Reliability As a Means to Achieve Relevance in Valuation: Does Historical Cost Qualify As “What It Purports to Represent”?

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Abstract

We offer a theoretical discussion of relevance and reliability that we believe is a distinct improvement over the views expressed in existing literature and in the FASB Concepts Statement. We adopt the commonly accepted definition of reliability as the closeness between the benchmark (i.e., what it purports to represent) and accounting representation. We suggest that relevance be defined as the statistical closeness between the fundamental (e.g., the firm value for investors) and the accounting number (rather than the benchmark). The standard setter chooses the benchmark and accounting value in a way that the relevance of accounting information is maximized. The benchmark plays a critical role as the bridge between the fundamental and accounting value. More specifically, a benchmark
is chosen so that achieving reliability is a means to achieving relevance. Regarding the recent debate on fair value versus historical cost, we expect that the reliability of fair value estimate will improve over time, attenuating concerns of the relevance-reliability trade-offs. Therefore, the FASB’s recent movement toward fair value measurements is supported.


1 Introduction

Relevance and reliability are treated in the current U.S. and international conceptual framework as the two main qualities of accounting information that make it decision-useful.¹ Accompanied by the Financial Accounting Standards Board (FASB)-International Accounting Standards Board (IASB) joint project to revisit the Conceptual Framework started in October 2004, the FASB Exposure Draft “Fair Value Measurements,” June, 2004, rekindled debates on trade-offs between relevance and reliability with respect to fair value versus historical cost. It is generally agreed that fair value is relevant but unreliable and historical cost is reliable but irrelevant. Sloan (1999), Watts (2003), and Beatty and Weber (2006) express concerns that fair values are not reliably estimated if subjective assumptions are necessary.

Prior studies commonly use value relevance tests to investigate the relevance and reliability of fair values versus historical costs. They report mixed evidence. Some studies document evidence that fair values have an incremental explanatory power compared to historical costs (Landsman, 1986; Barth, 1991; Barth, Beaver, and Landsman, 1996; Venkatachalam, 1996; Barth and Clinch, 1998; Muller and Reidl, 2001; and Carroll, Linsmeier, and Petroni, 2003). Other studies report results that echo the concern about the reliability of fair values (Eccher, Ramesh, and Thiragarajan, 1996; Nelson, 1996; Choi, Collins, and Johnson, 1997; and Muller, 1999). Sterling (1985) presents a different view and argues that the trade-offs between fair value and historical cost do not occur once reliability is not confused with precision.

¹ FASB decided to drop the term "reliability" from the qualitative characteristics and replace it with a new umbrella term "faithful representation" (FASB Board Meeting, July 2005). The change was made because the reliability is often understood as verifiability and different Board members interpreted it differently. In this paper, we will keep using the term “reliability” to be consistent with existing studies. In addition, the Board considers the representational faithfulness is just upgraded from a component of old reliability to its own primary characteristics without substantial changes.
Despite the long-standing debate on fair value versus historical cost, there is no convincing theoretical argument that allows one to determine, even after appropriate tests, to settle on one method over the other. We believe the impasse is due to the confusion around key concepts of the relevance-reliability relation as well as the limited guidance provided by the FASB. This study provides an alternative view of the interactions between relevance and reliability which clarifies the roles of the two accounting qualities in their interactions. We apply them to two types of assets (assets held for sale and assets held for use) and show how they help in choosing an accounting method.

We analyze relevance and reliability with three variables based on the Conceptual Framework: accounting representation, fundamental, and benchmark. As the value of an asset or liability, a single accounting number is chosen and reported in the balance sheet. This accounting value is our first variable. The fundamental refers to what accounting information users are ultimately concerned about in their decision-making. Among various types of information users, for example, investors of a firm would evaluate the impact of the accounting value of an asset or liability on the firm value and their assessment is summarized in stock price. Therefore, stock price can be considered as the fundamental for investors.\(^2\) However, the accounting representation and fundamental are usually of different scale and, more importantly, a value of an asset or liability is one of the many factors of the fundamental. For this reason, the third variable, the benchmark, is introduced, which links the accounting representation to fundamental.\(^3\) In this picture a clear understanding of the role of the benchmark is

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\(^2\) The decision-specific fundamental may vary with different types of user. For example, the stock price is not necessarily the fundamental creditors. However, our analysis provides qualitatively consistent intuition for all types of users.

\(^3\) The benchmark is referred to as ‘what it purports to represents,’ ‘economic phenomenon,’ or ‘economic attributes’ in the Conceptual Framework.
essential in order to evaluate the usefulness of the accounting representation.

There is a general agreement on the definition of reliability in the Conceptual Framework and academic studies. The Conceptual Framework defines reliability as a quality that assures that accounting representation faithfully represents the benchmark without error or bias. Therefore, following the Conceptual Framework and studies including Sterling (1985), Sloan (1999), and Maines and Wahlen (2005), we interpret reliability as the closeness between the accounting value and benchmark.

Unlike reliability, the relevance of accounting information can be interpreted in two different ways based on the definition in the Conceptual Framework. The Concepts Statement No. 2 paragraph 50 and studies including Sterling (1985) and Sloan (1999) indicate that relevance refers to the closeness between the fundamental and the benchmark. However, this view indicates that two very different estimates of the benchmark are equally relevant because the closeness between the fundamental and benchmark does not change for the different estimates. In addition, we show that the same accounting value of a benchmark can be both reliable and irrelevant in one situation and relevant and unreliable in another situation under this view of relevance.

Another view of relevance inferred from the Framework is to understand it as the closeness between the fundamental and accounting representation. We adopt this view of relevance of the accounting information. We believe that the relation between the fundamental and the benchmark is just the relevance of the benchmark and not the relevance of accounting information.

McCarthy (2004) and Heffes (2005) indicate that practitioners are more concerned about reliability. The FASB’s position is that both relevance and reliability are equally important for accounting information to be useful. However, these existing
views on relevance-reliability relation have not yielded an agreement on either of the valuation method. In addition, information cannot be relevant unless it is sufficiently reliable. Therefore, we take a position that the reliability of accounting information is important to the extent that improving reliability (to produce sufficiently reliable information) facilitates the improvement of relevance. Therefore, trade-offs between relevance and reliability are no longer a central issue under the proposed framework. The central issue is about which of the valuation method successfully achieve the objective of reporting the accounting information. This position where relevance refers to the closeness between the fundamental and accounting information lays out a practical guideline for choosing a benchmark and accounting representation.

The Conceptual Framework states that the objective of financial reporting is to provide useful accounting information for decision-making. The objective can be interpreted as providing accounting information that is closely related to the fundamental i.e. maximizing relevance. However, the function of the benchmark and reliability is critical to achieve this goal because relevance cannot be achieved without the mediation of the benchmark. Under the proposed framework, standard setters choose the benchmark and accounting value such that the relevance of the accounting information is maximized in the process of generating sufficiently reliable information. Therefore, results of the value relevance tests can be used as evidence of the relevance of the accounting information.

Such benchmark should satisfy following conditions. First, a benchmark has to be sufficiently well defined so that it is understood by different users as the same thing. Second, it should be in the same scale with the accounting value. Lastly, the benchmark and the fundamental should vary with the same or at least very similar set of factors. Historical cost that is often considered as a benchmark along with fair
value generally does not meet the third condition. Therefore, it does not qualify as a benchmark in general.

Even though fair value usually satisfies the three conditions, it may not be true for assets or liabilities without active markets.⁴ We use assets held for sale and assets held for use as examples. For an asset held for sale with active markets, empirical studies report evidence consistent with the current market price of the asset as the best estimate of its price in the near future (fair value).⁵ For this asset, historical cost does not meet the third condition whereas fair values the first condition. Existing studies on the assets with thin markets report that fair value estimates have incremental value relevance over historical costs.⁶ We interpret these results as fair value estimates being sufficiently reliable (and thus facilitating relevance).

For an asset held for use, fair value does not fully represent the value of the asset because it ignores the premium the firm can obtain by foregoing an immediate sale (and continuing to use it). We present a simple theory that provides insights on how to capture the premium. It shows that the premium increases with the probability of being able to use it into the future. This is consistent with the observation of Aboody, Barth and Kasznik (1999) who find that upward revaluations of fixed assets by the UK firms are positively related to changes in future performance.

We welcome the FASB’s recent movement toward fair value measurements and dirty surplus accounting. Historical cost does not vary with factors of the fundamental. In addition, the number determined in the past does not leave room for improvement in reliability or improvement in relevance. If fair value is chosen as

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⁴ The FASB’s definition of fair value in the Exposure Draft can be considered as an effort to satisfy the first condition as a benchmark.
a benchmark, even though fair value estimates may not be perfect, the estimation process can be improved to produce sufficiently reliable estimates over time through advances in technology and experiences. Results of studies based on the data from the UK or Australia where more assets are reported at fair value than in the US are consistent with this conjecture.\textsuperscript{7} In addition, dirty surplus accounting allows fair value measurements on the balance sheet without damaging the consistency of net income numbers.

The rest of the paper is organized as follows. In Section 2, we briefly go through debates on fair value versus historical cost. In addition, we discuss how the concepts of relevance and reliability are defined in the Conceptual Framework. Section 3 shows common interpretation of relevance can be understood as the relevance of the benchmark not of accounting information. We adopt the second view of relevance which is the closeness between the fundamental and accounting information. In Section 4 we explain two existing views of meanings and roles of reliability. In Section 5, we propose our new view of reliability as a means to facilitate relevance. In addition, we apply our framework to the valuation of two broad classes of assets: (1) assets held for sale and (2) assets held for use and conclude that fair value measurements will result in improvement in the usefulness of accounting information in general. We note that a diligent pursuit of relevance in valuation would lead to a divergence from the traditional earnings-centered accounting. As a reconciliation, we propose a dirty-surplus accounting system. In Section 6, we conclude the study.

\textsuperscript{7} They report fair value estimates of the assets of interest are value relevant.
2 Debates over fair value versus historical cost

2.1 Fair value accounting versus historical cost accounting in the literature

The FASB has been moving toward fair value measurements of assets and liabilities in recent years. As a part of this effort, the Board issued the Exposure Draft “Fair Value Measurements” in June, 2004. The Board expects that fair value measurements will result in more useful information by enhancing relevance and understandability than cost-based measurements. While there is a general agreement that the adoption of fair value estimates would enhance relevance of resulting accounting information, opponents are concerned about whether fair values can be reliably estimated especially for assets or liabilities without quoted market prices. Therefore, it is often said that there is a relevance-reliability trade-off between fair value and historical cost.

On the other hand, Sterling (1985) says the trade-off debates come from confusing reliability with precision. He explains that if relevance to rational investment decisions requires reporting past price (or current price), a faithful representation assured by verification requires reporting historical cost (or fair value). Thus, there is no trade-off between fair value and historical cost.

Prior studies use the value relevance test to investigate the usefulness of fair value measurements compared to that of historical cost measurements. Existing results show mixed evidence. Landsman (1986), Barth (1991), Barth, Beaver, and Landsman

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8 In a response to the exposure draft, Botosan et. al (2005) expect that future accounting standards will increasingly adopt fair value measurements.
9 See the FASB Exposure Draft, “The fair value option for financial assets and financial liabilities including an amendment of FASB Statement No. 115,” paragraph A3, January 2006.
10 The Board issued the Exposure Draft as a response to this concern, laying out a standard so that fair value could be reliably measured.
11 Barth, Beaver, and Landsman (1996, 2001) and Schipper and Vincent (2003) point out that relevance and reliability cannot be separately identified.
(1996), Venkatachalam (1996), and Carroll, Linsmeier, and Petroni (2003) report that fair values have a significant incremental explanatory power for stock price relative to historical costs for bank loans, pension assets and obligations, securities gains and losses, derivatives, or closed-end mutual funds. Barth and Clinch (1998) and Muller and Reidl (2001) also show that fair value estimates of investment property, tangible and intangible assets are positively related to stock prices in general. These results indicate that fair values of these assets are sufficiently reliable.

While agreeing on relevance of the fair values, Watts (2003) and Sloan (1999) express concerns about reliability of the fair value estimates. Muller (1999) and Choi, Collins, and Johnson (1997) report evidence consistent with the concerns that recent FASB’s movement toward fair value measurements may result in accounting numbers that are subject to more manipulation and are poor measures of worth and performance. In addition, Barth (1994), Eccher, Ramesh, and Thiagarajan (1996), and Nelson (1996) find no incremental explanatory power for fair values relative to historical costs for investment securities gains or losses, bank loans and deposits, or off-balance sheet financial instruments.

We believe that the main reason for this impasse combined with mixed results of value-relevance of fair value relative to historical cost is a limited understanding of the relation between relevance and reliability. In order to help understanding the relation between relevance and reliability, we apply the FASB’s definitions of the two accounting qualities to the context of asset/liability valuations.

They report varying levels of reliability depending on managers’ incentives. Particularly, Muller (1999) reports that decisions on the voluntary recognition of acquired brand name in the UK firms are significantly influenced by managers’ incentives to reduce financial ratios and reported leverage ratios for London Stock Exchange shareholder approvals of future acquisition and debt contracts. Choi, Collins, and Johnson (1997) find that their proxy for the reliability of accumulated postretirement benefit obligation varies across firms as a function of the retiree/active employee ratio and the likelihood of health care benefit reductions.
2.2 Relevance and reliability in the Conceptual Framework

According to the Concepts Statements, accounting information is relevant if it is capable of making a difference in a decision by helping users to form predictions about the outcomes of past, present, and future events or to confirm or correct prior expectations. Reliability is the quality that assures that information is reasonably free from error and bias with faithful representation, verifiability and neutrality. Representational faithfulness refers to the correspondence or agreement between the accounting numbers and the resources or events those accounting numbers purport to represent. Verifiability is a quality that may be demonstrated by securing a high degree of consensus among independent measurers using the same measurement methods. Neutrality means that financial information must be free from bias intended to influence a decision or outcome.

Joyce, Libby and Sunder (1982) report that policy makers do not have a common understanding on the implementation of the qualitative characteristics to particular accounting issues and their relative importance. Particularly, reliability is often understood as precision or verifiability and different Board members interpreted it differently. Thus, in a joint project with the IASB, the Board decided to drop the term "reliability" from the qualitative characteristics and replace it with a new umbrella term "faithful representation" in July, 2005. The Board has upgraded the representational faithfulness to a main quality with the premise that information cannot be representationally faithful unless related measures and descriptions are verifiable and neutral. In this paper, we continue to use the term “reliability” to be consistent with existing studies.

13See the minutes of FASB Board Meeting, July 2005.
14See the FASB-IASB Joint Conceptual Framework Project, June 2005, Attachment F.
15The Board emphasizes that representational faithfulness is just upgraded from a component of old
3 Two alternative views on relevance of accounting information

3.1 The accounting representation, fundamental and benchmark

We consider three key variables based on the FASB’s definitions of relevance and reliability: accounting representation, fundamental and benchmark. On the financial statements, the reported accounting representation of a given asset (or liability) is a single number, the value of the asset (or liability). This reported accounting representation of a given asset or liability is denoted as $y$.

Various types of individual users of accounting information about a value of an asset or liability incorporate the information into their decision-making. For example, when investors of a firm observe a reported accounting value of an asset, they would assess the impact of the disclosure of the asset value on the future cash flows and stock returns of the firm and incorporate it into their investment decisions.\textsuperscript{16} We denote what accounting information users are ultimately concerned about in their decision-making as $V$ and name it ‘the fundamental.’

Even though considerable overlap exists about the fundamental among different types of users, the decision-specific fundamental will be different for different information users for different types of assets or liabilities.\textsuperscript{17} For example, stock returns may not be what creditors are ultimately concerned about when they utilize the reported accounting value of an asset for their decision-making. Moreover, even if we consider the stock return as the fundamental $V$ for investors, it is not easy to establish an

\textsuperscript{16}Barth (2000) discusses models that link equity price to values of assets and liabilities. Maines and Wahlen (2005) also agree with this point of view.

\textsuperscript{17}The Concepts Statement No. 2 paragraph 45 also discusses this point.
individual link between stock returns and the accounting value of an asset because an asset value is one of many factors that moves stock price.

In addition, the fundamental $V$ and an accounting number $y$ are not in general of the same scale or unit value. Therefore, they are not directly comparable. In the above example of investors, the fundamental, i.e., stock price, is in dollars per share while the value of an asset is in dollars. Therefore, a medium which is in the same scale with the accounting value with a positive correlation with the fundamental, is required for assessing the usefulness of individual accounting numbers.

The Concepts Statements also recognize the need for a medium. The Statement No. 2 paragraph 50 states that one of the most fundamental questions in the search for relevance is the choice of the attribute to be measured for financial reporting purposes. The attribute to be measured is referred as multiple names in the Statement, including ‘what it purports to represent’ in paragraph 59 and (real-world) ‘economic phenomena’ in paragraph 68. In addition, Maines and Wahlen (2005) call this ‘current-period economic constructs.’\(^\text{18}\) We will use a neutral name, ‘the benchmark’ for the medium and denote it as $x$. The benchmark $x$ is unobservable where the accounting representation $y$ is the estimate of the benchmark. An in-depth discussion about the role of the benchmark in relation between relevance and reliability will be presented in section 5.

Using the three variables, we present a representation of reliability (or faithful representation) and two alternative representations of relevance that could be inferred from the definitions in the Conceptual Framework.

\(^{18}\)They say these economic constructs arise from the firms’ transactions, events, and commercial arrangements and yield the future cash flows relevant for predicting future cash flows.
3.2 Reliability as the closeness between $x$ and $y$

The Conceptual Framework defines reliability as a quality that assures accounting representation $y$ faithfully represents what it purports to represent $x$ without error and bias. It seems there is a general agreement that reliability as the closeness between $x$ and $y$. Sterling (1985, p.30) refers reliability as the closeness of the phenomena ($x$) and the representation ($y$). Maines and Wahlen (2005) and Sloan (1999) similarly define reliability as the relation between current period economic constructs ($x$) and current period accounting information ($y$) representing and measuring those constructs.

Empirical studies also adopt this definition of reliability. For example, Carroll, Linsmeier and Petroni (2003) among other studies reason that fair value estimates of mutual funds with active markets are more reliable than estimates of funds without active markets because fair values of funds without quoted market prices are determined by the board of directors. In other words, when the benchmark $x$ is fair values of mutual funds, quoted market prices are more more faithful and reliable representation of the fair values than the board of directors’ measurements.

3.3 Two alternative views on relevance

Discussions of relevance by the FASB as well as existing studies leave room for two different interpretations of relevance.

3.3.1 Relevance as the closeness between $V$ and $x$

The Concepts Statement No. 2 indicates that relevance can be interpreted as the closeness between the fundamental $V$ and the benchmark $x$.\textsuperscript{19} It seems that this

\textsuperscript{19}For example, paragraph 50 states that one of the most fundamental questions in the search for relevance is the choice of the attribute $x$ to be measured for financial reporting purposes.
interpretation reflects the dominating view. For example, Sterling (1985, p.30) specifies relevance as the closeness between the phenomena $x$ to the decision where the decision can be considered as the fundamental $V$ of this study.  

Similarly, Sloan (1999) states that relevance requires that the perfect measurement of the underlying attribute ($x$) of an item (such as the current value of a fixed asset) would result in accounting measurement ($y$) useful to investors. This logic can be interpreted as the accounting measurement $y$ being useful to the extent that its benchmark $x$ is closely related to the fundamental $V$.

Under this view, it is difficult to separate relevance from reliability because the benchmark $x$ is often unobservable, as stated in the Concepts Statement No. 2 paragraph 68. The IASB/FASB Board Meeting Handout, May 2005, paragraph 36 also points out that value-relevance and experimental market studies have accumulated considerable evidence supporting the measurability of the combined relevance and reliability of accounting information by correlation to market price changes. Therefore, empirical studies usually use the value relevance test, a combined test of two characteristics, and infer the information usefulness from the statistical association between $V$ and $y$.  

As a result, under this view, existing empirical evidence provides limited support for either one of the fair value and historical cost in relation to relevance-reliability trade-offs.

Specifically, two ambiguities arise from this view of relevance. First, consider the fair value accounting for securities held for short-term investment. Considering that these securities are usually actively traded in the market, we choose fair values to be

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\(^{20}\)He further argues that because relevance and reliability refer to different connections there is no trade-off between the two.

our benchmark \( x \). Barth (1994), Petroni and Wahlen (1995), Eccher, Ramesh, and Thiagarajan (1996) and Carroll, Linsmeier, and Petroni (2003) report that the quoted market prices of investment securities in active markets are more value-relevant than their historical costs. Thus, under the fair value accounting system, the quoted market prices would be reasonable estimates \( y \) of the securities’ fair values with little error.

As an alternative, suppose fair values are estimated based on a formula with many assumptions and parameters. The resulting measurements \( y \) would contain much greater error. That is, the latter measurements would be less reliable and less value-relevant than the quoted market prices. McCaslin and Stanga (1983) and Carroll, Linsmeier and Petroni (2003, p.3) state that accounting preparers and users believe that the lack of reliability of accounting information would impair or perhaps even destroy the relevance of reported accounting amounts. The view that relevance refers to the closeness between \( V \) and \( x \) does not distinguish the differences of the two alternative estimates of fair values and the estimates from the formula would be perceived as relevant as the quoted market prices.

The other ambiguity related to the first view of relevance concerns the role of the benchmark and thus of reliability. We consider two kinds of benchmark for this asset. First, suppose an asset whose fair value is very difficult to estimate because the asset is unique and is not frequently traded. For this reason, its historical cost is chosen as a benchmark \( x \). Since historical cost can be found without errors in general, its accounting representation \( y \) would be exactly the historical cost under the historical cost accounting system. Thus, this accounting value is perfectly reliable (i.e., \( x = y \)) but relevant only to the extent that the historical cost \( x \) is closely related to the fundamental \( V \) under the first view of relevance.

Alternatively, suppose the fair value of this unique asset is chosen as the bench-
Because it is very difficult to estimate the fair value, its historical cost could be used as a crude estimate of the fair value. Even though the historical cost is outdated, it incorporates all the specificities as a value of the asset. Under this view of relevance, if fair value, the benchmark \( x \), is very closely related to the fundamental \( V \), the historical cost, a (crude) estimate \( y \) of the benchmark, is perceived very relevant but reliable only to the extent that it is a good estimate of fair value. In this example, the same historical cost of this asset can be both (1) very reliable but not so relevant when the historical cost is chosen as the benchmark \( x \) and (2) very relevant but not so reliable when the fair value as the benchmark \( x \). This example raises a question of what the role of benchmark and reliability as well as the definition of relevance are.

While defining relevance as the closeness between \( V \) and \( x \), Sterling (1985, P.35) agrees that whether past or present prices are more reliable depends on “what phenomena the numerals purport to represent.” He reasons that historical cost (fair value) is both relevant and reliable if the benchmark is past price (current price). Accordingly, there is no relevance-reliability trade-off between fair value and historical cost. However, his argument does not provide a guidance on which benchmark should be chosen and, as a result, little progress can be made toward agreement on the fair value versus historical cost debate. While the Board also recognizes that the choice of the benchmark is critical in standard-setting, it seems that it allows any relevant economic phenomenon as a candidate for the benchmark.\(^{22}\)

\(^{22}\)The Concepts Statement No. 2 paragraph 50 states that the lack of experience with information about the measurement attributes and different opinions about their relevance and reliability make it difficult to obtain agreement on the benchmark. In addition, Maines and Wahlen (2005, p.13) find that archival research uses various economic benchmarks including empirical proxies for economic constructs, simulated economic constructs, future cash flows, and forward-looking accounting measures.
3.3.2 Relevance as the closeness between $V$ and $y$

Another view of the relevance of accounting information that can be inferred from the Conceptual Framework and the literature is to understand the relevance as the closeness between the fundamental $V$ and the accounting representation $y$. The Concepts Statement No. 2 paragraph 61 explains that relevance is like effectiveness of a drug. A drug is effective if it cures or alleviates the condition for which it was prescribed. This view of relevance seems to be more consistent with the everyday use of the term as well as with the term ‘value-relevance.’ Even though Maines and Wahlen (2005) define relevance of accounting information as a closeness between $V$ and $x$, they recognize the link between $V$ and accounting representation $y$ in their figure 1.

We adopt this second view of relevance. We believe that the closeness between $V$ and $x$ can be more clearly called the relevance of the benchmark $x$, not of accounting information $y$. While the second view of relevance would only be a cosmetic change from the first view, it results in a very different intuition about the interaction between relevance and reliability. Unlike the first view of relevance, this view accepts that the ability of accounting estimates to faithfully represent the benchmark plays an important role on the relevance of the accounting information. More importantly, we provides a guidance on the choice of a benchmark and clarifies the role of benchmark and reliability with respect to relevance. Therefore, a clear priority between fair value and historical cost is justified.

23Maines and Wahlen (2005) agree with this view.
4 Existing views on the role of the benchmark and reliability

As discussed earlier, the main choice problem in the valuation of an asset or liability is to choose a benchmark \( x \). Standards for estimates of the benchmark would produce an accounting measurement \( y \) because the benchmark \( x \) is in general unobservable, even ex post. Therefore, standard setters of valuations standards are faced with the problem of choosing an \((x, y)\) pair.

The Conceptual Framework clearly states that the objective of financial reporting is to provide information that is useful to its users in making rational decisions. Assuming that there is a general agreement on the fundamental \( V \) among standard setters and information users, the objective of financial reporting can be interpreted as reporting accounting measurement \( y \) that is closely aligned with the fundamental \( V \). Therefore, standard setters have to choose a pair of \((x, y)\) among feasible pairs such that the pair maximizes the correlation between the fundamental \( V \) and accounting measurement \( y \). In other words, the goal is to maximize the usefulness of an accounting information by strengthening its relevance reflected in the closeness between \( V \) and \( y \). A question that immediately follows is why we need to consider the benchmark \( x \) and reliability (the closeness between \( x \) and \( y \)). Does it matter whether the accounting measure faithfully represents a benchmark as long as the same \( y \) is generated for two different benchmarks, which is closely correlated with the fundamental \( V \)?

Before answering this question, we discuss two existing views on the role of a

\footnote{We assume that other factors such as the cost of producing information are either neutral or negligible. In addition, qualities that are not included in the discussion such as comparability, completeness, materiality, timeliness, and understandability would not affect general implications of this study partly because of the simplicity of \( x \) and \( y \) in our setting and partly because they are couched in our notion of the fundamental \( V \).}
benchmark and reliability in the literature. After that we answer the question by presenting the third view which, we believe, would enhance the understanding of the concepts of relevance and reliability leading to a greater consensus in standard-setting.

4.1 Reliability as the dominant quality

The FASB is aware of the strong existence of a view that treats reliability as the dominant quality over relevance. It is understandable that the demand for reliability is especially strong among accounting practitioners. Particularly, accounting information preparers and auditors are likely to consider reliability more important than relevance because they want to ensure that the information is reasonably free from error or bias. McCarthy (2004) asserts that the reliability of historical cost reporting is ‘infinitely more valuable’ to the majority of information users than the benefits of fair value reporting. He believes that the cost of fair value estimation surpasses its benefits with the auditor independence in danger, especially for private firms. Heffes (2005) also reports that some practitioners are highly concerned about the FASB’s proposal of fair value measurements fearing that the proposed measurement would decrease the verifiability and auditability.

This view usually entails a benchmark $x$ whose estimate is very easy to obtain, resulting in high reliability (close $x$ and $y$). Thus, when a benchmark is chosen, relevance is often sacrificed in order to accomplish high reliability. A good example is the historical cost as a benchmark in valuations. Historical cost is normally easy to verify and thus considered highly reliable. However, historical cost is often outdated to serve as a good benchmark of the value of an asset or liability.

\[25\text{See the Concepts Statement No. 2 paragraph 44.}\]
4.2 Relevance and reliability as equally necessary qualities

Though the voice for the dominance of reliability seems still strong among accounting practitioners, the FASB Concepts Statement No. 2 paragraph 44 warns that if reliability only were protected over relevance, the most useful information in financial reporting would be generated outside the financial statements. Then, the audited financial statements would increasingly convey highly reliable but largely irrelevant, and thus useless, information. Thus, it is clear the FASB’s position is to deny the dominance of reliability over relevance. The Board considers both characteristics to be essential and many of existing studies follow the FASB’s position.26

However, the Board provides limited guidance for how relevance and reliability should be applied and how their trade-offs should be weighed in selecting a benchmark.27 This problem deepens if the notion of relevance as the closeness between the fundamental $V$ and the benchmark $x$ is accepted because this view of relevance entails further ambiguities as discussed in Section 3.3.1.

Therefore, we consider relevance as the closeness between $V$ and accounting representation $y$ and introduce the third view of the relevance-reliability relation as well as the role of reliability.

5 Reliability as a means to achieve relevance

Once relevance is understood as the closeness between $V$ and $y$, the objective of financial reporting in the Conceptual Framework translates standard setters’ problem

26According to the Concepts Statement No. 2 paragraph 42 and the Exposure Draft on Fair Value Measurement, Appendix C, paragraph C5, Kirschenheiter (1997) and Johnson (2005), neither relevance nor reliability is the paramount characteristic of accounting information and the two must be balanced against one another.

27The Concepts Statement No. 2 paragraph 42 states that information may possess both characteristics to varying degrees and it may be possible to trade relevance for reliability or vice versa, though not to the point of dispensing with one of them altogether.
into choosing a benchmark $x$ and accounting value $y$ that maximize relevance of the accounting value. However, simply focusing on relevance would not yield a practical guidance for understanding the usefulness of accounting information.

Without the help of a benchmark it is very difficult to link the fundamental and accounting value or to provide relevant information to users. Different scales or units of the fundamental and the accounting value hinder the direct link between the two. In addition, even though a value of an asset or liability is an important factor of the fundamental, at the same time, $V$ varies with multiple factors that are not directly related to the asset/liability value.

The importance of choosing a benchmark and reporting a value that is close to the benchmark rests in the role of creating a link between the fundamental and the information. In other words, relevant accounting information is generated in the process of creating reliable information.\(^28\) Therefore, as long as the accounting value is sufficiently reliable, the problem of relevance-reliability trade-offs becomes as not critical as it is perceived to be.\(^29\)

Standard setters, practitioners and researchers generally are aware that reliability is a necessary not a sufficient condition for information to be useful. That is, unless accounting information is sufficiently reliable, it is not relevant or useful. Yet, many of them regard both relevance and reliability equally necessary for information to be useful.\(^30\) This is a part of the reason for the lack of a guidance on the choice of a benchmark and accounting method. We believe that the benchmark and reliability of accounting information are important to the extent that they facilitate relevance.

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\(^28\)However, this view does not mean that reliable information is always relevant.

\(^29\)As long as the benchmark is chosen sufficiently closely related to the fundamental and accounting value faithfully represents the benchmark, relevance of the information is important for the usefulness and the trade-off between relevance and reliability becomes less important.

\(^30\)See the Concept Statements, Carroll, Linsmeier and Petroni (2003), McCaslin and Stanga (1983), and Maines and Wahlen (2005) among other studies.
of the information. Based on this view of relevance-reliability relation, we present a guideline for such benchmark and discuss intuitions with two examples.

5.1 A guideline for the benchmark

First, a benchmark has to be sufficiently well defined so that it is understood by different users as the same thing. For example, the FASB has laid out in detail the definition of fair value of an asset/liability as a benchmark in the FASB Exposure Draft on Fair Value Measurements in paragraphs 4 and 5. Fair value is defined as ‘the price at which an asset or liability could be exchanged in a current transaction between knowledgeable, unrelated willing parties.’ This requirement for clear specification of a benchmark does not necessarily imply that the benchmark must be observable.

Second, a benchmark should be in the same scale with the reported accounting value so that they are directly comparable to each other. For example, the fair value and accounting value of an asset are in dollars and directly compare to each other. The direct comparability is critical because it enables auditors to examine individual accounting values.

Lastly but most importantly, a benchmark and the fundamental $V$ that the standard-setters intend to capture with the accounting value $y$ should be affected by the same or at least very similar set of factors. In other words, the benchmark should be a close surrogate for the fundamental. In the above example, the fair value of an asset to be sold soon, which is the price that would be received if sold now, can be reasonably assumed to be closely related to stock price in any theoretical model with rational investors. However, it is not likely that factors that determined historical cost in the past would influence the current stock price.

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31 Given direct comparability, reliability can be redefined as the closeness between $x$ and $y$ instead of the close relation between $x$ and $y$. 
A notable difference of the third view is that historical cost that could be considered as a benchmark in the other two views would not qualify as one. Fair value generally meets the three conditions though it may not satisfy the first condition in some cases especially for assets or liabilities without active markets. The FASB’s definition of fair value in the Exposure Draft can be considered as an effort to satisfy the first condition as a benchmark.

Among candidates of benchmark which qualify above conditions, standard setters choose the one that results in the closest link between the fundamental and accounting value $y$, where the accounting value is determined such that it faithfully represents the benchmark $x$. i.e., a sufficient closeness between $x$ and $y$. The statistical association between the accounting value and the fundamental can be inferred from the value-relevance tests.

We discuss insights from this view with two types of assets: assets held for sale and assets held for use. First, we discuss how to choose a benchmark and accounting values for the assets. Second, we provide an understanding about generating a sufficiently reliable accounting estimates of the benchmark. Lastly, we argue that dirty surplus accounting is consistent with the proposed view of the role of reliability. For convenience, we assume that stock price of a firm is the fundamental.32

5.2 Assets held for sale

Assets held for sale are those to be disposed of in the near future. Examples are trading securities, available-for-sale securities, inventories, or non-current assets to be sold within a year.33 In a frictionless and active market, the current market price

32There are other important groups of users of accounting information than investors such as creditors, and even for investors stock price may only be a noisy proxy for the firm’s fundamental. However, the points of this section are largely independent of these concerns.

33
of an asset for sold is likely to be the best estimate of its price in the near future. Thus, the current exit price of the asset in the hypothetical frictionless and active market can be defined as fair value and a benchmark for its accounting value. Not surprisingly, quoted market prices of investment securities are sufficiently reliable so that they consistently exhibit stronger value-relevance for stock price compared to the corresponding historical costs in existing studies.\textsuperscript{34}

However, if there is no active market for an asset, only a crude estimate of fair value can be obtained. In this case, there is often debates on whether fair value is a better benchmark compared to historical cost. The proposed view on the reliability-relevance relation indicates that the benchmark and reliability of the resulting accounting information are important to the extent that they help establish relevance. On the one hand, historical cost satisfies the first two conditions as a benchmark but the relevance under the historical cost method would suffer to the extent that historical cost is not closely related to the share price. On the other hand, fair value does not satisfy the first condition for an asset traded in thin markets to the extent of the estimation errors, which in turn weaken the relevance of the information.

Existing studies on the assets traded in thin markets rarely report that historical costs are more value relevant than estimated fair values of those assets.\textsuperscript{35} The results can be interpreted as the evidence that fair values of assets (or liabilities) in thin markets are also sufficiently reliable (and thus enhance relevance).

5.3 Assets held for use

Assets held for use are long-lived assets held to generate income for a number of years. They include PP&E, intangible assets, and long-term investments in affiliated company’s stock. A firm intends to use them until the condition changes so that it is better to dispose of the assets. Under the assumption that share price is the firm’s fundamental, the most appropriate benchmark depends on how the market would value such an asset. We present a simple model that suggests how to construct the most relevant accounting value of an asset held for use and thus helps determine an appropriate benchmark for the value of such an asset.

Suppose a firm uses an asset as of time 0 and plans to use it until time $T$. The firm has two options. If the firm sells the asset at time $T$, the total discounted net cash flows generated from this asset is $C_S$. The other option for the firm is to use the asset until the end of the useful life at time $T'$ where $T' > T$. In this case the total discounted net cash flows from the asset is an uncertain number $C_U$. Suppose there are two possibilities: (1) the total discounted net cash flows from the asset will be $C_U < C_S$ with probability $\alpha$ and (2) $C_U > C_S$ with probability $1 - \alpha$ where $C_U = C_S + G$ with $G > 0$. This uncertainty will be resolved at time $T$. Thus, the firm will choose at time $T$ to use the asset until time $T'$ if and only if $C_U > C_S$. Otherwise it will sell the asset for $C_S$ at time $T$. Therefore, the market’s assessment of the value of the asset at time 0 (i.e., the value the accounting value of the asset is suppose to represent), denoted by $A$, is
\[
A = \alpha C_S + (1 - \alpha)C_U \\
= \alpha C_S + (1 - \alpha)(C_S + G) \\
= C_S + (1 - \alpha)G.
\]
Equation (1) shows that the theoretical value of the asset is the sales value of the asset $C_S$ plus a premium $(1 - \alpha)G$. The possibility to use the asset beyond time $T$, which is reflected in $(1 - \alpha)G$, increases the market’s assessment of the incremental value $G$ of the asset. Moreover, as the firm’s future prospect on the asset improves, $\alpha$ would decrease and the firm will be more likely to use the asset until the end of its useful life. This is consistent with Aboody, Barth and Kasznik (1999) who find that upward revaluations of fixed assets by the UK firms are positively related to changes in future performance.

The intuition obtained from equation (1) could be used as a basis for constructing a benchmark in valuing assets for use. For example, techniques can be developed to estimate the premium for continued use, i.e., $(1 - \alpha)G$. Fair value can be considered as a proxy for $C_S$ if we consider time $T$ as very close to time 0. It is not, however, the intention of this paper to construct an elaborate theory for the valuation of assets for use. An important message here is that there have to be explicit attempts, like this one, to construct a good benchmark by theories, and also by tests of the theories, explicitly taking into account that the objective function is to maximize the relevance of accounting reports.

5.4 Dynamic considerations

It would be fair to conjecture that there would be some, and perhaps significant, improvements of the fair value estimates over time through advance of new formulae or markets. Especially, the adoption of the fair value method will increase the demand for better estimates and, as a result, efforts to obtain sufficiently reliable estimates will be intensified. Once sufficiently reliable estimates are available, relevance of the information can be significantly improved. However, historical cost can be measured
without error and there is no room for improvement of reliability over time. As a result, improvement of relevance and usefulness of the accounting information cannot be expected.

Empirical results consistent with this conjecture can be found in fair value studies based on the data from the United Kingdom or Australia. In those countries, certain assets that should be reported at historical costs could be reported at fair values. According to studies like Dietrich, Harris, and Muller (2001) and Muller and Reidl (2001), the UK GAAP requires that investment property be revalued by an appraiser at its fair value at the end of each fiscal year. Firms can use estimates by internal or external appraisers and appraisers usually use the actual or estimated net cash flows of the property and the investment yield of similar property for the estimation. The resulting estimates should be evaluated for their reasonableness by the company’s auditors. Dietrich, Harris, and Muller (2001) find different levels of estimation errors in estimated fair values depending on appraisers and auditors. However, Muller and Reidl (2002) find that investors do not recognize the different levels of reliability and conclude that accounting is investors’ best source of fair values.

Barth and Clinch (1998) report that Australian firms are allowed to revalue all long-lived assets (both financial and non-financial assets) at fair values under the Australian GAAP. Similar to the UK, Australian firms can revalue the assets based on independent appraisers’ estimates or directors value estimates. Therefore, reliability of the estimates may vary. Barth and Clinch (1998) find that revalued estimates of investments, intangibles, and property, plant and equipment are in general significantly positively associated with share prices. Results of Barth and Clinch (1998) show that the estimates are sufficiently reliable despite the concerns about the reliability of the estimates.
Therefore, the emphasis on relevance for the decision of fair value versus historical cost has a greater potential of enhancing the relevance and thus usefulness of accounting information as its reliability improves over time. The Exposure Draft on the fair value measurement would provide a base for fair values estimates that could continue to be improved to be sufficiently reliable.\textsuperscript{36}

We have discussed the choice of a benchmark and accounting values by interpreting relevance as the relation between the fundamental and accounting representation where relevance of the accounting information is maximized in the process of generating sufficiently reliable estimate of the benchmark. The next section shows that the dirty surplus accounting is justified under the proposed framework of the relevance-reliability relation.

\textbf{5.5 Valuation diverges from recognition: dirty surplus accounting}

Suppose standards are significantly revised in order to enhance the relevance of accounting values of assets and liabilities. Since investors constitute one of the most important classes of the users of the information, the revision would increase the value relevance, i.e., relevance with respect to stock price, of the accounting information. Considering the forward-looking nature of stock price, greater value relevance is likely to be accompanied by the recognition of unearned, future benefits or costs for the assets or liabilities to a greater extent. Inevitably, the recognition of unearned

\textsuperscript{36}Jones and Stanwick (1999) also support the FASB’s move. They explain that the underlying idea behind the use of fair value as a measurement attribute is that fair value represents a market price. Market prices capture the consensus view of all market participants about an asset’s or liability’s economic characteristics, including assumptions about cash flows, profit margins, and risk. Therefore, the information provide by fair value should provide financial statement uses with more complete, relevant and representationally faithful information that should result in an improved basis for decision making.
revenues and the corresponding expenses is a violation of the revenue recognition principle along with the matching principle of the US GAAP.

An obvious way to solve this problem is to use the dirty surplus accounting. Under the dirty surplus accounting, unrealized gains or losses do not affect reported net income yet reported values of assets or liabilities would be closely associated with stock price. Allowing dirty surpluses adds values to the so-far-neglected balance sheet without diminishing the consistency of the income statement figures, which is a win-win situation. Indeed, the standard setters have become increasingly favorable of the dirty surplus accounting over the years and included selected unrealized gains or losses in the equity section of the balance sheet.

6 Conclusion

This study presents a new framework of relevance-reliability relation and provides a clear guideline about how to choose a benchmark and accounting values. We propose that relevance be defined as the closeness between the fundamental and accounting representation such that reporting accounting values that is sufficiently close to the benchmark (sufficiently reliable) maximizes the relevance of the resulting accounting value. Under this framework, trade-offs between relevance and reliability in the debate over historical cost versus fair value become less critical in that sufficiently reliable information paves the way to enhanced relevance.

In examples of assets held for sale and assets held for use, we demonstrate the benefits of the proposed framework. Our analysis shows that the FASB’s recent

37 Any differences between the two are reported as items of shareholders’ equity without flowing through the income statement.

38 Examples are unrealized gains or losses from available-for-sale securities and cash flow hedges (e.g., futures contracts and put options).

39 In expressing our views, our focus is on the two main qualities of relevance and reliability to be
movement toward fair value measurement is welcoming. It would be a groundwork for the enhanced usefulness of accounting by providing incentives to diligently seek ways to improve reliability which would strengthen relevance as the information becomes increasingly reliable.

parsimonious, omitting discussions of some other qualities of useful information.
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