC market for derivatives has been estimated, as of June 2003, in over \$169.7 trillion.⁵

Correspondingly, types of underlying assets—commodities and financial assets, vary greatly. Forwards and futures are traded on commodities, such as pork bellies, live cattle, sugar, lumber, copper, aluminum, gold and tin, as well as on financial assets, such as stock indices, currencies and treasury bonds. Options are traded mainly on stocks, indexes, foreign currency rates and future contracts.

There are 3 types of traders in the market for derivatives. *Speculators* take a position in the market, while taking risk by doing so, in order to benefit from gains. *Arbitrageurs* strive for risk-free profits, by dealing simultaneously in 2 or more securities that underlie a price discrepancy. Arbitrageurs add to market liquidity and efficiency. *Hedgers*, the subject matter of this paper, take a position in the market in order to reduce a preexisting risk. Hedgers are risk averse towards an increase in the value of a liability, or a decrease in the value of an asset.

1.3. Types of hedges

Hedging strategies constitute a separate and broad issue, lying outside the scope of this paper. Nevertheless, the aim of this paragraph is to illustrate that any possible financial risk could be hedged using various strategies of hedging. The various strategies differ in the cost of the hedge and the net profit function. The choice between those different strategies should be left to the firm. Any exogenous factor inducing the firm to one strategy, rather than to the other, may yield sub-optimal results hedging-wise. For instance, in the case of a liability of

⁵ The IASB web-site.

a European firm to pay \$U.S., that firm could enter a long position in a future to buy \$U.S., buy call options on the \$U.S. exchange rate, or write put options on that rate. The firm will be in all those cases hedged. The profit function would differ, though, between these 3 types of hedges. In one case, net profit is fixed, in another case, potential loss is fixed and profit is unbounded, and in yet another case, net profit is fixed only for a certain amount of change in the exchange rate. The amount to be paid for the hedge would differ, as well. Such an amount may be either paid, received, or neither. Commission rates would differ, as well.

2. The accounting standards

2.1. General

The important accounting standards in effect concerning financial derivatives are IAS 39 and SFAS 133 issued by the IASC and the FASB, respectively. The IASC, now named the IASB, is a U.K.-based institute issuing *Accounting Publications*. Its publications are not directly in power in any country, yet many countries, adopt all or some of the IASB publications—the IFRS. Pursuant to Regulation 1725/2003 and its recent amendment, the IFRS are to be the compulsory standards in the E.U. as of January 2005. FASB publications are in power in the U.S. with regards to any publicly traded firm.

IAS 39 and especially SFAS 133 are by far the longest and most intricate publications of the IASB and the FASB, respectively, ever (See, for example: Partnoy, 2002; MacKay et al., 2000; Reiner, 2001; Osterland, 2000). Stretching over hundreds of pages and accompanied by additional standards and other accompanying publications, these standards, are exceptionally detailed and complex. This paper is concerned with analyzing the consequences of their major provisions.

2.2. Major provisions

Despite the difference between them and despite their intricacy, the lion's share of provisions pertinent to derivatives, which lie within the standards, are concerned with their approach towards the classification of financial derivatives within financial statements. Items in financial statements pertain, grosso modo, to one of the following classifications:

- *Current Items*—items held for short periods of time, usually defined as less than one business cycle. Such items are measured at fair value. Consequently their value changes are continuously recorded to earnings.
- *Non-Current/Fixed Items*—items held for long periods of time. These items are measured at cost or amortized cost.⁶ Their value changes are recorded to earnings upon their derecognition.

The classification systems, prescribed by IAS 39, regarding financial instruments, such as derivatives, is outlined as follows:

- *Trading*—financial assets that are held for the purpose of short-term profit making.
⇒ Measured at fair value. Changes in value are recorded to earnings.

⁶ Amortized cost doesn't take the same form for any instrument. However, roughly, it can be described as some intermediate value between its value at the time of recognition and the hypothesized value at the time of its derecognition, had market conditions would not have changed since the time of its recognition.

- *Held-to-Maturity*—financial assets with predetermined payments, regarding to which, there is both the intention and the possibility to hold until maturity.
 - ⇒ Measured at amortized cost. Changes in value (amortization) are recorded to earnings.
- *Available-for-Sale*—a residual category, which includes any financial assets which do not belong to the previous categories.
 - ⇒ Measured at fair value. Changes in value are either recorded to earnings, or put directly to equity and then dumped altogether to earnings upon derecognition of the asset.

Financial Liabilities follow similar classification. The American accounting system takes similar form to the above detailed International one, subject to several distinctions. One important distinction pertains to the *Other Comprehensive Income* (“OCI”) item set forth by SFAS 130 which constitutes another means of channeling value changes of items to equity, besides through earnings. OCI is another item in the profits and losses statement, lying below the various earnings items. OCI is regarded distinctively differently than earnings and its components, by not being regarded as a component of the enterprise’s profit (Storey and Storey, 1998, p. 150). It must be added that the recent full fair-value option amendment to IAS 39 included the possibility of irrevocable designation of any financial asset or liability upon their recognition to be measured at fair-value, with its value changes recorded to earnings.

The prevalent situation which preexisted the new standards allowed for the classification of hedging derivatives in the exact category of their hedged items. In the case of expected cash flows,⁷ it was permitted to classify derivatives that were bought for the purpose of hedging such cash flows, as non-current items. The new standards’ major hallmark is their provision obliging the classification of derivatives under the Trading category, thereby subjecting those derivatives’ fluctuations to constant recording to earnings, unless qualifying for *Hedge Accounting*. There are several requisites to qualifying for Hedge Accounting, the major of which are high correlation between the hedged item and the derivative, and the premeditated and ongoing designation of the hedging relationship. Hedge Accounting requisites are usually not easy to meet. Hedge Accounting relationships include the sets of Fair-Value Hedge, Cash Flow Hedge and Net Investment Hedge. These sets are pertinent to an assortment of situations, in which the hedged item’s fluctuations are not constantly recorded to earnings. In such cases, the Hedge Accounting sets allow for only the *Ineffective Value Changes*⁸ to be recorded into earnings.

Part II—Economic analysis

3. The target optimum

As in every law and economics analysis, the principal concern underlies the type of behavior and incentives that would lead to the maximization of social welfare. Social welfare factors pertinent to the issues in question include: 1. Firm value-maximizing business decisions taken on behalf of firms—engagement in value maximizing projects, minimization of costs of financial distress (the majority of which constitute social loss) and the pursuit of the most efficient hedging strategies. 2. Minimization of agency conflicts, such as between managers

⁷ Cash flow that is only expected and not linked to any binding right or obligation, to receive or transfer any asset or liability. As such, according to standard accounting principles, it could not constitute an item in the financial statements.

⁸ The derivative’s fluctuations which are in excess or in short of the inverse of the hedged item’s fluctuations.

and shareholders,⁹ thus resulting in the minimization of agency costs between them (See: Jensen and Meckling, 1976; The new Palgrave Dictionary of Economics and the Law, Volume 1, London 1998; pp. 26–29, for a theory connecting magnitude of agency conflicts to magnitude of agency costs). 3. Efficient capital allocation of stakeholder resources in firms. 4. Minimization of transaction costs involved in providing financial accounting information.

4. Volatility under the new standards

The direct result of the standards is higher volatility in reported earnings. Prior to the publication of the standards, hedging transactions had born very little volatility on reported earnings, if any. The hedging derivative was classified in the same or similar manner to the hedged item. These classifications resulted in one of the 2 following outcomes:

- *No volatility*—if value changes in the hedged item were not recorded to earnings until the hedging transaction ended, correspondingly, the derivative was reported in the same manner, thus resulting in no volatility during the transaction.
- *Limited volatility*—if value changes in the hedged item were recorded to earnings constantly, the derivative was consequently reported in the same manner. The effect on earnings was confined only to the fluctuation differences between the hedged item and the derivative.

Since hedged items are usually not classified as current ones and therefore their value changes are not recorded to earnings, the above no volatility outcome was by far the more common one.¹⁰ In contrast, the standards imposed considerably higher levels of volatility, as follows:

- *Full volatility*—in case the hedging transaction does not qualify for hedge accounting, earnings are affected only by value changes of the derivative. Since the hedged item is most likely not classified under the *Trading* category, any offsetting value changes of the hedged item are not recorded to earnings until the hedging transaction is over. It must be noted that this is the case in many situations in which the hedged item is not recorded at all in the financial statements, due to the fact that it constitutes only a forecasted cash flow, not associated with a binding right or obligation to receive or transfer any assets or liabilities.
- *Limited volatility*—in case the hedging transaction qualifies for hedge accounting, earning volatility is limited to the hedge ineffectiveness, i.e.—the fluctuation differences between the hedged item and the hedging derivative. That is the case also if the hedged item is recorded to earnings, such as in IAS 39's full fair-value option.

The volatility inflicted by the standards is caused due to 2 reasons. The first is that hedge accounting is conditioned upon several provisions, mainly hedge effectiveness, which are not always easy to meet. The main reason for that lies in the difficulty of finding a derivative whose underlying asset is equal or similar to the hedged item. As discussed above, the derivative market underwent far-reaching developments during the past decades and offers derivatives over numerous underlying assets. Nevertheless, confronted with the infinite diversity of assets

⁹ Alignment of management interests with those of shareholders is not always conducive to maximization of firm total-value, but rather of share-value. Nevertheless, the assumption is that debtholders and other stakeholders are aware of that and are optimally protected. Therefore, maximization of share-value could be considered as a proxy for maximization of firm total-value and therefore of total social welfare.

¹⁰ Trinity University web site, audio interviews with industry leaders.

and risks, even the derivative market falls short of offering derivatives on all or even most of possible assets and risks. This problem is particularly acute with regard to non-foreign-currency risks.

Furthermore, even if hedge accounting is met, the limited volatility that is left, though by all means smaller than full volatility, still constitutes a relatively high degree of volatility. This degree of volatility is caused by the following reasons:

- *Underlying asset*—in case of a derivative's underlying asset that is not identical to the hedged item, some volatility would result from partial fluctuation correlation. As aforementioned, difference between the underlying item and the hedged item is likely, especially regarding risks that are not foreign currency rate ones.
- *Ancillary parameters*—as mentioned in para. 1.1, the value of a derivative is dependent upon various other parameters, other than the value of its underlying asset. Such parameters are, for example, interest rates, storage costs, dividend yields, time to expiration, volatility of the underlying asset, etc. Since those parameters tend to change over time, even a derivative written on the hedged item itself would result in somewhat different fluctuations than those of the hedged item.
- *Embodied expectations*—in an active market, the above ancillary parameters would embody market expectations and would therefore cause fluctuations in the value of the respective derivatives even when no real change in those parameters actually occurred.
- *Market conditions*—furthermore, even regardless of any change in expectations, derivatives traded in a market would tend to fluctuate due to market conditions—changes in the balance between supply and demand.
- *Single-tail hedges*—certain derivatives, such as futures and forwards tend to fluctuate in tandem with their underlying asset, regardless of the direction of the fluctuation and its magnitude. In contrast, other derivatives, such as options, are single-tailed in the sense that once their underlying asset reaches a certain floor or a certain ceiling, as to position the option “out of the money”, they become very insensitive to fluctuations of their underlying asset. Consequently, the net effect on earnings, during periods in which options lie “out of the money” will resemble the one of the above full volatility (See Figure 2).

To sum up, hedging under the new standards entails considerably more earnings volatility than under the preexisting situation. Furthermore, and perhaps more importantly, potentially hedged items usually do not belong to the Trading category and are thereby not presented at fair-value. Their respective hedging derivatives are presented at fair-value, resulting in the full volatility contingency. This gives rise to the fact that hedging, under the new standards, entails more earnings volatility than refraining from hedging.

5. Consequences of volatility on firm value

5.1. General

This chapter is dedicated to elaborate on possible adverse effects of earnings volatility on firm total value. Supporting empirical studies are provided, as well.

5.2. Dividend policy

Dividend policy as influencing firm value is somewhat of a controversial issue. From a pure theoretical point of view, dividend policy should not bear any influence over a firm's stock's

price. Nevertheless, the common view suggests that to some extent, especially in the short run, dividend policy does have repercussions on stock price (Brigham, 1986, Ch. 14).

The *Gordon/Litner* Theory contends that dividend distribution is important, since investors value any evident and present pecuniary wealth distributed to them as safer than potential future wealth that would accrue by investing those non-distributed dividends in one of the growth opportunities available to the enterprise. The theory is hence also referred to as the *Bird-in-the-Hand* Theory.

A somewhat related theory is the *Liquidity* Theory which states that shareholders would appreciate dividends because of liquidity constraints, when shareholders are not able to lend and borrow freely (Hepworth, 1953; Lang and Litzenberger, 1989; Asquith and Mullins, 1983; Aharony and Swary, 1980).

The *Clientele/Tax-Preference* Theory states that due to different marginal tax rates of investors regarding capital gain tax, dividend tax and interest tax, there would be a preference on behalf of investors towards either a low dividend payout rate, or the opposite. According to the theory, for the short run, until investor migration occurs, any change in dividend policy would result in firm value decreases, since present investors would have to endure a policy that does not suit them. Furthermore, migration of investors would be facilitated only if present and potentially new investors would perceive the new dividend policy as a permanent one. It therefore can be concluded that indeed no dividend policy is better than another, yet, instable policy does seem to have adverse effects on stock price (Brigham, 1986, Ch. 14; Brealey and Myers, 1999, pp. 480–483).

Instable dividend policy resulting in adverse influence on stock value is addressed also by the *Dividend Signaling* Hypothesis (Brigham, 1986, Ch. 14; Hepworth, 1953; Lang and Litzenberger, 1989; Asquith and Mullins, 1983; Aharony and Swary, 1980). This hypothesis is used to account for stock value decreases pursuant to dividend cut announcements and vice versa. According to the hypothesis, a dividend cut is interpreted as a signal on behalf of management, which denotes its lack of confidence in the fact that current dividend level can be sustained. In other words, a cut in dividends is not interpreted as an interim change in dividend payout policy or an interim decline in earnings, but as signaling permanently reduced earnings.

To sum up, for various reasons, not being able to pursue a minimum level of dividends, preferably a stable one, has negative effects on the underlying stock price. The problem that earnings volatility poses in regards to that lies in the realm of legal and contractual constraints underlying dividends distribution. A central principle in Corporate Law concerns the constraint that dividend distribution not stemming from accumulated earnings is either impossible or very cumbersome, regardless of the fact that a sufficient amount of cash exists to back that distribution. As a consequence, a firm with low balance of accumulated earnings might experience problems pursuing its desired level of dividend distribution or any level above zero, if its earnings are volatile, at times when fluctuations take the negative turn.

Evidence of the above principle in Corporate Law is numerous, as failure to adhere to the accumulated earnings constraint might constitute criminal felony, give rise to civil action, and result in personal liability of directors and even auditors.¹¹ Contractual constraints, such as bond covenants, pose similar provisions, such as that dividends must be distributed only out of accumulated earnings (Drukarczyk and Schmidt, 1998; Brealey and Myers, 1999, p. 494).

¹¹ See, for example, the law in the U.K. (*Stewart vs. Sashalite Ltd* [1936] 2 All ER 1481 at 1485; Halsbury's laws of England, Volume 7(1), London, 1996; p. 535; *Lambert vs. Neuchatel Asphalte Co Ltd* (1882) 51 LJ Ch 882; *Yool vs. Great Western Rly Co* (1869) 20 LT 74; *Bond vs. Barrow Haematite Steel Co* [1902] 1 Ch 353), France (Code De Commerce, § L232-10), and the U.S. (*Welsch and Zlatkovitch* (1989), p. 762).

5.3. Tax liability

Taxable Income, and not reported *Accounting Earnings*, serve as the basis for corporate taxation, as tax laws prescribe the differences between reported accounting earnings vs. taxable income. Tax laws differ between countries, and lie beyond the scope of this paper. Nonetheless, tax laws share several principles that give rise to some pertinent consequences of income volatility over taxable income.

Under the plausible assumption, that earnings volatility would result in a similar volatility effect over taxable income, it can be shown that earnings volatility bears adverse effects on tax liability. Furthermore, a few decades ago, and also now-a-days, in tax oriented financial markets, such as the Continental and the Japanese ones, the tax effects of earnings volatility are considered the most troublesome (Hepworth, 1953). In the case of progressive corporate taxation, volatile income might lead to higher taxable liability. Stable income may never reach the high tax margins, while a volatile one might. Furthermore, even under a non-progressive taxation system, volatile income may yield higher effective tax rate, in the case of sufficiently low average income, which may result in negative income in some years. The reason for the higher effective tax rate result lies in the partial availability to enjoy carry-forwards¹² and carry-backs¹³. Such partial availability could manifest, for instance, in a limited number of years in which carry-forwards and carry-backs can be carried to and from. Furthermore, some systems preclude completely the possibility of carry-backs.¹⁴

In any case of the abovementioned carry-forward and carry-back limitations, positive income years would be fully taxed, while negative income ones would result in only partial tax benefits. Furthermore, these limitations may serve as exacerbating one each other. For instance, a profitable firm that incurs periods of losses, due to volatility, would not be able to enjoy carry-backs, if the governing law does not allow for them. In addition, even if the law permits full benefit of carry-forwards, a firm may not ever benefit from them, in case it has reached the state of bankruptcy. The limitation concerning carry-backs might conduce to the occurrence of this state.

As aforementioned, an assertion that higher earnings volatility, due to reporting on derivatives would result in higher tax liability, must rest on the premise that the former earnings volatility is reflected in taxable income volatility. American tax law, for example, confirms that premise, by stating that any fluctuations in earnings that result from derivatives that do not qualify for hedge accounting are taxed on an ongoing basis, i.e.—earnings volatility would be reflected in taxable income (See: Charnes et al., 2002). Tax laws in many other countries are similar in that regard.

Due to the above, it could be concluded that volatile earnings due to usage of hedging derivatives are expect to result in higher tax liability.

5.4. Earnings as proxy

5.4.1. General

Reported accounting earnings detail an enterprise's past earnings. Perfect market efficiency implies that all available information about an enterprise is reflected in the enterprise's stock

¹² The possibility to carry a loss incurred in one year forward to future profitable years and thus reduce their taxable income.

¹³ The possibility to receive proceeds from the tax authority in years of negative income, due to taxes paid in previous profitable years.

¹⁴ Israeli law, for instance, follows that approach.

price (Reilly et al., 1997, p. 234; Brealey and Myers, 1999, pp. 323–324). Therefore, in perfectly efficient markets, reporting any volatility in earnings, for its own sake (“**Synthetic Volatility**”), should not bear any adverse effects on the respective stock price (Bodurtha and Thornton, 2002; DeMarzo and Duffie, 1991; Breeden and Viswanathan, 1998). Such synthetic volatility does not denote volatility that is simply a manifestation of other real effects, such as cash flow volatility. As will be elaborated further on, the volatility, which constitutes the subject matter of this paper, follows exactly that nature. It results from asymmetric measurement of the hedged item vs. the hedging derivative, although no cash flows are involved during the period of the hedging transaction.

Nevertheless, security markets are not perfectly efficient. In some aspects, markets are considered to lie in between the strong form of efficiency and the semi-strong. In other aspects, between the weak and the semi-strong. Consequently, financial statements users might consider earnings as a proxy for future earnings and future cash flows. Volatile future earnings and cash flows, though, would result in adverse effects on the respective firm and thereby on its stock price. These effects are detailed as follows.

5.4.2. Future earnings

Under any assumption besides strong-form market efficiency, it could be argued that stock returns would follow changes in earnings. Such an argument could rest on the grounds of the centrality of the P/E ratio (See: Kieso and Wegandt, 1998, pp. 860–871). Assuming such a ratio would have an approximate constrained range of values for any given field of industry, any change in reported earnings of a firm would result in an immediate corresponding swing in that firm’s stock price. Therefore, a firm experiencing volatile earnings would be expected to have volatile stock returns. Volatile stock returns, even under market efficiency in its strong form, are expected to result in higher cost of equity, depending on the type of investors:

- *Non-diversified shareholders*—pertinent discount rate for such investors would be dictated by their asset’s assumed total risk. Most commonly-used risk measures, such as Variance (s^2), Standard Deviation (s) and Mean Absolute Deviation (MAD)¹⁵, are consumed with assets’ overall return dispersion. More volatile returns for a given firm’s stocks would lead to higher risk, and therefore to higher cost of equity and consequently to lower stock price.
- *Diversified shareholders*—the common model governing diversified investors is the SML model, according to which, diversified investors are considered to hold a portfolio of assets and therefore not concerned with any asset’s total risk. Rather, their concern is its non-diversifiable risk, often referred to as the *Systematic Risk*. An asset’s measure for systematic risk (β_i), for any given market portfolio (m), is linearly relative to its covariance with the market portfolio (σ_{im}). Due to the wide variety of hedged items, there seems to be no reason to believe that any derivatives’ fluctuations, reflected in earnings due to the standards, would coincide with market fluctuations. Therefore, it seems that their contribution to an enterprise’s risk is confined to their total risk (σ_i) and does not lie in their non-diversifiable risk (β_i). Nevertheless, due to market inefficiency and imperfection, higher total risk resulting from earnings volatility, might be confused by investors for higher systematic risk (β_i) (Beaver et al., 1970).

¹⁵ $MAD = \sum_i p_i |X_i - X_{avg}|$.

A somewhat different explanation for this confusion, does not stem from market inefficiency, but is rather concerned with the validity of the entire SML model. Alternative models, such as the Arbitrage Pricing Theory (“APT”), suggest that stock expected returns depend on some other factors, besides, or in addition to β . Although not promulgating those exact factors, some implications of the APT model imply that publicly traded stocks, actually depended upon non-diversifiable risk (β), added with total risk (σ) (See: Smith and Stulz, 1985).

Regarding both diversified and non-diversified investors, some researches argued that higher earnings volatility might result in lesser possibility on behalf of investors to ascertain the exact nature and pattern of the firm’s earnings schedule and consequently its stock’s future returns. Consequently, volatile stocks would be followed by analysts to a lesser extent than non-volatile ones, due to analysts’ reluctance to err in regards to stock buy/sell recommendations. This *Estimation Risk* of a firm’s cost of capital would result in “discount to worse”—assignment of higher risk and respective discount rate to the firm’s capital. If this estimation risk is non-diversifiable, it will result in higher consideration of discount rate on behalf of diversified investors. Otherwise, its only manifestation would be pertinent to non-diversified investors (Beaver et al., 1970; Stein 1989). These information asymmetries, which result in higher transaction costs of ascertaining a stock’s true value, might result in lower demand for that stock. Lower demand would lead to lower liquidity, which might lead to further higher discount rate for that stock (Botosan, 1997).

5.4.3. Perceived cash flows

As discussed earlier, earnings volatility may be regarded, due to market inefficiency as a proxy for cash flow volatility.¹⁶ Firm cash flow volatility may inflict adverse effects on its stock price, due to:

- *Higher probability for financial distress*—present value of expected costs of financial distress forms a negative component in firm total-value. A volatile cash flow firm obviously stands higher probability for financial distress. This higher probability, and hence the degree of reduction in the firm’s total-value, will be particularly acute in cases involving firms with low average level of *Free Cash Flows*.¹⁷ All else held constant, levered firms are subject to that problem, the higher the extent of leverage. Financial distress costs are divided to 2 groups.¹⁸ Direct costs include court fees, lawyer and consultant fees, etc. Indirect costs include, for instance, greater difficulties in business development, foregoing profitable investments and higher cost of debt, considered even on behalf of risk neutral debtholders. Empirical studies confirmed the correlation between cash flow volatility and higher cost of debt (Minton and Schrand, 1999).

The above account for the fact that cash flow volatility would result in firm total-value reduction. Nevertheless, it must be stressed that the contention that wealth-maximizing shareholders or shareholders-aligned-managers would be averse of cash flow volatility and its consequences is not straight-forward. In situations, in which bankruptcy bears positive probability, share-value may increase alongside an increase in firm risk. This may exist if the increase in risk will not result in the reduction of expected firm total-value and even

¹⁶ This may be the case despite of the compulsory disclosure requirements of the Statement on Cash Flows that has been in effect for more than a decade, as SFAS 95 came into effect in ‘87.

¹⁷ Operational cash flow after reduction of cash flows due to debt payments and investments.

¹⁸ For a complete overview of the costs of financial distress, see: Brealey and Myers (1999), pp. 484–496.

if it will result in such reduction. The latter may occur in the case of increased cash flow volatility which will result in the increase of expected costs of financial distress and thus the decrease of firm total-value. Nonetheless, it seems that whatever the propensity on behalf of shareholders or managers to reach cash flow volatility, their propensity towards earnings volatility might be significantly lower. This could be explained by the fact that due to the above assumption of market inefficiency, earnings volatility would result in the same adverse effects on stock price born by cash flow volatility. This, coupled with the fact that its positive effects on share-value are only partial, under any assumption of market inefficiency. In the low cash flow contingencies, the realization of bankruptcy is real, due to the inability of paying debt payments. In contrast, earnings shortfalls do not hinder following debt payments, since those are not dependent upon reported earnings. In other words, no risk externalization from shareholders to debtholders will occur under earnings volatility, as opposed to cash flow volatility. Further, shareholders can palpably enjoy the high cash flow contingencies, for example, by distributing dividends. High reported earnings do not give rise to such real gains. The only possibility of shareholders to enjoy the high reported earnings contingencies is to rely on surges in stock price that could be used for sales. Nevertheless, in contrast to cash accumulation, which could be fully enjoyed by shareholders by dividend distribution, sale of stocks would result in only a partial positive effect, due to price decline which will result from such sales. Hence, firm total-value reduction ensued by the aforementioned earnings volatility is conducive also to firm share-value reduction, thereby considered unfavorably also by shareholders.

- *Sub-optimal utilization of investments*—assuming low or no correlation between positive NPV investment opportunities and cash availability, any volatile cash flow schedule might result in sub-optimal utilization of investments. In times of cash flow abundance, there might be no available promising investments. Rather, these may occur at times of cash flow shortfalls. During those times, it may be possible, though, for the enterprise to borrow and invest in those investment opportunities. However, since borrowing involves higher cost of financing than using internal funds, these investment opportunities may not yield positive NPV, if financed using external capital. In contrast, assuming cash flow stability, a sufficient amount of available cash could be expected in any time of potential positive NPV investments. Empirical research regarding the issue, point out the conclusion that cash flow volatility is significantly statistically correlated with lower levels of capital expenditures, research and development costs, and advertising expenses (Minton and Schrand, 1999). Furthermore, this correlation is evident even after controlling for the costs of accessing external capital, which is higher, as outlined, in the case of volatile cash flows.

5.5. Accounting-based constraints

Such constraints are the subject matter of adverse effects associated with agency conflicts between shareholders and other stakeholders, mainly debtholders. An example for such conflicts can be found in debt covenants, stating minimum earnings levels and threshold financial ratios, which if reached, require the approval of debtholders in the carrying out of business decisions. Such a mechanism may delay business decisions and cost precious time. Other costs may be incurred, for example, if debtholders dictate a very risk-averse policy, resulting in total-value reduction and even more likely in share-value reduction (DeFond and Jiambalvo, 1994; Frost and Bernard, 1989; Lys, 1984; Leftwich, 1981; Smith and Warner, 1979). Similar constraints are the result of legal provisions, prescribing threshold financial ratios, which

are applicable for some enterprises, such as banks, insurance companies and pension funds (Koch, 1981, p. 585; Drukarczyk and Schmidt, 1998, p. 763). Earnings volatility obviously contributes to the higher probability of reaching the above thresholds.

5.6. Volatility and its mitigation—empirical evidence

The above part of this chapter presented arguments detailing rationales for adverse effects that an enterprise would incur, due to higher reported earnings volatility. Empirical evidence that could be used to buttress these arguments is concerned with examining the hypothesis that higher volatility in reported earnings leads to lower market value, all else held constant. A recent study (Barnes, 2001) found a significantly negative correlation between market-to-book ratio and earnings volatility concerning firms in the years of 1973 to 1998. This correlation remained even after controlling for cash flow volatility that any earnings volatility might have resulted from.

Complementary evidence supporting the above contention could be provided by efforts exerted on behalf of managers to mitigate volatility. Empirical studies indeed support the view that such efforts are being exerted. Volatility mitigation measures are broken-down to 2 groups:

- **Real variable manipulation**—changing real business decisions—their existence and timing.

- **Accounting variable manipulation (“Accounting Tricks”)**— Generally Accepted Accounting Principles (“GAAP”) offer latitude in measurement and disclosure of business results. Therefore, any event can be reported in more than one way, according to managers’ preferences and will.

A study held in the U.S. in the early ‘80s amongst top managers showed high propensity on behalf of managers to smooth income (Koch, 1981). Accounting variable manipulation was reported as the more preferred method, albeit real variable manipulation resulting in lower returns, was also considered an option. Another study (Barnea et al., 1976), examining a wide range of firms in the U.S. during a period of 20 years, pointed out that income smoothing by accounting accrual manipulation is pursued to a large extent. Furthermore, the study revealed that the type of income that managers were trying to smooth was *Net Income Before Extraordinary Items* and not *Operational Income*. This assertion has important significance regarding volatility resulting from hedging under the new standards, since although this volatility is not recorded to operational income, it is recorded to net income. Managers are hence expected to take various measures to mitigate it. Other studies documenting inclination towards income smoothing are numerous (See for example: DeFond and Jiambalvo, 1994; Myers and Skinner, 2000; Degeorge, et al., 1999; Burgstahler and Dichev, 1997).

6. New standards’ volatility as undue

The above elaborated on various adverse effects on firm total-value, as a result of earnings volatility. However, a prerequisite to considering such adverse effects as undue, is showing that the volatility prescribed by the standards is undue and ephemeral.

The basis for this reasoning underlies the concept of *Accrual Basis* earnings, which is considered the common basis for measuring firms’ financial results. According to the dominant approach, *Cash Flow Basis* might be misleading, by being too formal and non-comprehensive. For instance, a firm might have finished the main activities involved in

earning a specific income and faces no risks of collection. On a cash flow basis, earnings would not yet be recognized. According to accrual basis accounting, if the main activities have been completed and there is no risk of collection, earnings can be recognized. Similarly, any fluctuations in the value of a current asset are recorded to earnings, since according to this asset' nature, the firm, may, or will have to, realize those value fluctuations. Therefore, any fluctuations in a current asset's market value are relevant for assessing its firm's financial status. In contrast, non-current assets are not marked to market, since according to their nature and the firm's intention, they are to serve either for the purpose of producing revenues (e.g.– property, plant and equipment), or for the purpose of long-term investment. Accordingly, any transitory fluctuations that they might exhibit are irrelevant, unless very extreme, so as to frustrate the entire purpose for their holding.¹⁹ Accrual basis accounting, therefore, gives more accurate and relevant indication to financial reports users (Kieso and Wegandt, 1998, pp. 5–6). The problem underlying earnings volatility born upon hedging concerns its unconformity with the above earnings recognition rules, by not constituting real and relevant volatility, not even on an accrual basis.

For example, in the case of full volatility, the case of high reported earnings does not imply that the enterprise gained a higher amount of cash flows nor that even accrual earnings are indeed higher. Their meaning is only confined to the fact that the hedging derivative accrued value increases, coupled with the fact that the hedged item, most likely, underwent corresponding value decreases. The fact that reported earnings are high, stems from the fact that the hedging derivative is measured at fair-value, while the hedged item is measured at cost or amortized cost. The case of limited volatility is a bit different, however not substantially. In that case, higher reported earnings, for instance, indeed reflect higher value that the enterprise possesses at that given moment in time, as earnings reflect the change in the net fair-value of the derivative plus the hedged item. However, limited volatility applies only to situations conforming to hedge accounting. Hedge accounting obliges the firm to maintain its position in the hedged item and the hedging derivative until the settlement of the hedging transaction. Therefore, even if net market value of the hedged item plus the hedging derivative is high and perhaps advisable to realize, the enterprise is forbidden from doing so, according to the provisions of the new standards, concerning hedge accounting qualifications. Furthermore, even if in a given moment in time, net market value of the hedged item plus the hedging derivative is exceptionally high or exceptionally low, at maturity of the hedging transaction, due to the high correlation between them, their expected net market value should approach zero. Therefore, any transitory high or low net market value of the hedged item plus the hedging derivative is not indicative of the net market value in the only occasion in which those items can be realized.

7. Consequences of hedging

7.1. General

Chapter 5 elaborated on the possible adverse consequences on firm total-value, due to higher earnings volatility. Chapter 6 explained why this volatility is undue. This chapter is dedicated to explaining how inaccurate firm market evaluation, deriving from undue volatility, would result in social loss.

¹⁹ See: SFAS 121, SFAS 144, IAS 36.

7.2. Accurate disclosure

7.2.1. General

The profession of accounting, with its hallmark principle of accurate and full disclosure is occupied with facilitating and enabling many socially beneficial important activities, while also obviating much of the need for regulation, by facilitating efficient market operation. In the aforementioned words of Louis D. Brandeis, who so influenced President Roosevelt and the American Congress in 1933: “*Sunlight is said to be the best of disinfectants; Electric light the most efficient policeman*” (Lowenstein, 1996).

7.2.2. Capital allocation

A group of such social important activities falls under the category of efficient *Capital Allocation* (Kieso and Weganadt, 1998, pp. 3–4; Fox, 1998, pp. 711–712). Capital allocation, in the broad sense, concerns the scarcity of resources and the consequent fact that owners of such resources aim at putting them to their best use. The flip side of that is that resources should be allocated to an enterprise at the price that it merits. Similarly to a goods market, efficient match of this supply and demand of resources is possible only if information asymmetries between these two sides to the transaction are reduced. In this manner, suppliers of capital are able to identify and evaluate firms which offer the best use for their capital. Such resources are, for example, equity and debt. Correspondingly, such prices are expected returns on equity, determining share prices, and rates of interest, affecting bond prices. Capital allocation, nonetheless, concerns resources relating to all stakeholders, such as, credit from suppliers and banks, proceeds from customers, labor put by workers, etc. For example, a very risky firm would have lower security prices and consequently higher cost of capital. Such a firm would raise capital only if its managers would suppose that under its equity price they would be able to produce positive NPV. Correspondingly, investors would believe that under such prices of capital they would obtain positive NPV. Accurate information about firms leads to the setting of accurate prices for resources. Only under such condition, efficient capital allocation would be able to take place. If, for example, share price is inaccurately low, positive NPV investment projects might not be followed. If it is inaccurately high, negative NPV investment projects might be followed.

Another example could be found in unduly high reported earnings which might result in employee unions demanding higher wages that the firm cannot really bear, thus resulting in higher bargaining transaction costs and the potential frustration of employment transactions.

7.2.3. Corporate governance

Another very important mechanism, related to and reliant upon capital allocation, also considered a prerequisite to the existence of efficient financial markets is corporate governance. Important potential agency conflicts are alleviated due to accurate disclosure (See for example: Fox, 1998; Baetge and Thiele, 1998; Lowenstein, 1996). Shareholders-managers agency conflicts serve as good example. Several mechanisms are available to alleviate such agency conflicts and to encourage managers towards share-value maximization decisions: 1. Shareholder control—shareholders can exercise their voting rights and fire managers. 2. The market for corporate control—managers are induced to maximize firm value, so as to avoid

buy-outs and take-overs. 3. Share or option based management compensation—managers, being paid according to share price will have incentives to maximize share-value. 4. Unconscious slack of value maximizing decisions—this mechanism deals with this trait on behalf of management, existing, despite of outside forces aiming at reducing this slack. The underlying assumption is that managers' interests are congruent with the ones of shareholders, but still unconscious slack in pursuing value-maximizing activities exists. Having managers confront the true value of their firm and compelling them to gather the information required to do so, would reduce this slack and encourage them to pursue value-maximizing activities. 5. The market for managers—managers are induced to maximize firm value, so as to enjoy good reputation, for the sake of future employment.

However, accurate disclosure is crucial for these above corporate governance mechanisms to operate efficiently, respectively: 1. Shareholders would decide to fire managers only if they would realize that those managers do not maximize share-value. This would be possible only under accurate disclosure, which would cause share price to correctly reflect true share value. 2. Outside investors would buy firms that are truly mismanaged only if their prices are low, since only then it would be advisable to do so. Again, this mechanism would properly function only if share price would correctly reflect firm's true value. Furthermore, such investors can never be confident about the true current value of the firm and consequently about its potential value under their management and thus face a risk which may hinder such a takeover. This risk would be minimized provided accurate disclosure. 3. Being risk averse, share-based compensation may prove somewhat cumbersome for managers, resulting in limited inclination on their behalf to receive such compensation. Nevertheless, provided accurate disclosure, share prices would depend more on their decisions and actions, so as to reduce this risk and to increase their inclination towards share-based compensation. 4. Confrontation with the true value of the firm must rely on the fact that indeed the true value of the firm is being disclosed to managers. 5. Managers will follow an effective system of incentives only if firm's disclosed value approximates its true value.

An outcome of the above might be that good managers, relying on their business decisions and seeking to be treated, to as large as possible extent, according to the business decisions which they take, may be inclined not to allow ephemeral volatility that does not depend upon their actions. A peculiar outcome of this might be good managers choosing not to hedge, whilst bad managers deciding the opposite—hedge, and thus add “noise” to earnings in order to mask their true actions. In short, good managers are induced not to hedge, whilst bad ones are induced to do so, both for the wrong reasons.

Another relevant corporate governance issue concerns agency conflicts between large and small shareholders. This issue is related to the above issue of capital allocation, yet concerns any contribution of resources to the firm, only indirectly. In a nutshell, agency conflicts between large shareholders and small shareholders may result in lower propensity on behalf of small investors to take part in financial markets, thus leading to less liquid, less price efficient, higher capital priced and generally less developed financial markets, resulting eventually also in less possibility to raise funds in IPOs, leading eventually to social loss. Inaccurate share prices, assuming that large shareholders are aware of true firm values, may give rise to such conflicts. Large shareholders, knowing those true values may buy shares in lower prices and sell in higher ones, thus taking advantage of the lower degree of knowledge of smaller shareholders, thus causing wealth transfer from smaller shareholders to them. The result is the abovementioned lesser participation of small shareholders in financial markets, leading to social loss.

7.2.4. Fair-value accounting

Due to the above, fair-value accounting has been embraced by the FASB and the IASB as a means of increasing the accuracy of financial statements and reducing information asymmetries between the preparers of the financial statements (managers) and their users (any current and potential stakeholders), and consequently, any such asymmetries between the various stakeholders amongst themselves. Fair-value accounting has been synonymous for higher transparency and has been the common thread throughout FASB publications during the past decade and IASB publications during the past few years. SFAS 133 and IAS 39 are links in those chains of publications.

Undoubtedly, reducing information asymmetries conduces to price accuracy and consequently to efficient financial markets. The crux of the matter is that even regardless of transaction costs, formal higher transparency and fair-value accounting as means of reducing information asymmetries, could be depicted by the saying that “the road to heaven is fraught with pitfalls”. Formally, the new standards, by imposing fair-value accounting on derivatives indeed increase transparency. Users of financial statements would be able to know their value and consequently possess better knowledge about the value of the firm. However, this higher transparency might actually result in increased information asymmetries. Two reasons account for that contention. The first concerns the fact that according to the standards, even absent of an active market, derivatives should be adjusted to market, unless there is no plausible way of doing so. Despite of the latter constraint, managers are left with quite a latitude with this adjustment to market of derivatives, allowing them with more power to unduly influence financial statements, resulting potentially in the above adverse effects of price inaccuracy. The second reason exists even under the existence of one objective price for the derivative, such as in the case of an active market for that derivative. This reason concerns the term *Price Accuracy*. Although the importance of the term is very clear, its meaning is not. Nevertheless, insights regarding it could be derived from the purposes and characteristics of financial statements. Three important ones are *Understandability*, *Usefulness* and *Relevance* (Kieso and Wegandt, 1998, pp. 5, 47), referring all to the aims of financial reports users. Amongst these aims are enabling stakeholders in making decisions about rational investment, credit and similar decisions, assessing the amounts and timing of prospective cash flows and the economic resources, as well as claims of the underlying enterprise. The reports should be reasonably understandable for those who possess reasonable understanding of business and economic activities and who are willing to study the information with reasonable diligence (Kieso and Wegandt, p. 5). It is noteworthy that these principles are also similarly outlined in article 3(2) of Regulation 1606/2002, and in particular the criteria of understandability, relevance, reliability and comparability. A manifestation of those aims regarding earnings is the principle of the *Quality of Earnings* (Kieso and Wegandt, p. 148). This principle relates to the above discussion regarding capital allocation, and states that reported earnings should possess predictive and indicative nature regarding their firm’s earning pattern.

As discussed in chapter 6, the volatility resulting from the standards is not a real one. It either derives from an inconsistent measurement of the derivative versus the hedged item, i.e.—reported high or low earnings are inaccurate and could not be actually realized (the case of full volatility). Alternatively, those volatile reported earnings are real, but are absent of relevancy, due to the inability to realize them at any time, due to hedge accounting provisions (the case of limited volatility). It seems that this reported volatility in earnings might not coincide with the above aims. In both cases of volatility, reported earnings are not too useful

nor indicative, since they cannot be actually realized. Furthermore, it could be argued that at least in the case of limited volatility, reported earnings are useful, since they may be indicative of the net value that the hedged item plus the derivative will have upon maturity of the hedged transaction. However, it seems that due to the correlation between the derivative and the hedged item, any high or low reported earnings in the case of limited volatility cannot be considered as indicative, since they are likely to reverse within due course and offset each other.

Moreover, it seems that the above aims coincide with the principle, aforementioned in chapter 6, that no marking to earnings is performed regarding non-current assets. Derivatives bought to hedge long-term risks conform to the underlying principle of non-current assets. Since they are not to be realized within a short time, not only that their market value fluctuations are irrelevant and not useful to users, recording those fluctuations to earnings will damage quality of reported earnings and would only confuse financial statements users. In other words, **more transparency** provided by the marking into earnings of long-term assets, such as, hedging derivatives, **might result in an increase in information asymmetries—“seeing more” would result in “seeing less”** (See for example: Hepworth, 1953; Koch, 1981; Barnes, 2001. For empirical evidence, see: Zarowin 2002).²⁰

7.2.5. Mitigation of information asymmetries

Two questions arise regarding the above. The first is how is it possible for more provided information in financial statements to result in less knowledge inferred on behalf of their users. The second is why wouldn't the preparers of financial statements mitigate these increased information asymmetries by providing additional disclosure and thereby eliminating any potential “Market for Lemons”.

The answer to the first question is basically that the marking to earnings of volatility does not constitute “seeing more”, but rather “seeing instead of”. The reported earnings figure is made different. The answers to the second question are manifold and intertwined one with the other. The first concerns the high transaction costs that an analyst or any other user of the financial statements would have to incur in order to extract any additional information regarding derivatives' values, most probably by delving in the abundance of notes and additional disclosure lying in the financial statements, an action which hardly even complies with the aforementioned term of “reasonable diligence”.

Secondly, reluctance to gather alternative information from the notes or any supplementary disclosures might stem from the high credence that the main statements in developed countries enjoy from and the ambiguous nature of accounting figures. Due to the complexity, extensiveness and merits considered for accounting rules in effect in developed countries, information disclosed in the main statements is normally considered to be the most accurate and representative. Further, financial statements are abundant in notes and additional disclosure as it is, notes and disclosures which are, at times, even contradictive, by offering various perspectives and approaches applied to measure the same items. As such, information included in the main statements will be rarely challenged (Kieso and Wegandt, 1998, p. 47; Lowenstein, 1996).

²⁰ A whole line of literature contends that volatility, per se, causes an increase of information asymmetries, resulting in less information conveyed about the firm and about its future prospects.

7.3. Additional corporate governance issues

In addition to the above, volatility for its own sake, regardless of any information asymmetries, bears additional adverse effects on corporate governance. In case it is synthetic and undue, it can be assumed that these effects, as detailed below, are undue, as well:

Share based compensation: as discussed above, share based compensation is a means of inducing managers to follow value maximizing decisions and aligning their interests with those of shareholders. Earnings volatility would frustrate this mechanism to some extent. Managers, being non-diversified and risk averse, would exercise less inclination towards share compensation and more towards fixed income compensation, the more volatile the share.²¹ However, depending on the compensation plan, this lower inclination could be offset, to some extent, by the fact that managers possess better knowledge about their firm and could wield that knowledge by taking advantage of this volatility. For instance, not selling when market price is low, knowing that this price is unduly low and that, in time, course of matters may reverse and price may turn to being high. Nevertheless, such latitude in sales of shares is not always granted to managers and depends upon the specific compensation plan in question. Another offsetting factor could be expected when compensation is given in stock options. In that case, the higher volatility exhibited by the stock would result in higher value for the option, thus increasing managers' inclination towards option-based compensation. Nevertheless, the magnitude of this factor depends upon the stock option compensation plan. For instance, in many plans, managers are compensated with *Asian* options—options whose holder is awarded, upon their exercise, the average value during a certain period of time of their underlying asset. In addition, in many plans, options can be exercised only on specific dates. Both of these provisions act so as to substantially offset the above underlying asset's volatility virtue.

Usage of debt—debt is considered to have positive effects with regard to alleviating agency costs between shareholders and managers. Having to follow debt payments results in less spendthrift and other non-value-maximizing actions on behalf of managers (For further study, see: Shleifer and Vishny, 1997, p. 763). As aforementioned in para. 5.4.3, the earnings volatility in question would result in higher cost of debt. Consequently, value-maximization of share-value would coincide with lesser usage of debt. The latter would result in social loss due to the frustration of the above agency alleviation mechanism.

Large shareholders—small shareholders agency conflicts—as aforementioned, price inaccuracy may give rise to such conflicts. Undue volatility underlying this price inaccuracy could constitute an important leverage in the formation of these conflicts, due to its offering a better way to exploit this price inaccuracy. There are more distinct occasions, in which price is unduly high and vice versa.

8. Mitigating volatility

8.1. General

Chapter 5 elaborated on the adverse effects on firm value, resulting from earnings volatility. In addition, as detailed in para. 7.2 above, diligent managers would personally bear adverse corporate governance effects due to this earnings volatility. Due to the relative inefficacy

²¹ For an explanation linking stock price volatility to earnings volatility, refer to para. 5.4.2.

of additional disclosure measures in mitigating volatility, as detailed in para. 7.2.5 above, managers are expected to follow other measures. These measures, if successful, could be expected to mitigate any social loss ensuing from the above undue volatility in terms of capital allocation and corporate governance, as detailed in chapter 7. The crux lies with the fact that these mitigation measures do not come without cost. Rather, they result in social loss, for their own sake. Furthermore, in case the social loss of volatility, in terms of the realms of capital allocation and corporate governance is not significant, the social loss inflicted by these mitigation measures might exceed their positive outcomes meant to alleviate the former adverse effects.

The following elaborates on the various measures of mitigation and their outcomes.

8.2. Hedging whilst alleviating volatility

Assuming hedging is pursued, income can be smoothed using 2 measures. As detailed in para. 5.6, these include accounting variable manipulation and real variable manipulation. The repercussions of accounting variable manipulation, in terms of social welfare, are not expected to be too far reaching. First, it must be emphasized that any accounting manipulation is considered still to lie within the realms of GAAP and could be pursued even regardless of the volatility in question. The cost of accounting manipulation could be classified as a type of transaction cost of reporting. It includes the opportunity cost of engaging the firm's accounting personnel and potentially external consultants in finding the apt accounting treatments and manipulations that would result in income smoothing. As discussed in para. 5.6 and as would be expected, this mitigation measure is considered by managers the preferred one, upon manipulation of real variables. Nevertheless, in some cases in which manipulation of accounting variables falls short of the desired income stability, real variable manipulation might be pursued. Managers, operating in accounting environments which offer lesser degree of flexibility, such as the traditional Continental and the Japanese environments, are more prone to resort to that real variable alternative.²² Real variable manipulation bears clear-cut social loss and loss to the firm which follows them as a second best alternative (the first best is not following them, yet bearing income volatility). Real variable manipulation underlies one of the most acute problems of the new standards that reaches the verge of absurdity. In order to mitigate adverse effects of reported earnings volatility, enterprises resort to sub-optimal business decisions, yielding lower real returns and lower real cash flows. An example for such a situation could involve a European enterprise engaged in sales to the foreign market. The enterprise engages in hedging and therefore experiences earnings volatility. In a period of high reported earnings resulting from this volatility, the enterprise, for the sake of income stability, engages in negative profit transactions and/or defers profitable transactions.

As aforementioned in para. 1.3, every risk could be hedged against using different hedging strategies. Some of those strategies are likely to lead to higher earnings volatility than others. For example, a future would tend to fluctuate in tandem with its underlying asset. Therefore, assuming high correlation between the derivative and the hedged item, net volatility of them both should be expected to be low (For illustration, refer to Figure 1). In contrast, as discussed in chapter 4, single-tail derivatives, such as options, may involve a significantly higher amount of net volatility (For illustration, refer to Figure 2). Consequently, earnings-volatility-wise, usage of futures, for example, would be preferred over usage of options, although regardless

²² On the other hand, it seems that in such markets, in which both share and debt ownership is concentrated, mere reported earnings volatility should not bear too high importance.

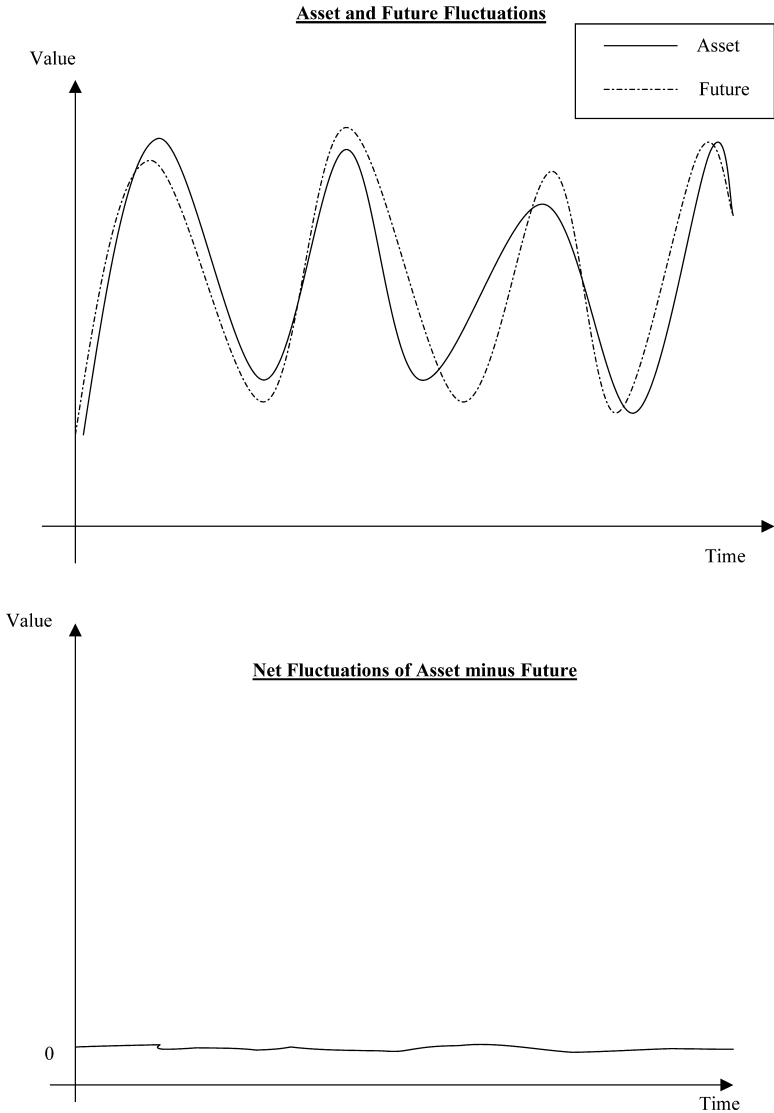


Fig. 1 Asset and future fluctuation graphs

of that bias resulting from the new standards, the latter might have been chosen. In other words, for the sake of low reported earnings volatility, some hedging strategies may be chosen, rather than others, thus potentially leading to sub-optimal results in terms of risk management policy (Such concerns were also expressed in: MacKay, et al., 2000).

8.3. Refraining from hedging

An alternative approach to mitigating volatility is simply preventing its occurrence from the very beginning. Such an outcome could result in 2 situations. The first is refraining from

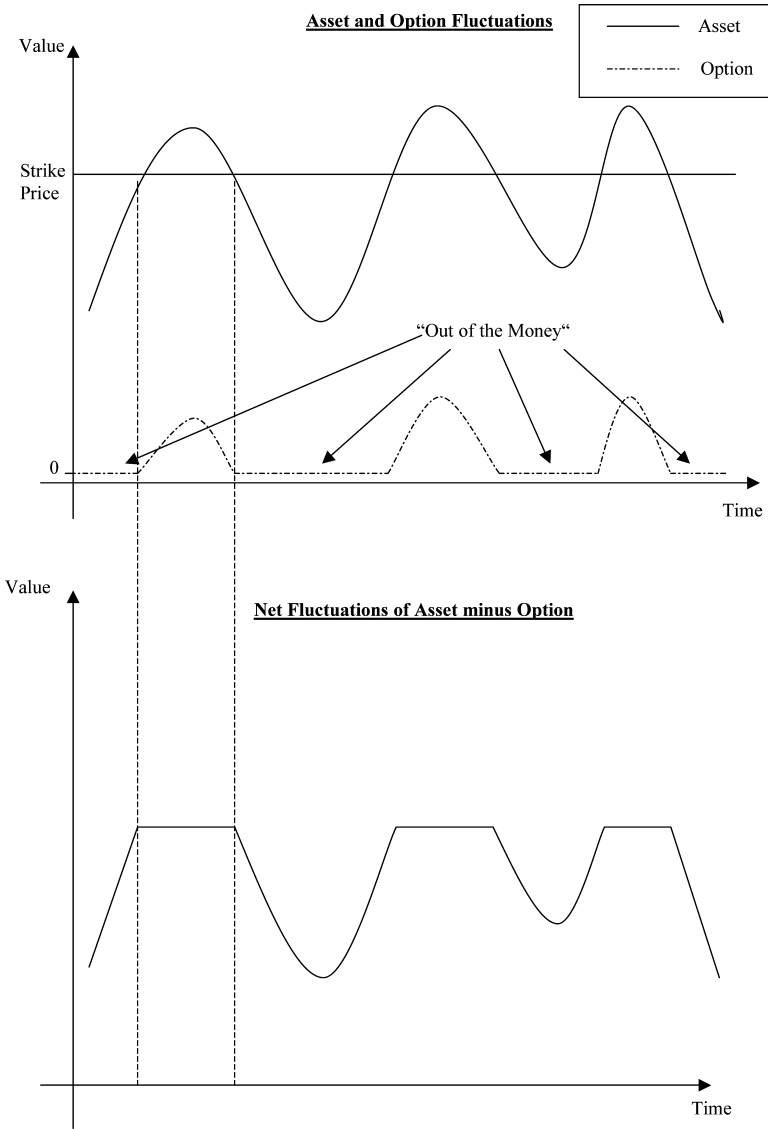


Fig. 2 Asset and option fluctuation graphs

engaging in transactions involving financial risk. The second is engaging in transactions involving financial risk, yet refraining from hedging against the risk. Both those situations constitute variants of the above detailed real variable manipulation, yet emphasize even more clearly the peculiar potential outcomes of the new standards. The first situation constitutes foregoing positive NPV transactions, for the sake of reported earnings stability. The second situation yields even more peculiar outcomes. In the sake of reported earnings stability, enterprises prefer not to hedge and end up with higher real cash flow volatility.

8.4. The net outcome

All the above measures bear direct social cost—sub-optimal project policy and sub-optimal risk management policy. This cost is born also by the firm itself. The advantage in those measures to the firm is that earnings volatility is mitigated. Assuming market inefficiency, volatility's adverse effects, detailed in chapter 5 above, are alleviated and consequently firm value increases. In cases in which the latter impacts on the firm (alleviating volatility's adverse effects) outweigh the former ones (sub-optimal projects and risk management policy), such measures will be followed by the respective firm. These measures, excluding the last one, pose some advantages on social welfare. Volatility reflected in earnings, after applying these measures, now represents true earnings volatility, resulting in lesser adverse effects on capital allocation and corporate governance.

However, in case social loss inflicted by the ephemeral volatility is not significant²³, social loss of the above mitigation measures might exceed their positive outcomes meant to alleviate the former adverse effects of volatility. In other words, these mitigation measures might result in a further net social loss. Such a case would occur if those measures involve an externality—firms and their managers, would accrue net benefit as a result of these measures, whilst not bearing their entire cost.

Such an outcome is virtually evident in the case of the last mitigation measure outlined above, of being involved with financial risk, yet refraining from hedging against it. Not only that it inflicts the social loss of sub-optimal hedging strategy, but it exacerbates even more capital allocation and corporate governance problems. It underlies one of the most extreme peculiarities of the standards-hedging results in more earnings volatility than not hedging at all, yet obviously in less risk. In other words, as opposed to the other mitigation measures, the lower resulting volatility no longer represents true risk and status of a firm. The firm's earnings are absent of volatility, yet this absence is undue.

To sum up, value maximizing managers may choose measures to mitigate earnings volatility.²⁴ These mitigation measures might result in a further net decrease of social welfare. They would nevertheless still be followed by managers since they would involve a negative externality, inflicted upon the stakeholder public. An externality caused by having low earnings volatility, which is actually undue and does not represent the true risk of the firm.

9. Transaction costs

Transaction costs in the context of accounting standards refer to the costs of providing information required by the standards and complying with them. The major components of this information include costs of collecting, processing, disseminating, learning and auditing, analyzing and interpreting. IAS 39 and especially SFAS 133 gained the title of being, by far, the longest and most intricate publications of the IASB and the FASB, respectively, ever. SFAS 133, for instance, joined with its accompanying publications, well exceeds 1000 pages. Ambiguities and difficulties in their application have emerged often, resulting in their

²³ Example of that would be a firm for which the current market value of shares matters very little—a firm not confronting a forthcoming seasoned public offering and whose relationships with other stakeholders, such as customers and suppliers are well-secured.

²⁴ Sub-optimal decisions that were taken by firms for the sake of higher market value, were reported, regarding various issues, such as M&As. For further study, see: Lowenstein (1996), pp. 1355–1356.

amendment and the abundance of accompanying publications elucidating, elaborating and amending the standards. The FASB and the IASB even allocated specially designated groups for their application.²⁵ Quantitative indicators could be found in the total costs of General Electric over 2 years of complying with SFAS 133, amounting to \$8 million (Osterland, 2000), as well as estimates concerning compliance costs with IAS 39 reaching \$500 million for U.K.'s listed companies.²⁶

10. Conclusions and suggestions

Regardless of transaction costs or potential bias that the standards may reflect, their essential goal—increasing transparency and reducing information asymmetries coincides with more efficient capital allocation and functioning of corporate governance mechanisms. One of the results, included in this goal, is lower probability regarding the occurrence of financial fiascos.

Achieving this goal by pursuing fair-value-accounting regarding the values of derivatives is congruent with the approach that views derivatives as current items, which are due to be realized potentially at any given trading day. Under such assumption, their value fluctuations conform to the accounting principles of relevancy, usefulness and quality of earnings. The crux is that this approach is substantially less suitable for the case of derivatives which were bought for the purpose of hedging and results in several adverse effects on firms and on social welfare.

In order to mitigate adverse effects inflicted on firms, firms may choose sub-optimal business decisions, bearing social loss, including refraining from hedging, while imposing a negative externality and causing additional social loss. This occurs as firms would suffer from higher risk and potentially from higher expected costs of financial distress, while not exhibiting earnings volatility. In any case, the standards pose barriers to hedging, resulting in social loss for their own sake. That outcome is due to the fact that hedgers constitute the lion share of participants in the derivative markets, thereby conducting to the outcome of less developed derivatives markets. This might give rise to several adverse outcomes. One outcome is that potentially consensual mutually beneficial transactions, between the various participants of the market for derivatives, willing to buy and sell risks²⁷, would not be struck, due to lower liquidity, variety, efficiency, etc. of the market for derivatives. Another outcome is the frustration of one of the social roles of the market for derivatives—allowing greater efficiency in the markets of the underlying assets over which derivatives are traded.

Another outcome concerns one of the roles of hedging, as serving the social function of *Division of Labor*. A manager could expertise, as he typically would, in the operational operations of his firm, without being concerned with financial risks, with which he is not familiar. Furthermore, due to the high market efficiency of many of derivatives' underlying assets, such as currencies and commodities, it can be assumed that no manager could have such familiarity.²⁸ Consequently, any profits made by such a manager speculating on such

²⁵ The Derivatives Implementation Group (DIG) and the Implementation Guidance Committee (IGC), respectively.

²⁶ Accountancy Age (24.11.03).

²⁷ See para. 1.2 for a description on the market for derivatives.

²⁸ On efficiency of financial markets and the difficulty to earn speculative profits in them, see: Brealey and Myers (1999), p. 337.

underlying assets should be regarded as windfall and as such not meritorious of reward and ex-ante encouragement.

In other words, hedging concerns the backbone of corporate governance mechanisms and facilitates the basic tenet of an efficient incentive system. Managers would be judged, compensated and evaluated on the basis of their own actions and not also on the basis of the materialization of financial risks over which they have and virtually cannot have any knowledge or control of. The new standards, however, would result in the paradoxical outcome, under which managers who would choose to hedge would suffer exactly from these adverse effects on their firm's market value and on their personal evaluation as managers, due to the undue volatility which would permeate to earnings and stock value. Other corporate governance and capital allocation mechanism would malfunction, as well.

Although a comprehensive suggestion for the standards' rectification is beyond the scope of this paper, the following insights will be outlined. Any standard must confer transparency to derivatives according to the purpose to which they were bought, so as not to impose barriers to hedging. Such an outcome could be achieved if limited volatility (marking to market of both the derivative and the hedged item) or even no volatility would be allowed more broadly in the case of a designated hedge. The amendment issued for IAS 39 in March 2004 concerning treatment of a portfolio of assets, in companion, for the purpose of qualifying for hedge accounting, follows that approach. The Commission's concern that IAS 39's provisions on the subject do not allow sufficient latitude with regard to portfolio hedging and its request for the adjustment of those provisions follow that direction, as well. Nevertheless, the conditions for a designated hedge must not be too lax, so as to try to prevent a situation under which derivatives' value plunges are not offset by corresponding value surges of hedged items. Therefore, the correlation test must be met. However, in order not to create high barriers to hedging, this test should be more lax than the existing one. In addition, in order to qualify for such a limited or no volatility treatment, the conditions must contain a test stating that the hedging derivative chosen is, ex-ante, the one with the strongest correlation to the hedged item, thereby verifying that indeed the purpose of the derivative has been hedging and not speculative trade. Furthermore, qualifying for that treatment would necessitate the firm indeed to hold the derivative until maturity of the transaction. That would prevent what is referred to as "cherry picking"—classifying items under non-current categories, thus not marking them to market, whilst realizing only those of them which accrued value appreciations.

Further, the state of limited volatility entails presenting both the hedged item and the hedging derivative at their fair-value. Allowing limited volatility, instead of full volatility, would therefore not only result in less undue volatility, but would also coincide with more transparency. The full fair-value option adjustment to IAS 39 in mid-2004, allowing more lax fair-value measurement of financial assets and liabilities, which potentially serve as hedged items, at fair-value, is congruent exactly with this approach.²⁹ Adjustments in this spirit, not confined only to the option's scope, are hereby recommended.

The approach underlying the above suggestions presumes that firms engage in trade of derivatives for hedging purposes, rather than for speculation ones. A study held a few years ago confirmed exactly that hypothesis (Guay, 1999).

²⁹ It must be noted that the E.U.'s interim 'carve-out' of several provisions of this option did not reflect its basic disapprobation concerning the option, but rather its concern that it might be misused by firms to misrepresent debt issued by themselves.

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