Failing Faithful Representations of Financial Statements: Issues in Reporting Financial Instruments

Both the International Financial Reporting Standards (IFRS) 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 (i) hedging the volatility of fair values, and (ii) hedging the volatility of future cash flow. In this paper, I argue that at least three accounting treatments of derivatives and hedging lead to creating serious distortion of reporting actual transactions, to combining hard and plastic valuations, and to violating adherence to the principle of ‘faithful representation’. The three accounting treatments are as follows: (1) creating the fictional Hypothetical Derivatives Method; (2) allowing for the establishment of purely discretionary valuation adjustments for all over-the-counter derivative assets (Credit Valuation Adjustment) and liabilities (Debt Valuation Adjustment) without any guides or constraints; (3) requiring subjective metaphysical separation of embedded derivatives with the main guide being the management’s own perception of the instrument’s embodiment of unrelated value and risk generators. To remedy the resulting distortion in financial reporting, significant revisions of certain accounting standards are sorely needed.

Key words: Abnormal managerial discretion; Accounting for fake derivatives; Bifurcation; Credit valuation adjustment; Debt valuation adjustment; Earnings manipulation; Embedded derivatives; Fair value plasticity; Hypothetical method.

Accounting standards governing financial instruments and hedging became effective in 2000 (IAS 39 for international accounting standards, and SFAS No. 133 for US GAAP). Both types of standards categorize hedging relationships as falling into several categories.¹

¹ These categories are (i) freestanding versus embedded derivatives, (ii) hedging—general, (iii) fair value hedges, (iv) cash flow hedges, (v) net foreign investment hedges, (vi) contracts in entity’s own equity, (vii) weather derivatives.
The issues of concern in this paper relate mostly to accounting for the two categories of fair value hedge and cash flow hedge.

1. **Fair Value Hedge** is for transactions hedging the volatility of fair values of (i) a recognized asset, (ii) a recognized liability, or (iii) an unrecognized firm commitment.

2. **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 adjustments, and (c) separating embedded derivatives. The two overriding principles of utmost relevance in addressing these concerns are:

1. **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 Financial Accounting Standards Board (FASB) introduces this principle as follows (p. 17):

   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.

   The Statement continues to state (p. 19)

   QC17. Information must be both relevant and faithfully represented if it is to be useful. Neither a faithful representation of an irrelevant phenomenon, nor an unfaithful representation of a relevant phenomenon, helps users make good decisions.

2. **Marking to Market**: In general, financial derivatives are bilateral contracts that have no fundamentals of their own but generate 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. According to the basic standard, both derivatives’ assets and liabilities must be valued at fair values and the changes in fair values are posted to the income statement. Certain uses of financial derivatives, such as hedging, may modify the instruments’ cash flow and thus alter the application of this general principle.

   In this paper I assert that specific accounting treatments and disclosure of hedging forecasted transactions, establishing valuation adjustments and separating embedded derivatives, result in significant deviations from faithfully representing actual transactions and events such that financial statements have become sufficiently distorted and thus hindering transparency and impairing comparability.

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2 The Financial Accounting Standards Board (jointly with the International Accounting Standards Board. Conceptual Framework for Financial Reporting Statement of Financial Accounting Concepts No. 8, September 2010), https://www.fasb.org/resources/ccurl/515/412/Concepts-Statement-No-8.pdf

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Electronic copy available at: https://ssrn.com/abstract=3556026
The related standards grant the managements of the reporting entities the tools that allow them to rework the measurement and valuation of over-the-counter (OTC) financial derivative instruments in the amounts and directions dictated by goals other than faithfully representing actual transactions. The impact of the problems noted here is magnified significantly when we know that the notional (face) amounts of OTC derivatives are multiple times the size of Gross Domestic Product.3

ISSUE ONE: HYPOTHETICAL DERIVATIVES AND MYTHICAL ACCOUNTING

Prologue 1
Since 1982, any enterprise or organization could use the newly invented interest rate swap contracts (exchanging a series of cash flow for another series of cash flow) to hedge cash flow risk, including the risk of forecasted transactions.4

3 OTC derivatives are major sources of concern in society. According to the Bank for International Settlements, the notional (face) amounts of OTC derivatives stood 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 United States. Figure 1 shows global OTC derivatives as reproduced from a publication by the Bank for International Settlements, https://www.bis.org/statistics/d5_1.pdf.

4 The first known interest rate swap contract took place in 1982 when the Government Student Loan Association (Sallie Mae) exchanged a medium-term bond.
Changes in fair values of (interest rate, currency, commodities) swap contracts will flow through the income statement unless the hedge relationship is effective, in which case changes in fair values would accumulate in other comprehensive income (OCI) for temporary ‘parking’ in the equity section on the balance sheet. A descriptive measure of effectiveness is the ratio relating cumulative changes in fair values of the hedge derivative to cumulative changes in fair values of the hedged position. Because forecasted transactions are uncertain and their fair values are not readily measurable, accounting standards allow inventing a fake derivative to stand as a placeholder for the hedged item.\(^5\) With the Hypothetical Derivatives Method, the numbers lineup and the management deceives itself in the belief that the hedge is effective! In this case, changes in the fair values of the acquired derivative would bypass the income statement for parking in OCI until the transaction is no longer a forecast. In turn, the resulting effects cause the income statement and the balance sheet to deviate from reality.

**A Note on Hedge Accounting**

Accounting regulators have never offered a succinct definition of ‘other comprehensive income’ (OCI) but the *ad hoc* inclusion of various, unrelated items led to using OCI to encompass all changes in equity that are not generated by financing sources either from owners or creditors. When recognition of earnings was dependent on ‘realization’, accounting policy makers sliced the unrealized changes in equity into two segments: earnings measures of performance and OCI, which is an eclectic collection of items that do not meet the definition of realization. From the start, OCI has been the ‘financial shelf’ into which the reporting entity could deposit the items whose inclusion in the statement of earnings (P & L) will most likely induce income volatility.\(^6\)

Prior to introducing hedge accounting in 2000, OCI consisted mainly of (i) gains or losses from translation of foreign currency for investment abroad, (ii) gains or losses on pension obligations, and (iii) holding gains or losses on marketable securities held-for-sale.\(^7\) After introducing hedge accounting, the standards took two significant turns. The first is abandoning the principle of ‘realization’ officially and allowing expected (holding) gains on financial assets and liabilities to flow through the income statement under certain conditions. However, recognition in the income statement has become the primary treatment of (holding) gains and losses on financial derivative instruments. Only under some condition these gains

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\(^5\) The degree of uncertainty could be very high when a forecasted transaction is only an idea in the manager’s head.

\(^6\) The story of FASB Statement No. 8 is instructive in this case. Under that standard the gains or losses on foreign currency was recognized in the statement of income, which increased volatility of income. Management of reporting entities affected by that application of standard lobbied hard until the FASB was ‘persuaded’ to issue FASB Statement No. 52, which shifted the accumulated gains or losses on foreign currency translation into the new invented ‘Other Comprehensive Income’. Some of these items might represent resources belonging to others such as gains and losses on pension obligations.

\(^7\) These are the derivatives designated for cash flow hedging.
and losses may qualify for deferral in OCI.\textsuperscript{8} Up until that time, adhering to conservatism meant that only expected losses were recognized. The second is expanding the unknowns that qualify for parking in OCI by relying on management intent as well as designating and un-designating hedging relationships at will at any time.\textsuperscript{9} To reduce and manage the volatility of reported earnings, accounting standards permitted ‘parking’ changes in the fair values of derivatives in OCI under certain conditions. These conditions include: (1) the derivative be designated as a hedge of cash flow risk (i.e., future cash flow volatility); (2) the entity prepares a detailed documentation of the hedging relationship; (3) the hedged risk is well identified and is connected to the firm-wide Enterprise Risk Management system; and (4) the hedging relationship is effective in the sense of having a significant negative correlation between accumulated changes in fair values of the hedge item and the accumulated changes in the fair values of the hedged items.\textsuperscript{10} However, hedging forecasted transactions does not \textit{a priori} satisfy these conditions and requires making other modifications.

\textit{Forecasted Transactions}

The Master Glossary of the US GAAP defines a forecasted transaction as\textsuperscript{11}

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.

In other words, a forecasted transaction has no real existence, past, present, or future. In that sense, there was no past transfer of resources. Nor was there any commitment for future transfer of resources into, or out of, the reporting enterprise. Thus, a forecasted transaction remains a highly undefined prospective event, the occurrence of which might be probable under US GAAP or highly

\textsuperscript{8} The use of the word ‘deferral’ for positive items in OCI is consistent with the definition of assets as expected future inflows and is consistent with the definition of liabilities as expected future outflows for the negative items in OCI.

\textsuperscript{9} 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. These is an unfortunate premise. 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 accounting methods to obscure the real volatility of the management’s own decisions. We shall see a sample of these processes in this paper.

\textsuperscript{10} 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.

\textsuperscript{11} Master Glossary. FASB Codification of Accounting standards, https://asc.fasb.org/glossary&letter=F

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probable under IFRS. In this regard, the US GAAP and IFRS share general similarities although they are not fully aligned.

Volatility of the Hedge Derivative Increases the Volatility of Reported Earnings
While forecasted transactions are unknown and uncertain events, there is nothing to prevent the management from hedging these transactions. Furthermore, this hedge could be designed to qualify for hedge accounting as a cash flow hedge. Figure 2A presents a flow chart in which a reporting entity (Company ABC) is forecasting probable cash payments that may or may not vary with a specified interest rate benchmark. However, the management of Company ABC did not make any commitments in connection with this forecasted transaction. Furthermore, the amounts and timing of expected cash outflow are unknown. Accordingly, the management did not have any basis for estimating a fair value for this forecasted transaction. Yet, exercising ‘prudent risk management’ led the management of Company ABC to purchase an interest rate swap contract to receive an amount of interest calculated at a varying benchmark interest rate (e.g., LIBOR; the Fed Rate or the like) and to pay (to the dealer bank) an amount of interest calculated at a fixed rate. The expectation of entering into this swap agreement is to change the forecasted (probable) commitment of Company ABC from paying at variable rate to making net payments at a fixed rate, that is, the ‘synthetic fixed rate’. 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, future changes in fair values of the swap contract would flow through the income statement. Therein lies the management’s problem,
which is adding volatility to reported earnings beyond the volatility inherent in normal business transactions.

*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 at some level.\(^\text{12}\)

To simplify the presentation, an intuitive measure of hedge effectiveness is the Dollar Offset Value or the closeness of \(\delta\) to a negative one, where \(\delta\) is measured as

\[
\delta = \frac{X}{Z},
\]

where

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

If the entity acquires an OTC financial derivative as a hedge instrument, a measure of the fair value of ‘\(X\)’ could always be estimated at either fair value measurement Level 2 or fair value measurement Level 3. But in hedging a forecasted transaction, developing a quantitative measure for the variable ‘\(Z\)’ is not feasible because the elements of the forecasted transaction are unidentifiable. Therefore, unless other modifications are made, hedge effectiveness cannot be established because the changes in the fair values of the acquired derivative would not be matched by corresponding (proportionate) opposite changes in the fair values of the unknown hedged item. To forcibly create an effectiveness measure, both IFRS 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 this case, the hypothetical derivative (\(Z\)) is the negative of the actual derivative (\(X\)), and thus by construction the Dollar Offset Ratio, \(\delta\), would be equal to a negative unity. Thus, arithmetically the management could declare a perfect hedging relationship.\(^\text{13}\) Under these conditions, the management of Company ABC in our example would have generated a process to identify a proxy, though fake and imaginary, for the value of the hedged item—variable ‘\(Z_{\text{hypothetical}}\)’ in the hedge effectiveness ratio. Indeed, it is a mathematical relationship that satisfies the requirement, but has no corresponding reality. Never mind that

12 The yardstick for effectiveness varied over the years from 80% (125%) to qualitative measures of ‘reasonably effective’.

13 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 \(\square\) implies the existence of quantitative measures of the two determinant variables, \(X\) and \(Z\).
‘Z_{hypothetical}’ is a fictional creation of the management’s own assumptions, relating the empirically estimable ‘X’ value to the fictional value of ‘Z_{hypothetical}’ gives the management the illusion of a perfectly effective hedge that would qualify for hedge accounting. Thus, inventing the variable ‘Z_{hypothetical}’ gives the management the excuse 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 same ‘Voodoo Statue’ and gave it the exotic name of the Hypothetical Derivatives Method. Figure 2B augments Figure 2A by adding the magical hypothetical derivative as having descended from a blue sky to facilitate declaring the hedge relationship of the forecasted transaction as ‘effective’. But that was too much of a burden on the management; in 2017, the FASB, in its standards update, stated that the management may assert that the conditions for effectiveness are adequate in satisfying this requirement. In such a case, no quantitative test is required (Kawaller, 2018).

The Appendix reproduces the original explanation of the Hypothetical Derivatives Method as presented by the Derivatives Interpretation Group of the FASB. The current US GAAP guide for creating the Hypothetical Derivatives Method is codified in ASC 815-35-25.\(^\text{14}\)

\(^{14}\) 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’ (11 July 2000).

http://www.fasb.org/derivatives/issueg7.shtml
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.

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

Internationally, the IASB has adopted the same concept. Section B6.5.5 of IFRS 9 (IFRS, 2014, p. 143) states the following rather 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. [Emphasis added].

In some sense, the above characterization of the Hypothetical Derivatives Method by the FASB and the IASB amounts to double talk. The US 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 (IFRS, 2014) states that ‘The hypothetical derivative replicates the hedged item …’ However, 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 way that hedging a forecasted transaction (as defined in the Glossary of the US GAAP) can be ‘a perfect hedge’ is for the hypothetical derivative to be a (negative) mirror image of the actual hedge derivative. This is precisely how the Hypothetical Derivatives Method is used in practice. Consider, for example, the practice of using the Hypothetical Derivatives Method, as described by the large software and technology consulting firm ‘SAP SE’ 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.\textsuperscript{15}

Additionally, in another report, Kawaller (2015) 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’. By so doing, Kawaller is admitting that the hypothetical derivative is generated from the actual derivative, not from the forecasted transaction. In a more recent report, Kawaller discussed the so-called improvements suggested by the December 2017 FASB Accounting Standards Update in which he noted the following:

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].

\textsuperscript{15} https://help.sap.com/doc/abf8ebe023bc47ecabfd32dd14d62575/9.10/en-US/BankAnalyzer_EN.pdf

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Concluding Issue One
Using the *Hypothetical Derivatives Method* creates nonexistent relationships that alter the geography of reported items on the income statement and the balance sheet. Such a structural change could hardly be considered a faithful representation of the underlying transactions or economic conditions. Thus, inventing a fictitious financial instrument to give the managements of reporting firms the arithmetic that convey false 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’.

Additionally, for the same exact forecasted transaction, different firms could have very different accounting 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,’ Kawaller (2015) recognized the resulting diversity and impairment of comparability.

Accounting standards explicitly state 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 a hedged item except when they are fake or hypothetical!

ISSUE TWO: CVA & DVA ADD MORE DISTORTION TO THE PLASTICITY OF VALUING DERIVATIVE ASSETS AND LIABILITIES

Prologue 2
Unlike other contracts, financial derivative instruments do not specify the amounts and timing of cash inflows or cash outflows. Instead, until actual receipt or payment of cash, the inflows and outflows associated with derivatives remain 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 using the zero-coupon rate. For OTC derivatives, these values are completely a function of the forward yield curve and of management strategies and goals. Therefore, these values are soft and malleable numbers. Adding to this plasticity is establishing discretionary valuation adjustments: Credit Valuation Adjustment (CVA) for derivative assets and Debt Valuation Adjustment (DVA) for derivative liabilities.16 While CVA is pricing

16 Following the 2007–2008 financial crisis the financial industry went wild and invented valuation adjustments, which are measured completely at the discretion of management without any guidance or oversight. The suite of valuation as of 2017 is noted as XVA, which includes ‘CVA (Credit Valuation Adjustment), DVA (debit, or debt, valuation adjustment, FVA (funding valuation adjustment), KVA (capital valuation adjustment), TVA (taxation valuation adjustment), and MVA (margin valuation adjustment)’. See, Smith (2018). There is also Collateral Valuation Adjustment (COLVA or OIS). See PWC (2015). There is no doubt that big financial institutions have the freedom to expand XVA without bounds.
credit risk of counterparties (what others may not pay us), DVA is pricing the reporting entity’s own credit risk (what we may not pay others). There are no guides anywhere for setting up these valuation adjustments and all implemented approaches are essentially homemade, not verifiable against any objective yardstick. Finally, these valuation adjustments can be used as hedged items for which other derivatives would be acquired as hedges. The accumulated cascade of subjectivity and the management exercising significant choices and discretion in a big intricate maze leads to reporting earnings and valuation numbers that deviate from reality.

**Plasticity of the Valuation of OTC Derivative Instruments**

Accounting standards define an asset as the right to receive resources (i.e., deferred inflows) and define a liability as the obligation to transfer resources out of the entity (i.e., deferred outflows). 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 OTC derivatives. Unlike exchange traded derivatives, OTC derivative instruments are unstandardized bilateral contracts that trade privately in the dark between counterparties behind closed doors in a highly illiquid market. In such a setting, the valuation of financial instruments is not based on prices generated by transactions between large numbers of market participants. Nor are they based on contractually determined amounts of cash flow. Instead, a financial derivative is an instrument that generates or derives the amounts and timing of future cash flow from the movement of market-wide indexes that 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 OTC financial derivative instruments totally unlike other contractual commitments in which the contracts specify the amounts and timing of resource inflows and outflows.\(^{17}\)

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,\(^{18}\) and (2) accounting

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\(^{17}\) In general, entities enter into financial derivatives contracts to achieve one or more of the following goals: to (1) hedge a known; specific risk; (2) to manage expected risk; (3) to speculate; or (4) to gamble. Among these objectives, speculation and gambling add risk in the hope of profiting.

\(^{18}\) 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, FirstBoston, 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, 19 of which are big banks.
standards. Faced with a completely uncertain future and illiquid OTC markets, accounting standards allow the management to make its own estimates of fair market values, which are given the designation of Level 3 and Level 2 of the fair value measurement hierarchy. This is a highly controversial move because changes in fair values in most of these cases become part of the reported earnings. In addition, the Master Agreement provides alternative ways to calculate derivative assets and liabilities that reflect termination amounts. However, all adopted value measurement approaches hinge on one critical assumption: future flows depend on expectations formed at the present time. Accordingly, in many scenarios, under a normal, upward slopping yield curve, (where the yield of long-term financing is higher then the yield of short-term funds). 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. 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 to measure their present values. The estimated present value is an asset for one party and a liability for the counterparty because financial derivatives are zero-sum games.

19 (A) For US GAAP
(B) For International Financial Reporting Standards, IFRS 13.

| Adoption  | Effective | Old Number | Old                           | New ASC Number |
|-----------|-----------|------------|-------------------------------|----------------|
| Jun-98    | Jun-99    | FAS 133    | Accounting for Derivative Instruments and Hedging... | ASC 815        |
| Sep-06    | Nov-07    | FAS 157    | Fair Value Measurements       | ASC 820        |
| Feb-07    | Nov-07    | FAS 159    | The Fair Value Option         | ASC 825-10-05  |
| Dec-11    | Jan-13    | ASU 2011-11| Disclosures about Offsetting Assets and Liabilities | ASC No. 210-20 |
| Jan-16    | Dec-17    | ASU 2016-01| Measurement of Financial Assets and Liabilities | ASC 825-10-45-5 |

20 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.

21 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.

22 The ‘zero-sum’ game description ignores transaction cost (e.g., underwriting cost, insurance, and legal fees) which is mostly borne by the buyer.
Nonetheless, estimating Level 2 or guesstimating Level 3 of the fair value measurement hierarchy values of derivative ‘assets’ and ‘liabilities’ are highly problematic for several reasons.

1. The fair market value of an interest rate swap contract is determined based on the expectation for the gains and losses from the time of measurement up to maturity.
2. For future periods, all intended services (hedging, managing risk, speculating, or gambling) are contingent on the contract remaining in force. If terminated, paying or receiving the present value of an interest rate swap contract may be considered an unjust enrichment since none of the intended services will ever be performed after termination (Abdel-khalik, 2019).
3. The transfer of resources and performance of services in future periods are contingent on the realization of the expected macroeconomic factors, for example, the forward yield curve, which are uncertain and are uncontrollable by either counterparty.
4. No transfer of resources between counterparties related to future periods had taken place beforehand.

Accordingly, it is not unreasonable to suggest that fair values of OTC derivative assets and liabilities are simply creatures of assumptions and hypothetical scenarios. It follows that the numbers that accountants report for OTC derivatives assets and liabilities are soft apparitions devoid of any ascertainable degree of the hardness that would satisfy the qualitative characteristics of other assets or liabilities on the balance sheet. Thus, it is not clear what ‘total assets’ mean when numbers of significantly different hardness and plasticity are added up.

Given that OTC financial derivatives are self-tailed and customized (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 other goals of management. More specifically, it is totally erroneous to refer to Level 3 of the fair value measurement hierarchy as ‘Marking to Markets’. Instead, level 3 is completely Marking to Management, whereas Level 2 is a mixture of Marking to Market and Marking to Management. Thus, it exercises the imagination to refer to the numbers generated by these processes as faithful representations of real transactions. Furthermore, as financial derivative contracts mutate and depart from structures of accepted models, their estimated fair values become more subjective and softer. We shall see this problem in discussing the valuation of embedded derivatives in the next section.

The fundamental problem, however, is permitting, or even requiring, the unobservable and more likely 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 in the income statement and the reported values of assets and liabilities on the balance sheet. This problem is exacerbated by the totally unstable and unpredictable nature of derivative instruments: the fair value could be positive (an asset) in one year but macro indicators could change significantly to force a reversal in conditions such that this asset value converts this positive to a negative
(a liability). An example of this reversal is the valuation of embedded derivatives for *Telecom Italia* reported in the next section. The reported fair values of the derivatives embedded in a €1.3 billion mandatory convertible bond issue were a loss of €628 (liabilities) in 2015, which was incredibly transformed into €575 gain (an asset) in 2016.²³ No one could have ever contemplated the possibility that such a reversal from a liability to an asset in one year would occur in the normal course of business transactions. Nonetheless, the valuation of OTC derivatives and the resulting holding gains and losses do not fit the mould of normal business transactions because of their dependency on external macroeconomic indicators.

Moreover, it is arguable that 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. It is, therefore, difficult to think of the ‘total assets’ number as a collection of assets having a certain degree of objectivity in common. The addition of pliable and ‘plastic’ estimates of assets of OTC derivatives to other assets becomes an arithmetic exercise devoid of real representation. The same can be said of ‘total liabilities’. The plasticity, as well as the potential of reversal of the same instrument from an asset to a liability and vice versa, does not engender any confidence in the reported numbers. Moreover, recognizing changes in these plastic assets and liabilities as being earned adds a source of further erosion of the credibility of financial reports. In total, the uncontestable reality is that abandoning the principle of ‘realization’ for the recognition of earnings has resulted in reporting financial statements of questionable quality.

**Valuation Adjustments for OTC Derivative Assets and Liabilities Adds to Plasticity of Valuation**

To further assist the management in attaining its own objectives, 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 adjustments’ for which no generally accepted models or guidance exist.²⁴ In the measurement and reporting fair values of OTC derivative instruments, accounting standards require incorporating the ‘assumptions of market participants’ to approximate exchange values. This rather ambiguous requirement is primarily concerning pricing credit risk for opaque and illiquid markets in which each transaction has few market participants. Because OTC derivatives are bilateral contracts traded privately in the dark behind closed doors and are, therefore, highly illiquid, their exchange values are not observable (Foley-Fisher *et al.*, 2019). In these markets, and unlike exchange-traded instruments, estimating fair market values does not include pricing credit risk of counterparties.

²³ [https://www.telecomitalia.com/content/dam/telecomitalia/en/archive/documents/investors/Annual_Reports/2016/AnnualReport2016.PDF](https://www.telecomitalia.com/content/dam/telecomitalia/en/archive/documents/investors/Annual_Reports/2016/AnnualReport2016.PDF)

²⁴ In general, the inputs to the calculation of these 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. There is no specific guidance on the methods or limits of calculating either CVA or DVA, which creates challenges in estimation. The methods of measuring and combining these inputs to form measures of CVA or DVA are completely choices of the management.
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 OTC derivatives 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 should represent the market value of counterparty credit risk.’ CVA is, therefore, a reserve allowance for the probable default of counterparties that owe the reporting entity money (assets) whereas DVA is an allowance for own credit risk. While CVA conveys a message that ‘others may not pay what they owe the reporting entity’, DVA conveys an unusual signal: ‘the reporting entity may not pay other derivatives counterparties the debt owed them’. Estimating and reporting DVA is, of course, quite odd in situations when the reporting entity is highly liquid, faces no financial distress and, more importantly, when Congress had already enacted a ‘safe harbor rule’ giving counterparties of swap (and other derivatives) contracts high preference status in cases of financial distress (Biery and Barrack, 2008).

Estimating numbers for DVA is a recognition of decreasing obligations without transferring resources outside the entity. As of this writing, this decrease in debt is reported in the income statement as ‘gain’. More disturbingly, if the credit rating of a company is downgraded and the required interest rate increases, the management of the reporting entity is permitted to calculate a DVA that would increase earnings. In other words, the management of any entity could manufacture gains as a result of deterioration in its financial position at times of real crisis. This perverse practice is the antithesis of faithful representation that became more pronounced with the financial crisis in 2008. Kamakura Solutions notes ‘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’.26

In recent years, however, the FASB (2016, para. 825-10-45-5), in ASU 2016-01, joined the IASB in requiring that the specific segment of DVA ‘attributable to instrument specific credit risk of liabilities for which the fair value option is elected’ 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 market value of liabilities for any reason continues to be treated as an increase in owners’ equity either through earnings or through OCI.27

25 http://www.kamakuraco.com/Solutions/CreditRiskCVAandDVA.aspx
26 http://www.kamakuraco.com/Solutions/CreditRiskCVAandDVA.aspx.
27 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’. See, http://www.kamakuraco.com/Solutions/CreditRiskCVAandDVA.aspx.
Due to the absence of any acceptable 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. Smith (2018, p. 17) refers to this symmetry of CVA and DVA as ‘zero net supply’. It is the notion that ‘the fair value of a financial instrument should be the same whether viewed by the investor (asset holder) or the issuer (debtor)’. 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 (see Figure 3). Rather, the amounts of DVA would be the negative of the amounts the counterparty creditors estimate as their CVA regarding their derivatives assets for which the reporting firm is the debtor.

**Muddying the Water Further—Hedging CVA and DVA**

Beyond estimating the credit debit valuation adjustments, there is at least one more complicating factor. Firms may use CVA and DVA as hedgeable items and enter into other derivative contracts to hedge the estimated values of CVA and DVA. Firms are permitted to hedge CVA and DVA to reduce the volatility of earnings by posting the gains and losses on these hedging relationships to earnings just the same as the accounting treatment of the gains and losses on the initial financial derivatives. While accounting standards provide accounting treatments for hedging CVA and DVA, hedging other value adjustments such as Accounts Receivable Allowance is not permitted or even contemplated.

**Real Life Adoption of CVA and DVA—Banks**

As a case in point, let us consider JPMorgan Chase (Figure 4). By all measures, this bank is highly liquid and has no signs of financial distress or threats of defaulting. Yet, the bank is benefiting by the accounting standards gift of liberal estimation of DVA at levels that impact reported income significantly. For example, in fiscal year 2011, about 20% of net income came from the estimated DVA ($1.4 / ($5.9 + 1.4)—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 took another turn; it reduced earnings by $930 million. If in fact DVA is a measure of the financial difficulty of the entity, reversing the amounts of DVA implies that JPMorgan Chase had a lower risk of

28 JPMorgan Chase & Co. Form 10-K of 2013, p. 81.http://files.shareholder.com/downloads/ONE/6330626209x0xS19617-12-163/19617/filing.pdfThe $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.
default in 2011 as compared to 2012. However, fiscal year 2012 was the year of disclosing more than $6.5 billion loss in the case of ‘The London Whale’ (Homeland Security & Governmental Affairs, 2013).

Additionally, Pollack (2011) raises the issue that estimating DVA for US entities is superfluous and unnecessary under US regulation. In particular, Congress has granted counterparties of derivative liabilities (and swaps in particular) a unique safe harbor rule—they should have preference in distributing assets in cases of derivative debtors’ bankruptcy Biery and Barrack (2008); Schwarcz, and Sharon (2014). To estimate and manipulate DVA given this unique safe harbor rule is what Lisa Pollack of the Financial Times called ‘utterly mad’.

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.

CVA and DVA are not Limited to 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, which refers to DVA as CVA).

The Company incorporates credit valuation adjustments (CVA) to appropriately reflect its own nonperformance risk and the respective counterparty’s nonperformance risk.29

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.

29 Strategic Hotels & Resorts, Inc. Form 10-K. December 31, 2014, page 90.https://www.last10k.com/sec-filings/bee#fullReport
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{30}

Moreover, in nonprofits such as Indiana University Medical Center, Inc., for example, reported adjustment of derivative liabilities, but has incorrectly referred to DVA as CVA.\textsuperscript{31}

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.

\textit{Concluding Issue Two}

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 OTC derivative assets and liabilities will be guided by other management goals.

While the obtained values of OTC derivative assets and liabilities are ‘soft’ numbers, managers estimate a series of valuation adjustments (XVA suite). Of most relevance in this paper are: Credit Valuation Adjustment (CVA) to adjust values of assets to include counterparty credit risk; and Debt Valuation Adjustment (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, that is, fully and completely estimated by the management without any guides or constraints.

The combination of the two estimates of Level 2 and Level 3 fair value of the valuation adjustments leads to reporting numbers with a 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.

In brief, accounting standards violate its own ‘principles and qualitative criteria’. There is no compelling reason to defend the valuation of OTC derivatives as ‘faithfully representing’ real transactions.

\textsuperscript{30} Emmis Communications Corporation. Form 10-K for 2012, page 77. https://www.sec.gov/Archives/edgar/data/783005/000119312512223521/d335769d10k.htm

\textsuperscript{31} Consolidated Financial Statements Indiana University Health, Inc. and subsidiaries Years Ended December 31, 2015 and 2014. With Report of Independent Auditors https://www.in.gov/isdh/files/2015_Indiana_University_Health_AFS.pdf
ISSUE THREE: THE FUTILITY AND DISTORTION OF FINANCIAL STATEMENTS INHERENT IN SEPARATING EMBEDDED DERIVATIVES

Prologue 3
An embedded derivative is a derivative within a non-derivative contract that cannot be physically detached or transferred. Both ASC of US GAAP and IFRS 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 because 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 or 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 decisions or in assessing the risk exposure of the reporting entities.32

Embedded Derivatives
A hybrid instrument consists of at least two components: (1) a debt or equity component; and (2) 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 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 embedded derivative. The goal of making this bifurcation is to apply symmetry in accounting for embedded derivative(s) and freestanding derivatives.33

32 The International Swaps and Derivatives Association (ISDA) raised this issue in its comment letter to the FASB on 30 April 2015. Disclosures about Hybrid Financial Instruments with Bifurcated Embedded Derivatives. Re: File Reference No. 2015-220. https://www.isda.org/a/qSDDE/isda-comment-letter-disclos-about-hybrids-ed-final-web-site.pdf

33 However, IFRS and ASC of US GAAP codification have some fundamental differences in designating the limits and boundaries of bifurcation. For example, cash instruments are not subject to bifurcation in modified IFRS 9 but continue to be so in ASC 815 of US GAAP.
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 freestanding 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. This means that embedded derivatives should be valued at fair values and changes in fair values flow through earnings as in the case of freestanding derivatives and of securities held for trading. Additionally, and strangely, 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 component. Both IFRS and US GAAP set very similar criteria for performing that separation. Three of these criteria are of significance:

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 metaphysically 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 book value of the hybrid net of the estimated fair value of the related embedded derivatives. Stated differently, valuation of the embedded derivative(s), which is subject to judgement, assumptions, and manipulation, controls the allocation of the 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 and value. The valuation of the derivatives embedded in these types of hybrid contracts reverts to Level 3 of the

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34 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.

35 In the 2018 revision, the 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 their entirety at fair value through the profit or loss statement—FVTPL.
fair value measurement hierarchy, allowing the management of the reporting entity to apply parameters and implement strategies that fit its own objectives, not representational faithfulness. With the attendant difficulties in the valuation of embedded derivatives and the related host contracts, one would have expected that either the FASB or the IASB offer some convincing evidence or a priori arguments showing that the benefits (e.g., decision-making usefulness) of separating and recognizing embedded derivatives exceed, 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.

Cases in Accounting for Multiple Embedded Derivatives

The Case of Deutsche Telekom

On 24 February 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 (common) 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. Figure 5 shows the three stages of values and conversion ratios.

Few authors have tackled the valuation of DECS (Arzac, 1997; 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 (Arzac, 1997; Ammann and Seiz, 2006).
Fair Value =
The value of a call option with upper strike price times the lower conversion ratio
- The value of a put option with lower strike price times the upper conversion ratio
+ Present value of the risk-free par value
+ Present value of the risk coupon payments.
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 DECS 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 the specified 20 days. For accounting purposes, the related standards require treating these three derivatives as a single derivative if the conditions of bifurcating 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 would 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 Telekom AG had bifurcated embedded derivatives under IFRS and reported separate values for the ‘combined’ derivatives and the host contract (see the disclosure reproduced in Figure 6). 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.36

36 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):
However, distribution of dividends to common shareholders in 2005, before the bonds were converted into ordinary shares, created another embedded derivative for the mandatory convertible bonds.

Under U.S. GAAP, the conditional payment represents an embedded derivative and we have recorded the estimated fair value of the liability at each balance sheet date with a charge to earnings. Under IFRS, the conditional payment will be recognized as a reduction to the outstanding bond liability when paid thereby affecting the amount of shareholders’ equity recognized upon conversion of the bond. As the conversion date was June 1, 2006, no difference in shareholders’ equity exists as of December 31, 2006 between IFRS and US GAAP.37

With these significant differences, both types of accounting standards do, nonetheless, proclaim representational faithfulness as a cornerstone qualitative criterion for financial reporting. Clearly, it is one or none of these two types of accounting treatment meet the faithfulness test; it cannot be both.

The Case of Telecom Italia—Mandatory Convertible Bonds Telecom Italia Finance issued a placement prospectus on 8 November 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.38 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’.

37 See Figure 5.
38 http://www.tifinance.lu/_NEWS/Telecom_Italia_Finance_MandatoryConvertible_Notes-Ordinary_Share_Pricing_Termsheet_vF.PDF
Early Conversion at the Option of the Issuer:

*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 13 November 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 (13 November 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 8 November 2013. As in the case of *Deutsche Telekom Finance*, if the hybrid instrument was not valued at fair value through the income statement, *Telecom Italia* will need to evaluate whether the embedded derivatives should or should not be separated from the host.

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 judgement.39

The 2015 annual financial statements of *Telecom Italia* reports bifurcated the embedded derivatives, although the report used the expression ‘option,’ not ‘options’ and there was indication of how the ‘option’ was valued. As it turned out, *Telecom Italia* came to regret having issued a mandatorily convertible bond issue with embedded derivatives because the fair values of the embedded derivatives in the €1.3 billion issue of 2013 were large losses €174 million in 2014 and €454 million in 2015. As expected, the €1.3 billion is reported as ‘share capital’, All were recognized in the income statement helping to convert a net profit to become a net loss. But by 2015 the embedded derivative would have

39 In all likelihood, a binomial model will be applied to value each derivative. However, adding up the obtained values would be misleading since the common source for all of them generates dependency that individual model valuations ignore.
caused a decline by total fair value losses of $628 million. It is quite disturbing to
the efficacy and meaningfulness of financial statements to know that these same
embedded derivatives had switched from a liability (loss) of €628 million to a gain
of €565 million in 2016.

In an unusual statement, Italia Telecom discounted the significance of these
numbers as ‘mere accounting changes’. The annual report states,

Given that some components of the fair value measurement of derivatives (contracts
for setting the exchange and interest rate for contractual flows) and derivatives
embedded in other financial instruments do not result in actual monetary settlement,
the ‘Adjusted net financial debt’ excludes these purely accounting and non-monetary
effects (including the effects resulting from the introduction of IFRS 13 – Fair Value
Measurement from January 1, 2013) from the measurement of derivatives and related
financial liabilities/assets. (Emphasis added).

Essentially, Telecom Italia is stating that the benefits of bifurcating and valuing
embedded derivatives separately are trivial because they are mere accounting
transformation—that is, the accounting standards board told us to do it!

The Case of Landsvirkjun: National Power Company of Iceland Pliable (and
Expandable) Valuation of Embedded Derivatives Landsvirkjun is an Icelandic
company that employs geothermal resources to produce electricity. The main
buyers of the electricity are US aluminum companies operating large mining
activities in Iceland. In 2006, the company switched its accounting system from
Icelandic GAAP to IFRS and designated the US dollar as its functional currency.
With that change, the company began to investigate 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 internally. While the resulting values are at Level 3 of the
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
their valuation of embedded derivatives added $755.7 million in gains to net
income.\footnote{http://www.landsvirkjun.com/media/enska/finances/Annual_report_2009.pdf, p. 18}

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.

Since valuation of embedded derivatives is left completely to the management’s discretion, the company had no problem in changing the ‘criteria’ used in valuing embedded derivatives in 2009: ‘The effects of the above changes result in an approximately USD 240 million reduction in the company’s performance before taxes’. Figure 7 shows the effect of this unguided discretion led to wild swings in the valuation of embedded derivatives ranging from a loss of $497 million (a negative 260% of operating profit) in 2008 and thereby converting a net profit of $151 million to a net loss of $346 million. The reverse took place in the following year: a gain of $253 million in valuing embedded derivatives was reported for 2009, that is, reverse conditions took place. Without the gain of $253 million in embedded derivatives, the reported net income would have been close to a loss of $60 million.

In brief, as Figure 7 reveals, the valuation of embedded derivatives has wreaked havoc on reported profits as a measure of performance. Since all embedded derivatives are valued at Level 3 of the fair value hierarchy, no one could claim the objectivity of valuating the underlying contingent claims. Nor could anyone, auditors included, validate the reported numbers by consulting sources other than the management itself. Requiring the valuation of embedded derivatives has, therefore, given the management one more tool to create ‘Mark to Management’ numbers that have no objective or verifiable correspondence. Yet, the company continues to claim adherence to the principle of ‘faithful representation’ of true transactions.

Issue Three Conclusion
In requiring the bifurcation and separation of embedded derivatives, officials at accounting standards boards have violated two of their own important principles: (1) the benefits must exceed the cost; and (2) the information must faithfully represent the reality of the transaction. Thus far, the FASB and the IASB have asked us to trust their own intuition that bifurcating embedded derivatives meets both principles. Nonetheless, real life implementation reveals two interesting, yet incompatible, effects: (1) the management of reporting entities benefit by having one more tool to manage earnings; and (2) if the results do not fit their goals, they tell investors that these are only accounting transformations and have no meaning or relevance. However, I still have four queries.

1. What evidence does either the FASB or the IASP have to show that the benefits of bifurcating or separating embedded derivatives justify the cost of undertaking and reporting the separate values and achieve nothing more than distorting performance reporting?
2. It is rather strange that the value of host contracts, whether assets or liabilities, are measured as the ‘residual’ of the book value of the hybrid net of the fair value of embedded derivatives. How could any management claim that values in this fashion offer a true representation of the underlying claims?
3. Other than benefitting the management of the reporting entity, 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?

4. How much and to what extent does the idiosyncratic and abstract separation of embedded derivatives impede comparability of financial reports over time or across firms?

CONCLUDING REMARKS OF FAILING FAITHFUL REPRESENTATION

Following the establishment of the OTC market in the mid-1980s, accounting standards boards have provided creative methods to account for OTC derivatives, which are financial instruments for which market values are not observable. These creative methods have helped the management of reporting entities to manage both the 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 jargon that have seriously damaged the usefulness of public financial reporting.

In this paper, I address only three of the problems of accounting for the huge volume of OTC derivatives that bias the financial statements and make them far less representative of the true financial pictures of the reporting entities. These problems are: (1) developing accounting processes that impact earnings, assets and liabilities based on a fiction called the Hypothetical Derivative; (2) reporting highly malleable and plastic-like values of derivatives assets and liabilities and adding further to this plasticity by allowing a range of valuation adjustments that have no guides or constraints; (3) distorting the income statement and the balance sheet by requiring a metaphysical separation of embedded derivatives. Standard setters had choices but opted to select the methods most favorable to the management of reporting entities.

Finally, there are more segments of accounting standards that violate the basic principles adopted by the same standard-setting bodies. It appears that setting standards for financial reporting has gone off the rails; standard-setting bodies are overwhelmed and fascinated by the precise financial engineering, though unrealistic, models and by the sheer enormity and magnitude of OTC derivative instruments.

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APPENDIX: THE OFFICIAL POSITIONS ON THE HYPOTHETICAL DERIVATIVES METHOD

From the FASB Derivatives Implementation Group. 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 IFRS 9 (IASB, 2014, p. 143).

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.