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# The economic consequences of extending the use of fair value accounting in regulatory capital calculations<sup>☆</sup>

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## ABSTRACT

We investigate the economic consequences of the Basel III requirement to include unrealized fair value gains and losses on available-for-sale (AFS) securities in regulatory capital. Using data for U.S. banks we find negative market reactions around news indicating an increased likelihood of this regulatory change being implemented, consistent with increased regulatory costs. We also find that banks affected by this regulation reduce their investment in risky AFS securities relative to unaffected banks. This result suggests that extending the use of fair values for regulatory purposes reduces *ex ante* risk taking.

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## 1. Introduction

We examine the economic consequences of the implementation of a particular provision of Basel III in the U.S. that requires the inclusion of unrealized fair value gains and losses on investment securities in regulatory capital. Given the large size of interest rate sensitive assets in banks' investment portfolios, this requirement significantly increases the importance of fair value accounting for regulatory purposes. This regulatory choice involves an important trade-off. On the one hand, fair values introduce volatility into regulatory capital that might unduly result in regulatory intervention. On the other hand, fair value-based capital adequacy requirements might reduce managerial incentives to take excessive risks (Dewatripont and Tirole, 1994). We empirically investigate this trade-off by analyzing stock market reactions and banks' investment behavior around the events leading up to this regulatory change.

Under the previous U.S. regulatory capital guidelines, unrealized fair value gains and losses on available-for-sale (AFS) debt securities were filtered out of Tier 1 capital, which is commonly referred to as the "Accumulated Other Comprehensive

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Income (AOCI) filter.”<sup>1</sup> In June 2012, regulators issued three notices of proposed rulemaking (hereafter referred to as the “Proposal”), which, besides significant changes in the calculation of regulatory capital and risk weightings, proposed the removal of the AOCI filter for *all* banks subject to the new regulatory framework.<sup>2</sup> Many market observers regarded “...the removal of the AOCI filter ...[as] the biggest single issue the industry is lobbying over in terms of financial regulation.”<sup>3</sup> Following significant opposition from banks, the Final Rule, issued on July 2, 2013, includes an opt-out provision for non-advanced approaches banks (i.e., generally banks with an asset size less than \$250 billion) to make a one-time, irreversible election to continue with the previous regulatory treatment of unrealized gains and losses. If they do not elect to opt out, they will be required to include the AOCI in regulatory capital from January 1, 2015. In contrast, advanced approaches banks (generally banks with an asset size greater than \$250 billion) cannot opt out and have to include unrealized gains and losses in regulatory capital from January 1, 2014.

Banking industry representatives such as the ABA (2012) argue that the removal of the AOCI filter is likely to increase regulatory capital volatility that is not reflective of banks’ true economic risk. In rising interest rate environments unrealized fair value losses on AFS securities can result in a substantial hit to banks’ Tier 1 capital because offsetting economic gains on the liability side are not recognized. As a consequence, banks may be considered less than well-capitalized by the market and regulators.<sup>4</sup> Anticipating the regulatory capital effects arising from the removal of the AOCI filter, banks may hold fewer interest rate sensitive assets or invest in securities with shorter maturities. Given that banks are important investors in long-term government and agency securities, this might heavily affect trading in these markets. Alternatively, banks may reclassify bonds from AFS to held-to-maturity (HTM) so that temporary changes in fair values are not recognized. However, because HTM bonds generally cannot be sold without tainting banks’ HTM portfolios, banks’ flexibility to use such securities for liquidity management would be reduced. Ultimately, this might affect their ability to lend.<sup>5</sup>

In contrast, regulators argue that the removal of the AOCI filter results in a regulatory framework that is more reflective of banks’ risk, particularly credit risk. Indeed, in the fourth quarter of 2008, the ten largest banks<sup>6</sup> in our sample accumulated \$35.3 billion of unrealized losses on their AFS securities, primarily due to changes in credit spreads, that were not reflected in their Tier 1 capital.<sup>7</sup> While this preferential regulatory treatment might have prevented banks from breaching regulatory thresholds *ex post*, it also potentially provided *ex ante* incentives for banks to invest in illiquid AFS securities with higher credit risk, which are the key source of procyclical asset declines. This argument is consistent with theoretical studies showing that historical cost-based capital requirements induce risk-shifting behavior (Dewatripont and Tirole, 1994; Lu et al., 2012). In turn, extending the use of fair values in regulatory capital calculations would mitigate risk-shifting incentives *ex ante* and improve regulatory discipline. Moreover, the countercyclical behavior of interest rates can have a further regulatory benefit. Specifically, since interest rates tend to fall in bad times, corresponding fair value gains could dampen the impact of falling asset prices. In good times, unrealized fair value losses due to the rise in interest rates can limit the risk-taking ability of banks (e.g., Xie, 2015).

We investigate whether these potential economic costs and benefits are reflected in stock market participants’ expectations and bank managers’ investment behavior. We start by examining stock market reactions to pronouncements leading up to the passage of the Final Rule. The sign and magnitude of capital market reactions will depend on the perceived likelihood that the Final Rule will be implemented and the trade-off between the perceived benefits of greater regulatory discipline in bank risk taking and the associated costs of the potentially higher likelihood of regulatory intervention. To the extent that investors perceive the removal of the AOCI filter, on average as costly, we should observe negative (positive) market reactions to events that increase (decrease) the likelihood of inclusion of AFS fair value gains and losses in regulatory capital. A key challenge of examining the economic consequences of any regulation using stock market reactions is to control for concurrent confounding events (e.g., Leuz, 2007). In addition, our study faces the issue that the Final Rule was discussed and passed as a package, which makes it difficult to separate the effects of a particular provision. We address this issue in four ways: First, to control for general trends affecting the U.S. financial industry, we benchmark stock market reactions of banks to those of insurance companies, which also hold significant amounts of AFS securities but are unaffected by the regulation. Second, we compare abnormal returns of advanced approaches banks with non-advanced approaches banks on the Final Rule date, when only advanced approaches banks were affected by the mandatory AOCI filter removal, but other aspects of the regulation remained similar for the two groups of banks. Third, we undertake a cross-sectional

<sup>1</sup> To be precise, AOCI also includes unrealized gains and losses on cash flow hedges, foreign currency translation adjustments, and employee benefit plan adjustments. However, for most sample banks the magnitude of these adjustments is negligible compared to the magnitude of unrealized gains and losses on available-for-sale securities.

<sup>2</sup> All banks with total assets greater than \$500 million were subject to the proposed rules.

<sup>3</sup> See the article in *Risk* magazine, “Banks fear capital swings if Basel III kills bond filter,” from March 04, 2013, citing Peter Sime, Head of Risk and Research at the International Swaps and Derivatives Association.

<sup>4</sup> A simulation exercise of the ABA (2012, p. A-8) indicates that if the AOCI filter were removed, a number of U.S. banks could fall below the well-capitalized standard in a rising interest rate environment.

<sup>5</sup> For example, banks might reduce loan commitments extended to firms because they are less able to provide liquidity on demand when firms draw on the loan (Kashyap et al., 2002).

<sup>6</sup> The top ten banks represent about 82 percent of total assets in our sample.

<sup>7</sup> On average, unrealized fair value losses represented 10.4% of Top 10 banks’ Tier 1 capital. For example, Citigroup reported an unrealized loss of \$9.6 billion on AFS securities representing 8.1% of its Tier 1 capital. State Street Corporation’s unrealized loss amounted to \$5.2 billion or 36.9% of its Tier 1 capital. Only SunTrust banks had an unrealized gain of \$0.9 billion (5% of Tier 1 capital).

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