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## **Evaluating the Impact of Fair Value Accounting on Financial Institutions:**

## **Implications for Accounting Standards Setting and Bank Supervision**



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## **Evaluating the Impact of Fair Value Accounting on Financial Institutions: Implications for Accounting Standards Setting and Bank Supervision\***

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December 31, 2011

Recent standard-setting activity related to fair value accounting has injected new life into questions of whether fair value provides information useful for decision-making, and whether there might be unintended consequences on financial stability. This discussion paper provides insight into these questions by performing a holistic evaluation of fair value accounting's usefulness, the potential impacts it may have on financial institutions and any broader macroeconomic effects. Materials reviewed as part of this analysis include public bank regulatory filings, financial statements, and fair value research. The bank supervisory rating approach referred to as CAMELS is used as an organizing principle for the paper. CAMELS serves as a convenient way to both categorize potential impacts of fair value on financial institutions, as well as provide a bank supervisory perspective alongside the more traditional investor's views on decision usefulness.

The overall conclusion based on the evidence presented is that implementing fair value accounting more broadly may not necessarily provide financial statement users with more transparent and useful reporting. Additionally, financial stability may be negatively impacted by fair value accounting due to the interconnectedness of financial institutions, markets and the broader economy. The analysis suggests that the current direction in which accounting standard setters and bank regulators are moving may represent a possible solution to address these concerns. U.S. accounting standard setters have recently proposed that fair value, along with enhanced disclosures, be applied in a more targeted manner. Bank regulators are developing new supervisory tools and approaches which may alleviate some of the potential negative impact of fair value on financial stability. Additional policy implications and areas for future study are suggested.

JEL Classifications: G21, G28, M41, M52

Keywords: Fair Value Accounting, Bank Supervision, Regulatory Capital, Financial Stability

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*“Banks are different because they matter more, because they can do more harm. That’s why we regulate and supervise their business but do not regulate the business of retailers, hoteliers or manufacturers. That’s why there is a special relationship between the banking system and central banks as lenders of last resort. That’s why we worry a lot about ‘too big to fail’ considerations. And that’s why prudential regulators, central banks and economic policymakers have a vital interest in the decisions of accounting standard setters on bank accounting standards, which does not apply between regulators and accounting bodies in any other sector of the economy.”*

- Adair Turner, Chairman Financial Services Authority, UK<sup>1</sup>

## **INTRODUCTION**

In a speech at the European Commission Conference on Financial Reporting and Auditing in 2011, International Accounting Standards Board (IASB) Chairman Hans Hoogervorst (2011) noted that there are two primary questions that currently dominate accounting debates. The first question is: Should investors be the primary audience for financial reporting? The second: Should accounting standards include a goal of financial stability? These questions have a direct bearing on the debate over fair value accounting. Fair value accounting has consistently generated heated reactions from those wishing to expand the measurement approach, and those wishing to limit it. The recent financial crisis, new fair value accounting standard proposals, and changes in bank regulatory rules continue to add fuel to this debate.

Academics and standard setters have applied significant effort researching whether fair value accounting results are useful for decision making, typically from an investor’s perspective. Another line of research has targeted the observed or potential impacts of fair value accounting from the micro- or firm-level to the macroeconomic level. This discussion paper provides insight into the fair value debate by performing a holistic evaluation of the usefulness of fair value accounting. It will examine the potential impacts on financial institutions, as well as any broader systemic effects. The bank supervisory rating approach referred to as CAMELS is used as an organizing principle for the paper. CAMELS serves as a convenient way to both categorize potential impacts of fair value on financial institutions, as well as provide a bank supervisory perspective alongside the more traditional investor’s

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<sup>1</sup> Turner (2010)

view of decision usefulness. CAMELS is an acronym representing the six dimensions evaluated under the Uniform Financial Institutions Rating System (UFIRS). Under the UFIRS, each financial institution is assigned a composite rating based on an assessment of six essential components of the institution's financial condition and operations. These component factors address the adequacy of capital (C), the quality of assets (A), the capability of management (M), the quality and level of earnings (E), the adequacy of liquidity (L), and the sensitivity to market risk (S)<sup>2</sup>.

Materials reviewed as part of this evaluation include public bank regulatory filings, financial statements, and recent fair value research. The analysis examines both current accounting rules and potential future scenarios in which fair value accounting may be implemented more broadly. It also incorporates current U.S. regulatory capital rules, as well as proposed capital rules under the Basel III framework.

The paper is organized into four sections. The first section provides background information on fair value accounting and the primary drivers that have influenced U.S. accounting standard setters. This section also highlights the intersection of accounting rules with regulatory capital requirements. The second section outlines the foundations for fair value research and summarizes significant early work. Section III presents empirical evidence and other research results in order to assess the impact of recent fair value accounting standards, evaluate the possible effects of proposed new standards and highlight implications. This is followed by the conclusion, supervisory policy implications and areas for future study.

## **I. BACKGROUND**

### **Historical context**

Early accounting practice and rules were designed to record the results of transactions and allocate financial results across reporting periods. This approach is often referred to as a revenue/expense approach, where the income statement is the primary focus and historical cost is considered to be the most appropriate basis for measurement and reporting. Under this approach, revenue is recorded when it is realized and earned

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<sup>2</sup> FDIC (1997)

and expenses are matched in the same reporting period as revenue. The approach is constrained by principles such as conservatism – that is, choosing a solution least likely to overstate assets and income. It may also result in idiosyncratic adaptations and reinterpretations of the basic accounting tenets in order to reflect unique aspects of a particular industry<sup>3</sup>.

In the 1980s, accounting standard setters began to shift away from this approach, in part due to concerns that the combination of historical cost and delayed loss recognition were producing financial results disconnected from economic reality. Historical cost accounting was also criticized for providing managers with the means to smooth profits through hidden, excess reserves and selective sales of securities. During this period, a number of other factors also influenced accounting standard setters. Financial instruments and markets were becoming more complex. Historical cost was proving to be a poor measurement approach in inflationary markets. In addition, new financial products such as derivatives and structured investments simply could not be measured in a meaningful way using traditional approaches.

Partially in response to these issues, the Financial Accounting Standards Board (FASB) began to increase the use of fair value measurement in accounting standards. Fair value is currently defined under U.S. Generally Accepted Accounting Principles (U.S. GAAP) as an 'exit price', which is the price that would either be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants, at the measurement date<sup>4</sup>. Optimally, fair value estimates would be obtained by observing transaction prices in active markets comprised of knowledgeable and informed participants. However, it is often the case that fair value must be estimated either by reference to transactions involving similar instruments or via valuation models. A three-level hierarchy framework is utilized in footnote disclosures to categorize these fair value measurement methods. Level 1 refers to observable prices for the same instrument in an active market. Level 2 includes estimates based on observable prices for similar instruments, or estimates derived from models using observable inputs. Level 3 represents

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<sup>3</sup> These well known, basic accounting conventions outline the primary guidelines for recording transactions under the revenue/expense approach. Additional constraints are cost-benefit relationship and materiality which do not have a direct bearing on the discussion. (Kieso, Weygandt, Warfield 2007)

<sup>4</sup> FASB (2007b)

estimates based on some form of valuation model that requires the use of unobservable inputs or management assumptions.

The earliest standards to incorporate fair value measurement more broadly were limited to footnote disclosures and had no balance sheet or income statement impact<sup>5</sup>. Subsequently, fair value was applied to defined sets of instruments or transaction types. Most significantly, investment securities and derivative contracts were required to be measured at fair value. While there were several earlier rules that addressed the measurement of these instruments, the Statements currently in effect are SFAS No. 115 and SFAS No. 133<sup>6</sup>. Under SFAS No. 115, investment securities designated as “held for trading” or “available for sale” (AFS) must be measured at fair value each reporting period. Changes in fair value are recognized in net income for trading securities and split between net income and other comprehensive income (OCI) for AFS securities<sup>7</sup>. Debt securities can also be designated as held to maturity and measured at historical (amortized) cost<sup>8</sup>. SFAS No. 133 requires that all freestanding derivatives be measured at fair value each reporting period, with changes in fair value recorded in net income<sup>9</sup>. These two standards continue to be the principal drivers of recurring fair value measurement on the balance sheets of financial institutions.

Momentum for the expansion of fair value continued to build in the late 1990s and early 2000s. The SEC prepared a study pursuant to Section 108(d) of the Sarbanes-Oxley Act of 2002 on the adoption of a principles-based accounting system. This encouraged the development of more objectives-oriented standards<sup>10</sup>. The FASB also published a proposal, Principles-Based Approach to U.S. Standard Setting, reflecting similar conclusions.

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<sup>5</sup> One of the early standards to utilize fair value in a broad context was Statement of Financial Accounting Standards (SFAS) No. 107, “Disclosures about Fair Value of Financial Instruments.”

<sup>6</sup> Original SFAS number designations and titles are used in this document when referring to the original release dates and titles of FASB standards. All U.S. GAAP accounting standards were subsequently codified under the FASB Accounting Standard Codification (ASC) in 2009.

<sup>7</sup> Other comprehensive income is defined in FASB Concept Statement No. 6 as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners. (FASB 2008)

<sup>8</sup> FASB (1993)

<sup>9</sup> The principal exception is for derivatives that are designated as cash flow hedges as defined in the standard. These changes in fair value are recorded as other comprehensive income and reclassified to income in the period when the hedged item affects income. Any ineffective portion of the hedge is recorded in income immediately. (FASB 1998)

<sup>10</sup> SEC (2003)

Accounting standard setters and the SEC saw value in moving towards a more principles-based, objectives-oriented approach versus a more detailed, rules-based approach<sup>11</sup>. It was argued that moving in this direction would reduce the complexity of accounting rules and increase transparency in financial statements. Furthermore, it was hoped that it would help minimize opportunities for financial engineering where technical compliance is achieved but the intent of a standard is evaded.

The SEC study on principles-based accounting also concluded that an asset/liability approach, rather than a revenue/expense approach, most appropriately anchors the standard setting process by providing the strongest conceptual mapping to the underlying economic reality<sup>12</sup>. An asset/liability approach places the focus on the balance sheet. In its pure form, a reporting entity recognizes in its balance sheet only those items that are considered, by definition, to be assets and liabilities. Much that underpins the revenue/expense approach and, more generally, transaction-based accounting conflicts with the asset/liability approach. The revenue recognition and expense matching principles are supplanted by valuation outcomes. Income and expenses are determined by increases and decreases in assets and liabilities. In addition, valuations must be objective and neutral<sup>13</sup>. This requirement overrides the constraint of conservatism, which historically assumed a downward bias for asset valuations. Lastly, fair value measurement serves as the anchor for the asset/liability approach since valuation is the primary driver of accounting results. Given this emphasis, historical cost becomes less relevant.

Prior to the publication of the SEC study, most accounting standard setters had already concluded that fair value provides investors with more transparent, timely and accurate information and that all financial instruments should be measured using fair value<sup>14</sup>. This conclusion was supported by research which found that fair value enhances market discipline and efficient markets, and more closely reflects underlying economic realities. Examples include Barth (1994), Barth et.al (1996), Eccher (1996) which are

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<sup>11</sup> Objectives-oriented accounting standards are grounded in a conceptual framework, emphasize the objective of the standard, minimize exceptions and provide clear operational guidance. (SEC 2003)

<sup>12</sup> SEC (2003)

<sup>13</sup> SEC (2003)

<sup>14</sup> This conclusion was formalized in a Report issued in 2001 by the Joint Working Group of Standard Setters with participation by accounting standard setters from the U.S., Canada, Australia, UK, Germany, France, Japan and others.

further discussed in Section II. Investor groups such as the Chartered Financial Analyst Institute concurred with the standard setters' view<sup>15</sup>.

The pace of fair value expansion accelerated with the issuance of standards on hybrid instruments (SFAS 155) and servicing rights (SFAS 156) in 2006; and fair value option (SFAS 159), business acquisitions (SFAS 141R), and noncontrolling interests (SFAS 160) in 2007<sup>16</sup>. SFAS No. 157, "Fair Value Measurements", issued in 2006, is another important standard and is often incorrectly cited as being responsible for significantly expanding the use of fair value. On the contrary, this standard merely provided a definition of fair value, along with a measurement framework and disclosure requirements<sup>17</sup>. It can therefore be considered an important reference on fair value accounting, if not necessarily its origin.

These standards, along with other rules requiring historical cost, lower of cost or fair value and other similar approaches, comprise the *mixed measurement approach*. Determining which measurement approach is applicable depends on the type of asset or liability, the business strategy associated with an instrument, or the election decision made by management. Financial institutions are a focus of this paper. Under the mixed measurement approach, a financial institution measures most loans and securities that are designated as held to maturity at historical cost. These instruments are subject to some form of impairment review that can result in a valuation allowance and/or specific write down. The majority of an institution's investment portfolio is measured at fair value, with the adjustment between book value and fair value recorded in OCI. These investments may also be subject to an impairment analysis. An institution's liabilities, excluding derivatives, are generally recorded at historical cost (unless specifically elected to be measured at fair value).

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<sup>15</sup> McEnally (2007)

<sup>16</sup> The original FASB Standard references are used in this document. These standards were issued as stand-alone statements but were later codified in 2009 as part of the Accounting Codification Standards (ASC).

<sup>17</sup> FASB (2007b)

## The Current Debate

The mixed measurement approach is considered to be the most appropriate model by many bank managers and bank supervisors<sup>18</sup>. However, many standard setters, academics and some investors believe that an approach closer to full fair value measurement would be preferable. These two viewpoints encapsulate the current accounting debate that serves as the context for the analysis performed in this paper.

Proponents of the mixed measurement approach generally take the position that it provides the flexibility required to reflect the business purpose for holding an asset or liability. For example, it is argued that assets typically held for collection of cash flows should be recorded at historical cost, since it is the method that most closely reflects the underlying economics of a 'book and hold' strategy. Short-term market movements that are unlikely to be realized are not relevant under this strategy and have the potential of generating false signals to investors and management. Assets or liabilities that are held for the purpose of realizing changes in value via a sale or near-term liquidation or involve complex cash flows should be recorded at fair value.

Critics of the mixed measurement approach often argue that assets and liabilities can be significantly impacted by external events, and historical cost is either blind to these changes or only incorporates this information after long delays. They also note that multiple measurement approaches lead to more complex and detailed rules. Today's complex hedging rules backed by hundreds of pages of interpretations and guidance are a byproduct of the mixed measurement model. Additionally, the ability to designate or elect a measurement approach or trigger the recognition of a gain or loss through the decision to sell an asset provides opportunities for financial engineering and earnings manipulation. Another key criticism is that the option to measure the same or similar instruments under different measurement approaches creates a lack of consistency and transparency.

As expected, under the fair value approach all financial assets and liabilities would be measured at fair value. Proponents of this approach regard market information as more

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<sup>18</sup> Comment letters to the FASB on the proposed Accounting Standards Update, "Accounting for Financial Instruments and Revisions to the Accounting for Derivative Instruments and Hedging Activities" by the five U.S. financial institution regulatory agencies and numerous financial institutions expressly stated their preference for the mixed measurement approach based on the argument that it best reflects the business strategy and manner in which cash flows are realized or expended.

objective and understandable. They argue that fair value includes data that is ignored by historical cost measurements, such as the time value of money and the price of risk embedded in an instrument (e.g. interest rate, liquidity risk). Furthermore, they highlight that a business strategy is subject to change and is superseded by the need to include all available information regarding a financial instrument's value and performance. This becomes increasingly important in a dynamic market environment. Proponents point out that fair value in this context can provide an early warning of trouble for investors, managers and regulators. On the other side of the debate, it is posited that fair value may accelerate and amplify economic shocks via pro-cyclical effects on markets<sup>19</sup>. Critics of the fair value approach also note that such measures are not always objective, understandable, or transparent in the absence of active, liquid markets or during periods of significant market stress.

There are also subsets within the overall debate. One concerns the definition of fair value. As noted earlier, the FASB defines fair value as an exit price. However, there are competing definitions including current cost, net realizable value, value-in-use and deprival value<sup>20</sup>. A second debate focuses on where changes in fair value should be reported, either directly in net income, via other comprehensive income or disclosed in footnotes. These ancillary debates are part of a broad spectrum of views and approaches beyond the comparison of the fair value and mixed measurement models. These alternative options are not often contemplated in studies on fair value; however they do present possible paths that could be explored further.

### **Current Accounting Landscape**

Current U.S. GAAP accounting rules employ a mixed measurement model as described earlier; however, standard setters continue to push for expanded use of fair value. A recent, significant step forward was proposed via the FASB's Accounting for Financial Instrument project in 2010. The initial FASB proposal, "Accounting for Financial Instruments and Revisions to the Accounting for Derivative Instruments and Hedging

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<sup>19</sup> See Plantin et al. (2008) and Novoa et al. (2008) with additional discussion included in Section III.

<sup>20</sup> A detailed discussion on the topic of alternative measurement bases can be found in the paper, "Measurement bases for financial accounting measurement on initial recognition", prepared by staff of the Canadian Accounting Standards Board. (IASB 2005)

Activities,” was released as a proposed Accounting Standards Update (ASU) in May 2010. This proposed ASU required that all financial instruments be measured at fair value with limited exceptions<sup>21</sup>. The International Accounting Standards Board (IASB) issued their own proposal on accounting for financial instruments based on a mixed measurement approach closer to the model currently in use under U.S. GAAP and International Financial Reporting Standards (IFRS). The issuance of the financial instrument proposals by the FASB and IASB renewed the fair value debate among practitioners, investors, academics and regulators. Significant pressure from constituents prompted the FASB to consider major revisions to their initial proposal<sup>22</sup>. The FASB and IASB continue to re-deliberate in order to consider feedback and reconcile any major differences between their proposals. The approach currently under consideration by the FASB more closely mirrors the IASB’s proposed measurement model, which would allow companies to use amortized cost to measure instruments principally being held for the collection or payment of cash flows (e.g. loans, deposits and debt)<sup>23</sup>. Financial instruments that do not meet specified criteria related to cash flow characteristics and business strategy would be measured at fair value, with the change in value recorded either directly in net income or as OCI. Debt and equity securities would be measured at fair value with very limited exceptions.

### **Regulatory Capital Framework**

U.S. financial institution regulatory agencies were early critics of fair value measurement applied in the absence of active markets. Existing U.S. bank regulatory capital rules reduce the impact of fair value accounting through the application of ‘prudential filters’. One filter excludes from Tier 1 capital the fair value derived unrealized gains and losses on debt securities, and the unrealized gains on equity securities. A second

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<sup>21</sup> The FASB defines a financial instrument in SFAS No. 107 as cash, evidence of an ownership interest in an entity, or a contract that both: a) Imposes on one entity a contractual obligation (1) to deliver cash or another financial instrument to a second entity or (2) to exchange other financial instruments on potentially unfavorable terms with the second entity b) Conveys to that second entity a contractual right (1) to receive cash or another financial instrument from the first entity or (2) to exchange other financial instruments on potentially favorable terms with the first entity. (FASB 1991)

<sup>22</sup> The FASB received over 2,800 comment letters related to the proposed ASU, “Accounting for Financial Instruments and Revisions to the Accounting for Derivative Instruments and Hedging Activities.” (<http://www.fasb.org>- June 20, 2011)

<sup>23</sup> Amortized cost is the term used by the FASB to represent historical cost adjusted over time for amortization or other allocations. (FASB 2010a)

filter reverses the impact of revaluing a bank's own debt due to changes in its creditworthiness. A third filter neutralizes the impact of pension portfolio fair value gains and losses. Bank capital rules both in the U.S. and internationally are currently undergoing significant revisions in response to the recent financial crisis. The latest regulatory capital proposals, referred to collectively as the Basel III framework, would create more stringent capital standards by narrowing what can be counted toward regulatory capital, setting higher minimum capital ratios, and layering on additional capital buffers.

There are several notable changes relevant to the fair value discussion. First, under the proposed rules, the prudential filter for debt securities would be eliminated. This would result in unrealized gains and losses being reflected in regulatory capital. Second, the impact of pension investment portfolio gains and losses would no longer be neutralized. A third potential change is a new liquidity coverage ratio requirement for certain large institutions. This ratio is a measure of high quality liquid assets divided by net cash outflows over thirty days under a prescribed stress scenario. Under the potential new liquidity requirements, institutions may be required to hold more liquid instruments, most likely in the form of investment securities. The likelihood is that based on the current FASB financial instrument accounting discussions these investment securities would all be measured at fair value and changes in fair value would flow directly to capital with the elimination of the aforementioned prudential filter under the Basel III proposal<sup>24</sup>. The Basel III rules are proposed to be phased in over an extended period, beginning in 2013 and with full adoption by 2019.

## **II. FOUNDATIONAL RESEARCH ON FAIR VALUE**

“Decision usefulness” is a term associated with the accounting standard setting process and is often used as the basis for research in evaluating fair value accounting. It is defined and utilized within the context of the FASB's Conceptual Framework for Financial Reporting (the “Framework”). The Framework outlines guiding principles and provides the basis for developing new accounting standards and evaluating alternate views. The Framework states that financial reporting should provide information that will be useful to

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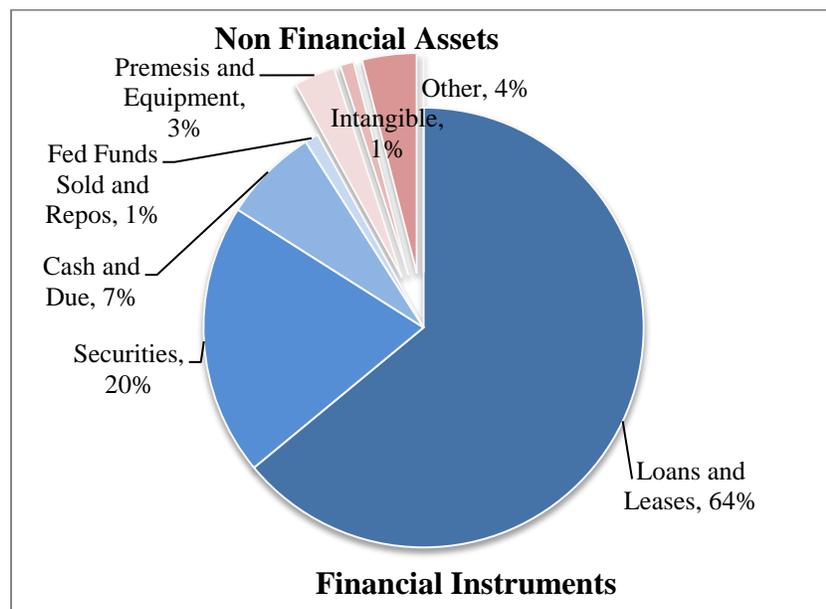
<sup>24</sup> FASB (2011b)

existing and potential investors, lenders and creditors in making decisions<sup>25</sup>. Analysis of fair value accounting is often based on the second level of the Framework, which includes qualitative characteristics meant to describe what makes financial reporting information useful for decision-making. Two fundamental qualitative characteristics are relevance and faithful representation. To be relevant, information must be capable of making a difference in the decisions made by users. To provide a faithful representation, information must be complete, neutral and free from error.

Substantial research surrounds the question of whether financial results based on fair value accounting are useful within the context of this Framework. Much of the analysis on fair value accounting evaluates the decision usefulness of the resulting financial information from the perspective of investors and other capital market participants. Existing research often focuses on fair value accounting applied to banks. This makes sense as fair value is generally applied to financial instruments, which represent the majority of a typical bank's balance sheet (**Figure 1**).

**Figure 1: Asset categories as a percentage of total assets**

Cross-firm, equal weighted average for all Bank Holding Companies (n=981) at December 31, 2010



Note: In general, all bank liabilities would be defined as financial instruments.

Data Source: SNL Financial: Y-9C Reports

In addition, the criticisms associated with fair value accounting can be much more pronounced for entities like financial institutions or insurance companies. These entities

<sup>25</sup> FASB (2010b)

hold long-term financial assets and liabilities that can be difficult to value and can exhibit substantial price volatility. This leads to another area of fair value related research, one that focuses on examining possible implications for financial stability resulting from the application of fair value accounting. The research in this area includes understanding whether fair value accounting can influence the behavior of banks, affect the functioning of markets, or artificially magnify the impact of economic events<sup>26</sup>.

Section III makes reference to a number of recent studies in order to evaluate the appropriateness and decision usefulness of fair value accounting. Earlier research into fair value is also useful to review as it serves as the foundation for work that has followed. However, it should be noted that fair value rules and practice have evolved over time. The current definition of fair value and the prescribed measurement approach became fully effective in 2008<sup>27</sup>. In addition, the application of fair value has steadily expanded over the last decade and measurement techniques have likely improved. This does not necessarily invalidate early research, but it may make it less relevant in an evaluation of the current impact and applicability of fair value.

Many early studies attempted to address fair value relevance questions using equity/fair value regressions to evaluate the informational content of fair value reporting; see for example Barth (1994), Barth et al. (1996), Nelson (1996), and Eccher et al. (1996). The subjects of these early studies were mostly banks or other financial companies. Data were collected from sources such as fair value footnote disclosures and investment security market quotes. This research generally showed that fair value contained useful information. However, fair values obtained from active markets were more closely linked to share price than values obtained from less active markets or derived through fair value models<sup>28</sup>. One obvious lesson from this body of work is that perceptions about the reliability of fair value may offset its usefulness to some extent. These studies were not generally designed to interpret this dynamic of relevance versus reliability<sup>29</sup>.

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<sup>26</sup> Allen and Carletti (2008), Plautin, et al. (2008), Novoa, et al. (2008)

<sup>27</sup> SFAS No. 157, "Fair Value Measurements" outlines the current authoritative guidance on fair value measurement. The standard was effective for fiscal years beginning after November 15, 2007 with early adoption permitted under certain conditions. (FASB 2007b)

<sup>28</sup> AAA-FRPC (2010)

<sup>29</sup> O'Brien (2005)

Other early research evaluated the reliability of fair value measurements. Some studies looked at managers' influence over fair value estimates while others provided evidence that reported fair value amounts contain errors; see for example Bernard et al. (1995), Carroll et al. (2003), Beaver and Venkatachalam (2003) and Nissim (2003). Similar to the observation regarding the research on relevance, reliability is also linked to the availability of market data. In the absence of active markets, fair value estimate reliability tends to be uneven at best.

Early foundational work on evaluating the potential broader impacts of fair value accounting focused on analyzing links to earnings volatility or financial contagion; see Barth, Landsman and Whalen (1995). This work was significantly expanded upon after the financial crisis in 2008, and is covered more comprehensively in Section III.

### **III. ANALYSIS**

Bank supervisors assess the overall safety and soundness of a financial institution, assigning it a composite rating based on the evaluation of six essential components of its financial condition and operations. These six factors, referred to as CAMELS, address the adequacy of capital (C), the quality of assets (A), the capability of management (M), the quality and level of earnings (E), the adequacy of liquidity (L), and the sensitivity to market risk (S). Evaluating fair value accounting results within this context expands the discussion on decision usefulness beyond relevance and faithful representation. The results of recent research, integrated with an analysis of public regulatory and financial filings of financial institutions, can improve the understanding of fair value along several dimensions. It can be informative as to how financial statement users view an institution, how fair value can affect the overall condition of a bank, and what the potential macroeconomic effects may be.

The analysis performed in this paper is based both on current U.S accounting and bank regulatory capital rules effective as of December 31, 2010, as well as proposed rules likely to be finalized in the near future<sup>30</sup>. The data used to support the analysis were

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<sup>30</sup> See Section I for a detailed description of current and proposed accounting standards and regulatory rules. December 31, 2010 represents the last annual period for which data was collected for this analysis.

obtained principally from quarterly Consolidated Financial Statements for Bank Holding Companies reports (Y-9C) and SEC filings (10-K, 10-Q) from 1994 through 2010<sup>31</sup>. It is acknowledged that CAMELS is a rating system applied only to depository institutions or banks, and that there is another supervisory rating system applied to bank holding companies. The CAMELS system was selected because it provides a familiar set of dimensions more relevant to this discussion.

### **Capital (C)**

The primary function of capital as outlined in the Commercial Bank Examination Manual is to support operations, absorb unexpected losses or declines in asset values that would otherwise cause a bank to fail, and provide protection to uninsured depositors and debt holders in the event of liquidation. Capital is intended to promote public confidence in an institution and in the banking system as a whole. It defines the maximum amount of leverage that a bank is applying. It also reduces the potential cost to the federal deposit insurance program<sup>32</sup>. Fair value accounting can impact the level of capital as well as the quality of capital, both of which are primary concerns for users of bank financial statements.

When referring to capital, it is first necessary to define it. Capital could refer to total shareholder's equity, regulatory capital measures such as Tier 1 capital, or other alternate measures such as tangible common equity (TCE). The impact that fair value accounting can have depends on which definition is considered. For example, Tier 1 capital under current U.S. regulatory capital rules excludes the effects of fair value accounting for most investment securities, pension assets and long-term liabilities. The recently published definition for the primary measure of regulatory capital under the Basel III framework, referred to as *Common Equity Tier 1 capital*, would reflect changes due to fair value measurement of investment securities and pension investments but would continue to exclude any fair value impact from adjusting liabilities due to changes in a bank's own

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<sup>31</sup> The period beginning in Q1 1994 was selected as a starting point for data collection because it represents the first period where fair value came into widespread use through the implementation of SFAS No. 115, "Accounting for Certain Investments in Debt and Equity Securities." (FASB 1993)

<sup>32</sup> FRS-BOG (2011)

credit worthiness<sup>33</sup>. TCE is often cited as a pure measure of capital and reflects most fair value adjustments<sup>34</sup>. In the financial crisis of 2008, TCE received significant attention from bank analysts, creditors and investors. The tables and charts in this paper analyze the impact of fair value on regulatory capital as defined under the Basel III proposal, with the expectation that this will likely be the U.S. regulatory definition of capital in the near future (See **Table 1** for a summary of fair value impacts on the various measures of capital).

**[Insert Table 1]**

### *Quality of Capital*

Certain adjustments to equity capital as outlined in the instructions for preparing the Y-9C are required in order to arrive at Tier 1 capital. Many intangible assets have poor loss-absorbing characteristics as they cannot be sold to pay off creditors and may not retain their value in the event of liquidation. For example, goodwill is an intangible asset that is deducted from equity to determine regulatory capital. Following this logic, an argument might be made that certain long term or complex assets measured at fair value should similarly reduce Tier 1 capital. During the 2008 crisis, numerous financial instruments measured at fair value were eschewed by the market. These instruments suffered abrupt and significant declines that some would argue were below fundamental value. Non-agency debt securities and more complex securities (such as CDOs) may be the most familiar examples. As the crisis expanded and market liquidity for more complex securities shrank, so did the fair value of many of these investments. The impact of these declines did not all flow through to regulatory capital. However, banks that held a significant portion of these types of securities on their balance sheets experienced a decline in shareholder's equity and also likely a decline in public confidence.

A research paper entitled "Mark-to-Market Accounting and Liquidity Pricing" by Allen and Carletti (2008) examined a possible mechanism for generating distorted fair values. The authors developed a model of the banking and insurance sectors. This model measured sensitivity to market price changes and contagion between sectors. They concluded that, when assets are measured at fair value during periods of liquidity stress or

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<sup>33</sup> BCBS (2010)

<sup>34</sup> The principal exception would be intangible assets measured at fair value that are by definition excluded from tangible common equity.

crisis, the amount of liquidity in the market determines asset prices - rather than the expected future cash flows of assets. Thus, during an escalating crisis, equity can rapidly shrink due to market liquidity shortages and resulting declines in asset prices. Complex and long-dated assets are particularly susceptible to illiquidity, as many of these assets trade in over-the-counter or very thin markets. Allen and Carletti (2008) furthermore identified possible vectors for contagion between the bank and insurance sectors.

This does not necessarily justify Tier 1 capital deductions or percentage 'haircuts' for complex or long-term assets. Rather it is an acknowledgement that assets highly susceptible to liquidity constraints, when measured at fair value, can lead to unstable or fleeting capital during crises. This is analogous to the impact of intangible assets on equity when an individual bank faces failure or lack of liquidity. The opposite influence may also exist when economic conditions are favorable. Unrealized gains resulting from the application of fair value measurement can also flow through to equity. However, these increases may not represent actual cash flows available for use in servicing debt or paying depositors.<sup>35</sup> As a result, bank supervisors looking for sources of high quality or stable capital must evaluate the components of the balance sheet that impact capital more closely under a fair value accounting model. This will be increasingly important as banks transition from the current definition of capital to the Basel III definition, which, as mentioned earlier, includes the impact of investment portfolio unrealized gains and losses.

**Table 2** provides an illustration of the impact of fair value adjustments (unrealized gains and losses) on bank investment portfolios around the time of the liquidity crisis which peaked near the end of 2008. For a number of large institutions, net unrealized losses on investment portfolio assets were significant. Prudential filters alleviated some of the strain on bank capital. Perhaps an argument could be made that such a crisis reveals weak risk management practices, or, as Warren Buffet famously put it, "It's only when the tide goes out that you learn who's been swimming naked." Regardless, supervisory expectations should be in place to ensure that banks hold enough capital to withstand a crisis. Higher capital requirements and liquidity provisions under the Basel III proposal

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<sup>35</sup> Under current accounting rules, not all unrealized gains and losses are recognized directly through the income statement. Temporary and certain non-credit related unrealized gains and losses on investment securities categorized as available for sale (AFS) are recorded in other comprehensive income (OCI).

and bank stress-testing mandated under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act) represent part of a possible supervisory response to address risks associated with a full (or even a partial) fair value measurement regime.

**[Insert Table 2]**

The data in **Table 2** also shows that, in 2009, a significant portion of the change in unrealized losses was reversed for many institutions. This apparent source of volatility in capital will be addressed in the next section. A similar analysis of smaller institutions produces a much narrower range of impacts. This may partly result from institutions having investment portfolios that represented a smaller percentage of their balance sheets. Another factor that may have magnified the effect at the largest institutions is that they invested more heavily in complex asset classes which were more significantly impacted by liquidity factors<sup>36</sup>.

Capital quality might also be questioned when evaluating the contribution from the application of fair value to certain liabilities. Under current U.S. accounting rules a bank may elect to measure its own debt at fair value on a recurring basis. If the bank becomes less credit worthy, the fair value of its debt declines and an unrealized gain must be recorded. This in turn results in a higher equity balance. Under a full fair value model, the value of assets would decline to match or exceed any gain on own debt. However, under current and proposed accounting rules there are gaps in the application of fair value, particularly for intangible assets. This produces a perverse outcome whereby capital and earnings increase, representing a greater ability to service liabilities at a time when overall credit worthiness is declining. As noted previously, current U.S. regulatory rules require a deduction from capital for changes in the fair value of financial liabilities due to a change in a bank's creditworthiness<sup>37</sup>.

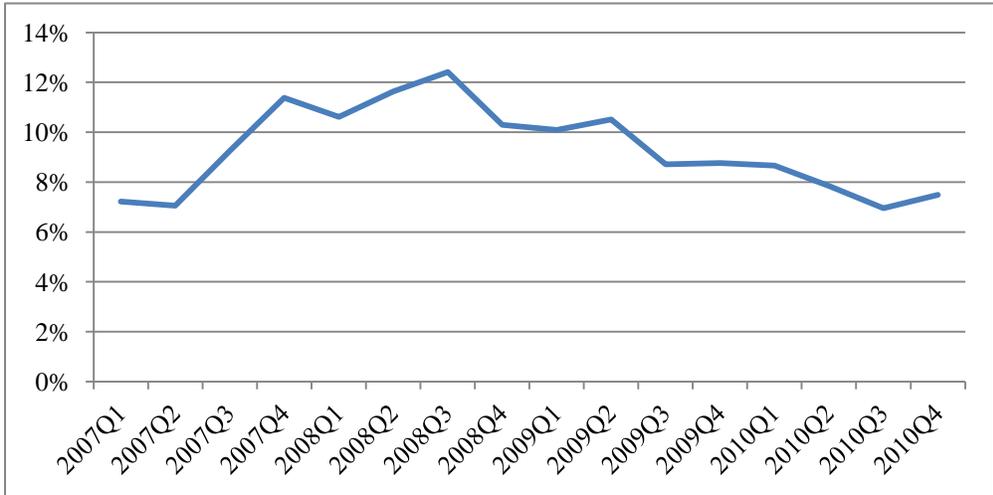
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<sup>36</sup> For institutions with assets greater than \$100 billion, private label and other securities represented on average 31% of total AFS investments. Non U.S. securities represented 7% on average. For institutions with assets between \$10 billion and \$100 billion, those percentages were 22% and 1% respectively. (Source: December 31, 2008 Y-9C reports)

<sup>37</sup> Current U.S. capital adequacy guidelines require a deduction only for those liabilities elected to be measured under the fair value option outlined in FASB ASC Topic 825. However the Basel III proposal would require a deduction for all financial liabilities measured at fair value, which would include liabilities classified as trading and derivatives. (BCBS 2010)

The final point concerning capital quality is that, when active markets do not exist, fair value estimates must rely on modeled prices which, out of necessity, are based on assumptions and management judgment. Thus, estimates may contain significant error or be manipulated to produce a desired outcome. This risk increases with the level of complexity and customization of a product. Financial institutions face a particularly high risk given that their balance sheets contain many complex instruments: loans, debt securities, alternative investments, and intangible assets. During periods of crisis, the percentage of fair value estimates that rely on unobservable inputs can increase significantly. **Figure 2** plots the percentage of fair value Level 3 assets over total fair value assets for all institutions with total assets greater than \$100 billion that adopted the relevant disclosures pre-crisis<sup>38</sup>. There is a clear increase in Level 3 assets near the peak of the financial crisis (the third quarter of 2008), followed by a steady decline.

**Figure 2: Average Level 3 assets over total fair value assets**



Data Source: SNL Financial: Y-9C Reports

**Table 3** displays Level 3 assets and liabilities measured at fair value on a recurring basis as a percentage of Tier 1 Common capital for the largest financial institutions, as well as a comparison of summary statistics for smaller banks. One can see from the high percentages displayed in column 3 (Level 3 Assets/Tier 1 Common capital) that at many of these institutions misstatements or adjustments affecting a sizeable portfolio of Level 3 assets could significantly distort capital ratios. A considerable proportion of Level 2 and

<sup>38</sup> Fair value amounts represent assets measured at fair value on a recurring basis. Institutions included in the sample: Citigroup, Bank of America, Goldman Sachs, JP Morgan Chase, Morgan Stanley, SunTrust, and Wells Fargo.

Level 3 assets are typically present in banks' investment portfolios<sup>39</sup>. Under the FASB's original proposed ASU on accounting for financial instruments, loans were required to be measured at fair value with changes reflected in OCI<sup>40</sup>. It is assumed that a large percentage of those loans would have been categorized as Level 3. As noted previously, under the Basel III proposal, Common Equity Tier 1 capital would reflect the change in valuation of assets recorded in OCI. The denominator in the table uses Tier 1 Common capital as a proxy for Basel III Common Equity Tier 1 capital to demonstrate the sensitivity of future regulatory capital requirements to changes in Level 2 and Level 3 assets, particularly at the largest institutions<sup>41</sup>. If loans were measured at fair value, as originally proposed by the FASB, this sensitivity would apply to all sizes of institutions. Level 3 assets including loans would be seven times larger than capital on average for large BHCs and eleven times larger on average for smaller BHCs. **[Insert Table 3]**

Historical cost accounting can also impact the quality of capital. Similar to Level 3 fair value estimates, historical cost measurement involves the application of assumptions and management judgment in order to determine whether an asset has become impaired. One of the principal criticisms of historical cost is that management is able to delay the recognition of losses through the manipulation of assumptions. In their most recent proposals for measuring loan impairment, the FASB introduced more forward-looking factors. This could at least partially address some of the criticism of historical cost. It should also be noted that under current rules, recognizing unrealized gains is not possible for instruments measured at historical cost. Thus, for assets such as loans or held to maturity debt securities where unrealized gains are unlikely to be realized, historical cost results in more conservative or perhaps higher quality capital, especially when tied to a

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<sup>39</sup> For institutions with total assets over \$100 billion, Level 2 and Level 3 securities represented 80% of the total AFS portfolio on average at December 31, 2010 (Source: SNL Financial: Y-9C Reports).

<sup>40</sup> FASB (2010a)

<sup>41</sup> Tier 1 common capital is defined as total common equity capital minus net unrealized gain/loss on AFS securities minus net unrealized loss on AFS equity securities minus accumulated net gain/loss on cash flow hedges minus disallowed goodwill and other intangible assets minus change in financial liabilities (fair value) minus disallowed servicing assets and purchased credit card relationships minus disallowed deferred tax assets plus other additions to Tier 1 capital. Qualifying perpetual preferred stock, qualifying minority interests in consolidated subsidiaries and qualifying trust preferred securities typically included in Tier 1 capital are excluded from Tier 1 common capital. Basel III Common Equity Tier 1 capital differs from this definition mainly due to the inclusion of net unrealized gains/losses on AFS debt securities and changes in defined pension funds as well as other smaller specific adjustments.

more robust or forward-looking impairment model.

### *Capital Level and Volatility*

The level of capital can be viewed in terms of an absolute measure where maintaining higher amounts of capital or a cushion above regulatory minimum levels is considered to be a safe banking practice. Capital volatility, or capital changes over time, is also an important consideration. Excessive capital volatility can have a detrimental effect on public confidence in the banking system. Capital volatility may also influence market behavior - resulting in potential macroeconomic consequences. These macro effects will be discussed in subsequent sections of the paper. **Table 4** charts volatility as experienced at the largest institutions between 1995 and 2010 – that is, over the period in which fair value accounting rules have been in effect. The table displays the change in net unrealized gain/loss resulting from the application of fair value to available for sale investment portfolios as a percentage of capital. Given an average across-firm minimum to maximum range of -18.5% to 13.4% and standard deviation of 8.1%, it is clear that year over year fair value adjustments can generate significant volatility. **[Insert Table 4]**

Volatility is not necessarily inappropriate if it is truly linked to risk, the fundamentals, and the economic reality that a bank is experiencing. However, current accounting rules as well as proposed future rules apply fair value unevenly to the asset side of the balance sheet<sup>42</sup>. This can result in additional volatility which is not necessarily a full reflection of economic reality. Novoa et al. (2008) explores this form of volatility. The authors used a simple balance sheet model to run simulations for different types of institutions given various business cycle scenarios to assess the impact of fair value in different states, including full fair value and partial fair value. Although the paper concludes that fair value is an improvement over historical cost due to its greater transparency and more timely information, it also finds that fair value applied asymmetrically to assets over liabilities, “has the effect of mechanically increasing volatility in the balance sheet.”

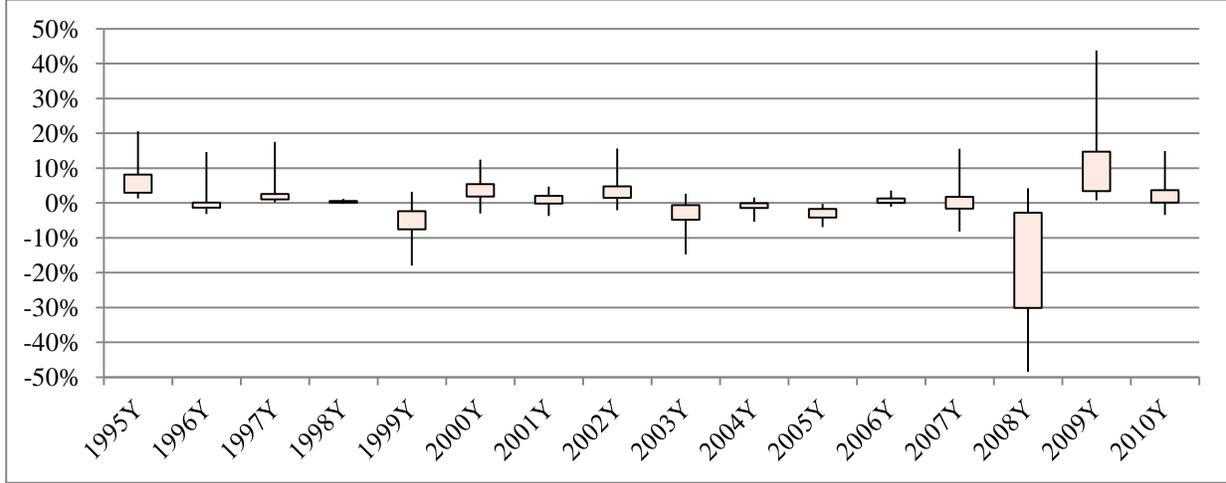
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<sup>42</sup> Based on the FASB project update “Accounting for Financial Instruments Summary of Decision Reached to Date during Redeliberations As of October 20, 2011,” most financial liabilities would continue to be measured at amortized cost. (FASB 2011b)

**Table 5** provides evidence of the uneven application of fair value to assets. At institutions with assets greater than \$100 billion, average net assets measured at fair value on a recurring basis represent 472% of Tier 1 Common capital. On average, institutions with total assets under \$10 billion value approximately 20% of assets and 1% of liabilities at fair value, with net assets measured at fair value representing over 250% of Tier 1 Common capital. Mid-tier institutions (\$10 billion to \$100 billion in total assets) present similar characteristics to the smaller institutions. **[Insert Table 5]**

The market also acts as a source of additional volatility through the impact of liquidity shortages, speculation and uncertainty. This dynamic was discussed in the previous section on capital quality. Given the business strategy for a particular institution under a going concern assumption, short term market fluctuations may have limited impact on expected future cash flows or earnings potential. These fluctuations become noise that has to be filtered out to evaluate meaningful volatility. During periods of extreme market volatility, such as during the recent financial crisis period of 2007 to 2009, capital levels can fluctuate widely<sup>43</sup>. **Figure 3** illustrates this by charting over time the minimum, first/third quartile and maximum percentage change in unrealized gain or loss from AFS securities for institutions with assets greater than \$100 billion.

**Figure 3: Capital volatility due to change in unrealized gain/loss of AFS securities for institutions with total assets greater than \$100 billion**



Data Source: SNL Financial: Y-9C Reports

<sup>43</sup> During the 2008 crisis, regulatory capital calculations included a prudential filter that significantly muted the effect of changes in fair value for most institutions. Under the Basel III proposal this filter and the full impact would flow through to capital.

Referring to **Table 2** with a focus on individual institutions, the variability is clearly illustrated. Between 2008 and 2009, Bank of New York Mellon had a swing from -34% to +31% in the change in AFS unrealized gain/loss as a percent of capital. MetLife experienced a larger differential of -44% to +35% and State Street saw a move from -44% to +30%. There was certainly a component of this variability that translated into actual cash flows via sales and confirmed losses. However, given the equivalent swings down and back up after the liquidity crisis eased, it appears that a sizeable portion of the variability at these particular institutions was likely related to liquidity risk and market uncertainty. As noted previously, current U.S. capital rules neutralize this impact on Tier 1 capital. In the future under the proposed Basel III definition of Common Equity Tier 1 capital, the full effect would be felt. In addition, changes in the fair value of securities that are currently categorized as “held to maturity” may also be included in capital<sup>44</sup>. It may be necessary for supervisors to address this impact, perhaps by requiring a larger capital buffer to counter investment portfolio volatility.

### *Capital and Systemic Impacts*

During the 2008 financial crisis, there was significant attention paid to whether there was a pro-cyclical dynamic linked to excessive or “artificial” market price volatility. Such volatility could act to amplify the impacts of fair value on bank capital. Plantin et al. (2008) analyzed this effect. They constructed a simple model to evaluate the “hold” versus “sell” decisions of financial institutions trying to maximize current earnings under historical cost and fair value measurement regimes. Under fair value, their model generated inefficient sales during down turns, creating a pro-cyclical effect. This effect was explained as driven by the fact that, in an illiquid market, there are significant consequences to being late to sell. Therefore, managers’ decisions, rather than being based on actual fundamentals, are instead based on second guessing the actions of others.

Under the historical cost regime, Plantin et al.’s model produced the opposite effect, with historical cost promoting inefficient sales during favorable economic conditions. In other words, it acts as a counter-cyclical dampener. It is explained that managers make

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<sup>44</sup> Based on the summary position released by the FASB, it is likely that all debt securities previously categorized as held to maturity would be measured at fair value with other than temporary changes reflected in earnings and the remainder recorded in OCI. (FASB 2011b)

inefficient sale decisions as a consequence of wanting to cash in their unrealized gains to boost short term performance. It is also noted that the pro-cyclical effect associated with the fair value model is more pronounced for assets that are long-lived, illiquid, and senior. The authors observed that the impact of short term price movements was more significant for these types of assets. Typically, a majority of a bank's loan portfolio as well as portions of its investment portfolio will contain assets which are long-lived, illiquid and senior. Based on this dynamic, bank managers facing similar accounting situations may act in concert, generating larger, systemic effects. The pro-cyclical dynamic can also work in reverse, where rising asset prices, overly buoyant due to speculation or excess liquidity, can increase capital levels beyond what would be supported by fundamentals. This, in turn, can lead to an increase in lending activity that provides more liquidity to support higher asset values.

Allen and Carletti (2008) also address pro-cyclicality. The authors note possible links between banking and insurance firms that could act as a vector for contagion across financial sectors, reinforcing pro-cyclical effects. They suggest that long-term assets, measured at fair value (which are a key component of the balance sheets of both types of firms), could be a possible link. The authors also point out that the fundamental linkage underlying this assertion is created by management incentives to provide or withhold liquidity. Therefore this dynamic could be replicated under a number of scenarios involving different asset classes. Allen and Carletti's (2008) model also predicts that, when a bank's assets are measured at historical cost, the bank is insulated from much of the contagion effect.

It should be noted that the cited literature was primarily theoretical. When observing the actual effects of market illiquidity and excess volatility during the 2008 financial crisis, regulatory capital was not significantly impacted at most banks. There was also little evidence that financial institutions reinforced a pro-cyclical dynamic enhanced by contagion from other industry sectors<sup>45</sup>. However, this may be a consequence of financial institutions not feeling the full effects of the dynamic. Current impairment models for loans and securities can result in delayed asset write-downs. Prudential filters also nullify most

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<sup>45</sup> Badertscher, et al. (2010), Shaffer (2010)

of the discussed fair value effects on bank regulatory capital. In addition, during the crisis, governments provided banks with alternate sources of capital.

One institution that may have experienced a directly observable effect of fair value accounting was State Street Corporation. State Street has always been considered well-capitalized under regulatory capital minimum standards; nonetheless, it experienced significant market pressure and accompanying instability. One characteristic that distinguished it from other banks was that assets measured at fair value (primarily investment securities) comprised a larger proportion of its balance sheet. State Street is not principally engaged in lending. It primarily provides processing and custody services to institutional investors. During the 2008 crisis, the market eschewed regulatory measures of capital in favor of more conservative measures - such as tangible common equity (TCE). State Street saw its stock drop precipitously when it was reported that its TCE was approaching zero based on pro-forma calculations that added in the impact of consolidating certain off-balance sheet investment conduit programs<sup>46,47</sup>. The impact that fair value had on this large processing bank due to the nature of its balance sheet might serve as a predictor for what could occur at traditional banks if loan portfolios were measured at fair value. The potential downward fair value adjustments for liquidity and pricing uncertainty on bank loan portfolios could be considerably larger than the investment portfolio adjustments observed during the 2008 crisis.

Some would argue that, leading up to a financial crisis, additional fair value information may provide an early warning system. This would give more time for market participants to act. It would allow supervisors to require banks to take remedial action, raise additional capital, or deleverage<sup>48</sup>. Preemptive action could ultimately prevent or dampen an impending downturn. In addition, in a situation where the going concern assumption is questioned and bankruptcy or liquidation becomes a possibility, financial

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<sup>46</sup> State Street's published calculation of TCE for Q4 2008 was 4.46%. Their pro-forma TCE calculation was 1.05% which included the impact of consolidating certain off-balance sheet investment vehicles. State Street sponsored a number of off balance sheet investment vehicles in the form of asset backed commercial paper conduits, which under proposed accounting rules would likely have to be consolidated, leading most analysts to track the pro-forma figure. (Condon 2009).

<sup>47</sup> On January 20, 2009 State Street stock opened at \$36.35 and closed at \$14.89. (Source: <http://bigcharts.marketwatch.com>)

<sup>48</sup> Novoa, et al. (2008), Mosso (2009), Blankespoor, et al. (2010)

statement users may benefit from fair value information. In that way, a creditor or shareholder could ascertain the current value of a bank's residual equity position. However, these possible benefits are based on a number of key assumptions including: that markets are always efficient, investors are rational, modeled fair value amounts are accurate, and exit price is the most relevant measure of value. For long term assets and liabilities held for collection, or payment of cash flows (i.e. loans, deposits and debt) where no deep or liquid markets exist, these assertions may not all hold true. The discussion on *Asset Quality* further explores these assumptions.

From a supervisor's perspective, fair value can have a number of potentially negative impacts on capital when applied to long-term assets and most liabilities. Investors are also not immune to these effects. Under volatile market conditions, fair value can cause earnings and capital to appear and disappear quarter over quarter. Fair value estimates can generate public uncertainty in the absence of market-derived prices or transparent modeling approaches. It has the potential to produce excess volatility that can result in pro-cyclical effects during both economic upswings and downswings. As noted earlier, capital is expected to play a critical stabilizing role for a financial institution during a crisis. Yet, it is during periods of market stress that fair value can have its most detrimental impact on capital.

This discussion paper proposes that accounting standard setters and bank supervisors look for the middle ground in order to craft an agreeable compromise to the fair value debate. A step toward the middle for bank supervisors might be to address the perceived negative impacts of fair value on capital through supervisory processes and regulatory policy changes. The use of prudential filters is an example of supervisors adjusting accounting information to more closely meet their objectives. At present, financial stability is not a primary objective under the FASB's Conceptual Framework. Attempts to address fair value risks primarily through accounting rule revisions could lead to inconsistencies, as well as possibly less useful and understandable information. Bank supervisors are not similarly constrained and thus are able to specifically design rules, measures and processes that can serve to lessen the impacts of fair value measurement on regulatory capital, and more broadly on financial stability. For example, regulatory policymakers might consider ways to identify and measure the potential impact of fair

value accounting rules, valuation uncertainty and pro-cyclical effects in order to calibrate their minimum capital ratios and additional capital buffers. New supervisory tools such as mandated stress testing may be one example of a tool that could help to provide some additional clarity about the risks and potential impact of fair value accounting.

### **Asset Quality (A)**

Supervisors utilize ratios and other statistics based on reported financial information to detect the level, distribution, severity and trend of problem assets. While these statistics are not the only tools available, they do help to both assess credit risk and target specific areas for further investigation. These ratios and trends (based mainly on historical cost measurements) serve as reliable measures to track portfolios of loans and securities being held for investment purposes. Under historical cost, estimates of loss are segregated and can be evaluated more critically. Gains are not recognized until ultimate sale or disposition of an asset.

The percentage of assets measured at fair value has been increasing, particularly through the application of new accounting rules for business acquisitions that require all assets and liabilities to be recorded at fair value when a business experiences a change in control.<sup>49</sup> This change in basis distorts key ratios and can invalidate trend data, making it more difficult for supervisors to evaluate asset quality. In addition, judgmental estimates of credit and market risks are blended in reported fair value balances and gains on assets that may never be realized can be recorded - further complicating analyses.

The FASB's original proposed ASU on accounting for financial instruments issued in May 2010 would have resulted in a significant expansion of fair value measurement. This expansion would have included all financial assets, including loans and investment portfolio assets. This was expected to produce a number of benefits for financial statement users. One argument was that users would be able to gain timely insight on deteriorating assets. (As noted previously, historical cost is often criticized for allowing managers to delay loss recognition and hide problem assets.) Fair value would serve as a tool to inject market discipline and transparency into the process of evaluating the health of an

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<sup>49</sup> FASB (2007a)

institution. Fair value also incorporates additional market information such as the impact of changes in interest rates on long-term, fixed rate instruments. It has been argued that if this type of information had been available in the early 1980s, the savings and loan crisis may have been significantly limited or curtailed<sup>50</sup>. As noted in Section II in the evaluation of early research, benefits ascribed to fair value accounting hinge on whether active markets exist as a source for pricing assets, or whether, in the absence of market prices, estimates are reliable.

With regard to reliability, most loans are not transacted in deep or active markets. With the exception of some consumer lending products, loans are nonstandard contracts, often with nonpublic counterparties that are unsuitable for market trading. Estimates must therefore be used. Currently there is a wide range of practices for loan valuation. The models that support these estimates can be difficult to audit or validate. The Public Company Accounting Oversight Board (PCAOB), the entity responsible for overseeing auditors and the audits of public companies, has acknowledged this inherent difficulty by developing specific standards and guidance around auditing fair value measurement information<sup>51</sup>. Assumptions used in fair value models are often based on broad, macroeconomic forecasts. Evaluating the reasonableness of these assumptions or factors can be a significant hurdle due to the need for expertise in various valuation techniques, economic forecasting and specific product markets.

Model risk is another area that could be a significant contributing factor to unreliable fair value estimates. Although models promote the appearance of precision, they often require subjective inputs and produce results that can be very sensitive to those inputs<sup>52</sup>. Model risk can be illustrated using the fair value footnote disclosures on valuation sensitivity that are required under IFRS. Using an excerpt from the December 31,

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<sup>50</sup> Robert Herz, the former FASB Chairman linked the S&L crisis to the results of historical cost accounting in a speech during an AIPCA conference in 2009 stating, "There seems to be a considerable body of evidence based on studies of the S&L crisis and the "lost decade" in Japan that strongly suggests that the use of historical cost accounting approaches masked mounting problems and exacerbated and prolonged those crises, delaying recovery, and that the use of fair value might have provided an early warning of the impending problems." (Herz 2009)

<sup>51</sup> The PCAOB published AU Section 328, "Auditing Fair Value Measurements and Disclosures," to establish standards and provide guidance on auditing fair value measurements and disclosures contained in financial statements. The guidance was effective beginning on or after June 15, 2003. (PCAOB 2003)

<sup>52</sup> Nissim and Penman (2008)

2010 Royal Bank of Scotland Annual Report as an example (**Figure 4**), it is clear from the footnote disclosure on Level 3 valuation sensitivities that Level 3 total assets (£15.7 billion) could vary by as much as 15% (£2.31 billion) favorable to 12% (£1.82 billion) unfavorable based on adjustments to significant assumptions<sup>53</sup>.

**Figure 4: Excerpt from Royal Bank of Scotland Group Annual Report and Accounts 2010, Footnote 12, Financial Instruments – valuation**

	2010				2010		
	Balance £bn	Sensitivity (2) Favourable £m      Unfavourable £m			Balance £bn	Sensitivity (2) Favourable £m      Unfavourable £m	
<b>Assets</b>				<b>Liabilities</b>			
Loans and advances	0.8	70	(60)	Customer accounts - other	0.1	60	(60)
<b>Debt securities</b>				Debt securities in issue	2.2	90	(110)
MBS	0.7	120	(80)	Short positions	0.8	20	(50)
CDOs	2.4	180	(20)	<b>Derivatives</b>			
CLOs	2.1	180	(50)	Foreign exchange	—	—	(10)
Other ABS	1.4	150	(80)	Interest rate	1.0	70	(90)
Corporate	0.9	60	(60)	Credit - other	0.3	40	(40)
Bank and building societies	0.7	60	(60)	Equity and commodities	0.4	10	—
	8.2	750	(350)		1.7	120	(140)
Equity shares	1.0	160	(160)		4.8	290	(360)
<b>Derivatives</b>				<b>Total liabilities - 2008</b>			
Foreign exchange	0.1	—	—				
Interest rate	1.7	150	(140)				
Credit - APS	0.6	860	(940)				
Credit - other	3.1	320	(170)				
Equities and commodities	0.2	—	—				
	5.7	1,330	(1,250)				
<b>Total assets</b>	<b>15.7</b>	<b>2,310</b>	<b>(1,820)</b>				
<b>Total assets - 2008</b>							
<b>Of which AFS debt securities:</b>							
MBS	0.4	10	—				
CDOs	1.4	100	(10)				
CLOs	1.5	110	(10)				
Other ABS	1.1	80	(40)				
	4.4	300	(60)				
Equity shares	0.3	60	(60)				
<b>Total AFS assets</b>	<b>4.7</b>	<b>360</b>	<b>(120)</b>				
<b>Total AFS assets - 2008</b>							

There is also a potential moral hazard related to fair value estimates based on unverifiable future cash flows. Watts (2003) noted that there is a significant risk of bias affecting fair value estimates. Watts explains that, when incentives are based on earnings, managers are motivated to introduce an upward bias into accounting estimates. Absent the constraint of conservatism, noted earlier to be inconsistent with a fair value approach, estimates will likely be impacted by this management bias. This effect may be more

<sup>53</sup> According to the accompanying notes in the footnote disclosure, sensitivity represents the favorable or unfavorable effect on earnings due to reasonably possible changes to valuations using reasonably possible alternative inputs to valuation techniques or models.

pronounced when estimates are particularly subjective and unverifiable. In addition, Watts notes that, for highly paid managers in a corporate setting, there is little fear of reprisal where limited tenure and liability exist. The upside of exaggerating results may be quite high while the downside may be minimal. Although one might argue that the Sarbanes-Oxley Act under Section 304 takes steps to address some of the limited liability issues, there have not been many successful cases brought against executives for overstating asset values<sup>54</sup>. Others have argued that fair value rules encourage managers to be creative with their Level 3 estimates. Nissim and Penman (2008) point out that the requirements of SFAS 157 are quite permissive. FASB Statement No. 157 states that Level 3 assumptions are expected to be based on “the best available information” but “the reporting entity need not undertake all possible efforts to obtain information<sup>55</sup>”.

There have been a number of studies that support the existence of management’s upward bias in fair value estimates. Aboody et al. (2006) looked at stock option compensation expense and found evidence that managers select model parameters to influence these values. The findings are more pronounced for companies with weaker corporate governance and high executive pay. They also find strong evidence in instances where models are used that require a higher level of management input or judgment. This is consistent with Watts’ prediction.

This research and discussion might lead one to question whether fair value estimates requiring significant management input are truly decision useful. The benefit provided by management’s insight may not outweigh the problems introduced when conservatism is no longer employed as an accounting constraint or where fair value estimates are used to measure management performance. Several examples of what can go wrong were famously exhibited at Enron, where management took advantage of fair value on several fronts. They engaged in a practice later known as ‘mark to myself’, wherein Enron dealers, when deriving a fair value mark, were the market participants on both sides of the transaction. Other types of assets were valued based on management’s assessment of estimated future cash flows. Management’s performance was often measured solely on a

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<sup>54</sup> Hansen (2011)

<sup>55</sup> Note that Accounting Standard Update 2011-04 which is effective for annual periods after December 15, 2011 amended this wording slightly. However, it did not impact the point made by Nissim and Penman. (FASB 2011a)

fair value basis. Bonuses depended on how creative management could be with these valuations without triggering any outside audit or regulatory attention<sup>56</sup>. Although Enron may be an extreme case where accounting was actively distorted to achieve financial goals, it provides several examples of the risks and hazards associated with fair value estimates. The irony here is that fair value played a prominent role in the financial manipulation that occurred at Enron, and yet ultimately those actions contributed to arguments for more transparency in financial reporting via further expansion of the very same fair value measurement.

Unverifiable fair value estimates that are highly sensitive to forecasts, predictions or assumptions can lead to an inflation of financial measures purely through the optimistic views of management. As noted in **Table 3**, Level 3 estimates averaged 43% of Tier 1 Common capital at December 31, 2010 for institutions with assets greater than \$100 billion. This percentage would have been significantly higher under the FASB's original ASU proposal on financial instrument accounting where fair value was the default measurement approach for almost all financial assets<sup>57</sup>. This point represents a major concern not just for supervisors but also for creditors, investors and overall public confidence in the soundness of financial institutions<sup>58</sup>. It is not necessarily apparent that increased transparency would result from an expansion of fair value to all financial assets. Although this section principally addresses asset quality, a similar discussion would apply to liabilities as well.

Taking a more positive view toward fair value, investors and supervisors benefit from forward-looking, independent, and verifiable fair value-based information on assets and certain liabilities. Bank managers are able to obfuscate problems in asset categories using historical cost measures. The principal strategy to hide problem assets is known as 'extend and pretend'. Here, banks extend contractual terms and understate credit losses in the hope that nonperforming loans or investments will recover prior to write-off, sale or foreclosure. Fair value estimates that are confirmed by market transactions can serve as an

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<sup>56</sup> For a detailed account of the use of fair value accounting at Enron see "Fair-value accounting: A cautionary tale from Enron." (Benston 2006)

<sup>57</sup> FASB (2010a)

<sup>58</sup> As noted in Table 3, Level 3 assets plus loans average over 700% of Tier 1 Common capital for institutions with assets greater than \$100 billion at December 31, 2010.

independent check against managers' sometimes rosy predictions<sup>59</sup>. The way in which fair value information is presented is of key importance. Disclosing fair value estimates in the footnotes or parenthetically in the financial statements could prove very useful. Robust disclosures that inform financial statement users on significant judgments applied as well as the limitations and sensitivities of estimates would enhance this usefulness. Whereas if these estimates are embedded in performance measures, there is a risk that bias may inappropriately impact management and market decisions. This risk is discussed further in the next section.

### **Management Quality (M)**

Evaluating management quality is of particular importance to bank supervisors, as it has a direct relationship to the overall condition of an institution. Supervisors evaluate management based on past performance and also on the strategic direction that management provides. They assess whether management incentives are aligned with the key supervisory objective of bank safety and soundness. Supervisors also determine whether management has appropriate controls in place to measure, monitor and evaluate risks.

Fair value can have both direct and indirect effects on management behavior. As discussed in the last section, management faces a moral hazard problem of presenting overly optimistic fair value estimates especially when performance pay is linked to short-term financial results. Fair value accounting may also influence decisions related to business strategy and risk management. There are those who argue that applying fair value accounting more broadly to bank assets and liabilities may result in suboptimal management decisions. These decisions could have negative implications, not only in terms of bank performance but also in putting a bank in a riskier position. They may also result in a decrease in certain societal benefits or in the range of products that banks currently provide.

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<sup>59</sup> Another possible counterbalance to the risk associated with historical cost could be a more robust impairment model tied more closely to an expected loss, rather than incurred loss approach. This may incorporate some of the forward looking characteristics that are considered useful elements of the fair value model. Accounting standard setters are currently moving in this direction under a revised financial instruments accounting proposal.

Fair value can have a direct impact on earnings, which in turn affects earnings-based compensation and the level of cash-based rewards (e.g. those that reference financial measures such as earnings per share). This may encourage management to pursue riskier business strategies, such as those that involve short term pay-offs but possibly longer term risks. Empirical evidence of this link is offered in Livne and Markarian (2010). Based on an analysis of footnote disclosures of U.S. banks from 2000 to 2008, the authors find that a short-term investment strategy is positively associated with CEO cash bonuses. This data may provide a link between risk-taking, short-term focus and executive pay. In another paper, Coles et al. (2005) also offer empirical evidence that executives exposed to a higher sensitivity of stock volatility through their compensation plans invest in riskier assets and pursue higher leverage strategies. This approach may be the most profitable course for managers in the short term, but it may not necessarily align with the objectives of depositors, creditors or shareholders.

A frequent criticism of fair value is that, when applied to certain business strategies, it does not appropriately measure performance. The primary example often provided is the traditional banking model where assets and liabilities are held principally for the collection and payment of cash flows. Nissim and Penman (2008) note that fair value promotes comparability; a positive outcome. But this comparability comes with the cost of imposing a single view of business outcomes on all business strategies. This observation is further discussed in the next section on *Earnings*.

As noted previously, under the FASB's original proposed ASU on financial instrument accounting, fair value is the default measurement approach for most financial instruments. Under this approach, the performance of loans, securities held for investment and deposits are measured purely on market price movements and asset sales, similar to a trading book. This may affect managers' incentives and drive decisions, pushing them to take actions that may not be aligned with the long-term business strategies associated with credit intermediation. For example, management may decide that long-term, fixed rate loans are no longer desirable due to the volatility of market prices and potential liquidity discount for such assets. O'Hara (1993) examined this potential in a paper exploring a connection between market value accounting and loan maturity. Although this paper was published before many of the current fair value accounting rules were enacted, its

conclusions remain valid. Through modeling and observations of actual market behavior, O'Hara found that, due to asymmetric information, market participants require a higher premium for long-dated loans. This is due to increased uncertainty and risk. An extension of fair value to loans could thus increase the cost and possibly reduce the availability of these types of products.

Cetorelli (2007) discusses three possible channels for fair value to influence management actions. The first channel arises when performance metrics are tied to market prices. Managers may choose to profit from changes in loan prices rather than via the collection of cash flows. The second channel expands on the point analyzed by O'Hara and is described as an additional discount that market participants impose on low-risk loans because they cannot distinguish between loans in different risk categories. This would put pressure on bank managers to charge higher interest rates than they normally would under a historical cost regime. It is also presumed that any loan that falls into a high-risk bucket, including long-term loans or loans to more opaque businesses, would also be assessed a premium. The third channel cites the lack of value attributed to a customer relationship under 'exit price' fair value. Under an 'in-exchange' valuation premise, the value of any long-term relationship with a customer would not be factored into a loan's fair value<sup>60</sup>. This may be an additional impetus to shift away from intensive relationship lending.

Another potential influence on management decisions is presented in Plantin et al. (2008). They find that fair value accounting induces suboptimal asset sale decisions by degrading financial information and generating 'artificial volatility'. This volatility causes managers to be more price sensitive, creating a feedback loop that perpetuates itself. As noted earlier, assets that are regarded as most sensitive to this feedback loop have characteristics similar to most bank assets, including loans and portfolio investments. This may support Cetorelli's (2007) observation that, under a broader application of fair value, bank managers may be incentivized to speculate on price movements.

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<sup>60</sup> 'In-exchange' is a method used to determine an asset's highest and best use in order to establish a valuation premise. In the recently issued ASU 2011-04, the FASB precludes the use of the valuation premise based on the method 'in-use' for financial instruments where the highest and best use could be derived from using the asset in combination with other assets or liabilities. (FASB 2011a)

In response to the 2008 financial crisis and in order to address provisions contained in the Dodd-Frank Act, U.S. bank regulatory agencies are in the process of developing a host of new rules and guidance on executive compensation<sup>61</sup>. Proposed rules include prohibitions on excessive compensation and incentives that encourage inappropriate risk-taking, as well as requirements for deferral of payment and plan review and approval. Although these proposed rules are focused on the compensation practices at large institutions, it also sends a message to smaller banks<sup>62</sup>. These new rules may provide some counterbalance to the perceived negative influences of fair value accounting on bank management and are another example of how bank supervisors can address perceived risks linked to the application of fair value accounting through regulatory policy.

### **Earnings (E)**

Supervisors look to earnings as a stable source for generating new capital. They assess the performance of bank management by evaluating earnings in relation to peers. Earnings are also relied upon to develop an opinion as to whether it is prudent for a bank to declare a dividend, approve a share repurchase or fund a bonus plan. Supervisors try to assess whether earnings are repeatable and sustainable by analyzing historical trends and business projections. The composition of earnings is a key element. Temporary gains that may be reversed in a future period or never realized may need to be discounted or even ignored. Also, as noted previously, earnings that are derived solely from the output of valuation models must be closely scrutinized.

Most financial statement users agree that for assets and liabilities expected to be traded or sold in the near term at a market price, fair value accounting results in a relatively accurate measure of realizable earnings and management performance. These earnings are ultimately subject to adjustment and validation based on actual transactions. However, bank supervisors and others have observed that the fair value model can distort the earnings picture in several ways when applied to traditional banking activity<sup>63</sup>. For most loans that are held for the collection of cash flows, performance is tied to whether or

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<sup>61</sup> FFIRA (2011)

<sup>62</sup> These rules would be applicable to all institutions with assets of \$1 billion or more.

<sup>63</sup> Traditional banking activity is defined in this instance as taking deposits, making loans and purchasing investments that are principally held for the collection of cash flows.

not payments are made in accordance with contractual terms. Under fair value accounting, performance is measured by the difference between the carrying values of existing loans, and the amount at which loans could be sold to independent third parties. The resulting unrealized gains and losses that are recognized in the absence of actual cash flows, exchanges or granting of rights are temporary and do not necessarily reflect the ultimate outcome of business transactions. It may be useful to have this information for purposes of making investment decisions or evaluating interest rate or liquidity risk, but overall it does not appear to be relevant when trying to determine a bank's actual performance or to monitor the execution of its business strategy. Historical cost, with its emphasis on cash flows, appears to be tied more closely to how loans are managed. This is the basis for the argument made by bank supervisors and others that amortized cost, tied to a robust impairment model, provides a more applicable measure for analyzing bank performance<sup>64</sup>.

An additional argument for this assertion can be drawn from the previously cited discussion paper by Nissim and Penman (2008). The authors develop a number of principles for the application of fair value. Their first principle is the 'One-to-One Principle', which states that fair value is only appropriate where value is derived solely from exposure to market prices. In a discussion of this principle, Nissim and Penman note that fair value is not an appropriate measure for traditional banking activity or other business lines where inputs are combined to produce a marketable product. They go on to explain that fair value is only able to measure the change in 'spot price' of individual assets and liabilities, and not the value derived from the utilization of these items. Thus, in the context of a traditional banking model, fair value-based earnings provide little insight into how financial instruments are being used to generate current or future value.

Another way that fair value may distort the earnings picture is that it can be manipulated by management to produce a desired result. The possibility that bank managers may introduce an upward bias in valuations was discussed previously. Valuations can also be misstated in the opposite direction. Fiechter and Meyer (2010) evaluate whether, during the 2008 financial crisis, banks intentionally exaggerated fair value-related losses on Level 3 assets in order to present more positive earnings in subsequent periods. This is referred to as 'big bath accounting.' Fiechter and Meyer

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<sup>64</sup> FFIRA (2010)

analyze the financial results of over five hundred bank holding companies during the period of the crisis (Q1 2008 through Q1 2009) to determine whether Level 3 estimates were used to exaggerate losses. The data indicate that banks showing poor performance (such as significantly missing analyst forecasts or experiencing adverse changes in net income) were more likely to report higher discretionary Level 3 losses than banks outside of the 'poor performance' group<sup>65</sup>. This group was also more likely to switch to positive earnings in the subsequent quarter. The authors conduct several sensitivity analyses in order to demonstrate their conclusion's robustness.

In addition to distorted and misstated earnings, many supervisors view volatility in earnings as a weakness that requires remediation. Current accounting rules include an uneven application of fair value (mostly to assets) that can enhance volatility in earnings. Issues related to volatility and unrealized gains and losses have already been addressed as part of the discussion on capital. Under current accounting and regulatory capital rules, most unrealized changes in fair value related to AFS portfolio investments are recorded in other comprehensive income and do not directly impact earnings<sup>66</sup>. Based on decisions recently published by the FASB resulting from redeliberations of their financial instruments accounting proposal, it appears that fair value changes in investment portfolio assets considered to be temporary would continue to be reflected in OCI and not earnings<sup>67</sup>. However, in order to evaluate the impact of a decision to include changes in fair value in earnings, **Table 6** displays these changes as a percent of net income for institutions with assets greater than \$100 billion and provides comparable averages for smaller institutions. Based on this historical analysis, significant swings in income would likely result if investment portfolio assets were measured at fair value through earnings.

**[Insert Table 6]**

Additionally, the following time series chart is provided to illustrate that the period reflecting the highest impact was (not surprisingly) the 2008 financial crisis. **Figure 5**

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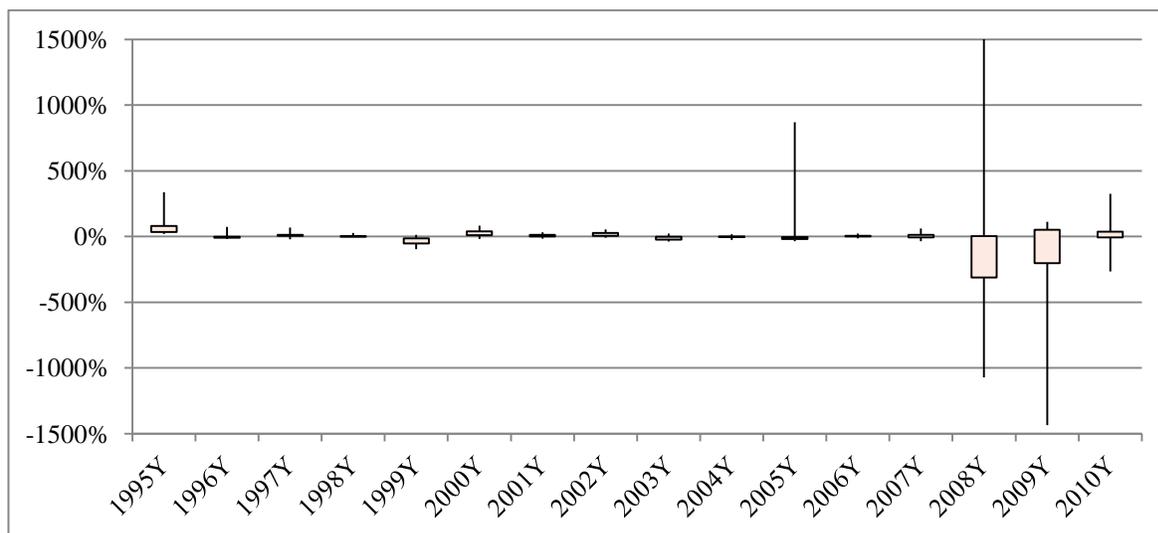
<sup>65</sup> Evidence of big bath accounting was limited to the pool of worst performers only (5<sup>th</sup> and 10<sup>th</sup> percentile)

<sup>66</sup> Per the FASB Accounting Standards Codification section 320-10-35, for debt securities, declines in fair value below amortized cost that are determined to be other than temporary impairments are recorded directly in current earnings. If a bank does not intend to sell and it is more likely than not that it would not be required to sell a security, only the credit portion of loss would be recognized in earnings.

<sup>67</sup> FASB (2011b)

displays, for the same institutions, the minimum, first quartile, third quartile, and maximum values for investment portfolio annual change in investment portfolio unrealized gains and losses as a percentage of net income<sup>68</sup>.

**Figure 5: Investment portfolio annual change in unrealized gain/loss as a percent of net income over time for institutions with assets greater than \$100 billion**



Data Source: SNL Financial: Y-9C Reports

The investment portfolio is one potential source of fair value impact on bank earnings. However, there are also other sources, some of which have already been discussed. For a number of institutions during the recent crisis, fair value had a substantial impact on earnings. One (admittedly acute) example from the crisis may illustrate the potential magnitude of these impacts. Based on data reported in its 2008 10-K filing, Citigroup's net loss for the year was -\$27.7 billion and Tier 1 Common capital was \$22.9 billion. Citigroup measured approximately 34% of its assets and 20% of its liabilities at fair value on a recurring basis. The impact from measuring assets and liabilities at fair value was significant relative to earnings and capital. However, a large portion of the changes in fair value were not reflected in either earnings or capital. As noted earlier, much of the change in fair value of the investment portfolio is recorded in OCI and does not affect earnings. In addition, most unrealized gains and losses recorded in OCI have no impact on regulatory capital. If Citigroup's earnings had included the increase in investment portfolio

<sup>68</sup> Unrealized gain and loss includes both Available for Sale (AFS) and Held to Maturity (HTM) securities.

unrealized losses recorded in OCI, their net loss would have increased to -\$47.7 billion (a 72 percent increase from the reported loss).

There were other fair value-based unrealized gains and losses that were included in Citigroup's earnings, for example unrealized gains from valuing non-trading liabilities. Supervisors and others have argued that most non-trading liabilities cannot be settled for their fair value amount and therefore any fair value-related gains or losses are unrealizable and should not be included in earnings or capital<sup>69</sup>. If the increase in unrealized gains related to measuring non-trading liabilities at fair value was deducted from Citigroup's earnings, their annual net loss would increase an additional 28 percent, totaling -\$55.4 billion. Much of this benefit was not reflected in regulatory capital due to the prudential filter that excludes unrealized gains and losses resulting from valuing a bank's own debt<sup>70</sup>. Other fair value elements that were reflected in Citigroup's earnings in 2008 included a \$10.4 billion increase in unrealized gains from Level 3 trading portfolio assets and liabilities still held, and a \$1.3 billion increase in unrealized gains related to non-trading, fair value option elections. These amounts are all provided in **Table 7. [Insert Table 7]**

One might debate whether it would have been more appropriate to analyze Citigroup's performance during the crisis by making these or other adjustments related to fair value. Citigroup certainly recorded significant realized losses in 2009 including \$7.3 billion in investment portfolio impairment write downs. However, the fact that the identified fair value impacts included in **Table 7** reversed their sign in the subsequent year might suggest that at least some portion of unrealized losses on investments and unrealized gains on debt were temporary and did not ultimately have an impact on equity or shareholders. Whether fair value served as a good early warning tool in this case is unclear. Possibly it created too much noise for investors and bank supervisors to discern the true health of the company. At a minimum, fair value would need to be accompanied by much more robust disclosures than what were available during the 2008 crisis in order to begin to interpret results. The FASB has recently issued new rules to enhance fair value

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<sup>69</sup> FFIRA (2010)

<sup>70</sup> It is acknowledged that this example excludes the effects of hedging where net fair value adjustments would likely moderate the impact to earnings.

disclosures<sup>71</sup>. They have also proposed a number of new qualitative and quantitative disclosures on fair value which may help to fill this gap<sup>72</sup>.

The previous discussion helps to explain why most supervisors prefer a mixed measurement model for financial institutions. It appears to provide a better reflection of the risks and rewards of pursuing diverse business strategies. This sentiment was also echoed by IASB Chairman, Hans Hoogervorst in his speech highlighted at the beginning of the paper, and it is one of the reasons why the IASB opted for a mixed measurement model in their financial instruments accounting standard<sup>73</sup>. As previously noted the FASB decided to reverse their original position and is now also pursuing a mixed measurement approach similar to the IASB model. It appears that based on the current direction accounting standard setters are moving fair value driven earnings may be less of a concern for regulatory policymakers.

### **Liquidity/Asset Liability Management (L)**

Supervisors evaluate liquidity risk by gauging the trend and stability of funding sources (e.g. deposits, short-term borrowing and the convertibility of assets into cash) against potential funding requirements under various scenarios. Fair value may be a useful tool in evaluating liquidity risk. Liquidity can be difficult to assess in that it tends to disappear when it is most needed. Hence it is important to monitor elements that contribute to liquidity risk on an ongoing basis. Timely updates are critical. Since a key component of liquidity comes from potential asset sales, knowing the exit price of assets that could be sold can provide valuable insight into a bank's liquidity position. In fact, during the 2008 crisis, it was noted that investors placed more emphasis on tangible common equity (TCE) rather than Tier 1 capital. This was partly because TCE included the impact of fair value on investment securities and came closer to representing the residual value of a bank where liquidation was considered to be a possibility. **Figure 6** illustrates the large contrast that existed between TCE ratio and Tier 1 Risk-based capital (RBC) ratio for institutions with assets greater than \$100 billion at December 31, 2008.

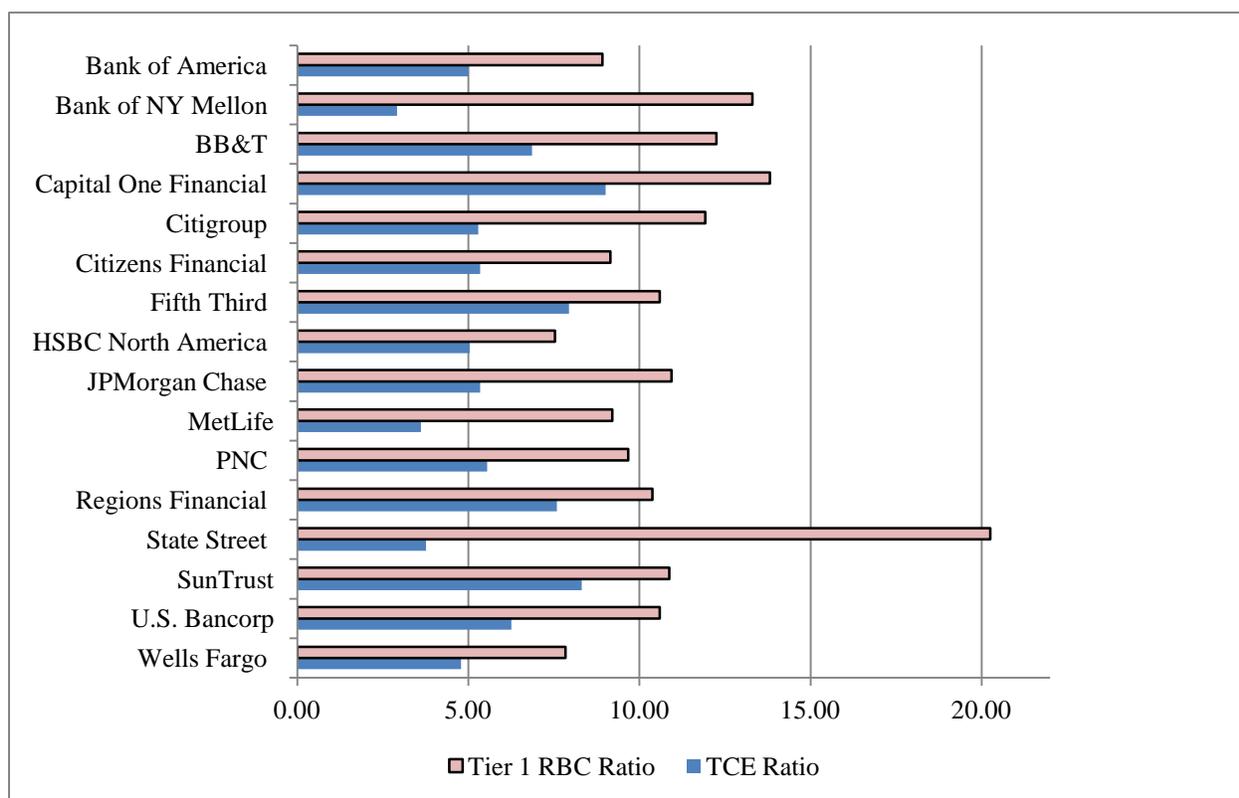
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<sup>71</sup> FASB (2010c)

<sup>72</sup> FASB (2011b)

<sup>73</sup> IASB (2009)

**Figure 6: Comparison of tangible common equity ratio to Tier 1 Risk-based capital ratio at December 31, 2008**



Data Source: SNL Financial: Y-9C Reports

Another potential positive effect of fair value on liquidity is that it may increase the marketability of certain illiquid assets. It has been argued that expanding the use of fair value may drive improvements in valuation techniques. This would in turn enhance price transparency and support the development of new markets for currently illiquid instruments<sup>74</sup>. Although active markets may not exist today for many loan products, continuous improvements in valuation techniques could promote the development of new markets for these instruments.

There is also a possible negative impact of fair value measurement on liquidity risk. As previously discussed, fair value has the potential for enhancing pro-cyclical selling behavior during a crisis. This could shorten the time to react to a liquidity shortage and possibly exacerbate problems as banks all take similar actions. Supervisors are currently looking for ways to mitigate some of these pro-cyclical effects through capital policy and

<sup>74</sup> O'Hara (1993), Burkhardt and Strausz (2006)

other supervisory requirements. Fair value disclosures may also be enhanced to provide a better early warning mechanism as well as an impetus for greater price transparency. However, fair value accounting provides limited utility as a liquidity risk warning tool. Financial reporting is a snapshot of past results and thus, even though fair value is forward-looking, it becomes a historical measure by the time financial statements are issued. Most financial reporting is refreshed on a quarterly basis and released to investors with a lag of a month or more. In order to truly be able to assess current liquidity risk, real-time metrics and analytical disclosures may be required. The FASB has recently stated that they plan to develop new disclosures to better inform financial statement users about liquidity risks.

### **Market Risk Sensitivity (S)**

Market risk sensitivity is a measure of the degree to which changes in interest rates, foreign exchange rates, commodity prices or equity prices can impact an institution through earnings and capital. Similar to liquidity risk, fair value may provide information useful to making assessments about this type of risk. At first glance, fair value appears tailor-made for such an assessment, as it layers in the direct effect of market factors. However, given certain limitations that exist today, fair value may not be able to directly measure this type of risk. As discussed earlier, instruments that rely on models (Level 3) can be very sensitive to assumptions and inputs. Trying to measure variability due to market factors could be very difficult in the presence of modeling assumption noise. Fair value may inform on market risk, but its usefulness is limited in the absence of disclosures containing key information such as modeling assumptions and sensitivities. Supervisors and investors looking for market risk information may be better informed if provided with more comprehensive disclosures. The FASB has acknowledged this observation and has drafted a recent proposal to require enhanced interest rate risk disclosures.

## **IV. CONCLUSION**

In general, investors are looking for neutral and transparent financial reporting that mirrors economic reality as closely as possible. The analysis and discussion in this paper demonstrates that fair value may be an appropriate measure for certain classes of instruments, but it may not necessarily reflect reality when the earnings process is not tied

directly to market transactions. Fair value can be a more neutral or objective measure than historical cost, but, in the absence of active markets and combined with the natural upward bias of management, that neutrality or objectivity can be called into question.

U.S. accounting standard setters proposed to increase comparability of financial statements and reduce complexity in accounting rules through a broader application of fair value. Based on insights discussed in the paper, comparability may have a number of side effects. A measurement approach applied across all business strategies and most financial instruments may result in a distortion of economic reality and financial performance. It can generate signals and incentives that steer business decisions in potentially harmful directions. When bank managers are acting in concert, larger economic and societal impacts may also result.

A primary objective of bank supervision is to promote safety and soundness of financial institutions and thereby enhance financial stability. Thus they may become concerned if there is a potential that accounting rules could have an adverse effect on that objective<sup>75</sup>. However, bank supervisors do not have to rely solely on financial reporting information. They have the ability to require additional information they may need in order to perform their supervisory function. They can prescribe alternate treatments for certain items included in regulatory reports. For example, these may include measures to account for risks that are not translated well in financial statements. They also can use the tools of policy and oversight to promote financial stability.

There appears to be a possible path where the objectives of investors and other financial statement users are upheld and the goal of financial stability is also addressed. While most fair value critics would likely acknowledge that historical cost has significant drawbacks, proponents of fair value might support the notion that fair value accounting may not be a “one size fits all” solution. For example, in a recent comment letter to the FASB, the U.S. bank regulatory agencies stated their position that fair value is the most appropriate measure under some circumstances<sup>76</sup>. The forward looking perspective that

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<sup>75</sup> For example, U.S. bank regulatory agencies opposed the requirement in FASB’s financial instruments proposal issued in May 2010 that would have expanded fair value measurement to substantially all financial assets and liabilities of financial institutions due in part to the perceived impact on financial intermediation and stability. (FFIRA 2010)

<sup>76</sup> FFIRA (2010)

fair value provides is a useful tool in measuring various kinds of risk (credit, market, liquidity). Asset valuations, when available via reference to market transactions, can produce a more accurate financial snapshot. If market data is not available, fair value estimates can still provide useful information as long as they are accompanied by extensive, robust disclosures. When a business strategy is directly tied to market prices, such as in a trading business or an ‘originate to sell’ model, supervisors have agreed that fair value is the most appropriate measure of performance.

The FASB has also recently moved to soften their fair value position due, in part, to the criticisms and concerns raised in comment letters they received on their original proposed ASU on financial instrument accounting. In May 2011, the FASB issued tentative decisions to amend their original proposal. If these decisions are ultimately included in a final standard, fair value would not be the default measure for almost all financial assets and liabilities – a departure from the original ASU proposal. A company would apply either historical cost or fair value measurement, depending on the characteristics of an instrument and the business strategy employed. This would in effect keep most loans and financial liabilities at historical cost. In addition, the U. S. bank regulatory agencies have agreed with the direction the FASB is taking to incorporate more forward-looking requirements into their new credit impairment rules<sup>77</sup>. The latest summary of decisions released by the FASB would define credit impairment for debt instruments as the expected loss over the life of the instrument<sup>78</sup>. This would remove the limitation of incorporating forward-looking information into credit impairment estimates (as originally proposed in the ASU).

Much of the fair value debate is really about where information should be presented in the financial statements. From a supervisor’s perspective, capital and earnings should reflect realizable and verifiable amounts. These critical measures of health and performance should err on the conservative side acting as a counterbalance to any upward bias from management. The FASB’s recent decisions on financial instruments call for parenthetical and footnote disclosure of fair value information when assets are

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<sup>77</sup> FFIRA (2010)

<sup>78</sup> FASB (2011b)

measured at amortized cost. The U.S. bank regulatory agencies also support enhanced disclosures of fair value information<sup>79</sup>.

For several decades fair value accounting has been praised, scorned and hotly debated. Looking through the arguments of both proponents and critics of fair value, there appears to be a way forward that may satisfy both sides. Accounting standard setters are proposing a more focused application of fair value accounting with accompanying robust disclosures. Bank supervisors are addressing a number of their concerns via regulatory policy enhancements. If standard setters and supervisors continue down this path, fair value information may become more available and, at the same time, concerns over financial stability may be reduced.

## **V. POLICY IMPLICATIONS AND AREAS FOR FUTURE STUDY**

There were several topics discussed in this paper that could have implications for bank regulatory policymakers. A number of new rule proposals are currently being drafted or debated, including the Basel III capital framework, new regulations under the Dodd-Frank Act, and updates to the supervisory process resulting from lessons learned during the financial crisis of 2008. There were also several topics briefly discussed in this paper that might be pursued as areas for future study and incorporated into accounting standard setting discussions. These topics seek to address some of the perceived negative characteristics of fair value accounting. Additional study in these areas, combined with regulatory policy changes and enhanced supervisory processes, could help clear a path to a broader application of fair value accounting in the future.

It was noted in Section III that stress testing and enhanced capital requirements could be a counterweight to the effects of capital volatility ascribed to fair value accounting. The Dodd-Frank Act requires that all banks with total assets over \$10 billion perform some form of stress testing. Stress testing is conducted by preparing forward-looking analyses to determine whether a bank's capital level is sufficient given certain prescribed adverse scenarios. The results are important because they can impact a bank's ability to undertake certain capital distributions such as dividends or share repurchases. The impact of fair

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<sup>79</sup> FFIRA (2010)

value and model sensitivities are considered in these stress tests. Volatility in capital and earnings would be reflected in a higher required capital level. Stress testing may provide an approach to translate risks associated with fair value measurement into capital assessments.

Proposed capital conservation and counter-cyclical buffers represent new elements of capital policy under the proposed Basel III framework<sup>80</sup>. Capital conservation buffers would require that banks build up capital buffers during benevolent economic periods which can be drawn down during stress conditions. Similarly, a counter-cyclical buffer requirement which focuses on aggregate credit growth would increase during economic expansions and decrease during contractions. These proposed buffers could serve to dampen some of the pro-cyclical effect of fair value accounting within the banking sector. The buffers may also be important because, as previously noted, the Basel III definition of capital includes fair value-based unrealized gains and losses currently recorded in OCI. This would add a new, potential pro-cyclical element to regulatory capital rules. An area of future study might determine whether the net result of these elements is pro-cyclical or counter cyclical.

Another key point, briefly discussed above, was the role that intangible assets play on a bank's balance sheet. The customer relationship is a primary element in the value creation process of a bank. Yet this asset is not recorded, except in instances of a change in control – under business acquisition accounting. Inconsistencies and distortions may result if fair value measurement is expanded to a broader set of assets and liabilities without addressing intangible assets as well. Recording these types of intangible assets can present issues with respect to realizability, as well as the reliability of estimates and the potential risk of financial manipulation. However, there are many financial instruments that are difficult to value and must rely on subjective assumptions and complex modeling techniques. Accounting standard setters have made the argument that requiring fair value measurement will improve the accuracy of estimates for hard-to-value assets and liabilities. Perhaps a possible solution would be to report the fair value of currently unrecognized intangible assets as footnote disclosures accompanied by qualitative information. The FASB has very recently decided to undertake a project to explore this

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<sup>80</sup> BCBS (2010)

topic. Evaluating the costs, benefits and repercussions of valuing and reporting all intangible assets is another area that may warrant future study.

Lastly, footnote or parenthetical disclosures have been mentioned as representing a compromise whereby fair value information could be made available to financial statement readers without creating distortions in performance measures or financial positions. There is clearly a need to enhance current fair value disclosures. Requiring additional disclosures often becomes a debate on cost versus benefit. For example, the FASB deliberations on the recent ASU 2010-06 on fair value disclosures stripped out a provision that would have required quantitative sensitivity analyses on Level 3 estimates (similar to requirements under IFRS reporting). The FASB determined that preparing quantitative sensitivity disclosures would be operationally challenging and decided, instead, to exclude this requirement from the final rule even though users that were interviewed appeared to favor the disclosure<sup>81</sup>. Further study might address cost/benefit considerations of additional enhancements to disclosures that would provide investors with useful fair value information not currently available under the mixed measurement approach. As noted earlier, the FASB has already taken steps in this direction via the new, proposed fair value disclosure requirements outlined as part of the Financial Instruments Accounting redeliberations.

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<sup>81</sup> FASB (2010c)

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**Table 1: Impact of fair value accounting on various measures of bank capital**

	<b>Calculation</b>	<b>Fair Value Impacts</b>
<b>Shareholders' Equity</b>	Total assets less total liabilities	Includes all fair value adjustments recorded in net income and other comprehensive income (OCI)
<b>Tier 1 Capital as defined under current U.S. reporting rules</b>	Shareholders' equity plus qualified equity-like instruments and minority interests minus regulatory adjustments for other comprehensive income, nonqualified preferred stock, intangibles and other limits	Includes all fair value adjustments recorded in net income except for fair value changes in financial liabilities accounted for under the fair value option attributable to a bank's own creditworthiness  Excludes unrealized gains/losses on debt securities and unrealized gains on equity securities recorded in OCI  Excludes impact of fair value on pension expense recorded in OCI
<b>Tier 1 Common Capital as commonly defined in current bank reporting</b>	Common equity (common stock, stock surplus, retained earnings and other comprehensive income) minus regulatory adjustments for other comprehensive income, intangibles and other limits	Same as above
<b>Common Equity Tier 1 Capital as defined under the Basel III proposal</b>	Common equity minus regulatory adjustments similar to current Tier 1 Common capital above	Includes all fair value adjustments recorded in net income except for fair value changes in ALL financial liabilities attributable to a bank's own creditworthiness  Includes unrealized gains and losses on debt and equity securities recorded in OCI  Includes impact of fair value on pension expense recorded in OCI

**Table 2: Change in available for sale (AFS) investment portfolio unrealized gain/loss relative to Tier 1 Common capital during the 2008 financial crisis (see Notes)**

(As a percent of Tier 1 Common capital)

<b>BHCs with Assets &gt; \$100bn</b> (See Notes)	<b>Change in AFS Unrealized Gain-Loss</b>		
	<b>2007</b>	<b>2008</b>	<b>2009</b>
Bank of America	16%	-14%	4%
Bank of New York Mellon	-4%	-34%	31%
BB&T	3%	-4%	1%
Capital One Financial	1%	-7%	8%
Citigroup	-1%	-44%	5%
Citizens Financial Group	2%	-3%	5%
Fifth Third Bancorp	0%	4%	1%
HSBC North America Holdings	0%	-1%	2%
JPMorgan Chase	0%	-3%	4%
MetLife	-2%	-44%	35%
PNC Financial Services Group	-1%	-29%	15%
Regions Financial	2%	-1%	4%
State Street	-8%	-44%	30%
SunTrust Banks	5%	-16%	3%
U.S. Bancorp	-2%	-9%	8%
Wells Fargo	0%	-19%	15%

**Cross Firm Averages** (See Notes)

<b>BHCs with Assets &gt; \$100bn</b>	1%	-17%	10%
<b>BHCs with Assets \$10bn to \$100bn (n=42)</b>	1%	-1%	2%

Data Source: SNL Financial: Y-9C Reports

**Table 2 Notes:**

Tier 1 Common capital is defined as total common equity capital minus net unrealized gain/loss on AFS securities minus net unrealized loss on AFS equity securities minus accumulated net gain/loss on cash flow hedges minus disallowed goodwill and other intangible assets minus change in financial liabilities (fair value) minus disallowed servicing assets and purchased credit card relationships minus disallowed deferred tax assets plus other additions to Tier 1 capital. Qualifying perpetual preferred stock, qualifying minority interests in consolidated subsidiaries and qualifying trust preferred securities typically included in Tier 1 capital are excluded from Tier 1 common capital.

Change in AFS Unrealized Gain-Loss excludes unrealized loss on AFS equity securities which is deducted from Tier 1 Common capital.

BHCs with assets greater than \$100 billion as of December 31, 2009 excludes Ally, American Express, Goldman Sachs, Morgan Stanley, Taunus, and Toronto Dominion due to limited data.

BHCs with assets between \$10 billion and \$100 billion as of December 31, 2009 excludes outliers where Common Capital is less than \$10 million or was not available.

**Table 3: Fair value Level 2, Level 3 and loans held for investment relative to Tier 1 Common capital**

(As a percent of Tier 1 Common capital, as of December 31, 2010)

<b>BHCs with Assets &gt; \$100bn</b> (See Notes)	<b>Level2 Assets</b>	<b>Level3 Assets</b>	<b>Level3 Assets + Loans</b>	<b>Level3 Liabilities</b>
Ally Financial	157%	44%	829%	9%
American Express	112%	0%	714%	0%
Bank of America	1627%	63%	793%	12%
Bank of New York Mellon	659%	3%	318%	2%
BB&T	246%	21%	962%	0%
Capital One Financial	372%	8%	1090%	0%
Citigroup	1085%	67%	650%	29%
Citizens Financial Group	182%	1%	708%	0%
Fifth Third Bancorp	242%	2%	992%	1%
Goldman Sachs Group	2070%	85%	162%	49%
HSBC North America Holdings	881%	25%	618%	24%
JPMorgan Chase	1620%	96%	696%	40%
MetLife	1653%	104%	370%	10%
Morgan Stanley	2896%	107%	190%	47%
PNC Financial Services Group	248%	59%	747%	2%
Regions Financial	346%	7%	1076%	0%
State Street	717%	53%	162%	2%
SunTrust Banks	275%	24%	1072%	2%
U.S. Bancorp	297%	27%	1000%	1%
Wells Fargo	373%	59%	971%	8%

**Cross Firm Statistics**

**BHCs Assets > \$100bn (n=20)**

<b>Mean</b>	803%	43%	706%	12%
<b>Median</b>	373%	35%	730%	2%

**BHC's Assets between \$10bn - \$100bn (n=47)**

<b>Mean</b>	274%	12%	808%	2%
<b>Median</b>	220%	4%	792%	0%

**BHC's Assets < \$10bn (n=818)**

<b>Mean</b>	248%	20%	1122%	2%
<b>Median</b>	188%	0%	886%	0%

Data Source: SNL Financial: Y-9C Reports

**Table 3 Notes:**

BHCs with assets greater than \$100 billion excludes outliers Taunus and Toronto Dominion due to limited U.S. capital.

BHCs with assets between \$10 billion and \$100 billion excludes outliers where Tier 1 Common capital was less than \$10 million or not available.

BHCs with assets less than \$10 billion excludes outliers where Tier 1 Common capital was less than \$1 million.

**Table 4: Changes in available for sale (AFS) investment portfolio unrealized gain/loss relative to Tier 1 Common capital**

(As a percent of Tier 1 Common capital, for annual periods from 1995 to 2010)

<b>BHCs with Assets &gt; \$100bn</b> (see Notes)	<b>Change in AFS Unrealized Gain-Loss</b>			
	<b>Mean</b>	<b>Std Dev</b>	<b>Min</b>	<b>Max</b>
Bank of America	1%	6%	-14%	16%
Bank of New York Mellon	0%	21%	-34%	31%
BB&T	-1%	5%	-8%	9%
Capital One Financial	1%	5%	-7%	8%
Citigroup	-3%	13%	-44%	5%
Citizens Financial Group	0%	4%	-7%	5%
Fifth Third Bancorp	0%	4%	-8%	6%
HSBC North America Holdings	0%	1%	-1%	2%
JPMorgan Chase	0%	3%	-8%	4%
MetLife	0%	21%	-44%	35%
PNC Financial Services Group	-1%	9%	-29%	15%
Regions Financial	0%	3%	-6%	5%
State Street	-1%	14%	-44%	30%
SunTrust Banks	2%	9%	-16%	21%
U.S. Bancorp	0%	4%	-9%	8%
Wells Fargo	1%	8%	-19%	19%
<b>Averages Across All Firms</b>	<b>Average Mean</b> 0.0%	<b>Average Std Dev</b> 8.1%	<b>Average Min</b> -18.5%	<b>Average Max</b> 13.4%

Data Source: SNL Financial: Y-9C Reports

**Table 4 Notes:**

Change in AFS Unrealized Gain-Loss excludes unrealized loss on AFS equity securities which is deducted from Tier 1 Common capital

BHCs with assets > \$100bn as of December 31, 2010, excludes Ally, American Express, Goldman Sachs, Morgan Stanley, Taunus, and Toronto Dominion due to limited data.

**Table 5: Comparison of assets, liabilities and net assets measured at fair value on a recurring basis**

<b>Bank Holding Companies as of 12/31/2010</b> <small>(See Notes)</small>	<b>Assets greater than \$100bn (N=20)</b>	<b>Assets between \$10bn and \$100bn (N=47)</b>	<b>Assets less than \$10bn (N=818)</b>
Average assets at fair value as a percent of average total assets	39%	23%	20%
Average liabilities at fair value as a percent of average total liabilities	14%	6%	1%
Average net assets at fair value as a percent of average total assets	27%	18%	20%
Average net assets at fair value as a percent of average Tier 1 Common capital	472%	217%	251%
Average net assets at fair value (\$ in millions)	\$170,091	\$5,511	\$288

Data Source: SNL Financial: Y-9C Reports

**Table 5 Notes:**

BHCs with assets greater than \$100 billion excludes outliers Taunus and Toronto Dominion due to limited U.S. capital.

BHCs with assets between \$10 billion and \$100 billion excludes outliers where Tier 1 Common capital is less than \$10 million or not available.

BHCs with assets less than \$10 billion excludes outliers where Tier 1 Common capital was less than \$1 million.

**Table 6: Changes in investment portfolio unrealized gain/loss relative to Net Income**

(As a percent of Net Income, for annual periods from 1995 through 2010)

<b>BHCs Assets &gt; \$100bn</b> (See Notes)	<b>Change in Unrealized Gain or Loss on Investment Portfolio Assets</b> (see Notes)			
	<b>Mean</b>	<b>Std Dev</b>	<b>Min</b>	<b>Max</b>
Bank of America Corporation	-25%	91%	-266%	62%
Bank of New York Mellon Corporation	-47%	131%	-396%	38%
BB&T Corporation	-1%	26%	-56%	61%
Capital One Financial Corporation	307%	695%	-3%	1722%
Citigroup Inc.	-47%	181%	-619%	48%
Citizens Financial Group, Inc.	19%	96%	-96%	324%
Fifth Third Bancorp	1%	21%	-46%	29%
HSBC North America Holdings Inc.	-7%	12%	-31%	4%
JPMorgan Chase & Co.	3%	23%	-44%	51%
MetLife, Inc.	-132%	340%	-937%	144%
PNC Financial Services Group, Inc.	-20%	109%	-399%	99%
Regions Financial Corporation	0%	27%	-61%	48%
State Street Corporation	-36%	112%	-339%	122%
SunTrust Banks, Inc.	6%	80%	-193%	194%
U.S. Bancorp	1%	20%	-37%	61%
Wells Fargo & Company	-10%	69%	-249%	79%

**Averages Across All Firms** (See Notes)

	<b>Average Mean</b>	<b>Average Std Dev</b>	<b>Average Min</b>	<b>Average Max</b>
<b>BHCs Assets &gt; \$100bn</b> (n=16)	1%	127%	-236%	193%
<b>BHC's Assets between \$10bn and \$100bn</b> (n=51)	14%	88%	-107%	226%

Data Source: SNL Financial: Y-9C Reports

**Table 6 Notes:**

Change in Unrealized Gain or Loss on Investment Portfolio Assets Includes both Available for Sale (AFS) and Held to Maturity (HTM) securities

BHCs with assets greater than \$100 billion as of December 31, 2010, excludes Ally, American Express, Goldman Sachs, Morgan Stanley, Taunus, and Toronto Dominion due to limited data.

BHCs with assets between \$10 billion and \$100 billion as of December 31, 2010, excludes Barclays Delaware Holdings LLC, CIT Group Inc., Discover Financial Services, and RBC USA Holdco Corporation due to limited data.

**Table 7: Example of impacts of fair value accounting on earnings: Citigroup, Inc.**

<b>Citigroup, Inc.</b>	<b>Balance</b>	<b>% of</b>	<b>Balance</b>	<b>% of</b>
<b>(\$ in Millions)</b>	<b>12/31/2008</b>	<b>Net</b>	<b>12/31/2009</b>	<b>Net</b>
		<b>Loss</b>		<b>Loss</b>
Reported Net Loss	\$(27,684)		\$(1,606)	
Add: Change in unrealized net loss on investment portfolio	\$(19,999)	-72%	\$13,564	845%
Less: Change in fair value of long term debt including own credit risk adjustment	\$7,692	-28%	\$(3,183)	198%
Adjusted Net Loss	\$(55,375)		\$15,141	
Change in unrealized gain/loss on trading portfolio (Level 3 - still held at 12/31)	\$10,362		\$9,205	
Change in unrealized gain/loss due to fair value option (excluding trading)	\$1,272		\$8,334	
Tier 1 Common capital	\$22,927		\$106,370	

Data Source: Citigroup 2009 Annual Report, SEC 10-K filing