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Un-Faithful Representations of Financial Statements:
Issues in Accounting for Financial Instruments
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Un-Faithful Representations of Financial Statements: Issues in Accounting for Financial Instruments

Abstract

Both the International Financial Reporting Standards (IFRSs) and the codified accounting standards (ASC) for the US GAAP categorize hedging relationships as falling into several buckets. The two buckets of relevance in this paper are (a) hedging the volatility of fair values, and (b) hedging the volatility of future cash flow. In this paper, I argue that at least four accounting treatments of derivatives and hedging lead to serious distortion of actual transactions and violate adherence to the principle of “faithful representation.” The four treatments are (1) creating the fictional Hypothetical Derivatives Method, (2) establishing discretionally valuation adjustments for all of OTC derivative assets (CVA) and liabilities (DVA), (3) requiring subjective metaphysical separation of embedded derivatives, and (4) failing to report hedging as a substitution of risk. To remedy the resulting distortion in financial reporting, significant revisions of accounting for financial instruments and hedging are necessary if the goals of financial reporting were not to be compromised.

1. INTRODUCTION

Accounting standards governing financial instruments and hedging became effective in 2000 (IAS 39 for international accounting standards, and FAS No. 133 for US GAAP). Both types of standards categorize hedging relationships as falling into several categories. The issues of concern in this paper relate to accounting for fair value hedge and cash flow hedge:

A. *Fair Value Hedge* is for transactions hedging the volatility of fair values of (1) a recognized asset; (2) a recognized liability; or (3) an unrecognized firm commitment.

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1 These categories are (1) Freestanding vs. Embedded Derivatives; (2) Hedging—General; (3) Fair Value Hedges; (4) Cash Flow Hedges; (5) Net Foreign Investment Hedges; (6) Contracts in Entity's Own Equity; (7) Weather Derivatives
B. *Cash Flow Hedge* is for transactions hedging the volatility of future cash flow of (i) a recognized asset; (ii) a recognized liability; or (iii) a forecasted transaction.

More specifically, in these two categories, I address some concerns regarding the accounting treatments of (a) hedging forecasted transactions, (b) setting up discretionary valuation allowances, (c) separating embedded derivatives, and (d) failure to disclose the degree of success in hedging given that using certain instruments, such as interest rate swaps, is effectively a substitution of risk. In addressing these concerns, the two overriding principles of utmost relevance in this paper are:

A. *Faithful Representation:* A fundamental quality in The Conceptual Framework of Financial Reporting is faithful representation. In the Statement of Financial Accounting Concepts No. 8, the FASB introduces this principle as follows²:

> Financial reports represent economic phenomena in words and numbers. To be useful, financial information not only must represent relevant phenomena, but it also must faithfully represent the phenomena that it purports to represent. To be a perfectly faithful representation, a depiction would have three characteristics. It would be complete, neutral, and free from error. [Emphasis Added, p. 17].

B. *Marking to Market:* In general, financial derivatives are bilateral contracts that have no fundamentals but derive their values and risks from changes in prices or other specific indexes that give rise to rights (assets) and obligations (liabilities) of the two parties to the contract. As a general rule, both derivative assets and liabilities must be valued at fair value and changes in fair values should be posted to the income statement. Certain uses of financial derivatives, such as hedging, may modify the cash flow related to derivative instruments and thus alter the application of this general principle.

This paper shows that the accounting treatments for these items result in (1) significant deviations from faithfully representing actual transactions and events leading to distorted financial statements; (2) hindering transparency, and (3) impairing comparability of financial statements for the same firm over time as well as in relationship to other firms. In essence, the related standards grant the managements of the reporting entities the tools that allow them to rework the measurement and valuation of OTC financial derivative instruments as they wish.³

³ Over-the-Counter (OTC) derivatives are major sources of concern in accounting valuation and reporting. The magnitude is greater than seven times the size of derivatives traded on organized exchanges. According to the Bank for International Settlements, the notional (face) amounts of OTC derivatives stand at $549 trillion in the first quarter of 2018, which is down from a high of $712 trillion in 2011. The growth in these derivatives has overwhelmed all the developments of contracting and accounting. About 45% of that amount is held by the largest 25 banks in the USA. The chart below is for global OTC derivatives as reproduced from a publication by the Bank for International Settlements.

**OTC derivatives notional amount outstanding by risk category**

[Graph showing OTC derivatives notional amount outstanding by risk category]

https://www.bis.org/statistics/about_derivatives_stats.htm
2. **Issue One**

**Hypothetical Derivatives and Mythical Accounting**

*Prologue:* Since 1982, any enterprise or organization could use interest rate swaps to hedge cash flow risk, including the risk of forecasted transactions. Changes in fair values of swap contracts will flow through the income statement unless the hedge relationship is effective in which case changes in fair values flow through OCI for temporary “parking.” A simple measure of effectiveness is the ratio relating the cumulative changes in fair values of the derivative to the cumulative changes in fair values of the hedged position. Because forecasted transactions are uncertain and their fair values are not measureable, accounting standards allow inventing a fake derivative to stand as a placeholder for the hedged item. With the Hypothetical Derivatives Method, the management leads itself to the belief that the hedge is effective! In this case, changes in the fair values of the acquired derivative bypasses the income statement for parking in OCI, an equity account. In turn, the resulting effects on the income statement and the balance sheet deviate from reality.

The term “comprehensive income” refers to all changes in equity that are not generated by financing sources from both owners or creditors. When the principle of “realization” was a cornerstone of recognizing earnings, accounting standard boards sliced the unrealized changes in equity and gave it the label of “Other Comprehensive Income” (OCI). Since the start, OCI has been the dumpster in which the management buries items for which the standard boards could not find an easy conclusion as to realizability. Prior to introducing hedge accounting in 2000, OCI consisted mainly of (1) gains or losses from the translation of foreign currency; (2) pension …..; (3) holding gains or losses on held-for-sale marketable securities. After introducing hedge accounting, two significant movements took place. First, abandoning the principle of “realization” such that the income statement has accompanies OCI as another home for recording holding gains or losses, which may or may not be realized. Second, OCI continues to be the “trash container” in which accounting
standards allowed the management to park any item that might otherwise induce volatility in reported earnings. Of special interest in this paper are the gains or losses on cash flow hedging relationships.4

To reduce adding volatility in the measurement of earnings, accounting standards permitted “parking” changes in the fair values of derivatives in OCI under certain conditions. These conditions include: (a) the derivative is designated as a hedge of cash flow risk (i.e., future cash flow volatility); (b) the entity prepares a detailed documentation of the hedging relationship; (c) the hedged risk is well identified and is connected to the firm-wide Enterprise Risk Management system, and (d) the hedging relationship is effective in the sense of having a significant negative correlation between accumulated changes in fair values of the hedge and the hedged items.5 However, hedging forecasted transactions does not a priori satisfy these conditions and require adding other modification.

2.1 Forecasted Transactions

The Master Glossary of the U. S. GAAP defines a forecasted transaction as6

A transaction that is expected to occur for which there is no firm commitment. Because no transaction or event has yet occurred and the transaction or event when it occurs will be at the prevailing market price, a forecasted transaction does not give an entity any present rights to future benefits or a present obligation for future sacrifices.

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4 In this author’s view, hedge accounting is a contrived process of implementing management constant pressure to use accounting standards to report less volatile earnings. However, if the management enters into transactions that are volatile, why should accounting regulators manufacture accounting processes to smooth the public appearance of these transactions? Staying with the general topic of this paper, hedge accounting appears to have evolved in response to management pressure to develop or contrive accounting methods that obscure the real volatility of the management’s own decisions. We shall see a sample of these processes in this paper.

5 Effectiveness here means that the changes in the values of the hedge derivative is highly negatively correlated with the changes in the fair values of the hedged item. While the term “effective” is another description of “success in hedging,” the standards never used the word “success” perhaps because the net result of an effective hedge might actually be an added risk as we shall discuss in Issue Four in this paper.

In other words, a forecasted transaction has no real existence, past, present or future. In that sense, there was no past transfer or commitment for future transfers of resources into, or out of, the reporting enterprise. Thus, a forecasted transaction remains a highly undefined prospective event whose occurrence might be probable under US GAAP or highly probable under IFRSs. In this regard, the US GAAP and IFRSs share general similarities although they are not fully aligned.

2.2 Volatility of the Hedge Derivative Increases the Volatility of Reported Earnings

Exhibit 1A presents a flow chart in which a reporting entity (Company ABC) is forecasting probable cash payments that will likely vary with a particular interest rate benchmark. However, the management of Company ABC did not make any commitments in connection with the forecasted transaction. Furthermore, the amounts and timing of expected cash outflow are undefinable. Accordingly, the management did not have any basis for estimating a fair value for the forecasted transaction. Yet, exercising ‘prudent risk management’ led the management of Company ABC to purchase an interest rate swap contract to pay (to the dealer bank) an amount of interest calculated at a fixed rate and receive an amount of interest calculated at a varying benchmark interest rate (e.g., LIBOR; the Fed Rate or the like). As a plain vanilla swap, this contract would be structured such that it would have a fair value of zero at inception and, if no other arrangements are made, the changes in the fair value of the swap contract would, under general accounting standards, flow through the income statement. Therein lies the management’s problem: Adding volatility to reported earnings beyond the volatility inherent in normal business transactions.

Insert Exhibit 1A about here
Exhibit 1A
Hedging a Forecasted Transaction:
Case 1: Fair Value Changes Flow through the Income Statement
2.3 The Solution: Creating a Fictional Derivative

To shelter reported earnings from the volatility of the derivative acquired to hedge a forecasted transaction, the management must show that the hedge is effective.

To simplify the presentation, hedge effectiveness may be measured by the ratio

\[ \lambda = \frac{X}{Z}, \]  
where

\[ X = \text{Accumulated Changes in Fair Values of the Hedge Derivative}. \]
\[ Z = \text{Accumulated Changes in Fair Values of the Hedged Item}. \]

If \( \lambda \) is equal to unity, then there would be a perfect negative correlation between “X” and “Z” and the hedging relationship is said to be perfect. However, until 2018, guidance from the SEC and standard setting boards permitted a minimum ratio of 80% for a hedging relationship to be considered effective. In 2017, both the IASB and the FASB moved away from this apparently strict quantitative measure and allowed using qualitative judgement as to whether the hedge relationship is or is not effective. Nonetheless, the measurement of \( \lambda \) implies the existence of quantitative measures of the two determinant variables, X and Z.

If the entity acquires an OTC financial derivative as a hedge instrument, a measure of “X” will always exist at either fair value measurement level II or level III. But in hedging a forecasted transaction, there is no quantitative measure for the variable “Z.” For Company ABC, for example, a measurement of the variable “X” would be the accumulated changes in fair values of the actual swap contract, but variable “Z” does not exist because the elements of the forecasted transaction are unidentified. Therefore, hedge effectiveness cannot be established because the changes in the fair values of the acquired derivative are not matched by (some proportionate) corresponding and opposite changes in fair values of the unknown hedged item. To forcibly create an effectiveness measure, the
IFRSs and US GAAP standards gave the management the option to establish a “Voodoo Statue” as a placeholder for the hedged item. In a mythical world, the “Voodoo Statue” could be any object. Nonetheless, both standard setting bodies, the FASB and IASB, chose to adopt “the hypothetical derivative method.” In order to claim an image of a “perfect hedge,” the hypothetical derivative should embody the exact timing and amounts of the cash flow of the acquired real derivative, except that the cash flow amounts will be assigned a different direction to establish a negative correlation. Under these conditions, the management of Company ABC would have generated a process to identify a proxy, though imaginary, for the variable “Z.” Never mind that “Z” is a fictional creation of the management’s own assumptions, relating the known “X” value to the fictional value of “Z” should give the management the illusion of a perfectly effective hedge. Thus, inventing “Z” gave the management all the excuses it needs to defer the income-statement recognition of the accumulated gains or losses of the hedge item (the real financial derivative) and park them instead in OCI. Both the FASB and the IASB adopted the Voodoo Statue” concept, but gave it the refined name of “The Hypothetical Derivatives Method.” Exhibit 1B augments Exhibit 1A by adding the magical hypothetical derivative that accountants suggested it would descend from the blue sky to facilitate declaring the hedge relationship of the forecasted transaction as ‘effective’ or “not ineffective.”

**Insert Exhibit 1B about here**
Exhibit 1B
Hedging a Forecasted Transaction:

Case 2: Fair Value Changes of the Derivative are posted to OCI

With perfectly effective hedge, even though it is a fake one, changes in the fair value of interest rate swap will bypass the income statement and be posted in an equity account (Other Comprehensive Income) instead.
The U. S. GAAP guide for creating the “Hypothetical Derivatives Method” is codified in ASC 815-35-25.7

**FASB, 815-35-25**

The hypothetical-derivative method measures hedge ineffectiveness based on a comparison of the following amounts:

a. The change in fair value of the actual interest rate swap designated as the hedging instrument

b. The change in fair value of a hypothetical interest rate swap having terms that identically match the critical terms of the floating-rate asset or liability, including all of the following:

1. The same notional amount
2. The same repricing dates
3. The same index
4. Mirror image caps and floors
5. A zero fair value at the inception of the hedging relationship.

**815-35-26**

• …
• Thus, the hypothetical interest rate swap would be expected to perfectly offset the hedged cash flows.
• …

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7 This codification is essentially the same as the DERIVATIVES IMPLEMENTATION GROUP, STATEMENT 133 IMPLEMENTATION ISSUE NO. G7. “Cash Flow Hedges: Measuring the Ineffectiveness of a Cash Flow Hedge under Paragraph 30(b) When the Shortcut Method Is Not Applied.” (July 11, 2000).

http://www.fasb.org/derivatives/issueg7.shtml
Internationally, the IASB has adopted the same concept. Section B6.5.5 of IFRS 9, 2014 (Page 143) states the following convoluted statement:  

> To calculate the change in the value of the hedged item for the purpose of measuring hedge ineffectiveness, an entity may use a derivative that would have terms that match the critical terms of the hedged item (this is commonly referred to as a ‘hypothetical derivative’), and, for example for a hedge of a forecast transaction, would be calibrated using the hedged price (or rate) level.

> The hypothetical derivative replicates the hedged item and hence results in the same outcome as if that change in value was determined by a different approach. Hence, using a ‘hypothetical derivative’ is not a method in its own right but a mathematical expedient that can only be used to calculate the value of the hedged item.

The characterization of The Hypothetical Derivatives Method by the FASB and the IASB amounts to a double talk. The U. S. GAAP guide, ASC 815-35-25, states that “an entity may use a derivative that would have terms that match the critical terms of the hedged item.” Similarly, B6.5.5 of IFRS 9 states that “The hypothetical derivative replicates the hedged item…” This phraseology is misleading; if the terms of the forecasted transaction (the hedged item) are identifiable well enough such that they could be replicated and priced, why would there be a need to create a hypothetical derivative as a “placeholder” for the hedged item? The only way that hedging a forecasted transaction (as defined in the Glossary of the US GAAP) be “a perfect hedge” is for the hypothetical derivate to be an opposite mirror image of the actual hedge derivative. The practice of using “The Hypothetical Derivatives Method” proves this inference. Consider, for example, the practice described by the large

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8 International Accounting Standards Board. *IFRS 9, Financial Instruments*, 2014. IFRS Foundation Publications Department 30 Cannon Street, London EC4M 6XH, United Kingdom
technology consulting firm “SAP” in using “The Hypothetical Derivatives Method,” in describing one of its programs called the “Bank Analyzer.”

The system uses the existing effectiveness methods but generates fictitious hedging relationships for them. These fictitious hedging relationships consist of a real hedging instrument and the corresponding hypothetical derivative. In the fictitious hedging relationship, the hypothetical derivative represents the hedged item, and the real derivative the hedging instrument. To be able to use the existing effectiveness test methods, the system compares the value changes in the hypothetical derivative with the real derivative. As these changes in value are always consistent, the system reverses the +/- sign before the final effectiveness indicator is derived. If this was not the case, the determined key figures would not be consistent with the results in the micro fair value hedging relationships. The Hypothetical Derivatives Method allows the management to defer the recognition of gains or losses of the actual financial derivative until the forecasted transaction is no longer a forecast. [Emphasis added]

Additionally, in one of his reports, Ira Kawaller acknowledged “The perfect hedge, then is not one that generally can be traded. It is commonly referred to as the hypothetical derivative and its settlement amounts are thus…… hypothetical.” Yet, even with this qualification, Kawaller went on to show that one could use regression analysis to “transform the features of the actual derivative to get the associated parameters of the hypothetical derivative.” In a more recent report, Kawaller discussed the so-called improvements suggested by the December 2017 Accounting Standards Update in which he noted the following:  

9 SAP. Bank Analyzer (FS-BA). Public 2018-6-28, Page 1047  

https://docs.wixstatic.com/ugd/de837a_c4a7ed959bb749a0811efd061af68cb3.pdf  

FASB has also clarified that whenever a company can assert that the hedging derivative and the hypothetical derivative are identical, no quantitative test is required; reporting entities must simply document that the qualifying conditions are satisfied. Again, this attestation is not a one-time event; reporting entities must revisit the issue quarterly to assure that the stated documentation is still valid [Emphasis Added].

2.5 Concluding Issue One

⇒ Inventing a fictitious financial instrument to give the management of reporting firms the legitimacy to defer the income-statement recognition of changes in the fair values of a real transaction is the antithesis of the proclaimed qualitative criterion of “representational faithfulness.” Using “The Hypothetical Derivatives Method” creates nonexistence relationships that alter the financial representation of the income statement and the balance sheet.

The Conceptual Frameworks of IFRS and US GAAP offer “representational faithfulness” as a fundamental principle for evaluating the quality of financial statements.\(^{12}\)

QC12. Financial reports represent economic phenomena in words and numbers. To be useful, financial information not only must represent relevant phenomena, but it also must faithfully represent the phenomena that it purports to represent. To be a perfectly faithful representation, a depiction would have three characteristics. It would be complete, neutral, and free from error. Of course, perfection is seldom, if ever, achievable. The Board’s objective is to maximize those qualities to the extent possible. However, creating fictitious accounting treatments that change the

geography of reported items between the income statement and the balance sheet could hardly be considered a faithful representation of the underlying transactions or economic conditions.

Additionally, for the same exact forecasted transaction, different firms could have very different treatments affecting the income statement and the balance sheet differently only by choosing, or not choosing, to establish “The Hypothetical Derivatives Method.” In his article “Hypothetically Speaking,” Ira Kawaller recognized the resulting diversity and the attendant impairment of comparability.

Accounting standards state explicitly that derivatives could not be used as “hedged items.” Yet, one implication of inventing The Hypothetical Derivatives Method is that financial derivatives may not be designated as hedged item except when they are hypothetical!
3. Issue Two:

CVA & DVA Add more Distortion to the Valuation Plasticity of Derivatives Assets and Liabilities

Prologue: Unlike other contracts, financial derivative instruments do not specify the amounts and timing of cash inflows or cash outflows. Instead, the inflows and outflows are expectations based on expected market-wide movements. Accordingly, the fair values of derivatives that are not traded on organized exchanges are estimated by discounting the expected net cash flow. For Over-the-Counter derivatives, these values are completely a function of the forward yield curve and of the management strategies and goals. Therefore, these values are soft and malleable numbers. Adding to this plasticity is establishing discretionary valuation allowances for derivative assets (credit risk of counterparties) and for derivative liabilities (own credit risk). There are no guides anywhere for setting up these valuation allowances and all approaches used are homemade not verifiable against any objectively measured yardstick. Finally, these valuation allowances can be used as hedged items for which other derivatives would be acquired as hedge items. The accumulated cascade of subjectivity and management’s exercising significant choices leads to reporting earnings and valuation numbers not representing any reality.

2.1 Plasticity of Valuation of OTC Derivative Instruments

Accounting standards define an asset as the right to receive resources, and a liability as the obligation to transfer resources out of the entity. Collectively, we had accepted these definitions almost for all assets and liabilities for which there are active and liquid markets. However, problems arise in valuing specialized assets and transactions for which there are no active markets.

Of special interest is the valuation of Over-the-Counter (OTC) derivatives. Unlike exchange-traded derivatives, OTC derivative instruments trade privately between counterparties in a highly illiquid market. In this setting, the valuation of financial instruments are not based on prices generated by large numbers of market participants. Nor are they based on contractually determined cash flow. Instead, a financial derivative is an instrument that generates or derives the amounts and timing of future cash flow based on market-wide indexes whose movements are not influenced by
either one of the two contracting parties. For example, the projected cash flow associated with an
interest rate swap contract at any point in time is conditional on the yield curve, the zero-coupon rates
and forward rates—all are indexes determined by macro, not micro, economic factors. This feature
renders financial derivative instruments totally unlike other contractual commitments in which the
contracts specify the amounts and timing of resource inflows and outflows.\(^{13}\)

Calculating expected values of assets and liabilities of bilateral derivative contracts draws on
the industry guidance provided by two sources: (1) *The Master Agreement* of the *International Swap
and Derivatives Association* (ISDA) written in 1985 and revised in 2002, and (2) accounting
standards.\(^{14}\) Faced with a completely uncertain future, accounting standards allow the management to
make its own estimates of the fair market values, which are given the designation of Level 3 and Level
2 in the fair value hierarchy. The *Master Agreement* also provides alternative ways to calculate
derivative assets and liabilities that reflect termination amounts. However, all of the measurement
approaches provided hinge on one critical assumption: *the future will be an extension of the present-
time expectations*. Accordingly, it works out that the winner in the current period would be presumed
to continue winning and accumulating rights (assets) and the loser in the current period would be
presumed to continue losing and accumulating liabilities for the remainder of the contractual
maturity.\(^{15}\) Based on these assumptions, the counterparties forecast various scenarios to estimate
different series of “what could be” cash inflow and cash outflow, then discount the net expected cash

\(^{13}\) In general, entities enter into financial derivatives contracts to achieve one or more of the following goals: To hedge a
known, specific risk. (a) To manage expected risk. (b) To speculate. Or (c) to gamble—i.e., adding risk in the hope of
profiting.

\(^{14}\) A little known secret is that ten large banks established ISDA in 1985 and wrote the Master Agreement to serve their
own interests. These banks are Bankers Trust, Citibank, First Boston, Goldman Sachs, Kleinwort Benson, Merrill Lynch,
Morgan Stanley, Morgan Guaranty Trust, Salomon Brothers, and Shearson Lehman Brothers. Currently, the managing
board of ISDA consists of 26 financial institutions, nineteen of which are big banks.

\(^{15}\) The amounts are usually determined as the present value of amounts calculated on the present value of the current year’s
difference between the swap forward rate and the fixed rate of the tenor of the contract.
inflows and outflows to measure their present values.\textsuperscript{16} The estimated present value is an asset for one party and a liability for the counterparty; that is, financial derivatives are zero-sum games.\textsuperscript{17}

Nonetheless, estimating (Level 2 of the fair value measurement hierarchy) or guestimating (Level 3 of the fair value measurement hierarchy) values of derivatives “assets” and “liabilities” are highly problematic for several reasons:

\begin{enumerate}
\item For future periods, all of the intended services (hedging, managing risk, speculation or gambling) are contingent on the continuation of the contract.
\item The transfer of resources and performance of services in future periods are contingent on the realization of the expected macroeconomic factors, which are uncertain and are not controllable in the least by either counterparty.
\item No transfer of resources between counterparties related to future periods had taken place beforehand.
\end{enumerate}

Accordingly, it is not unreasonable to assert that fair values of OTC derivative assets and liabilities are simply creatures of assumptions and hypothetical expectations. It follows that the numbers that accountants report for OTC derivatives assets and liabilities are essentially assumed, soft, phantom numbers that do not, and could not have the same degree of hardness and qualitative characteristics of other assets or liabilities on the balance sheet.

Given that OTC financial derivatives are not standardized contracts, different entities have the freedom to construct the unverifiable and unknown future conditions that allow exercising creativity in estimating the values of OTC derivatives assets and liabilities to fit the goals of their management.

\textsuperscript{16} The choice of the discount rate used is critical. However, the prevailing view is that the discount factor used to estimate the fair values of OTC financial derivatives does not incorporate pricing of the credit risk of the counterparties. The risk free rate as well as the zero coupon rate are examples.

\textsuperscript{17} The “zero-sum” game description ignores transaction cost (e.g., underwriting cost, insurance and legal fees) which is mostly borne by the buyer.
Furthermore, as financial derivative contracts mutate, the estimated fair values become softer and more subjective. The fundamental problem, however, is permitting the unobservable, and perhaps unrealizable, holding gains and losses (i.e., the changes in the estimated and guesstimated fair values) to be recognized in the determination of reported earnings, assets and liabilities. No other source of income, assets or liabilities is a creature of management assumptions in the same way or to the same extent as the contracts for OTC financial instruments. By construction, these numbers have a high degree of pliability or plasticity. It is, therefore, indefensible to add the “plastic” estimates of assets and liabilities of OTC derivatives to other assets and liabilities that have harder measures. It is even more indefensible to recognize the changes in these plastic assets and liabilities as being earned. In time, abandoning the principle of “realization” for recognition of uncontrollable value changes will most likely cause deterioration in the quality of financial reporting on the way to the next accounting crisis. To further assist the management to attain its goals, accounting standards granted the management of reporting enterprises more discretion in determining the impact of OTC derivatives on financial statements. This added discretion came in the form of estimating “valuation allowances” for which no models or guidance exist.

2.2 Establishing Valuation Allowances for OTC Derivative Assets and Liabilities

In the measurement and reporting of fair values, accounting standards require incorporating the “assumptions of market participants” to approximate exchange values. This rather ambiguous requirement is of concern primarily for transactions in illiquid markets such as Over-the-Counter

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18 For the US GAAP
(OTC) markets in which transactions are opaque and each transaction has few market participants.\textsuperscript{19} Because OTC derivatives are bilateral contracts traded privately in the dark behind closed doors and are, therefore, highly illiquid, their fair values are not observable. Additionally, the models used in estimating fair values of these derivatives employ the risk free rate to discount predicted flows. Thus, the credit risk of counterparties are not priced. In contrast, transactions of exchange-traded instruments have large numbers of participants and transaction prices are disclosed fully and timely. Thus, observable transaction prices of exchange-traded derivatives already incorporate “the assumptions of market participants.”

To correct for the incompleteness of estimated fair values, accounting standards introduced the concept of “credit standing” and require establishing valuation adjustments for OTC derivative assets (Credit Valuation Adjustment or CVA) and derivative liabilities (Debt Valuation Adjustments or DVA). As measures of pricing credit risk, CVA and DVA are not derived from the same family. As noted in Kamakura Solutions, CVA is “the difference between the risk-free portfolio value and the true portfolio value that takes into account the possibility of a counterparty’s default. In other words, CVA is the market value of counterparty credit risk.”\textsuperscript{20} CVA is, therefore, a reserve allowance for the

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\textsuperscript{19} OTC derivatives have become the monster hidden off sight; the notional amounts of OTC derivatives exceeds $595 trillion ($595,000,000,000,000) worldwide, or seven times the size of global Gross Domestic Product. Of that amount, $481 trillion are interest rate contracts. See Bank for International Settlements. \textit{Global OTC Derivatives Market}. \url{https://www.bis.org/statistics/d5_1.pdf}

\textsuperscript{20} Kamakura Solutions. Credit Risk, CVA and DVA.” Kamakura Corporation at \url{http://www.kamakuraco.com/Solutions/CreditRiskCVAandDVA.aspx}
probable default of counterparties that owe the reporting entity money (assets) whereas DVA is an allowance for own credit risk. While CVA is conveying a message that ‘others may not pay what they owe the reporting entity,’ DVA conveys an unusual signal: “the reporting entity may not be able to pay other derivatives counterparties to whom it owes money.” This, of course, is quite odd for several reasons.

Estimating numbers for DVA is a recognition of decreasing debt without transferring resources outside the entity, which is essentially a self-constructed and home-made increase in equity; the management reports gains simply by the stroke of a pen. When the practice of estimating DVA started in early 2000, changes in values were posted directly to the income statement, which gave rise to significant manipulation. Kamakura Solutions notes the misuse of DVA during the recent financial crisis. It states “This valuation technique was used by financial firms in 2008 as a way to minimize accounting losses: as the market value of issued debt declined, companies would recognize the decline as income.”

A more direct assessment of DVA simply means that the reporting entity was able to manufacture its own profits at will. However, in recent years, in ASU 2016-01, the FASB joined the IASB in requiring that specific segment of DVA “attributable to instrument-specific credit risk of liabilities for which the fair value option is elected.” (See paragraph 825-10-45-5) should be posted to OCI not to earnings. For all other liabilities that are valued at fair value, DVA and the changes thereof continue to flow through the income statement. In either case, a decrease in the fair value of liabilities continue to increase owners’ equity either through earnings or through OCI. In general, the inputs to the calculation of these

21 Kamakura Solutions, Ibid.
allowances include (a) expected exposure to default loss, (b) expected loss severity (1 – recovery rate), (c) the probability of default and (d) the present value discount factor.\textsuperscript{23} There are no specific guidance on the methods or limits of calculating either CVA or DVA, which creates challenges in estimation.\textsuperscript{24} The methods of measuring and combining these inputs to form measures of CVA or DVA are completely choices of the management. However, estimating DVA has a special restriction: “An interesting aspect of the rule is that once reporting companies adopt this rule for certain securities, switching to a different valuation technique is prohibited.”\textsuperscript{25}

Due to the absence of any rules, models or guidance for the measurement of CVA or DVA, some financial economists suggest that the amount of CVA for a creditor concerning certain derivative (assets) should be the negative of the amount of DVA of the debtors of the same derivative. Exhibit 2 presents the impact of symmetrical measures of CVA and DVA to which Smith refers to as “zero net supply.” It is the notion that “the fair value of a bond (i.e., a financial instrument) is the same amount whether viewed by investor (asset holder) or the issuer (debtor).”\textsuperscript{26}

Insert Exhibit 2 about here

Thus, the “zero net supply” concept appears to have converted measures of CVA and DVA as “market-wide” measures in which DVA is not a measure of own credit risk based on the debtors’ own probabilities of default. Rather, the amounts of DVA would be the negative of the amounts the


\textsuperscript{25} Kamakura Solutions, \textit{Ibid}.

\textsuperscript{26} Smith. \textit{Ibid}. P. 17.
counterparty creditors estimate as their CVA regarding their derivatives assets for which the reporting firm is the debtor.

Exhibit 2

The Zero-Net-Supply Concept

\[
(\text{Value}^{\text{ASSET}} + \text{Value}^{\text{LIABILITY}}) = \text{VND} - \text{CVA} + \text{DVA} = 0,
\]

where VND is the value of a fixed-rate bond discounted at the benchmark interest rate.

CVA is the credit valuation adjustment for a derivative held as an asset
DVA is the valuation adjustment for own credit risk for a derivative debt

3.2 Muddying the Water Further—Hedging CVAs and DVAs

There are at least two more complicating factors in estimating the fair values of OTC derivative assets and liabilities.

1. Establishing DVA is like “insuring” the reporting entity’s own debt and also benefitting from it upfront. In particular, DVA leads to perverse effects. As the credit worthiness of the reporting entity deteriorates, the reporting entity earnings increase by the increase in the estimated values of DVA. Establishing a DVA to reflect the alleged deterioration of own credit risk is akin to the company insuring its own debt. Nevertheless, when it comes to OTC derivatives, accounting standards have given the management the implicit license to claim that it may not be able to pay its derivative debt obligations irrespective of whether or not the entity is facing financial distress. It is a choice that increases income without actually having earned any part of it, which result in distorting the measurement of earnings and the reported values on the balance sheet.

2. Firms may enter into other derivative contracts to hedge the estimated values Credit Valuation Allowance (CVA) and of Debt Valuation Allowances (DVA). The gain or loss on these hedging relationships would be treated as the gain or loss of the original derivative for which the valuation allowances were set up. However, the measurements of CVA and DVA are essentially of the management’s own making and is unique to OTC derivatives; hedging Accounts Receivable Allowance, for example, is not permitted. Moreover, hedging DVA is as absurd as hedging the entity’s insurance of its own debt.

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27 During my presentation of this paper at a workshop, Tim Brown, an assistant professor at the University of Illinois, asked rhetorically: What if Wal-Mart, for example, buys produce from farmers and tell them “the company may not be able to pay you”? 
Real Life Adoption of CVA and DVA

As a case in point, let us consider JPMorgan Chase (Exhibit 3). By all measures, this bank is highly liquid and have no signs of financial distress or threats of defaulting. Yet, the bank is benefiting by the accounting standards gift of estimating DVA at levels that impact reported income significantly. For example, in fiscal year 2011, about 23% of net income came from the estimated DVA($1.4 / $5.9)—earnings manufactured by the management (p. 81).28

Net revenue included a $1.4 billion gain from DVA on certain structured and derivative liabilities resulting from the widening of the Firm's credit spreads. Excluding the impact of DVA, net revenue was $24.8 billion and net income was $5.9 billion.

In 2012, adjustments to DVA reduced earnings by $930 million. If in fact DVA is a measure of financial difficulty of the entity, reversing the amounts of DVA implies that JPMorgan Chase had a lower risk of default in 2011 as compared to 2012. In reality, however, fiscal year 2012 was the year of disclosing more than $6.5 billion loss in the case of “The London Whale.”29 In particular, JPMorgan Chase had a unique history in fiscal year 2012. In that year, the bank lost in the “marketplace” by getting deep into credit default swaps, but reported accounting gain by managing estimates of DVA. By permitting the management to manipulate its own manufacturing of profits, it is not clear how anyone could claim that the resulting reports reflect any “faithful representation” of financial transactions.


The $5.9 billion income is, of course, after tax. But DVA is not recognized as a taxable item and all the $1.4 billion went straight to earning.

Additionally, Lisa Pollack raises the issue that estimating DVA for US entities is superfluous and unnecessary under US regulation.\textsuperscript{30} In particular, Congress has granted counterparties of derivative liabilities a unique safe harbor rule—they should have preference in distributing assets in cases of derivative debtors’ bankruptcy. To estimate and manipulate DVA given this unique safe harbor rule is what Lisa Pollack of the \textit{Financial Times} called “utterly mad.”

\textbf{The risk that the bank that is reporting results will default and therefore not pay out.} FT Alphaville would expect these to be labelled as “DVA”. That is, if the reporting bank owed other banks a lot of money on various derivative positions, but the bank’s creditworthiness deteriorated, then the claims could be marked down by the logic of DVA because the bank may default before paying out to its counterparties.

That, conceptually, strikes us as utterly mad. US bankruptcy [law] has a safe harbour specifically for swap counterparties to be able to close out at fair value. In other words, filing for bankruptcy is unlikely to alleviate a bank of the requirement to pay out. Even the extreme, where this bit of accounting should surely make sense, is in fact ludicrous.

Exhibit 3
CVA & DVA of JPMorgan Chase in 2011 and 2012

Notes to consolidated financial statements

Credit adjustments
When determining the fair value of an instrument, it may be necessary to record adjustments to the Firm’s estimates of fair value in order to reflect the counterparty credit quality and Firm’s own creditworthiness:

Credit valuation adjustments (“CVA”) are taken to reflect the credit quality of a counterparty in the valuation of derivatives. CVA adjustments are necessary when the market price (or parameter) is not indicative of the credit quality of the counterparty. As few classes of derivative contracts are listed on an exchange, derivative positions are predominantly valued using models that use as their basis observable market parameters. An adjustment is necessary to reflect the credit quality of each derivative counterparty to arrive at fair value. The adjustment also takes into account contractual factors designed to reduce the Firm’s credit exposure to each counterparty, such as collateral and legal rights of offset.

Debit valuation adjustments (“DVA”) are taken to reflect the credit quality of the Firm in the valuation of liabilities measured at fair value. The methodology to determine the adjustment is generally consistent with CVA and incorporates JPMorgan Chase’s credit spread as observed through the credit default swap (“CDS”) market.

The following table provides the credit adjustments, excluding the effect of any hedging activity, reflected within the Consolidated Balance Sheets as of the dates indicated.

<table>
<thead>
<tr>
<th>December 31, (in millions)</th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derivative receivables balance (net of derivatives CVA)</td>
<td>$74,983</td>
<td>$92,477</td>
</tr>
<tr>
<td>Derivatives CVA (a)</td>
<td>$(4,238)</td>
<td>$(6,936)</td>
</tr>
<tr>
<td>Derivative payables balance (net of derivatives DVA)</td>
<td>70,656</td>
<td>74,977</td>
</tr>
<tr>
<td>Derivatives DVA</td>
<td>(830)</td>
<td>(1,420)</td>
</tr>
<tr>
<td>Structured notes balance (net of structured notes DVA) (b)</td>
<td>48,112</td>
<td>49,229</td>
</tr>
<tr>
<td>(c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structured notes DVA</td>
<td>(1,712)</td>
<td>(2,052)</td>
</tr>
</tbody>
</table>

3.3 CVA & DVA are Beyond Banks

Estimating CVA and DVA as adjustments to valuation of OTC derivatives is not limited to banks or financial institutions. For example, Strategic Hotel & Resorts, Inc. reported the following in its 10-K of 2014,

The Company incorporates credit valuation adjustments (CVA) to appropriately reflect its own nonperformance risk and the respective counterparty’s nonperformance risk.\textsuperscript{31}

The report further identified the valuation of derivatives as Level 2, while CVA was Level 3. Here, the company inappropriately referred to DVA as CVA. Similarly, Ennis Communications Corporation combined CVA and DVA under the banner of “CVA.”

In accordance with ASC Topic 820, the Company made Credit Value Adjustments (CVAs) to adjust the valuation of derivatives to account for our own credit risk with respect to all derivative liability positions. The CVA was accounted for as a decrease to the derivative position with the corresponding increase or decrease reflected in accumulated other comprehensive income (loss) for derivatives designated as cash flow hedges. The CVA also accounted for nonperformance risk of our counterparty in the fair value measurement of all derivative asset positions, when appropriate.\textsuperscript{32}

Finally in these illustrations, Indiana University Medical Center, Inc. reported adjustment of derivative liabilities, but referred to DVA as CVA.\textsuperscript{33}

Guidance on fair value accounting stipulates that a credit valuation adjustment (CVA) should be applied to the mark-to-market valuation position of interest rate swaps to more closely capture the fair value of such instruments. As of June 30, the fair value of interest rate swaps was a liability of $110,650, which is net of CVA of $15,974. As of December 31, 2014, the fair value of interest rate swaps was a liability of $145,339, which is net of CVA of $9,837. The fair values of the swaps have been included with noncurrent liabilities in the accompanying consolidated balance sheets.


\textsuperscript{32} Ennis Communications Corporation. Form 10-K for 2012, page 77. https://www.sec.gov/Archives/edgar/data/783005/000119312512223521/d335769d10k.htm

a.4 *Concluding Issue Two*

a. Companies value financial derivatives traded off organized exchanges using “other” inputs, which typically disqualifies them from valuation at Level 1 of the Fair Value Measurement Hierarchy. In general, the valuation of derivative assets and liabilities will be guided by other management goals.

b. While the obtained values of OTC derivative assets and liabilities are “soft” numbers, managers estimate valuation allowances: Credit Valuation Allowance (CVA) to adjust values of assets to include counterparty credit risk, and Debt Valuation Allowance (DVA) to adjust values of own debt to reflect own credit risk. By construction and necessity, all estimates of CVA and DVA are made at Level 3 of the fair value hierarchy, i.e., fully and completely estimated by the management.

c. The combination of the two estimates of Level 2 or 3 fair values of derivatives and level 3 fair value of the valuation adjustments leads to reporting numbers with high degree of plasticity. Thus, these numbers are representations of management wishes and could not be considered faithful representation of reality by any stretch of imagination.

d. In brief, accounting standards violate its own “principles.”
4. ISSUE THREE

The Futility and Distortion Inherent in Separating Embedded Derivatives

Prologue: An embedded derivative is a derivative within a non-derivative contract that cannot be physically detached or transferred. Both ASC of US GAAP and IFRSs require metaphysical separation of embedded derivatives that have risk and value generators different from the host contract. This separation is a requirement, not a choice. When separated, an embedded derivative would be valued as the valuation of a similar freestanding derivative, and the value of the host contract, debt or equity, would be the residual amount of the book value of the hybrid instrument net of the estimated fair value of the embedded derivative. Multiple embedded derivatives in a single contract must be valued as one. This provision gave business entities incentives to issue hybrid securities with multiple embedded derivatives because the management would be free to guesstimate their fair values since a combination of a set of embedded derivatives is not likely to follow any known valuation model. Following the general rule, the changes in the values of embedded derivatives flow through the income statement. And subject to some limitations, embedded derivatives could also be used as hedging instruments. Thus, the treatment of embedded derivatives provides management with an additional accounting approach to manufacture gains and losses at will. The inescapable outcome of this process is distorting the fidelity of financial statements such that they would be faithlessly, not faithfully, representing actual transactions. Identifying and bifurcating embedded derivatives is costly although, surprisingly, neither the FASB nor the IASB has, to this day, provided any evidence to show that investors benefit from bifurcating embedded derivatives in making investment decisions or in assessing the risk exposure of the reporting entities.\textsuperscript{34}

4.1 Embedded Derivatives

A hybrid instrument consists of at least two components (1) a debt or equity component, and (b) a feature that modifies the cash flow of the first component. Accounting standards have taken the steps of providing a process by which these two components be valued and recognized separately when the value and risk generators of both components are different and when the hybrid is not valued

\textsuperscript{34} The International Swaps and Derivatives Association (ISDA) raised this issue in its comment letter to the FASB on April 30, 2015. Disclosures about Hybrid Financial Instruments with Bifurcated Embedded Derivatives. Re: File Reference No. 2015-220. 
at fair value through earnings. Breaking down a hybrid into its components leads to identifying a host contract, which would be debt or equity, and one or more derivative. The goal of making this bifurcation is the ability to account for the embedded derivative(s) similar to accounting of other free standing derivatives. However, IFRSs and ASC of US GAAP codification have some fundamental differences in designating the limits and boundaries of bifurcation.35

If the second component of a hybrid is physically separable and transferrable as in the case of detachable warrants, it would be accounted for as a free standing derivative. But if it is not separable as in the case of attached warrants, it is considered embedded. The philosophy underlying accounting standards is that detachability of a warrant should not affect its valuation or accounting treatment.36 This means that embedded derivatives should be valued at fair values and changes in fair values flow through the income statement as in the case of free standing derivatives and of securities held for trading. Additionally, with some limitations, embedded derivatives could be designated as hedging instruments. To implement this accounting, the hybrid instrument must undergo metaphysical separation (which the US GAAP refers to as ‘bifurcation’) into a host and an embedded derivative components. Both of IFRS and US GAAP set very much similar criteria for performing that separation.37 Three of these criteria are of significance.

35 For example, cash instruments are not subject to bifurcation in modified IFRS 9 but continue to be so in ASC 815 of US GAAP.

36 Other common examples of hybrid securities are callable bonds, puttable bonds and convertible bonds. A callable bond consists of a debt contract modified by an option giving the issuer the right to call the bonds for redemption under some specified conditions. A puttable bond consists of a debt contract and an embedded option giving the investor the right to put the bond back to the issuer under some specified conditions. A convertible bond is a debt contract and an embedded option giving the holder (or the issuer) the option to convert the bond into common shares of the same entity. In each of these cases, the related options are not physically separable or transferable independent of the entire hybrid contract and is therefore embedded.

37 In the 2018 revision, IASB allowed the separation possibility for financial liabilities and other types of contracts such as a forward contract with options, but not for financial assets. According to this revision, hybrid instruments in financial assets having embedded derivatives should be valued in its entirety at fair value through profit or loss statement—FVTPL.
1. The value and risk generators of the embedded derivative and of the host contract are different.
2. The hybrid instrument is not measured at fair value through the income statement.
3. The embedded feature would be a derivative if it were freestanding.

When separated, the accounting treatment of the host contract will not change but the embedded derivative will be valued at fair value through the income statement. Surprisingly though, the value of the host contract would be measured as a *residual*; it is the value of the hybrid net of the estimated fair value of the embedded derivative(s). Stated differently, valuation of the embedded derivative(s), which is subject to judgment and many assumptions, controls the allocation of the fair value of the hybrid to the host contract and the embedded derivative.

All of that might sound simple and straightforward but the fascination of the business world with financial derivatives has emboldened financial engineers to develop much more complex hybrid instruments with multiple embedded derivatives that are challenging to bifurcate. The valuation of the embedded derivatives in these types of hybrid contracts reverts to Level 3 of the fair value measurement hierarchy, allowing the management of the reporting entity to apply parameters and implement strategies that fit its own objectives. With the attendant difficulties in the valuation of embedded derivatives and the related host contracts, one would have expected either the FASB or the IASB to offer some convincing evidence or arguments showing that the benefits of separating and recognizing embedded derivatives exceeds, or even get close to, the cost of doing so. In fact, the metaphysical separation of embedded derivatives could misinform investors of the true performance and financial conditions of the reporting entity as well as the extent of the firm’s indebtedness. To support these arguments, let us look at three cases—two complex contracts and a case of using embedded derivatives to seriously distort reported earnings.
4.2 *Cases in Accounting for Multiple Embedded Derivatives*

4.2.1 The Case of Deutsche Telekom

On February 24, 2003, *Deutsche Telekom Finance* issued €2,288,500,000 of 6.5% Guaranteed Mandatorily Convertible Bonds to ordinary (common) shares Due 2006. This is one type of hybrid contracts in a family of convertibles known as *Debt Exchangeable for Common Stocks (DECS)*, which typically has more than one embedded derivative. This bond offering was mandatorily convertible at one of three different conversion ratios (and prices) all of which are contingent on levels of ordinary share prices. To decide on the relevant conversion ratio, the offering prospectus defines (a) the “Maturity Share Price” as “the arithmetic average of the daily Closing Prices of the Shares on the twenty consecutive Trading Days ending on the third Trading Day immediately preceding the Final Conversion Date” and (b) the “Initial Share Price” means €11.80.

By reference to these prices, *Deutsche Telekom* offered three possible conversion ratios:

a. **Maximum Conversion Ratio.** If the Maturity Share Price is less than or equal to the Initial Share Price, the conversion ratio shall be equal to 4,237.

b. **Minimum Conversion Ratio.** If the Maturity Share Price is equal to or greater than the Conversion Price, the conversion ratio shall be equal to 3,417.

c. **Medium Conversion Ratio”** If the Maturity Share Price is neither less than or equal to the Initial Share Price nor equal to or greater than the Conversion Price the conversion ratio shall be equal to the Principal Amount divided by the Maturity Share Price. Exhibit 4 show the three stages of values and conversion ratios.

*Insert Exhibit 4 about here*
Exhibit 4

Values and Conversion Ratios of Deutsche Telecom

Mandatory Convertible Bonds

$X_L$ = Lower strike price.  $X_U$ = Upper strike price.

A. Conversion Value Limits

B. Varying Conversion Ratios

- The lower strike price is €11.80.
- The upper strike price is €14.632.
- The face value of the Notes is €50,000.00.
- The three conversion ratios are:
Few authors have tackled the valuation of DECS (Enrico Arzac, 1997 and Ammann and Seiz, 2006). Arzac noted that DECS is a compound hybrid having at least two embedded derivatives. He suggested the following model for estimating the fair value of this hybrid.

Fair Value =

\[
\text{The value of a call option with upper strike price times the lower conversion ratio} \quad - \quad \text{Value of a put option with lower strike price times the upper conversion ratio} \quad + \\
\text{Present value of the risk-free par value} \quad + \quad \text{Present value of the risk coupon payments.}
\]

(Source: Arzac, 1997; Ammann and Seiz, 2006)

However, for convertible debt of Deutsche Telekom AG, the mandatory conversion scheduled for June 2006 could be considered a “forward contract.” In this case, the convertible debt of Deutsche Telekom would have embedded derivatives consisting of a put option, a call option and a forward contract priced at Maturity price, which is the arithmetic average price over specified twenty days. For accounting purposes, the related standards call for treating these three derivatives as a single derivative if the conditions of separating embedded derivatives are met. In this case, the combined forward, call and put options would be valued at fair value and the book value of the host contract will be equal to the value of the hybrid less the estimated fair value of the combined derivatives.

While this process is complex, it turned out that Deutsche Telecom AG had actually bifurcated embedded derivatives under IFRS and reported separate values for the “combined” derivatives and the host contract. The bifurcation under IFRS resulted in a negative equity component and higher debt value. The host contract was recorded as “Contingent Capital.” Under US GAAP, bifurcation was not permitted as the contract settles in the entity’s own equity and the entire contract was treated as debt. Nonetheless, the significant difference in the accounting treatments under IFRS and US GAAP hinders
comparability and raises questions about the cost-benefit relationship of that exercise. Moreover, each accounting standards board claims that the different accounting reported below “faithfully represent” the true transaction. In its 6-K filings with the US Securities and Exchange Commission, Deutsche Telekom AG disclosed the following information about this particular issue of DECS (I annotated the published text below to highlight the differences):  

<table>
<thead>
<tr>
<th>Mandatory Convertible Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2003, the Company issued a mandatory convertible bond.</td>
</tr>
<tr>
<td>• <strong>Under IFRS</strong> the components of the mandatory convertible bond were bifurcated into a debt component and an equity component, resulting in a negative value being ascribed to the equity component and a higher value (premium) to the debt component. This premium was amortized as an adjustment (decrease) to interest expense over the term of the bond.</td>
</tr>
<tr>
<td>• Under U.S. GAAP, no value was ascribed to the equity component, with the entire proceeds received recorded as a liability.</td>
</tr>
<tr>
<td>• The conversion date was June 1, 2006. Therefore, no U.S. GAAP difference in shareholders’ equity exists as of December 31, 2006 and as of June 30, 2007, although the net profit for the six-month period ended June 30, 2006, reflects differences for the period from the beginning of the year until conversion. In 2005, the dividend paid on the Company’s common shares resulted in a conditional obligation to pay a special dilution payment to the holders of the mandatory convertible bonds at conversion. Under U.S. GAAP the conditional payment represented an embedded derivative and the Company recorded the estimated fair value of the liability of EUR 45 million at December 31, 2005.</td>
</tr>
</tbody>
</table>

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4.2.2. The Case of Telecom Italia—Mandatory Convertible Bonds

Telecom Italia Finance issued a placement prospectus on November 8, 2013 for the sale of €1,300 million of Guaranteed Subordinated Mandatory Convertible Bonds due 2016. The prospectus was lengthy (7,434 words condensed in 15 pages) and complex.\(^{39}\) The face value of each bond was €100,000. The bonds must be converted into ordinary (common) shares with the reference price on the date of issuance being set at €0.6801.

- This reference price was set as the minimum conversion price, giving a maximum conversion ratio of 147,037 per bond.
- The maximum conversion price was set at €0.8331, giving a conversion ratio of 120,033 per bond.
- But the relevant conversion price was either the minimum or an average price falling below the maximum and above the minimum.

Close to maturity date three years from issuance, Telecom Italia Finance will provide the holders with a Physical Delivery Notice. Shortly thereafter, bondholders will be obligated to convert the bonds they hold into Ordinary Shares. A quick examination of this contract suggests that this hybrid security includes several embedded derivatives some of which are the following:

- **Mandatory Conversion:** After Telecom Italia Finance provides bondholders with the Physical Delivery Notice, all bondholders will be obligated to convert the bonds they hold into ordinary shares at the ‘relevant conversion price.’

- **Early Conversion at the Option of the Issuer:**

\(^{39}\) [http://www.tifinance.lu/_NEWS/Telecom_Italia_Finance_Mandatory_Convertible_Notes-Ordinary_Share_Pricing_Termsheet_vF.PDF](http://www.tifinance.lu/_NEWS/Telecom_Italia_Finance_Mandatory_Convertible_Notes-Ordinary_Share_Pricing_Termsheet_vF.PDF)
Telecom Italia Finance, the issuer, may elect to trigger the conversion of the Guaranteed Subordinated Mandatory Convertible Bonds into Ordinary Shares at any time after the 40th day after the Settlement Date (which is November 13, 2003). In this time after the 40 case, the maximum conversion ratio will be applied.

- **Early Conversion at the Option of the Bondholder.**
  
  - If the bondholder wants to settle in cash prior to the Final Delivery Notice, the issuer will calculate and pay the relevant cash settlement.
  
  - The bondholder has the option to trigger the conversion of the bonds into Ordinary Shares at any time after the 40th day after the Settlement Date (November 13, 2003). In this case, the minimum conversion ratio will be applied.

- **Voluntary Conversion at the Option of the Bondholder Following either one of two Special Events** such as if a third entity took control of the Guarantor, which is also Telecom Italia Finance

According to one interpretation, the embedded derivatives noted above might be treated as one forward contract, one put option and three call options. Other scholars or dealers might be able to identify more embedded derivatives in this convertible debt contract issued by Telecom Italia Finance on November 8, 2013. As in the case of Deutsche Telekom Finance, if the hybrid instrument was not valued at fair value through the income statement, we will need to evaluate whether the embedded derivatives should or should not be separated from the host contract (the debt, which was actually “contingent capital”). But accounting standards also require treating all these embedded derivatives either as a “unit” for the purpose of bifurcation if the conditions of separation are met or, alternatively, value the entire hybrid at fair value through earnings. Given the best known and most sophisticated financial engineering tools, it is not possible that any single value obtainable for this collection of embedded derivatives will be any more reliable than values determined by an arbitrary judgment. In either case, neither the reported values of convertible debt
and recognized income reflect the true picture of debt or profitability. The next case is a vivid case of misusing embedded derivatives.

**Case 3: Pliable (and Expandable) Valuation of Embedded Derivatives:**

**The Case of Landsvirkjun**

*Landsvirkjun* is an Icelandic company that employs geothermal resources to produce electricity. The main buyers of the electricity are U. S. Aluminum companies operating their mining activities in Iceland. In 2006, the company switched its accounting system from Icelandic GAAP to IFRS and designated the U. S. Dollar as its functional currency. With that change, the company began to look into implementing IFRS including accounting for embedded derivatives. The management determined that the price of aluminum affects the contracts to sell electricity to aluminum companies, which creates embedded derivatives. As a new adopter of IFRS, the management was required to examine all active contracts to identify and value embedded derivatives as of the start of each contract. The management acknowledged that the valuation of the separated embedded derivatives was based on models the company has developed. While the resulting values are a ‘Level 3 type of fair value measurement hierarchy, *Landsvirkjun* provided no information that would permit any external user of financial statements to know the models the company used. Following the switch to IFRS, the management of *Landsvirkjun* used the newly found magical accounting standard to manage earnings. In 2009, for example, the company had $660 million loss from operations, but thereevaluation of embedded derivatives added $755.7 million in gains to net income.\(^{40}\)

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Financial income in excess of financial expenses totaled USD 95.1 million in 2009, while financial expenses in excess of financial income amounted to approximately USD 660.6 million the year before. The difference of USD 755.7 million can largely be attributed to fair-value changes in embedded derivatives relating to the company’s electric power sales contracts with aluminium smelters, which move in line with world market prices for aluminium. (p. 18).

Other annual reports continue to describe the management use of embedded derivatives to manage earnings as dictated by other goals. The bifurcation and separate valuation of embedded derivatives were in fact unreal and distorted measures of performance and numbers reported in the financial statements. Yet, the company continues to claim adherence to the principle of “faithful representation” of true transactions.

4.3 Issue Three Conclusion

The main points of discussing embedded derivative in this note may be viewed in terms of queries.

**Query 1.**

What is the evidence that either the FASB or the IASP have to show that bifurcation of embedded derivatives justify the cost?

**Query 2.**

The host contracts, whether assets or liabilities are measured as the “residual” of the hybrid book value after estimating the value of embedded derivatives. How reliable or descriptive of reality are the reported values of host contracts after bifurcating embedded derivatives?

**Query 3.**

Other than benefitting the management, how and in what ways would any information provided to investors about the separation or bifurcation of a collection of complex embedded derivatives in one hybrid instrument be useful to any user of financial statements?

**Query 4.**
The benefits of separating and accounting for embedded derivatives are at best enigmatic. Other than convoluted reasoning, does either the IASB or the FASB have any evidence to substantiate that separating embedded derivatives passes the cost/benefit test?

Query 5.

How much and to what extent does the idiosyncratic and abstract separation of embedded derivatives impede comparability of financial reports?
5. **Issue Four**

*Failure to Disclose Hedging as a Substitution of Risk*

**Prologue:** A plain vanilla swap is a contract to exchange interest dollars calculated at a fixed rate for interest for dollars calculated at a variable, adjustable rate. For an asset holder, the fixed rate payer would be hedging fair value risk. This hedger exchanges the volatility of fair values for the volatility of cash flow. For a debtor, paying a fixed rate for the swap would be hedging cash flow risk. This hedger would be hedging the volatility in cash flow for the volatility in fair value. The reverse is true for the counterparties in both cases. It is therefore obvious that hedging using interest rate swaps is a substitution of risk. Accounting standards make use of the success (effectiveness) of the hedged risk but fully ignore the success or failure of the assumed risk. As a result, accounting standards fail to provide a comprehensive measure of the success of aggregate risk exposure of the hedger.

### 5.1 The Concept of Risk Substitution

In general, hedge accounting requires documentation of the specific risk being hedged. The hedged risk could fall into one of the three buckets: cash flow risk, fair value risk, or the risk of changing value of foreign net investments. We want to focus on the first two types. Financial reporting gives the implicit and false view that hedging either cash flow risk or fair value risk does not result in risk substitution. This phenomenon is best explained by looking at hedging using interest rate swaps.

For an entity to hedge the cash flow risk of a variable rate debt instrument, for example, the entity may enter into an interest rate swap to receive variable rate and pay fixed rate. By converting a variable rate debt into a fixed rate debt, the entity has in effect taken on fair value risk. Similarly, by hedging the cash flow risk of a variable rate asset, the entity might enter into a plain vanilla swap
contract to receive fixed and pay variable. Thus, hedging in this case would have changed the exposure from cash flow risk to a fair value risk.

Exhibit 5 shows the combination of using plain vanilla interest rate swaps to hedge financial risk exposure of a financial item (asset, liability or firm commitment). The four combinations of paying or receiving variable rates shows that using interest rate swaps to hedge cash flow risk is also a mechanism to take on fair value risk. Similarly, using interest rate swaps to hedge fair value risk is a mechanism to take on cash flow risk. This notion of risk substitution is totally ignored in the literature.

Insert Exhibit 5 about here
### Exhibit 5

**Interest Rate Swaps as Instruments of Risk Substitution**

<table>
<thead>
<tr>
<th>Case A:</th>
<th></th>
</tr>
</thead>
</table>
| • If the hedged item generates income at a fixed rate,  
• The swap would be structured to receive variable & pay fixed | • Convert a fixed rate to a variable rate  
• Hedge fair value risk  
• Take on cash flow risk |
| **The Outcome:** |  |
|  | **Substituting Cash Flow Risk for Fair Value Risk** |
|  | ➔ Increased exposure to liquidity risk |

**A Comprehensive Index of Hedge Effectiveness**

The ratio of the fair value risk given up in relation to the substitute cash flow risk.

<table>
<thead>
<tr>
<th>Case B</th>
<th></th>
</tr>
</thead>
</table>
| • If the hedged item generates income at a variable rate,  
• The swap would be structured to receive fixed & pay variable | • Convert a variable rate to a fixed rate  
• Hedge cash flow risk  
• Take on fair value risk |
| **Substituting Fair Value Risk for Cash Flow Risk** |  |
|  | ➔ Reduced exposure to liquidity risk |

**A Comprehensive Index of Hedge Effectiveness**

The ratio of the cash flow risk given up in relation to the substitute fair value risk.
5.2 The Problem

The accounting treatment of any hedging relationship is critically dependent on the success or effectiveness (or lack of ineffectiveness) of a hedging relationship. The most descriptive way of measuring success is the Dollar Offset Ratio Method showing how much of the cumulative change in the value of the hedged item was compensated for by a reverse change in the value of the hedge item (the derivative). Succeeding in meeting the required target and applying hedge accounting informs the world that the entity has managed its risk exposure well. However, that inference is false because when an entity hedges a fixed rate item, it manages exposure to fair value risk (in part or in full) but takes on full exposure to cash flow risk. Similarly, when an entity hedges a variable rate item, it manages exposure to the volatility of cash flow (in part or in full) but takes on volatility in fair value. Accordingly, the success of a hedging relationship should not be measured by the extent of hedging an existing risk without any consideration of the assumed risk. Instead, the relevant yardstick should be comprehensive by evaluating the success of the entire package—i.e. evaluating the success of the managed risk in relationship to the burden of the newly assumed risk. For example, a hedging relationship could hardly be called successful or effective for an entity that achieves 80% of hedging exposure to fair value risk but takes on 100% exposure to the substituted cash flow risk. Similarly, success in managing cash flow risk should be measured as the entity’s net exposure—the percentage of the hedged cash flow risk relative to the burden of the assumed substitution of fair value risk.

Unfortunately, there is no recognition or discussion of this notion of risk substitution and the impact on the risk profile of entities engaged in hedging. The literature as well as accounting standards are completely silent in this regard. Clearly, it would not be serving investors and absentee
stakeholders well to convey the belief of success in managing parts of one type of risk while hiding the full scale of the acquired substitute risk.

6. Concluding Remarks

Following the establishment of Over-the-Counter market in the mid-1980s, Accounting standards’ boards have provided creative methods to account for OTC derivatives which are financial instruments whose market values are not observable. These creative methods have helped the management of reporting entities to manage both reported earnings and the financial position of the firms they manage. In the process, the standards have also succeeded in significantly overloading users of financial statements with highly complex structures and lingo that have seriously damaged the usefulness of public financial reporting. In this paper, I address only four of the problems of accounting for OTC derivatives that distort the financial statements and make them far less representative of the true financial pictures of the reporting entities. These problems are (a) Developing accounting processes that impact earnings, assets and liabilities based on a fiction called “The Hypothetical Derivative.” (b) Reporting highly malleable and plastic-like values of derivatives assets and liabilities. (c) Distorting the income statement and the balance sheet by requiring a metaphysical separation of embedded derivatives. (d) Failing to provide an index or a measure of success in hedging by recognition the reality of risk substitution. Finally, I am not aware of any evidence provided by either the FASB or the IASB to substantiate the benefits of any of these accounting treatments or whether any of them could pass the cost/benefit test.

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Appendix to Issue One
The Official Positions on “The Hypothetical Derivatives Method”

From the FASB Derivatives Implementation Group.41

Here is the statement of the Derivatives Implantation Group about the Hypothetical Derivative method:

For the types of cash flow hedges described in the question section, the measurement of hedge ineffectiveness may be based on a comparison of the change in fair value of the actual swap designated as the hedging instrument and the change in fair value of a hypothetical swap (herein referred to as the “hypothetical derivative” method). That hypothetical swap would have terms that identically match the critical terms of the floating-rate asset or liability (that is, the same notional amount, same repricing dates, the index on which the hypothetical swap's variable rate is based matching the index on which the asset or liability's variable rate is based, mirror image caps and floors, and a zero fair value at the inception of the hedging relationship). Essentially, the hypothetical derivative would need to satisfy all of the applicable conditions in paragraph 68 (as amended) necessary to qualify for use of the shortcut method except criterion 68(dd). Thus, the hypothetical swap would be expected to perfectly offset the hedged cash flows. The change in the fair value of the “perfect” hypothetical swap can be regarded as a proxy for the present value of the cumulative change in expected future cash flows on the hedged transaction as described in paragraph 30(b)(2). [Emphasis Added]

Under the hypothetical derivative method, the actual swap would be recorded at fair value on the balance sheet, and accumulated OCI would be adjusted to a balance that reflects the lesser of either the cumulative change in the fair value of the actual swap or the cumulative change in the fair value of a “perfect” hypothetical swap.

From the IASB, IFRS 9, 2014, page 143.42

B6.5.5 To calculate the change in the value of the hedged item for the purpose of measuring hedge ineffectiveness, an entity may use a derivative that would have terms that match the critical terms of the hedged item (this is commonly referred to as a ‘hypothetical derivative’), and, for example for a hedge of a forecast transaction, would be calibrated using the hedged price (or rate) level. For example, if the hedge was for a two-sided risk at the current market level, the hypothetical derivative would represent a hypothetical forward contract that is calibrated to a value of nil at the time of designation of the hedging relationship. If the hedge was for example for a one-sided risk, the hypothetical derivative would represent the intrinsic value of a hypothetical option that at the time of designation of the hedging relationship is at the money if the hedged price level is the current market level, or out of the money if the hedged price level is above (or, for a hedge of a long position, below) the current market level. Using a hypothetical derivative is one possible way of calculating the change in the value of the hedged item. The hypothetical derivative replicates the hedged item and hence results in the same outcome as if that change in value was determined by a different approach. Hence, using a ‘hypothetical derivative’ is not a method in its own right but a mathematical expedient that can only be used to calculate the value of the hedged item. Consequently, a ‘hypothetical derivative’ cannot be used to include features in the value of the hedged item that only exist in the hedging instrument (but not in the hedged item). An example is debt denominated in a foreign currency (irrespective of whether it is fixed-rate or variable-rate debt). When using a hypothetical derivative to calculate the change in the value of such debt or the present value of the cumulative change in its cash flows, the hypothetical derivative cannot simply impute a charge for exchanging different currencies even though actual derivatives under which different currencies are exchanged might include such a charge (for example, cross-currency interest rate swaps). [Emphasis Added]

B6.5.6 The change in the value of the hedged item determined using a hypothetical derivative may also be used for the purpose of assessing whether a hedging relationship meets the hedge effectiveness requirements.

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42 International Accounting Standards Board. IFRS 9, Financial Instruments, 2014. IFRS Foundation Publications Department 30 Cannon Street, London EC4M 6XH, United Kingdom