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Hedging and Hedge Accounting in a Multiperiod World: A Cash Flow-Centered View

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Abstract

Although there are many aspects to be considered for a full understanding of hedge accounting as an exceptional rule to fair value accounting, we focus on: what rationale exists behind the dichotomy of fair value and cash flow hedges; and whether it is justifiable on a solid theoretical foundation of accounting measurement.

Furthermore, in order to fully understand the theoretical as well as practical significance of hedge accounting, we should broaden our perspective beyond the scope of a usual measurement-oriented argument in the accounting literature. To be more concrete, we will argue that reexamining the meaning of being risk-free from a viewpoint of multiperiod dynamic optimization is absolutely necessary, albeit not sufficient, to comprehend the essence of hedging.

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1. Hedging Transactions and Accounting Standards

Today International Financial Accounting Standards (IFRS) as well as other major accounting standards stipulate hedge accounting as an exception to the fair value accounting of financial instruments in which assets and liabilities (“assets” hereafter¹) are measured at market or fair value and their changes are periodically reflected in net income either positive or negative.² The validity of hedge accounting has been constantly questioned under the ever expanding application of fair value accounting. Its very existence was under threat in the 2000s when the International Accounting Standards Board (IASB) seemed to be obsessed with measuring all financial assets at fair value.³ It has survived nonetheless: it has been recognized as a valid accounting procedure and subdivided into a fair value hedge, a cash flow hedge, and a hedge of a net investment in a foreign operation under the current version of IFRS 9, which the IASB issued in November 2013.

Hedging transactions are intended to reduce the risk of loss due to a change in value of assets by purchasing opposite positions, usually financial instruments. If fair value accounting is applied for the hedging instrument but not for the hedged item, we need a special procedure to match periodically one’s gain (loss) to the other’s loss (gain). In order to hedge an exposure to a change in fair value of assets, we should offset it by recognizing a change in fair value of the hedged portion of assets in net income. This is called a fair value hedge.⁴ On the other hand, in order to hedge an exposure to

¹ Nothing is lost if we take liabilities as short positions in assets.

² We use the expression “net income” equivalent to *profit or loss*, a designation adopted by IASB.

³ According to some IASB members and staff, it is not actually correct that they had striven to measure all financial assets and liabilities at fair value. Not very long ago, however, the IASB (2008) asserted that “The boards believe the long-term solution for reducing measurement-related complexity is to use a single measurement method for all types of financial instruments” (3.99) and “fair value seems to be the only measurement attribute that is appropriate for all types of financial instruments” (3.100). Mary Barth (2007, p. 10), a renowned scholar and then IASB member, also explicitly stated: although “the IASB does not have an objective to measure all assets and liabilities at fair value... the IASB and FASB have a stated long-term objective to measure all financial assets and liabilities at fair value.”

⁴ The so-called fair value option, which permits an entity to apply fair value accounting to assets usually not measured at fair value, is not another kind of hedge accounting but

variability in a cash flow series, we should not recognize a change in fair value of the hedging instrument in net income but record it in other comprehensive income (OCI) until cash flows from the hedged item are realized. This is called a cash flow hedge. The third category, a hedge of a net investment in a foreign operation, is not dealt with explicitly because it does not pose any additional point to be considered beyond the other two categories.

Although there are many aspects to be considered for a full understanding of hedge accounting as an exceptional rule to fair value accounting, we focus on: what rationale exists behind the dichotomy of fair value and cash flow hedges in the process of transforming actual hedging transactions into accounting information; and whether it is justifiable on a solid theoretical foundation. In what sense should a change in fair value of assets and variability in cash flows be considered risks to be hedged respectively? What difference exists between two types of risks? Are they mutually exclusive or interrelated? Why do we need hedge accounting in addition to fair value accounting? A clear understanding of the points posed by the preceding questions is keenly needed for any constructive argument concerning hedge accounting.

Needless to say, hedging is just the opposite of speculation. Speculation seeks for returns taking risks, while hedging avoids risks sacrificing returns. Hedged are investment returns to be recognized as part of net income, while those not to be recognized as net income are generally outside the scope of hedge accounting. Therefore what to be hedged and what to be recognized as net income are two sides of the same question.

Furthermore, in order to fully understand the theoretical as well as practical significance of hedge accounting, we should broaden our perspective beyond the scope of a usual measurement-oriented argument in the accounting literature. To be more concrete, we will argue that reexamining the meaning of being risk-free from a viewpoint of multiperiod dynamic optimization is absolutely necessary, albeit not sufficient, to comprehend the essence of hedging.

an alternative to it.

2. Rationale behind Hedge Accounting

2.1 Fair Value Accounting and Hedge Accounting

We first consider the relation between income recognition and fair value accounting in order to clarify the meaning of hedge accounting as an exception to fair value measurement. Net income as the results of investment is not recognized until uncertainty about investment is finally resolved. Because investment is a transaction exchanging current certain cash flows for future uncertain ones, uncertainty is to be resolved once an entity is released from risks of cash flows brought about by the investment. Therefore income recognition is crucially dependent on what kind of cash flow an entity expects from each investment activity.⁵ Although both revenues generated by business investment and changes in market value of assets not constrained by business activities can be regarded as cash flows resulting from investment, fair value accounting is only applied for the latter.⁶

The existence of liquid markets for assets is not a sufficient condition. If these markets exist *and* these assets are free from any restriction imposed on an entity's business, their market price changes are recognized as the results of investment, because income through price changes is the objective of investment. This so-called financial investment is not restricted to financial instruments, while some of them are considered business investment if trading is restricted due to business considerations.

In contrast to financial investment, changes in market value of assets acquired for business investment are either unrecognized or decoupled from an entity's periodic performance if recognized, because the results of business investment are not to be recognized until operating revenues are realized.⁷ If a change in market value of assets is recognized before revenues being materialized, it is separated from net income and

⁵ The recognition and measurement of not only assets as a stock but also income as the results of investment is dependent on the intention of an entity in realizing cash flows through these assets.

⁶ In this paper we have only non-financial companies in mind. Therefore an entity's business investment is non-financial by definition.

⁷ Although an entity tries to realize capital gains through financial investment, it expects cash flows generated through business investment, to which accordingly fair value accounting is hardly appropriate.

deferred to net assets through OCI, which is to be in principle recycled or reclassified back into net income up to the derecognition of the relevant investment. The application of fair value accounting, if understood to comprise income recognition, is generally limited to financial investment. Business investment is beyond its scope.

When fair value accounting is applicable to assets to be hedged, a change in market value of financial instruments such as derivatives used for hedging should be recognized and reflected in net income. In this case, the effects of hedging reveal themselves because a gain (loss) of the hedging instrument is offset by the loss (gain) of the hedged item. Whether hedged or not, it is simply a case for the application of fair value accounting unrelated to hedge accounting as a specific accounting procedure. On the other hand, a fair value hedge specified in IFRS 9 is applied when fair value accounting is not applied to the hedged item. In this case, a change in fair value of the hedging portion of assets should be reflected in the book value of the hedged item, and this recognition realizes the offsetting effects of the hedging instrument in net income⁸. The hedged item is being reevaluated to be matched with a gain or loss of the hedging instrument.

However, the investment results of assets to which fair value accounting is inapplicable are to be measured by not changes in market value but cash flows generated through their use. A hedging transaction of this type is thought to reduce not the volatility of asset prices but the variability of future cash flows to be reflected in net income. Therefore it seems appropriate to apply cash flow hedge accounting instead of fair value one to this case. To be more precise, a change in value of the hedging instrument should not be reflected in net income until cash flows are generated through the hedged assets. With this deferring procedure the offsetting effects of the hedging transaction are properly reflected in net income. When an unrecognized forecast transaction is hedged by financial instruments, their change in value is to be recognized in net income stepwise with a periodic adjustment to their initially recognized book value.⁹

⁸ We ignore the case in which hedge ineffectiveness exists in a hedging relationship.

⁹ We ignore the case in which a gain (loss) of the hedging instrument is larger than a

The preceding argument implies: a fair value hedging transaction is within the scope of fair value accounting according to which changes in market value are regarded as the results of investment; and hedge accounting as an exceptional procedure may be reserved for the case in which cash flows are to be hedged. In the first place, a change in market value of assets should be considered a cash flow and recognized as such under fair value accounting if the assets have been acquired as financial investment in the sense that assets are liquid and free from any restriction on trading due to business considerations. Because investment is always aimed at future uncertain cash flows, its results must be determined by realized cash flows, though a definition of which is not uniform. If we regard a change in market value as a cash flow in the case of financial investment, we may consistently claim that a fair value hedge is a subcategory of cash flow hedge.¹⁰

2.2 Fair Value Hedge and Cash Flow Hedge

It is often claimed that a fair value hedge as an accounting procedure is necessary when fixed rate assets are transformed into floating rate ones with interest rate swap contracts in order to reduce price change risks caused by the variability of market interest rates. Adding or subtracting a change in market value of the hedging instrument to the periodically amortized book value of the hedged item may look a fair value hedge with its pseudo fair value measurement.¹¹ However, in what sense is a transaction introducing future cash flow variability into initially fixed expected interest proceeds considered a “hedge”?¹² It is true that risks to be hedged must be recognized as the results of investment, but a change in market value of the hedged item generated

loss (gain) of the hedged item. In this case the difference must be recognized as net income.

¹⁰ We should not confuse a fair value hedging transaction with a fair value hedge as an accounting procedure. Neither should we do a cash flow hedging transaction with a cash flow hedge.

¹¹ If the hedged item is measured at fair value and a change in value is recognized as income, this hedging transaction is well within the scope of fair value accounting and unrelated to hedge accounting.

¹²This apparent paradox will be further discussed from a viewpoint of multiperiod dynamic optimization in the next section.

by a market interest rate fluctuation is not recognized as such when fixed rate assets are to be amortized in measurement at the outset.

If it were designated as a fair value hedging transaction, fixed rate assets should be measured at market value in accordance with changing market interest rates and a reevaluated amount be recognized as income from the start. If the transaction is intended to fix the selling price of assets and accompanying income at a settled date scheduled before maturity, it is not unreasonable to take it as a cash flow hedge.¹³ In addition to the aforementioned case, when an entity tries to hedge an unrecognized but predetermined firm commitment with the financial instrument, the application of a fair value hedge is called for. To be more specific, the unrecognized position is treated as a hedged item and an amount corresponding to a change in fair value of the hedged portion is to be recognized as assets. However, it sounds a little odd that assets usually kept unrecognized have been suddenly recognized once hedged. Other alleged cases of fair value hedging such as reducing the rate change risk of a fixed rate bond before the issuance, and fixing the price of a non-financial asset before acquiring through forward trading can be properly regarded as cash flow one.¹⁴

A gain or loss of the hedging instrument is offset by the same amount of adjustment to the book value of the hedged item under fair value hedging, while it is first deferred to net assets through OCI and later recycled into net income to be matched with cash flows generated by the hedged item under cash flow hedging. When the interest payments of a floating rate bond is fixed with an interest swap contract, in contrast to the case of fixed rate assets, a change in value of the swap contract is deferred to net assets through OCI and later recycled into net income to be matched with floating rate interest payments. In the case of hedging an unrecognized future

¹³ The very use of amortized cost as a measurement basis implies the application of a cash flow hedge. For example, holding a bond X to maturity is equivalent to holding another bond Y with the same income stream but maturing later than X, and at the same time selling short at the date of X's maturity.

¹⁴ Even the IASB acknowledges that "The objective of hedge accounting is to represent, in the financial statements, the effect of an entity's risk management activities that use financial instruments to manage exposures arising from particular risks that could affect profit or loss" (IFRS 9, 6.1.1).

transaction, once executed, a recognized amount of assets should be deferred to net assets through OCI.

In actual fact the IASB considered a proposal to make a cash flow hedge the only procedure for hedge accounting in which a change in value of the hedging instrument should be deferred to net assets through OCI at an early stage of its project on hedge accounting. However, it has finally concluded that another hedge procedure should be established on the ground that the existence of hedged assets necessarily brings about a gain or loss through a change in fair value.¹⁵ With this rationale, a gain or loss due to a change in value of assets, though usually unrecognized, is nonetheless recognized once hedged as mentioned above. It may be the case that the current dichotomy of hedge accounting is the aftereffects of the IASB'S past single-minded quest for measuring all financial assets at fair value or at least forcing the use of the so-called fair value option as a stopgap alternative in order to restrict the use of hedge accounting if fair value measurement is too questionable to apply.

The book value adjustment of the hedged item through fair value hedge accounting is not a fair value measurement. The adjusted amount is an artificial number merely reflecting a change in value of the hedging instrument but in no way interpretable as the fair value of the hedged item. Although the expression "fair value hedge" is used for both a hedging relationship and a hedge accounting procedure, we should not confuse one another. A fair value change of assets is an indispensable ingredient of a hedging relationship as long as it is considered a cash flow resulting from investment. However, we wonder whether an accounting procedure to add or subtract a market value change of the hedging instrument to or from the book value of the hedged item not measured at fair value has any theoretical justification. It seems more sensible to regard a fair value hedge as a subcategory not distinct from a cash flow hedge. Therefore even in the alleged case of a fair value hedge, a gain or loss should be

¹⁵ See BC 6.353-361, IFRS 9. However, assets to be hedged are a necessary ingredient even for a cash flow hedge when floating rate assets are transformed into fixed rate ones through interest swaps. The stability of fair value does not necessarily imply the existence of a forecast off-balance transaction.

deferred to net assets through OCI.¹⁶

Against our proposal for streamlining hedge accounting, it may be argued that a fair value hedge as a distinct category is necessary for cases as follows: only a portion of the entire price change of assets to be reflected in net income should be hedged when the objective is hedging only against exchange rate risks; not only net income but also OCI should be hedged when the objective is hedging against the variability of net assets. However, for the former case, a procedure to defer a fair value change of the hedging instrument to net assets through OCI is applicable with some modification, which does not seem to distort the effects of hedging on net income.¹⁷ For the latter case, at issue is not the decision usefulness of accounting information but the regulatory use thereof. To tackle this regulation induced problem, what we have to do in the first place is to separate OCI components from both paid-in capital and retained earnings in net assets. We had better not regard the use of a fair value hedge for regulatory evasion as a problem of hedge accounting per se.

Interestingly enough, in *A Review of the Conceptual Framework for Financial Reporting* issued in 2013, the IASB asserted that the raison d'être of a cash flow hedge is to deal with a measurement mismatch caused by the recognition of net income due to a change in value of assets, which would convey irrelevant information on periodical performance. In the similar vein, it was claimed that cash flow hedge accounting has a character distinct from the usual case in which different measurement procedures for assets and net income are reconciled through the use of OCI, even if first deferred to net assets through OCI and later recycled in both cases. However, this perplexing assertion was deleted from an *Exposure Draft* issued in 2015. As repeatedly shown, hedge accounting is a procedure to match the timing of income recognition when the hedged item and the hedging instrument are measured differently. The use of OCI in hedge accounting is no different from the usual use of OCI in measurement in this respect.

¹⁶ Also see Saito (1999, ch. 6; 2013, chs. 9-12).

¹⁷ As already mentioned, a hedging transaction is intended to reduce risks inherent in investment, while the objective of hedge accounting is how to deal with the effects of risky investment in measurement of net income.

3. Reconsidering the Risk-Free Concept

In order to deepen our understanding of hedging per se and hedge accounting, we should give more attention to the meaning of being risk-free in a multiperiod uncertain world.

In the accounting community, floating rate assets are routinely considered risk-free. However, in a multiperiod dynamic environment, i.e., the real world, this convention is not only theoretically wrong, but also practically disastrous. As a leading financial economist points out, “the risk-free payoff to a long-run investor is an indexed perpetuity, which pays a constant real coupon in every date and state of nature” in a multiperiod setting.¹⁸

For example, if an investor needs a certain amount of cash flow in 10 years, a 10-year zero-coupon bond is a risk-free asset completely matching his need. Any market price change during 10 years is irrelevant for him and it would be totally pointless if he tried to “hedge” the price fluctuation with another financial instrument. On the other hand, if he bought a floating rate asset priced at the same value initially, he could “hedge” the initial market value against the price fluctuation, but not secure his desired cash flow in 10 years. A stable market value is a neither necessary nor sufficient condition for being risk-free.

For a utility-maximizing investor living in a multiperiod environment, what is important is a dynamic pattern of cash flows, not the market price of his position at any particular date. Because any multiperiod cash flow series can be decomposed into a set of zero-coupon bonds with different maturities, the aforementioned argument is applicable to any investor. If we accountants want to be consistent with modern dynamic financial economics, not fair value but cash flow must be the target of hedging in accounting recognition.

From this multiperiod viewpoint of hedging, we do not need any tortuous argument to justify a cash flow hedge as an exception to decision useful fair value measurement. If a dynamic pattern of cash flows generated by assets is fixed through

¹⁸ Cochrane (2014, p. 2). We disregard the general price level change and the possibility of default to avoid an unnecessary complication hereafter.

the use of another financial instrument, it is a hedging transaction par excellence making the combined position risk-free for investors living in a multiperiod environment. It should be recognized as such in accounting measurement to be useful for decision making, while the market value fluctuation of the position is irrelevant and useless.

In addition, we should be aware that a financial asset to be held for short-term trading is not a stock but a flow, to be more precise, a single-period series of flows. Therefore, the elimination of its market value fluctuation with another financial instrument is a hedging transaction making the combined position equivalent to cash only if the asset is to be held temporarily. A similar argument is applicable to floating rate assets. However, if held in the long-term, these “hedged” positions are very risky because of their uncertain cash flows due to changing interests.

4. Concluding Remarks

Because investment is a transaction exchanging current certain cash flows for future uncertain ones, its results are to be recognized as net income once an entity is released from risks of its uncertainty. In some cases, an entity wants to reduce the variability of investment results through hedging transactions.

On the other hand, hedge accounting is a procedure showing the fact that the results of investment are influenced by hedging transactions in net income measurement. Therefore the results of hedging are to be recognized once the results of the hedged item are reflected in net income.

Fair value accounting is applied to assets whose trading is not constrained by business activities and accordingly changes in market value are considered a realized gain or loss in income measurement. If they are hedged, the results of hedging transactions are reflected in net income through the simple application of fair value accounting to the hedging instrument.

By contrast, if cash flows from assets to which fair value accounting is not applicable are hedged, changes in market value of the hedging instrument should not be recognized as a gain or loss until the cash flows from the hedged assets are realized and recognized as net income. Hedge accounting is used for this income deferral.

The book value adjustment of assets reflecting changes in fair value of the hedged portion is called a fair value hedge. However, we do not see any theoretical justification for adding (subtracting) only changes of the hedged portion's market value to (from) the book value of assets, which would remain unaffected by market conditions unless hedged.

In the final analysis, what is hedged is always a series of cash flows. Therefore it seems more consistent to regard a cash flow hedge as *the* hedge accounting procedure concurrent with fair value accounting rather than to continue treating cash flow and fair value hedges as distinct categories.

Last but not least we want to emphasize the point that our cash flow-centered view is perfectly consistent with modern financial economics based on multiperiod dynamic optimization.

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