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Banks' Regulatory Risk Tolerance



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Abstract

Banks address the trade-off between regulatory compliance and costs of maintaining "management" capital buffers in ways that may affect the real economy. Using 68 quarters of data – including from non-public supervisory sources – we study how 17 US and 17 euro-area banks adjusted to the regulatory overhaul following the Great Financial Crisis. We find that steady-state management buffer targets systematically declined and regulatory risk tolerance rose after the GFC, especially at banks experiencing a stronger increase in capital requirements. Banks facing more volatile management buffer shocks set higher management buffer targets, suggesting that regulatory risk tolerance is a conscious choice. High-tolerance banks tend to respond to a depletion of their management buffers by cutting lending, whereas low-tolerance banks reduce the riskiness but not the volume of their assets.

Disclaimer: This policy brief is based on BIS Working Paper No 1287, "Banks' regulatory risk tolerance". The views expressed are those of the authors and not necessarily those of their institutions.

Introduction

Banks' capital underpins their resilience against losses. Much of it meets regulatory requirements, but banks also hold a "management buffer" — the headroom above these requirements — as a strategic safeguard against potential supervisory penalties or market pressures. The size and dynamics of this buffer reflect a bank's regulatory risk tolerance: its perceived trade-off between safety and profitability.

This note – based on Juselius et all (2025) – introduces a concrete composite metric of regulatory risk tolerance. The metric is forward-looking, declining with the management buffer target and the speed of adjustment to this target but rising with the volatility of management buffer shocks. A panel data set, incorporating long time series and covering large US and euro-area banks, reveals that regulatory risk tolerance systematically increased post GFC across banks, as regulation tightened but the penalties for marginal breaches of capital requirements weakened.
Looking under the hood of regulatory risk tolerance reveals some strong patterns. Its post-GFC rise mainly reflects a systematic reduction in management buffer targets across banks. That said, banks with more volatile management buffer shocks post GFC have set higher management buffer targets and have been adjusting their capital positions more rapidly. This reduces the extent to which banks differ in terms regulatory risk tolerance.

Potential drivers of risk tolerance do come to the surface. For instance, less profitable banks maintain a higher tolerance on the back of more volatile management buffers, consistent with a reduced capacity to retain earnings. Moreover, banks that faced larger post-GFC increases in capital requirements raised their regulatory risk tolerance by more.

Importantly, regulatory risk tolerance seems to also have real-economy implications. Banks with low tolerance tend to rebuild capital ratios by adjusting their risk weights without systematically shrinking the volume of their assets. By contrast, banks with high tolerance typically restore management buffers by curtailing lending—a procyclical pattern that can amplify economic downturns.
The rest of this SUERF Policy Note provides further detail, showcasing the value of regulatory risk tolerance as a metric for assessing banks' capital management.

Capital Buffers and Regulatory Change

Banks have managed their capital against the backdrop of evolving regulatory requirements and attendant penalties for a breach. Under Basel I and II, even a minor breach of minimum capital requirements could have severe, or "terminal" consequences, including the revocation of banking licenses and forced resolution. By contrast, the post-GFC Basel III framework is designed so that breaches first consume regulatory buffers, thus triggering less severe sanctions, such as restrictions on distributions and increased supervisory scrutiny.

Despite this regulatory overhaul, the literature indicates that banks remain reluctant to draw down their buffers during periods of stress. This hesitancy appears to be driven by market and reputational risks, even as direct regulatory penalties have become less severe (e.g., BCBS, 2022; Hernández de Cos, 2021; Andreeva et al., 2020). The attendant macroeconomic implications, particularly for credit supply, are well-established in the literature, e.g., Aiyar et al. (2016) and Peek and Rosengren (1997). These studies show that capital management remains a critical channel for transmitting policy to the real economy and that larger buffers can help sustain lending through economic shocks.

We define the management buffer as the ratio of core equity (pre GFC) or CET1 (post GFC) capital to risk-weighted assets (RWA) minus the corresponding capital requirement. This requirement includes: Pillar 1 minima and the Basel III Capital Conservation Buffer (CCoB), Countercyclical Capital Buffer (CCyB), and buffer for global and systemically important banks (G-SIB / G-SII). It also comprises jurisdiction-specific elements: stress-test buffers in the United States; and a buffer for other systemically important institutions (O-SII) and Pillar 2 requirements and guidance in the euro-area. To construct management buffer time series, we draw on both public and confidential supervisory data. Our sample includes 34 large banks (17 US, 17 euro-area) and covers 68 quarters (2000:Q1–2008:Q2 for pre-GFC, 2016:Q1–2024:Q2 for post-GFC).

A new metric to understand bank capital management

To capture a bank's capital management strategy with a single measure, our analysis introduces the concept of regulatory risk tolerance, which comprises three components:

1. **The Management Buffer Target:** the steady-state capital buffer that a bank aims to maintain. A *lower* target implies *higher* regulatory risk tolerance.

2. **The Speed of Reversion:** the speed with which a bank returns over time to its management buffer target after a shock to its management buffer. A *lower* speed implies *higher* regulatory risk tolerance.

3. **The Volatility of Shocks:** the typical size of unexpected shocks to the management buffer. *Higher* volatility implies *higher* regulatory risk tolerance.

Higher regulatory risk tolerance indicates greater willingness to operate close to regulatory requirements. This could reflect prioritising return-on-equity – which benefits from high leverage – and accepting a higher risk of incurring penalties because of a regulatory breach. Regulatory risk tolerance is thus a forward-looking indicator of the capital-management stance.

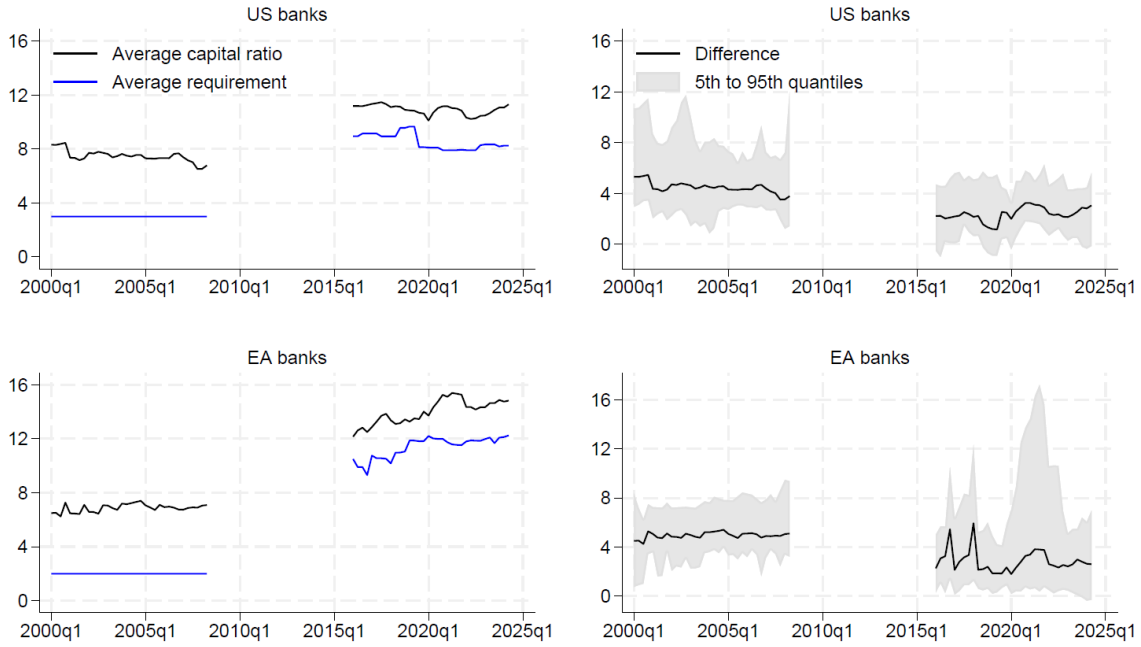
Our econometric approach to estimating regulatory risk tolerance relies on a local projection of a partial-adjustment model of the management buffer. It delivers robust estimates of the steady-state management buffer target, speed of adjustment, and shock volatility. We derive separately regulatory regime-specific estimates – pre- and post-GFC – at the level of individual banks and groups of banks.

Key Findings from an Analysis of US and Euro-Area Banks

1. Regulatory risk tolerance estimates are meaningful

Our estimates of regulatory risk tolerance are statistically well-defined. They reflect significant mean reversion around regime-specific management buffer targets **(Figure 1)**. The underlying estimates of management buffer shocks are serially uncorrelated for most banks.

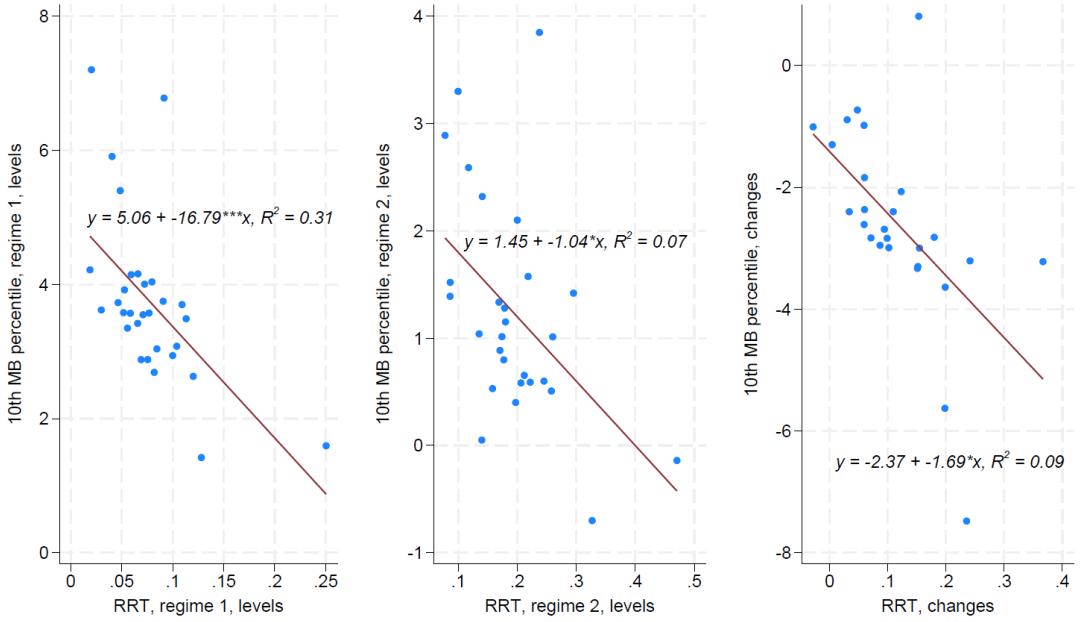
Figure 1. Average capital ratios and regulatory requirements



Note: The right-hand panels plot the average of bank-level differences between capital ratios and the corresponding regulatory requirement.

Regulatory risk tolerance carries meaningful information about the likelihood of low management buffer levels. We find a clear negative relationship between regulatory risk tolerance and low percentiles of the management buffer **(Figure 2)**. Within regimes, this relationship is both statistically and economically significant: post GFC, a bank with regulatory risk tolerance that is one standard deviation above the cross-section average faces a 10th percentile of the management buffer that is 30% below the average. Although statistical significance weakens when analysing changes across regimes, the economic significance remains.

Figure 2. RRT vs the left MB tail: changes between regimes and levels within-regimes



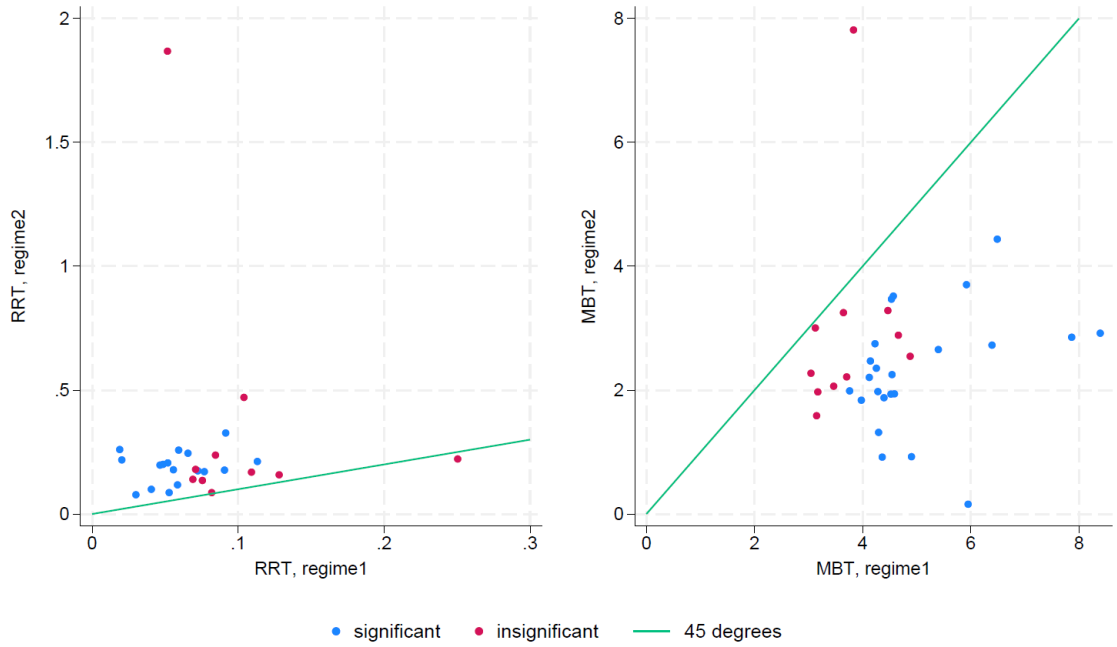
Note: Each dot corresponds to a bank. The regulatory risk tolerance (RRT) estimates reflect management buffer adjustments one quarter after a shock, according to the estimated speed of reversion. Significance: ∗ (10%), ∗∗ (5%), ∗∗∗ (1%).

2. Regulatory risk tolerance doubled post GFC

Across the sample, regulatory risk tolerance increased materially from the pre- to the post-GFC period. On average across banks, regulatory risk tolerance doubled from 0.13 (pre GFC) to 0.26 (post GFC) at the zero-quarter horizon, reflecting primarily a decline in the management buffer target. In other words, an eight-standard-deviation shock was needed to wipe out the management buffer target on impact in the former regime, whereas a four-standard-deviation shock would have a similar impact in the latter regime. At longer horizons, the regulatory risk tolerance level declines — as a result of the management buffer's reversion to target — but remains 1.5 to 2 times higher post GFC than pre GFC.

Applying alternative econometric specifications confirms the robustness of these findings. For one, zooming in on specific groups of banks and/or including controls barely affects the point estimates and leaves intact the statistical significance of the change in regulatory risk tolerance between regimes. In addition, bank-level estimates reveal that effectively each single bank in the sample raised its regulatory risk tolerance between regimes **(Figure 3)**.

Figure 3. Bank-level management buffer target and regulatory risk tolerance



Notes: Blue dots indicate statistical significance of the difference between the two estimates, at the 5% level; red dots indicate lack of significance at this level.

This rise in regulatory risk tolerance was primarily driven by banks reducing their management buffer targets. The reduction amounted to about 2 percentage points at the representative bank. **Figure 1** indicates that this is the flipside of banks' capital ratios rising 25% less than they would have if the management buffer levels had remained constant. These findings are robust to switching the focus from all banks to groups of banks, or individual banks, as well as to the inclusion of controls. By operating with smaller buffers, banks thus partially absorbed the impact of higher capital requirements under Basel III.

3. Bank regulatory risk tolerance reflects strategic choices and constraints

The evolution of regulatory risk tolerance suggests strategic positioning by banks.

- **Responding to regulation:** Banks that faced steeper increases in capital requirements under Basel III also tended to increase their regulatory risk tolerance by more. This partly dampened the variability of Basel III implications across banks.
- **Aversion to standing out:** In the post-GFC period, banks experiencing more volatile shocks to their management buffer (which raises regulatory risk tolerance, all else equal) set a higher buffer target and reversion speed (which lowers regulatory risk tolerance, all else equal).
- **Performance matters:** Less profitable banks (low return-on-assets) tend to exhibit higher regulatory risk tolerance, consistent with a weaker ability to mitigate shocks by retaining earnings.

4. Links to the real economy

How banks revert to their management buffer targets carries information about the real economy effects of management buffer shocks. Adjustments can occur through two main channels: (i) changes in CET1 capital, via retained earnings or equity issuance, and (ii) changes in RWA, through de-risking, deleveraging, or adjustments to loan volumes.

- **Cross-country and institutional differences:** US banks, small banks, banks with high price-to-book ratios, and banks with high deposit ratios tend to restore their management buffer targets by adjusting RWAs, often through the loan volume. In contrast, euro-area banks, weak performers, as well as banks with low levels of non-performing loans typically revert to their buffer targets by adjusting CET1 capital.

- **Differences reflecting regulatory risk tolerance:**

    - **Banks with low regulatory risk tolerance** typically restore management buffers through portfolio rebalancing, changing the average riskiness of assets but not the lending volume.

    - **Banks with high regulatory risk tolerance, by contrast,** tend to revert to management buffer targets by adjusting their lending volume. Empirically, a one-standard-deviation negative buffer shock leads high-tolerance banks to reduce net lending by 0.75% over two quarters — an economically significant adjustment.

These patterns underscore the macro-financial importance of banks' regulatory risk tolerance. Higher tolerance, while signalling managerial flexibility, increases the likelihood of procyclical lending behaviour and may amplify credit contractions during periods of stress. Information on regulatory risk tolerance can therefore provide valuable insights into the strength and cyclicality of the bank-lending channel.

Conclusions

The multitude of jurisdiction-specific supervisory and regulatory frameworks offers a rich ground for further research anchored in the metric of regulatory risk tolerance. Applying our empirical approach to jurisdictions other than the United States and the euro area could provide valuable insights into supervisory specificities that shape banks' conservatism in capital management. Moreover, studying systematic differences in regulatory risk tolerance across various regulatory requirements — e.g., leverage and liquidity requirements, alongside the risk-based measures explored in this note — would allow for an assessment of their relative tightness from banks' perspective.

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Mikael Juselius is a Senior Economist at the BIS Representative Office for Asia and the Pacific since August 2025. His previous posts include Research Adviser at the Bank of Finland, Associate Professor and Professor of Practice at Hanken School of Economics, and Economist at the BIS in Switzerland. He also served as a coordinator of the third ESCB Research Cluster. His research is focused on empirical macroeconomics, covering a range of topics of relevance to central banks. He received his PhD from Hanken School of Economics in Helsinki, Finland.

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