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BUSN79: Degree Project in Accounting and Finance

Reading the Signal: Does Equity Mispricing Influence Discretionary Loan Loss Provisioning in U.S. Regional Banks?

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Submission Date: May 27, 2026

Abstract

Seminar Date: June 2, 2026

Course: BUSN79 (Degree Project in Accounting and Finance)

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Keywords: discretionary loan loss provisions (DLLPs), equity mispricing, Incurred Loss Model (ILM), regional banks, stock-financed acquisitions

Purpose: To investigate whether equity market mispricing, defined as the deviation between a bank's stock price and its fundamentals-implied value, influences discretionary loan loss provisioning (DLLP) in publicly listed U.S. regional banks in the 2010-2019 period, during which provisioning was governed by the Incurred Loss Model (ILM).

Methodology: The study employs a three-stage sequential regression framework in which measures of equity mispricing and DLLPs are first estimated from accounting metrics before fixed effects panel regressions are used to evaluate the relationship across valuation states, institutional size, and acquisition activity.

Theoretical Perspectives: stock price feedback effects, limits to arbitrage and equity mispricing, information asymmetry, agency theory, market timing theory, catering theory, signaling theory

Empirical Foundation: A panel of 2,472 quarterly observations from 92 publicly listed U.S. regional banks meeting a minimum asset threshold of $5 billion over the 2010-2019 period.

Conclusions: The empirical analysis finds support for equity market mispricing as a determinant of discretionary provisioning behavior in U.S. regional banks, with the relationship varying across valuation states and institutional size. While undervalued banks reduce provisions across the regional banking sector, increases in provisioning associated with overvaluation are concentrated in larger institutions. Provisioning responses also become more positive among acquisition-active banks, where equity valuation carries greater economic importance. Overall, the results provide support for stock price feedback effects operating through financial reporting choices and identify equity mispricing as a previously undocumented driver of discretionary provisioning behavior.

Acknowledgements

Life occasionally introduces you to people who inspire you through their professionalism, passion, and pursuit of excellence; people who motivate you to keep exploring beyond what is already known. We consider ourselves fortunate to have met such people at Lund University over the past year. Surrounded by professors with remarkable professionalism and genuine enthusiasm for finance, we felt inspired to challenge ourselves intellectually and pursue the kinds of questions driven by curiosity rather than convenience. In many ways, this thesis is a reflection and the culmination of that experience.

We recognize that completing this paper in its entirety would not have been possible without the immense support of our supervisor, Reda Moursli, who was consistently there for us throughout the process. For his guidance, patience, and encouragement, we extend our most sincere gratitude.

Finally, we would also like to thank everyone who will one day read these pages – for their curiosity, passion for finance, and their willingness to engage with new ideas. We hope that the following pages will prove both insightful and inspiring for you.

Sincerely,
Yoanna and Martin

Key Study-Specific Terms

Term	Description
ALLL – Allowance for Loans and Lease Losses	Reserve account reflecting management's estimate of embedded credit losses.
CECL – Current Expected Credit Loss Model	Forward-looking U.S. accounting standard introduced to replace the ILM, requiring banks to recognize life-time credit losses at loan origination.
DLLP(s) – Discretionary Loan Loss Provision(s) / Provisioning	Component of loan loss provisioning unexplained by observable credit conditions, interpreted as reflecting managerial judgement.
Equity Mispricing	Misalignment between a bank's market valuation and the value implied by its underlying fundamentals.
ILM – Incurred Loss Model	U.S. accounting framework governing bank provisioning prior to CECL, under which losses were recognized only once considered probable.
LLP(s) – Loan Loss Provision(s) / Provisioning	Income statement expense through which banks adjust reserves for expected credit losses in response to changes in loan portfolio quality.

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1 Introduction

The present section discusses the economic and institutional relevance of loan loss provisioning (LLP) within the U.S. regional banking sector, placing a particular emphasis on its discretionary component through which managerial judgement can influence the timing and size of provisions. After motivating the importance of understanding whether equity mispricing feeds back into such discretionary provisioning behavior, the section proceeds to the study's research questions, summarizes the main findings and contributions, and outlines the structure of the paper.

1.1 Background

Commonly referred to as the most devastating economic catastrophe since the Great Depression, the Global Financial Crisis (GFC) exposed fundamental systemic flaws that were deeply embedded within the U.S. banking sector. For one, it brought significant attention to the procyclical nature of provisioning against potential loan losses, whereby capital buffers would build up too slowly during economic upturns and adjust only ex-post, once actual losses had materialized (Laeven and Majnoni, 2003). Statistics provided by the Financial Stability Forum (2009) show that provisions accounted for only around 5-10% of U.S. banks' operating revenues between 2000 and 2007, before rising sharply to 25% in 2008, thereby suggesting that banks were systematically underprovisioning in the years preceding the crisis despite observing deteriorating credit conditions. This argument is further reinforced in Furlong and Knight's (2010) analysis of the broader U.S. banking sector, which documents that the ratio of charge-offs to loan loss allowances surged above 110% around 2008-2009, which in effect means that losses realized during the GFC exceeded the entire stock of allowances banks had previously set aside.

Only after the severe consequences of the GFC had already crippled vital parts of the U.S. economy did the procyclical pattern of provisioning enter the broader public discourse and raise fundamental concerns about the Incurred Loss Model (ILM), under which banks were required to set LLPs after credit impairment had already occurred (Basel Committee on Banking Supervision (BCBS), 2015; Beatty and Liao, 2011). In particular, a key characteristic of the ILM that came under heavy scrutiny was the significant discretionary component of LLPs, reflecting managerial judgement over the timing of loss recognition, the size of the provision itself, and even the decision to classify a loan as impaired (Wahlen, 1994). Viewed together, these elements illustrate how the ILM framework embedded managerial discretion into what was otherwise intended to function as

a relatively mechanical provisioning process, thereby allowing banks to delay or strategically adjust provisions in ways that amplified the procyclical effects of provisioning during the GFC (Beatty and Liao, 2011; Laeven and Majnoni, 2003).

It is worth acknowledging, however, that while Wall Street's biggest collapses dominated public discourse during the GFC, the consequences of the crisis were felt most acutely among smaller institutions in the financial sector. In fact, according to the Federal Deposit Insurance Corporation (FDIC) (2017), an overwhelming majority of the nearly 500 U.S. banking institutions that failed between 2008 and 2013 were community and regional banks in areas where real estate deterioration was particularly severe. It was precisely this widespread failure of even traditionally conservative, loan-oriented institutions that reinforced concerns that the ILM framework was structurally incapable of ensuring timely, sufficient, and forward-looking recognition of credit risk during periods of economic distress (BCBS, 2015; Beatty and Liao, 2011). As a result, in an effort to address these shortcomings, the Financial Accounting Standards Board (FASB) introduced the Current Expected Credit Loss (CECL) model in 2016 (FASB, 2016). This new framework, universally adopted by U.S. banking institutions in 2020, fundamentally altered the treatment of loans in financial reporting – rather than realizing credit impairment only ex-post, banks began estimating credit losses at loan origination, thereby representing the most significant overhaul of bank credit loss accounting in nearly half a century (FASB, 2019).

1.2 Problematization and Motivation

As outlined in the previous section, the backward-looking ILM framework embedded significant managerial discretion into U.S. banks' provisioning process. Given their greater sensitivity to regional economic conditions and more limited diversification relative to larger institutions (Balasubramanyan and Bianco, 2015), regional banks were particularly exposed to the consequences of this discretion, which made provisioning decisions inherently more judgement-intensive than at larger, more diversified institutions. Even though the introduction of the CECL model has significantly altered the U.S. banking landscape, managerial judgement over credit loss estimation continues to be an inherent feature of provisioning (Narayanamoorthy and Wheeler, 2024), while the behavioral drivers of this discretion remain only partially understood.

Existing literature provides extensive evidence that LLP decisions are shaped by incentives related to capital management (Moyer, 1990; Beatty et al., 1995; Ahmed et al., 1999), signaling

(Wahlen, 1994; Beaver and Engel, 1996), and earnings management (Collins et al., 1995; Kanagaretnam et al., 2003). In fact, the presence of multiple considerations in setting provisions is unsurprising given that such decisions have consequences extending beyond the bank itself. For instance, Wahlen (1994) documents that unanticipated increases in provisions tend to produce positive abnormal stock returns, thereby laying the foundation for treating provisioning not merely as an accounting choice, but as a tool for transmitting private information to investors. At the same time, Bond et al. (2012) show that rational CEOs treat stock prices as informative signals and embed them in real decisions, creating a broader feedback mechanism between market valuations and managerial behavior. Consistent with this, Baker and Wurgler (2002) report that firms exploit periods of overvaluation through equity issuance, while Polk and Sapienza (2008) document managers' tendency to cater to optimistic investors by systematically overinvesting when their stock is overvalued. It is important to note, however, that although these studies are not developed specifically within the banking context, they collectively suggest that managers overall respond strategically to stock market valuations when making economically important decisions. Applying this mechanism to the context of regional banks therefore implies that if mispricing indeed feeds into provisioning decisions, market distortions may ultimately influence reported earnings, capital positions, and through their effect on lending behavior, broader economic activity (Beatty and Liao, 2011).

Despite the notable relevance of this mechanism, existing research examining whether equity mispricing feeds back into managerial provisioning behavior remains limited to the best of our knowledge, with Le Quang (2019) providing one of the few studies documenting that increases in LLPs are associated with stronger market discipline, as proxied by sharp rises in deposit rates. Beyond this contribution, the relationship between equity mispricing and discretionary provisioning, along with the institutional conditions under which it may vary, remains largely unexplored. In particular, it is unclear whether equity mispricing affects provisioning behavior in the aggregate, or whether the relationship differs between over- and undervalued institutions. Further, it remains uncertain whether banks that are more dependent on equity valuations, particularly those engaged in acquisition activity, exhibit stronger responsiveness to such market distortions. In this respect, regional banks provide a particularly relevant setting for examining the relationship of interest, as their intermediate scale ensures sufficient price informativeness (Bond

et al., 2012), while the opacity of their loan portfolios implies that market prices may contain information beyond managerial knowledge (Morgan, 2002).

1.3 Purpose and Research Questions

To examine whether equity mispricing predicts discretionary provisioning in U.S. regional banks, the present study employs a three-stage sequential fixed effects design in which measures of mispricing and discretionary provisioning are first constructed from observable accounting fundamentals before their association is tested. The analysis focuses on the 2010-2019 period, with 2019 representing the natural endpoint due to the adoption of the forward-looking CECL framework, which altered the nature of provisioning discretion in ways that no established methodology is capable of capturing. In addition, the post-2008 crisis setting is well-suited for examining the proposed mechanism, as regional banks recovered from the GFC at different rates depending on their geographic exposure and portfolio composition (Balasubramanyan and Bianco, 2015; Flögel and Hejnová, 2024), thereby creating the cross-sectional variation in market valuations necessary to examine the relationship of interest. Further, the heightened post-crisis regulatory environment increased the strategic relevance of equity valuations, as stricter capital and liquidity requirements constrained traditional avenues of organic growth (BCBS, 2011; BCBS, 2013) and increased the importance of mergers and acquisitions (M&A) as an alternative mechanism for value creation (Leledakis and Pyrgiotakis, 2019). Therefore, the study addresses the following research questions:

$\boldsymbol{RQ_1}$: To what extent does equity mispricing predict DLLP among U.S. regional banks?

$\boldsymbol{RQ_2}$: Does the relationship between equity mispricing and DLLP differ systematically between over- and undervalued banks, and does this association vary with institutional size?

$\boldsymbol{RQ_3}$: Is the relationship between equity mispricing and DLLP more pronounced among acquisition-active banks, for whom equity valuation carries greater strategic importance?

1.4 Main Findings

The empirical analysis finds support for the proposed mechanism, although the relationship between equity mispricing and provisioning behavior proves to be conditional on both the direction of the observed mispricing and institutional size. More specifically, the baseline specification, which does not distinguish between over- and undervalued banks, yields no significant association,

consistent with banks in the two groups adjusting provisioning in opposite directions in response to mispricing and thereby offsetting one another when pooled together. By contrast, separating the two groups reveals that undervalued banks broadly reduce LLPs across the sample, which aligns with the income-smoothing incentives documented by Kanagaretnam et al. (2003). In the context of our study, this finding suggests that managers of regional banks facing depressed valuations prioritize reported earnings with the aim of narrowing the valuation gap, which is also consistent with the catering mechanism proposed by Polk and Sapienza (2008). The conservative provisioning response to overvaluation observed primarily in larger institutions, however, suggests that regional bank managers may use relatively low-cost signaling of B/S strength to sustain favorable market valuations. Such behavior is broadly consistent with the market timing theory of Baker and Wurgler (2002), according to which managers tend to respond strategically to periods of overvaluation. Lastly, the overall provisioning response shifts in a more conservative direction among acquisition-active banks, as these institutions become less likely to reduce provisions when undervalued and more likely to increase them when overvalued relative to the broader sample. This pattern is consistent with Shleifer and Vishny's (2003) equity-as-currency mechanism, which posits that equity valuations become strategically important for institutions reliant on stock-financed acquisition activity.

1.5 Contribution

As outlined in Section 1.2, while previous research documents both the behavioral nature of provisioning decisions and the ways in which financial markets respond to LLP adjustments, considerably less attention has been devoted to whether market signals feed back into managerial provisioning decisions. The present paper therefore addresses this gap by examining whether equity mispricing predicts changes in discretionary loan loss provisions (DLLPs) in U.S. regional banks, thereby extending Bond et al.'s (2012) stock price feedback framework to the context of discretionary provisioning behavior in banking. In a similar vein, the finding that undervalued banks tend to reduce provisions while overvalued ones increase them contributes to the broader literature of conflicting incentives shaping provisioning behavior (Wahlen, 1994; Ahmed et al., 1999; Kanagaretnam et al., 2003) by showing that such incentives are also conditional on market valuations. Lastly, the study considers the prominent role of M&A activity in regional banking by examining whether acquisition exposure amplifies the relationship between mispricing and DLLP,

thereby extending the equity-as-currency mechanism of Shleifer and Vishny (2003) into the context of discretionary provisioning behavior.

Beyond its contribution to the provisioning literature, the study also enriches the comparatively scarce body of research on regional banks, which remain an understudied segment of the financial system despite their economic relevance (Balasubramanyan and Bianco, 2015). By focusing specifically on regional institutions, this paper advances understanding of how market-based incentives may shape managerial behavior within a systemically important but significantly overlooked segment of the banking sector. Further, by identifying equity mispricing as a previously unexplored driver of discretionary provisioning under the ILM framework, the study adds to the growing body of literature examining the channels through which managerial discretion manifests itself under the forward-looking CECL framework (Narayanamoorthy and Wheeler, 2024). More broadly, the study also offers relevant implications for regulators assessing whether market-based incentives continue to influence provisioning practices among U.S. regional banks under the new accounting regime.

1.6 Paper Outline

The remainder of this study is organized in seven parts. Section 2 outlines the institutional and regulatory background necessary for understanding the examined relationship, while Section 3 provides an overview of the theoretical and empirical literature underlying the study's three hypotheses. Section 4 in turn summarizes the paper's research questions. The analysis then proceeds with Section 5, which outlines the empirical methodology, and Section 6, which provides an overview of the gathered data. Finally, Section 7 presents and interprets the results and the applied robustness tests, while Section 8 concludes the study.

2 Loan Loss Provisioning and Regional Banks

Before examining whether equity mispricing is affecting managerial decisions related to loan loss provisioning (LLP) in the U.S. regional banking sector, it is essential to establish the accounting and institutional context in which such decisions are made. This section therefore outlines the mechanics and regulation of provisioning, and situates regional banks as the institutional setting in which the relationship of interest is most meaningfully observed.

2.1 Loan Loss Provisioning

2.1.1 Definition and Mechanics

From an accounting perspective, loan loss provisions (LLPs) are income statement (I/S) expenses through which banks adjust their allowance for loan and lease losses (ALLL) reported on the balance sheet (B/S). In particular, the ALLL is a contra-asset account that reflects management's estimate of credit losses already embedded in the bank's loan portfolio but not yet realized, and is recorded as a deduction from gross loans (Wahlen, 1994; Financial Accounting Standards Board (FASB), 1975). In an effort to maintain an adequate reserve to absorb potential losses from defaulting loans, management reassesses the ALLL on a quarterly basis in light of prevailing credit conditions. If the existing allowance is deemed insufficient, the bank records a higher provision expense on the I/S, which reduces pre-tax income while simultaneously increasing the allowance on the B/S. Conversely, when credit conditions improve and expected losses decline, provisioning is reduced, leading to a corresponding decrease in the ALLL (Federal Banking Agencies, 2006; FASB, 1975). It is important to note, however, that beyond provisioning, changes in the allowance are also driven by charge-offs and recoveries. In essence, when a loan is deemed uncollectible, it is written off against the ALLL, reducing both the gross loan balance and the allowance. In turn, any recoveries on previously charged-off loans are added back to the ALLL (Wahlen, 1994). Taken together, these components define the fundamental relationship governing changes in the ALLL:

$$ALLL_t = ALLL_{t-1} + \overbrace{\left(\underbrace{\text{Non-discretionary LLP}_t}_{\text{credit conditions}} + \underbrace{\text{Discretionary LLP}_t}_{\text{managerial judgment}}\right)}^{\text{Provision}_t} - Net\ Charge\text{-}offs_t$$

Accordingly, while charge-offs reflect realized credit losses, the provision component constitutes the primary managerial input through which banks adjust the allowance account in response to changing assessments of credit risk (Wahlen, 1994). As a result, the accounting framework governing the recognition of expected credit losses becomes central to understanding the extent of managerial discretion embedded in provisioning decisions, and is therefore discussed in the following section.

2.1.2 Regulation of Loan Loss Provisioning under the Incurred Loss Model (1975-2019)

Prior to the introduction of the forward-looking Current Expected Credit Loss (CECL) model[1], U.S. banks were required to recognize loan impairment, and therefore set LLPs to adjust the ALLL, only when credit losses were deemed "probable and reasonably estimable" (Wahlen, 1994). Commonly referred to as the Incurred Loss Model (ILM), this approach reflected a conservative accounting philosophy that prioritized reliability in financial reporting over forward-looking relevance, with expected credit loss estimates often viewed as too subjective and susceptible to managerial manipulation (FASB, 1975; Watts, 2003). Established under FAS 5 in 1975, the ILM governed bank provisioning for decades until the GFC exposed its inherently backward-looking nature and inability to capture emerging credit risk in a timely manner (FASB, 1975; Beatty and Liao, 2011).

Under the ILM framework, banks were required to assess the adequacy of the existing ALLL on a quarterly basis by evaluating both the specific and general reserves it comprised (Federal Banking Agencies, 2006). The *specific reserves* captured impairments on loans already classified as non-performing and were measured on an individual loan basis using methods such as the present value of expected future cash flows, the observable market price of the asset, or the fair value of the underlying collateral. By contrast, the *general reserves* component referred to the portfolio-level loss estimates applied to performing loans grouped in separate pools according to their risk characteristics (Federal Banking Agencies, 2006). Together, these two elements formed the mechanical baseline of provisioning that banks had to justify with reference to observable credit conditions and loan portfolio quality. Importantly, however, this very framework that was intended to guide banks in setting the ALLL at an appropriate level also "involve[d] a high degree of managerial judgement" and explicitly recognized that the estimated losses "[fell] within a range," rather than yielding a single mechanically determined provision figure, thereby rendering the boundary between required and discretionary provisioning inherently imprecise under the ILM regime (Federal Banking Agencies, 2006).

[1] The CECL framework was introduced by the FASB in 2016 through Accounting Standards Update 2016-13, requiring banks to start estimating credit losses at loan origination rather than recognizing them only once they become probable and estimable. Although the new regime was introduced in 2016, SEC filers (an umbrella category comprising all publicly listed U.S. regional banks) were required to implement it for fiscal years beginning after December 15, 2019, with the first mandatory reported cycle commencing in 2020 (FASB, 2019). The primary sample period in this study therefore ends in 2019, ensuring full regime consistency throughout the analysis.

In fact, this imprecision manifested itself through several distinct channels embedded directly in the ILM framework, as documented by Wahlen (1994). First, since loans were only recognized as impaired once associated losses were deemed probable, managers retained certain flexibility in deciding when credit deterioration crossed this inherently ambiguous threshold, thereby making such recognition contingent on their judgement and incentives. Further, even after impairment was recognized, the magnitude of the provision remained judgement-based, as it relied on estimates of probable losses rather than any realized outcomes. Lastly, discretion extended to the initial detection of impaired loans, since assessment of borrower creditworthiness and loan collectability largely depended on managerial evaluation. Taken together, these three elements demonstrate how the ILM framework vested bank managers with substantial leeway in setting LLPs, effectively transforming what was meant to be a mechanical process into a genuinely behavioral phenomenon. In fact, precisely this discretion and the delayed loss recognition stemming from it became particularly problematic during the GFC, as they reinforced the procyclical nature of bank provisioning. In particular, loan loss reserves would build up too slowly during periods of economic expansion and adjust only ex-post, once credit deterioration had already become severe. This pattern, documented by Laeven and Majnoni (2003) well before the crisis, raised fundamental concerns about the effectiveness of the ILM's loss triggers and led regulators to characterize credit loss recognition as "too little, too late" (BCBS, 2015).

2.2 Regional Banks as the Institutional Setting

2.2.1 The U.S. Regional Banking Sector and Its Regulatory Environment

The U.S. banking sector comprises a heterogeneous set of institutions that vary in business model, complexity, and geographic exposure, ranging from commercial banks engaged in traditional deposit-taking and lending to investment banks focused on capital market activities (FDIC, 2012). Such differences in business models not only determine banks' institutional positioning within the financial system, but also shape their risk concentration, operational complexity, and the extent to which market participants can assess their underlying risk exposures and financial condition (Morgan, 2002). In fact, these characteristics are further contextualized by differences in geographic scope, which influence how complexity, risk, and transparency materialize across institutions. At one end of the spectrum, money-center banks operate on national or global scales with diversified business models that combine traditional lending with trading activities, resulting

in complex B/S and substantial market-based risk. At the other end, community banks are small, locally focused institutions that rely almost exclusively on relationship-based lending, maintain simpler B/S structures, and rarely engage in capital market activities (FDIC, 2012).

Regional banks occupy an intermediate position within this taxonomy, combining the broader scale and geographic diversification associated with larger banking institutions with the predominantly relationship-based lending orientation typical of community banks (Balasubramanyan and Bianco, 2015; Flögel and Hejnová, 2024). This distinctive institutional positioning carries important implications for the relationship examined in the present study. In particular, while the reliance on relationship-based lending gives rise to the type of opacity that Morgan (2002) attributes to informational complexity of loan portfolios, the scale of regional institutions supports sufficient market presence and trading liquidity for the price informativeness conditions underlying the feedback mechanism of Bond et al. (2012) to plausibly hold. Consequently, regional banks represent a particularly informative setting for examining the relationship of interest, as they are neither too small to support price informativeness nor so operationally complex as to fully eliminate informational frictions.

Beyond their unique positioning within the banking taxonomy, differences across institution types are further reinforced by the regulatory environment in which they operate. Following the GFC, Basel III introduced stricter capital and liquidity requirements, with regulatory standards and supervisory expectations becoming increasingly differentiated according to institutional size, complexity, and systemic importance (BCBS, 2011; BCBS, 2013). In the U.S., these distinctions were largely operationalized through the Dodd-Frank Act, which established a tiered supervisory framework across financial institutions. For instance, given their global operations and exposure to trading activities, large money-center banks became subject to the most stringent regulatory requirements under the Dodd-Frank Act, including enhanced capital planning, regular stress testing, and tighter constraints on risk exposure mandated under the Enhanced Prudential Standards (EPS) (U.S. Congress, 2010). These requirements were further reinforced by the stricter capital and liquidity standards introduced under Basel III (BCBS, 2011; BCBS, 2013). Community banks, by contrast, maintain simpler B/S concentrated in traditional lending activities (FDIC, 2012), and face a comparatively lenient regulatory burden reflecting their more limited systemic footprint (U.S. Congress, 2010). Regional banks fall between these two regulatory

regimes. While subject to strengthened post-crisis capital and liquidity standards, only institutions exceeding $50 billion in consolidated assets are exposed to the full EPS framework (U.S. Congress, 2010). As a result, regulatory intensity remains heterogeneous across regional banks, with some being subject to enhanced oversight while others continue to operate under comparatively less stringent supervisory requirements. This regulatory setting increases the importance of equity capital for regional institutions, as stricter capital requirements translate more directly into constraints on lending capacity and financial flexibility (BCBS, 2011), thereby strengthening the link between market valuations and access to external equity financing.

2.2.2 Loan Portfolio Characteristics and Provisioning Discretion in Regional Banks

In light of the heterogeneity in business models and lending activities across banks, understanding the determinants of provisioning behavior is central to assessing the extent of managerial discretion embedded in provisioning decisions. Since LLPs are intended to reflect expected credit losses embedded in a bank's loan portfolio, the composition of those portfolios is a key determinant of provisioning behavior (Federal Banking Agencies, 2006; Bushman and Williams, 2012). Regional banks are characterized by loan portfolios concentrated in relationship-based lending to small- and medium-sized businesses, where credit risk assessment is inherently judgement-intensive (Flögel and Hejnová, 2024). Consequently, since credit risk assessment requires evaluating borrower-specific conditions, collateral quality, and local economic factors (Balasubramanyan and Bianco, 2015), provisioning decisions in regional banks are arguably more prone to managerial judgement than institutions with more standardized portfolios. It is important to note, however, that this greater reliance on managerial judgement does not obscure the link between provisioning behavior and underlying credit conditions. More specifically, as the Federal Banking Agencies' (2006) interagency policy statement on the allowance for loan and lease losses (ALLL) establishes, the ALLL is designed to reflect estimated credit losses in the loan portfolio, and the relative simplicity of regional banks B/S makes this link more transparent than in institutions with complex trading books and exposures. In essence, since regional banks remain centered on traditional lending rather than complex trading activities, credit deterioration is easier to identify, and discretionary estimates are less likely to reflect unobserved B/S complexity (Morgan, 2002).

3 Literature Review

The following review is organized into two parts. The first presents the theoretical frameworks underlying the study as a sequential argument, progressing from *the market conditions that allow mispricing to arise and persist* (market efficiency and limits to arbitrage), to *the institutional channels that make such mispricing relevant for bank managers* (information asymmetry, agency costs, and bank opacity), to *the mechanisms through which market signals are incorporated into managerial decisions* (feedback loop, market timing, and catering theory), and finally to *the channel through which such responses are most economically meaningful* in the regional banking context: misvaluation-driven acquisitions. The second part then reviews the existing empirical literature on the relationship of interest, leading to the study's hypotheses section.

3.1 Theoretical Concepts

3.1.1 Market Efficiency, Limits to Arbitrage, and Mispricing

In order for market valuations to meaningfully affect managerial decision-making, deviations between observed stock prices and underlying fundamentals must be persistent rather than accidental and short-lived. The extent to which market prices reflect available information therefore becomes central to grasping the role of mispricing and its broader economic implications. The efficient market hypothesis, commonly categorized into weak, semi-strong, and strong forms corresponding to progressively broader sets of information reflected in prices, provides the central theoretical benchmark for understanding informational efficiency in financial markets. Its semi-strong form is most relevant for the present study, as it posits that all publicly available information, including financial statements and annual reports, is rapidly incorporated into stock prices, implying that valuations should align with underlying fundamentals in equilibrium (Fama, 1970). This prediction, however, critically relies on the premise that rational arbitrageurs can easily exploit deviations between prices and fundamentals and thereby correct mispricing before it becomes persistent. In practice, this assumption is widely challenged by the limits to arbitrage literature, which documents that various risks and constraints prevent rational traders from eliminating mispricing. In particular, Shleifer and Vishny (1997) identify three key constraints on arbitrage. First, arbitrageurs face noise trader risk, whereby prices may move even further away from fundamentals in the short run before eventually converging, exposing them to substantial short-term losses despite having correctly identified the initial mispricing. Second, arbitrage is

constrained by investors' finite time horizons, as price convergence may occur too slowly for arbitrageurs to sustain positions over the relevant period. Third, and most importantly, arbitrage is limited by the institutional structure of professional asset management, as arbitrageurs rely on external capital that is highly sensitive to short-term performance. In essence, persistent mispricing may trigger investor withdrawals and forced liquidations, thereby limiting arbitrageurs' ability to sustain positions until prices converge to fundamentals.

Taken together, these constraints imply that arbitrage becomes less effective precisely when mispricing is most severe. Importantly, these frictions are further amplified in the banking context due to the sector's inherent informational opacity. Since banks' underlying asset quality is difficult to assess by outsiders (Morgan, 2002), uncertainty surrounding fundamentals becomes greater, thereby increasing the risk of interim losses and allowing mispricing to persist for longer periods. Consequently, deviations between equity valuations and fundamentals may become sufficiently meaningful to attain economic relevance within banks, particularly in the presence of informational opacity and managerial discretion, as discussed in the subsequent section.

3.1.2 Information Asymmetry and Bank Opacity: Implications for Managerial Incentives

Information asymmetry, defined as the situation in which one of the parties in an economic transaction possesses superior information to the other, is a persistent feature of public markets that often leads to price inefficiencies and potential distortions. Stemming from this notion, agency theory suggests that imperfect information between managers and shareholders tends to bring about opportunistic and discretionary behavior, as first formalized by Jensen and Meckling (1976). In particular, their insight that managers with private information and limited liability have incentives to introduce bias into accounting estimates implies that the informational disadvantage observed in public markets makes managerial discretion possible in the first place.

In fact, this mechanism appears to be even more apparent in the banking context, where opacity is higher than that of non-financial firms due to the unobservable nature of banks' loan portfolios (Morgan, 2002). Precisely this lack of full observability of loan quality amplifies the discretionary nature of provisioning decisions, as investors cannot directly verify whether loan loss provisions (LLPs) accurately reflect underlying credit conditions or instead capture managerial judgement, thereby limiting the market discipline that might otherwise constrain such behavior. While this mechanism can be partially attributed to the limited observability of loan quality, it is

further reinforced by the broader theoretical view that opacity is inherent to the banking model. Specifically, Dang et al. (2017) argue that opacity is a deliberate feature of bank design rather than a mere consequence of asset complexity, suggesting that information asymmetry between bank managers and investors is a structural feature of the industry, as opposed to a temporary friction to be corrected.

Consistent with the insights of Morgan (2002) and Dang et al. (2017), Beatty and Liao (2014) further reinforce the discretionary nature of LLPs by characterizing provisioning behavior as systematically shaped by managerial incentives. In this context, provisions may get utilized to serve purposes related to earnings management, signaling, and capital management, thereby positioning LLPs as the primary accrual through which information asymmetry manifests in banks' financial reporting and translates into managerial discretion. It is important to note, however, that the very information asymmetry that enables managerial discretion in the first place also creates the conditions under which outside investors may aggregate information about the bank's prospects that managers cannot fully observe themselves, turning stock prices into informative signals for CEOs and facilitating a feedback effect between market valuations and provisioning decisions (Bond et al., 2012), as discussed in the following section.

3.1.3 Market Signals and Managerial Responses: Feedback Effects, Market Timing, and Catering Theory

The notion that stock prices contain signals relevant to managerial decision-making is deeply rooted in the corporate finance literature, dating back to Hayek's (1945) argument that prices aggregate dispersed information across market participants. This idea of price informativeness was later formalized in the theoretical models developed by Dow and Gorton (1997) and Subrahmanyam and Titman (1999), which in turn established the conceptual foundation for Bond et al.'s (2012) framework of stock price feedback effects, whereby rational managers incorporate signals embedded in market valuations into investment, M&A, and operational decisions. Although such responses may eventually become anticipated by the market, their framework shows that an equilibrium in which market valuations continue to convey valuable information and managers rationally learn from them can nevertheless persist. For this feedback loop to function properly, however, two conditions emphasized by Bond et al. (2012) must be satisfied. First, prices should contain information that managers do not already possess, as the learning

channel operates only when market participants contribute knowledge beyond managers' existing information set. Second, managers must incorporate such signals into their decision-making, either by learning from price movements or through incentives linked to valuations. Nonetheless, it is worth noting that these conditions are unlikely to hold uniformly across institutions, particularly with respect to the informational efficiency of stock prices, which tends to increase systematically with institutional size. More specifically, as Goldstein et al. (2026) document, firms are more likely to learn from stock prices when valuations contain informative signals relevant to managerial decision-making, thereby making the learning channel more effective in richer informational environments. Since large institutions typically attract greater investor participation and trading liquidity, Bond et al.'s (2012) feedback mechanism is therefore likely to operate more persistently among banks with sufficient market presence.

In an effort to extend Bond et al.'s (2012) informational feedback framework specifically into mispricing-driven behavior, it is useful to consider the market timing and catering theories, which provide insights into the strategic incentives that emerge once market valuations become economically relevant for managerial decision-making. Under market timing theory, managers are shown to perceive stock price deviations from fundamentals as economically meaningful and temporary, and therefore tend to exploit periods of such mispricing by adjusting capital structure and external financing decisions accordingly (Baker and Wurgler, 2002). Complementing this view, catering theory suggests that managers also respond to investor preferences by adjusting real decisions in line with prevailing market conditions. In particular, Polk and Sapienza (2008) characterize overvaluation as a condition under which firms may increase investment in response to optimistic investor sentiment, suggesting that market signals can influence real economic decisions beyond capital structure choices. Together, these frameworks imply that managerial responses to market signals are not limited to extracting information about fundamentals from prices, but may also reflect strategic behavior in response to mispricing itself. In the context of banking, LLP under the Incurred Loss Model (ILM) involves managerial discretion over the timing and magnitude of provisions (Wahlen, 1994), thereby providing a direct and economically meaningful channel through which managers can respond to valuation signals via discretionary loan loss provisioning (DLLP), as such adjustments directly affect reported earnings and capital positions (Beatty and Liao, 2011).

3.1.4 Misvaluation-Driven Acquisitions and the Equity-as-Currency Channel

Having established that managers incorporate market signals into their decision-making, it is worth noting that the sensitivity of this response to mispricing tends to be particularly pronounced among institutions for which market valuation carries direct strategic consequences for growth. Nowhere is this more apparent than in M&A activity, where equity valuation directly determines the terms and economics of transactions. In this context, Shleifer and Vishny (2003) formalize the equity-as-currency mechanism, under which overvalued firms can use their own stock as acquisition currency to purchase undervalued targets at favorable terms, effectively paying with inflated equity to consolidate the underlying operations of the target at a discount. By contrast, the depressed valuations of institutions trading below fundamental value raise their cost of equity issuance, thereby constraining their capacity to initiate acquisitions, while simultaneously increasing their attractiveness as takeover targets. In essence, this mechanism highlights that deviations of market valuations from fundamentals are not merely a reflection of investor sentiment for acquisition-active firms on either side of an M&A transaction, but a direct determinant of firm's strategic positioning and growth capacity.

3.2 Empirical Literature

3.2.1 Discretionary Loan Loss Provisioning: Incentives, Consequences, and the Feedback Channel

The theoretical frameworks outlining how banks' structural opacity facilitates provisioning discretion shaped by managerial incentives also find substantial support in the empirical literature. More specifically, the discretionary nature of LLPs has attracted significant academic attention, with a large body of research documenting that provisioning decisions systematically reflect managerial incentives rather than credit conditions alone. For instance, early studies document provisioning behavior consistent with regulatory capital management (Moyer, 1990; Beatty et al., 1995), earnings smoothing (Collins et al., 1995), and signaling incentives (Wahlen, 1994; Beaver and Engel, 1996). In an effort to reassess the competing explanations for provisioning behavior, Ahmed et al. (1999) later reexamine whether LLP decisions primarily reflect incentives related to capital management, earnings management, or signaling, ultimately finding strongest support for regulatory capital motives, particularly among banks facing stronger capital constraints and growth-related pressures. On the other hand, by documenting that managers facing earnings

pressure tend to reduce provisioning to smooth income upward, while those with strong current performance increase provisions with the aim of deferring earnings to future periods, Kanagaretnam et al. (2003) provide evidence that earnings-related incentives also remain important determinants of provisioning behavior. Extending this insight to the aggregate level, Laeven and Majnoni (2003) analyze banks across 45 countries and find that provisioning is typically delayed until credit losses become observable, implying a pronounced procyclical pattern driven by asymmetric managerial incentives to delay the recognition of bad news.

Apart from documenting that provisioning discretion is indeed exercised strategically, the literature also highlights that provisioning decisions carry informational content for outside investors, thereby providing empirical support for Bond's (2012) market feedback framework. For instance, to examine whether investors incorporate information on impaired loans reported by banks into their expectations of future performance and, consequently, stock prices, Wahlen (1994) analyzes U.S. commercial bank data from 1977 to 1988 and finds that unexpected increases in provisions are generally associated with positive abnormal stock returns. Suggesting that the market interprets LLPs as a credible signal of management's assessment of future performance, the paper lays the foundation for treating discretionary provisioning not merely as an accounting choice, but as a tool for transmitting private information to outside investors. Beyond their informational role, however, provisioning decisions are also shown to carry real economic consequences, which makes them even more relevant for outside investors to observe and incorporate into their expectations. More specifically, using data on U.S. banks from 1993 to 2009, Beatty and Liao (2011) show that delays in expected loss recognition are associated with a reduced willingness to lend during downturns, thereby suggesting that provisioning decisions have tangible effects on the broader economy.

While the studies discussed above primarily examine the internal drivers of LLPs and their consequences for markets and the broader economy, Le Quang (2019) reverses the lens and analyzes whether market signals feed back into managerial provisioning behavior, instead. Using a panel comprising 375 U.S. universal commercial banks over the 2008-2017 period, he investigates whether managers tend to adjust their DLLPs in response to market discipline, as proxied by deposit rates and deposit flows. The evidence that increases in provisions are associated with stronger market discipline, as reflected in sharp rises in deposit rates, suggests that bank

managers actively use provisioning as a strategic response to external pressures. This points to a clear feedback mechanism between market perception and accounting choices, suggesting that the relationship between external market signals and managerial provisioning behavior warrants further investigation.

3.2.2 Empirical Evidence on Mispricing and Managerial Decision-Making

The theoretical literature suggests that deviations between stock prices and firm fundamentals may persist when arbitrage is limited, creating conditions under which managers can incorporate perceived mispricing into their corporate decision-making (Shleifer and Vishny, 1997). Building on this framework, the present section reviews the empirical evidence on managerial responses to equity mispricing, with an emphasis placed on explanations grounded in market timing and catering theories, both of which are particularly relevant in the comparatively opaque context of banking. For instance, by documenting that firms tend to issue equity during periods of high market valuations and that such market timing exerts tangible effects on the company's capital structure that persist for over a decade, Baker and Wurgler (2002) provide empirical support for the view that managers respond strategically to perceived mispricing.

Extending this evidence beyond capital structure decisions, Gilchrist et al. (2005) examine whether mispricing influences real investment activity, and find that firms with valuations elevated relative to fundamentals engage in greater equity issuance and investment, even after controlling for differences in underlying investment opportunities. In the context of investor sentiment, Polk and Sapienza (2008) further reinforce this argument by providing empirical support for both market timing and catering theories, showing that firms adjust real investment decisions in response to sentiment-driven mispricing. By documenting that the relationship between mispricing and investment is strongest precisely in firms with shorter shareholder horizons and greater valuation uncertainty, where such valuation distortions are most likely to persist, their findings suggest that sentiment-driven managerial responses become more pronounced in opaque institutional settings. If extended to the regional banking context, where informational opacity stemming from the complexity of loan portfolios is a structural feature of the sector (Morgan, 2002), these findings point to a particularly strong sensitivity of managerial behavior to market signals.

It is important to note, however, that the sentiment-driven mechanism outlined above is not confined to periods of favorable market conditions. For instance, Rajgopal et al. (2007) find that managers use earnings-smoothing accruals to support reported earnings when investor sentiment is high, while adopting more conservative reporting behavior when sentiment is low, suggesting that the inclination to cater to shareholders varies systematically across optimistic and pessimistic market environments.

3.2.3 Stock-Financed Acquisitions and Equity Currency Channel

Building on the broader literature documenting managerial responses to market mispricing, the present section narrows the focus to the empirical findings documenting stock-financed acquisition activity, where the strategic consequences of valuations are particularly pronounced. A central contribution to this literature is Rhodes-Kropf et al.'s (2005) paper that examines the effect of mispricing on M&A activity by decomposing deviations in market-to-book (MTB) ratios into three elements: firm-specific, sector-wide, and long-run mispricings. Based on a sample of all public mergers between 1978 and 2001, they find that firm-specific mispricing is the dominant predictor of acquisition activity, and that overvalued companies frequently use stock as payment to acquire undervalued firms. Dong et al. (2006) further corroborate this association at the individual transaction level by documenting that acquirer overvaluation significantly predicts both deal initiation and the choice of stock as the method of payment, thereby providing empirical support for the equity-as-currency mechanism established by Shleifer and Vishny (2003).

Although the equity-as-currency mechanism was initially developed in the broader corporate finance literature, it also carries relevance for the banking sector, where heightened post-crisis reliance on external equity financing increased the strategic importance of market valuations for banks' expansion opportunities and acquisition capacity (Baker et al., 2003). In fact, the post-GFC regional banking environment provides a particularly suitable setting for observing this mechanism, as substantial heterogeneity in B/S deterioration also contributed to pronounced cross-sectional valuation dispersion across regional institutions. Many regional banks were heavily exposed to credit losses stemming from geographically concentrated traditional lending portfolios, particularly in the real estate sector (Balasubramanyan and Bianco, 2015), causing the severity of post-crisis B/S deterioration to differ substantially across local markets (Flögel and Hejnová. 2024). As a result, profitability, asset quality, and capital adequacy evolved unevenly across

regional banks, generating persistent cross-sectional differences in their market valuations. Combined with heightened capital requirements that increased banks' reliance on external equity financing, these valuation differences increasingly determined banks' acquisition capacity and strategic growth opportunities, which are precisely the conditions under which Shleifer and Vishny's (2003) equity-as-currency mechanism becomes strategically important.

Consistent with the increasing dependence of acquisition capacity on market valuations in the post-crisis environment, CapitalIQ transaction data gathered for the purpose of this study documents a pronounced increase in stock-financed acquisition activity among regional banks over the pre-crisis (2003-2007) and post-crisis periods (2009-2013). As reported in Figure 1, the share of stock-financed M&A transactions rose from approximately 40% pre-GFC to 46% post-crisis, compared to a decline from 47% to 27% across the broader banking sector over the same period. This divergence suggests that regional banks became disproportionately reliant on equity as acquisition currency when post-crisis valuation dispersion was most pronounced, implying that differences in market valuations increasingly translated into differences in acquisition capacity and strategic growth opportunities across institutions.

Lastly, it is worth noting that the valuation-dependent dynamics characterizing the post-2008 crisis period documented thus far operated not only through institutional financing conditions, but also through managerial incentives tied to market valuations. More specifically, Fahlenbrach and Stulz (2011) show that bank CEOs at the time held substantial personal equity stakes, implying that fluctuations in market valuations directly affected executive compensation. This created an alignment between managerial and institutional interests, whereby both banks and their executives became increasingly sensitive to investor perceptions and the valuation consequences associated with them. Consistent with this reinforced incentive structure, Hagendorff and Vallascas (2011) find that higher CEO pay-risk sensitivity, reflecting compensation structures that reward greater risk-taking, is significantly associated with risk-increasing M&A transactions.

4 Hypotheses

This section develops the three hypotheses of the study as a sequential and cumulative argument. While the first hypothesis establishes the expected baseline relationship between equity mispricing

and discretionary loan loss provisioning (DLLP), the second examines whether this association is directionally asymmetric. The third hypothesis in turn tests whether the asymmetry is further conditioned on the bank's M&A exposure.

4.1 Hypothesis 1: Equity Mispricing and Discretionary Provisioning

Stock prices can influence corporate decision-making by aggregating dispersed information held by outside investors, thereby generating feedback effects that managers incorporate into their actions (Bond et al., 2012). One manifestation of such feedback is managers' response to equity mispricing, whereby perceived deviations from fundamental value are viewed as temporary and get incorporated into decisions aimed at exploiting favorable valuation distortions (Baker and Wurgler, 2002; Polk and Sapienza, 2008). In fact, this mechanism is particularly likely to operate in the context of regional banks. While their intermediate size allows market prices to remain sufficiently informative through broader market participation and trading activity (Bond et al., 2012; Goldstein et al., 2026), the Incurred Loss Model (ILM) framework grants managers substantial discretion over the timing and magnitude of loan loss recognition, allowing external valuation signals to be incorporated into provisioning decisions (Wahlen, 1994). Under these conditions, DLLPs represent a natural channel through which managers may respond to equity mispricing, as discretionary adjustments to provisions directly affect reported earnings and perceptions of B/S strength, both of which are key inputs into how external investors assess bank value.

Therefore, since DLLPs can influence market perceptions that are reflected in stock prices, mispricing between valuations and underlying fundamentals may create incentives for managers to adjust provisions strategically. In the context of regional banks, these stock price feedback effects may be reflected in discretionary provisioning decisions, implying a systematic association between mispricing and DLLPs. As such, the study's first hypothesis is formalized as follows:

$\boldsymbol{H_1}$: Deviations between a bank's market valuation and its fundamentals-implied value predict DLLP in the following quarter.

4.2 Hypothesis 2: Asymmetric Response to Over- and Undervaluation

Building on the predicted association between mispricing and DLLP outlined in H_1, the study's second hypothesis examines whether provisioning behavior differs systematically between over-

and undervaluation states, as each is expected to create distinct managerial incentives that shape provisioning decisions asymmetrically. For instance, in accordance with market-timing theory predictions, periods of overvaluation create incentives for managers to behave strategically in order to capitalize on temporarily favorable market valuations (Baker and Wurgler, 2002). Applying this reasoning to the provisioning context, strong earnings and capital abundance would therefore imply that increasing provisions to signal B/S strength and reinforce investor confidence is relatively low-cost. Combined with evidence that conservative provisioning responses are associated with positive abnormal stock returns (Wahlen, 1994), such conditions may create incentives to sustain the overvaluation window. Conversely, during undervaluation, managers face incentives to reduce provisions to support reported earnings and narrow the valuation gap, consistent with the income-smoothing behavior documented by Kanagaretnam et al. (2003).

Overall, these contrasting incentives suggest that the effect of mispricing on DLLP is expected to be asymmetric and directionally dependent on the nature of the valuation deviation. Further, since stock price feedback effects are more likely to materialize in institutions marked by higher trading liquidity and market exposure (Bond et al., 2012; Goldstein et al., 2026), these dynamics are also expected to be more pronounced among larger regional banks. The second hypothesis is thus specified as follows:

$\boldsymbol{H_2}$: The effect of mispricing on DLLP is asymmetric and more pronounced among larger banks: while overvalued institutions provision more conservatively to sustain favorable market conditions, undervalued banks reduce provisions to support reported earnings and close the valuation gap.

4.3 Hypothesis 3: M&A Exposure as a Moderator of the Asymmetric Effects of Equity Mispricing

While H_2 predicts that provisioning responses differ across valuation states, the present hypothesis examines whether this dynamic becomes more pronounced in acquisition-active settings, where market valuations directly influence banks' strategic growth opportunities. More specifically, this hypothesis is grounded in the equity-as-currency framework, which posits that stock valuations influence not only investor perceptions, but also firms' ability to finance external growth through acquisitions (Shleifer and Vishny, 2003). In fact, the strategic importance of this mechanism is particularly relevant in the post-crisis banking environment observed in the present study, where

rising regulatory compliance costs increased consolidation incentives and made acquisition-based expansion increasingly attractive for many mid-sized institutions (Leledakis and Pyrgiotakis, 2019). At the same time, heterogeneous recovery trajectories created substantial valuation dispersion across regional banks (Flögel and Hejnová, 2024; Balasubramanyan and Bianco, 2015), thereby increasing the economic relevance of firm-specific mispricing in acquisition activity (Rhodes-Kropf et al., 2005).

Under such conditions, the equity-as-currency framework suggests that relatively overvalued banks may benefit from inflated equity valuations when acquiring comparatively undervalued institutions, whereas undervalued acquirers may face stronger incentives to support market valuations as depressed equity prices constrain acquisition capacity and increase financing costs. Accordingly, the valuation-sensitive provisioning responses predicted in H_1 and H_2 are expected to become more pronounced among acquisition-active banks, where mispricing affects strategic growth opportunities more directly:

$\boldsymbol{H_3}$: The relationship between equity and DLLP is amplified among acquisition-active banks, particularly in the presence of over- and undervaluation incentives associated with stock-financed growth opportunities.

5 Methodology

Since both equity mispricing and discretionary loan loss provisions (DLLPs) are not directly observable and must therefore be proxied using publicly available accounting data, the empirical design proceeds in three sequential stages described in the present section. While Stage 1 constructs the mispricing measure, Stage 2 estimates DLLPs. Stage 3 in turn evaluates the relationship between the two variables through the study's main regression framework.

5.1 Stage 1 Regression: Construction of Equity Mispricing

Establishing a measure of mispricing requires a valuation framework that connects observable fundamentals to equity value. Ohlson's (1995) Residual Income Model (RIM) provides such a foundation by expressing firm value as the sum of current book value and the present value of expected future residual income. Within this model, residual income reflects profitability in excess of investors' required return, implying that deviations between market and book value capture

expectations about future abnormal earnings. Consequently, the RIM uses firm-specific fundamentals to determine a theoretically justified price-to-book (P/B) multiple, allowing observed valuations to be benchmarked against their fundamentals-implied counterparts. This framework is particularly well-suited to the regional banking sector, where B/S primarily consist of financial assets and liabilities closely tied to observable accounting measures (FDIC, 2012). As a result, book value serves as an economically meaningful valuation anchor, and P/B ratios provide a direct link between market valuations and underlying fundamentals. In fact, Calomiris and Nissim (2014) provide empirical evidence that P/B ratios are systematically explained by fundamentals such as profitability, asset quality, capital adequacy, and net interest margins (NIM) in the banking context, thereby supporting the applicability of the RIM in the present analysis.

While the structural RIM requires explicit forecasts of future profitability, cost of equity, and terminal growth, implementing such a framework across a multi-bank panel is not practically feasible. Accordingly, the analysis employs a reduced-form regression-based approximation in which $P/B_{i,t}$ is modeled as a function of bank-specific fundamentals capturing profitability, risk, and growth prospects. The empirical specification is therefore estimated as follows:

$$\left(\frac{P}{B}\right)_{i,t} = \alpha + \beta_1 ROE_{i,t} + \beta_2 NIM_{i,t} + \beta_3 Tier1(\%)_{i,t} + \beta_4 NPL(\%)_{i,t} + \beta_5 \delta EPS(\%)_{i,t} + \beta_6 \delta GDP(\%)_{i,t} + \gamma_i + \mu_{i,t} ,$$

where $ROE_{i,t}$ and $NIM_{i,t}$ capture profitability, $Tier\ 1_{i,t}$ capital and non-performing loans ($NPL_{i,t}$) ratios proxy for capital adequacy and asset quality, and changes in earnings ($\delta EPS_{i,t}$) and GDP ($\delta GDP_{i,t}$) reflect growth and macroeconomic conditions. Mispricing is then defined as the residual from this regression, capturing the extent to which a bank's observed market valuation deviates from its fundamentals-implied level, and forming the main explanatory variable of the empirical analysis.[2] To ensure comparability across time, residuals are standardized within each quarter by subtracting the cross-sectional mean and dividing by the standard deviation. This transformation yields a relative measure of mispricing that reflects each bank's position within its

[2] The results of the Stage 1 regression are presented in Appendix Table 3 for transparency and diagnostic purposes only. Since the main objective of this model is to construct a measure of mispricing, and not to estimate the structural relationship between fundamentals and P/B ratios, the coefficients should not be interpreted as causal estimates.

contemporaneous valuation distribution, rather than the absolute magnitude of deviations, which may vary across market conditions.

The Stage 1 model is estimated using entity fixed effects (FE) to account for time-invariant bank characteristics such as business model and geographic focus, while preserving time-varying changes in fundamentals. However, time FE are deliberately excluded, as they would absorb common valuation components across banks within each period and thereby remove economically meaningful variation in market-wide over- and undervaluation. Instead, GDP growth is included as a macroeconomic control to account for broad economic conditions, while simultaneously preserving cross-sectional variation in valuations. As such, the specification balances the need to control for time-varying factors against retaining the variation necessary to identify valuation deviations relevant for decision-making.

5.2 Stage 2 Regression: Construction of Discretionary Loan Loss Provisioning Variable

Following the construction of mispricing, Stage 2 derives the dependent variable, $DLLP_{i,t}$. Adopting an approach developed by Bushman and Williams (2012), the loan loss provisions (LLPs) reported by sample banks over the observed period are decomposed into a non-discretionary part reflecting underlying credit conditions and a discretionary component driven by managerial judgement. The non-discretionary portion is estimated by modeling LLPs as a function of variables capturing both current and anticipated credit deterioration, which in the banking context is primarily reflected in changes in loan portfolio quality, as worsening borrower conditions generally increase expected credit losses. This identification strategy is particularly well-suited to regional banks, whose B/S are predominantly composed of financial assets in the form of loan exposures (Balasubramanyan and Bianco, 2015), allowing credit deterioration to be more directly captured by observable accounting indicators. Specifically, changes in non-performing loans and their lags capture both contemporaneous and delayed recognition of credit deterioration, reflecting the gradual incorporation of borrower-quality information as it becomes available. Extending beyond credit metrics, earnings before LLPs ($Ebllp_{i,t}$) controls for pre-provision profitability and the documented tendency of banks to smooth earnings through provisioning decisions (Kanagaretnam et al., 2003). In addition, lagged capital ratios (CAP_{t-1}) capture regulatory and risk-absorption incentives, while firm size controls for systematic

differences in provisioning behavior across institutions. Based on these considerations, the following regression is estimated:

$$\left(\frac{LLP}{Total\ Loans}\right)_{i,t} = \alpha + \beta_1 Ebllp_{i,t} + \beta_2 \delta NPL_{i,t} + \beta_3 \delta NPL_{i,t-1} + \beta_4 \delta NPL_{i,t-2} + \beta_5 CAP_{i,t-1} + \beta_6 Size_{i,t-1} + \mu_i + \lambda_t + \upsilon_{i,t}$$

The residual from this regression, denoted $DLLP_{i,t}$, captures the portion of LLP unexplained by observable measures of credit deterioration and is therefore interpreted as discretionary provisioning behavior, forming the dependent variable of the empirical analysis.[3] Contrary to Stage 1, this specification includes both time and entity FE to isolate comparable changes in managerial behavior. Time FE absorb common provisioning responses to macroeconomic conditions, while entity FE capture persistent bank-specific provisioning tendencies. Together, these controls ensure that the measure for discretionary provisions contains a meaningful reflection of managerial behavior that can be cross-sectionally compared over time.

5.3 Stage 3 Regression: Main Study Model

Building on the constructed measures of mispricing and DLLP, the final stage evaluates the extent to which deviations from fundamentals influence managerial provisioning decisions. To empirically evaluate this relationship, $DLLP_{i,t}$ is scaled by 1,000 to increase interpretability and regressed on mispricing, together with a set of relevant control variables:

$$DLLP_{i,t} = \alpha + \beta_1 Mispricing_{i,t-1} + \beta_2 Size_{i,t} + \beta_3 ROE_{i,t} + \beta_4 Tier1_{i,t} + \beta_5 Loan\ Growth_{i,t} + \beta_6 Allowance_{i,t-1} + \mu_i + \lambda_t + \nu_{i,t}$$

To mitigate concerns of reverse causality, $Mispricing_{t-1}$ is lagged by one quarter, reflecting the possibility that contemporaneous provisioning behavior may itself influence market perceptions of bank risk and, consequently, equity valuations. This temporal structure ensures that the current quarter's DLLPs cannot influence the mispricing of the previous one, allowing the estimated relation to capture managerial responses to previously observed valuation signals.

[3] The results of the Stage 2 model are presented in Appendix Table 4 for transparency and diagnostic purposes only. Since the main objective of this regression is to construct a measure of DLLP, and not to estimate the structural relationship between credit fundamentals and LLP ratios, the coefficients should not be interpreted as causal estimates.

Controlling for size, profitability, and risk further reinforces the estimated relationship between mispricing and provisioning discretion. While some of these controls are incorporated in previous stages, their purpose in the study's main specification is to account for alternative drivers of changes in DLLPs that are unrelated to mispricing, including incentives linked to signaling, capital management, and earnings management (Ahmed et al., 1999; Kanagaretnam et al., 2003; Wahlen, 1994). Specifically, $Size_{i,t}$ controls for scale-related provisioning tendencies, such as diversification and monitoring advantages, while $ROE_{i,t}$ captures profitability-related incentives associated with earnings pressure. Further, $Tier\ 1_{i,t}$ controls for regulatory capital pressure that may shape provisioning behavior, and $Loan\ Growth_{i,t}$ ensures that the estimated mispricing effect is not merely capturing changes associated with lending expansion. Lastly, $Allowance_{i,t-1}$ controls for the existing stock of credit reserves that may independently influence discretionary provisioning through capital management incentives.

Beyond the control variables, the Stage 3 specification differs from the previous two stages through the inclusion of time FE, which absorb discretionary provisioning responses to macroeconomic developments, such as changes in regulatory guidance or broader market conditions. Unlike in Stage 1, where time FE were excluded to preserve cross-sectional variation, this concern does not arise in Stage 3, as $Mispricing_{t-1}$ is standardized quarterly by construction, while $DLLP_{i,t}$ has already been controlled for common time effects through the Stage 2 estimation. Time FE therefore absorb residual macroeconomic influences without distorting identification of the mispricing channel. In addition, entity FE are included to control for time-invariant bank-specific provisioning tendencies.

The outlined specification serves as the baseline model in the empirical analysis, capturing the most direct and unconditional effect of mispricing on DLLP. However, the theoretical framework suggests that managerial incentives are unlikely to be symmetric across valuation states. More specifically, empirical findings on catering and market-timing theories imply that managerial responses differ depending on whether companies are over- or undervalued relative to fundamentals (Baker and Wurgler, 2002; Polk and Sapienza, 2008). To further refine the analysis, the sample is therefore separated into over- and undervalued observations based on whether mispricing is above or below zero. The directional effect is then examined through two subgroup regressions in which the coefficient on the main explanatory variable is estimated separately across

valuation regimes, while all other aspects remain identical to the baseline specification. This asymmetric analysis, however, still treats banks as relatively homogenous, ignoring differences in the informativeness of stock prices arising from broader market participation and trading liquidity, which underpin the market feedback mechanism (Bond et al., 2012; Goldstein et al., 2026) and are more likely to characterize larger institutions. To account for this dimension, the empirical analysis is further extended through a size-based specification that distinguishes between small and large banks, defined as institutions below or above the 25^{th} and 75^{th} percentiles of total assets. In particular, the size-based specification utilizes an interaction model to preserve statistical power while directly testing whether the sensitivity to mispricing differs across bank size. To complement this specification, separate piecewise regressions separating over- and undervalued observations are estimated within each subsample to complement the primary specification. Since the mispricing measure is standardized around zero, this approach preserves within-entity variation while limiting distortions to coefficient estimates.

5.4 The M&A Hypothesis: Testing Approach

Beyond estimating the direct effect of mispricing on discretionary provisioning, the analysis further examines whether the relationship becomes more pronounced among acquisition-active regional banks, where managerial incentives to respond to equity valuations are expected to be stronger, as derived from Shleifer and Vishny's (2003) equity-as-currency mechanism. To mitigate endogeneity concerns arising from the possibility that contemporaneous acquisition activity could itself influence provisioning, both the M&A and mispricing variables are lagged by one quarter. The lagged M&A variable is then incorporated into the baseline regression through interaction terms with mispricing and its directional component. These interaction terms allow the sensitivity of discretionary provisioning to equity valuation to vary depending on acquisition activity.

5.5 Estimation Choices and Diagnostics

To ensure consistency and reliable statistical inference, a common set of estimation procedures and diagnostic adjustments is applied across all three stages of the empirical analysis. As reported in Table 1, the Hausman test rejects the null hypothesis that regressors are uncorrelated with the error term, pointing to FE as the appropriate entity-specific estimator. Therefore, bank-specific FE are included to control for time-invariant heterogeneity in provisioning tendencies, risk profiles, business models, and other persistent bank-specific characteristics. In addition, to account for

sufficient within-entity variation, the sample is restricted to banks with a minimum of five quarterly observations. Further, the modified Wald test presented in Table 2 confirms the presence of groupwise heteroskedasticity across banks, thereby motivating the use of standard errors clustered at the bank level. This approach additionally accounts for arbitrary serial correlation over time within institutions, addressing the possibility that quarterly observations are not independently distributed. Lastly, because standard errors affect inference but not coefficient estimates, they do not influence the residuals extracted in Stages 1 and 2. Nevertheless, clustered standard errors are applied uniformly across all stages for consistency, although formal inference is drawn exclusively from Stage 3.

5.6 Robustness Tests

To evaluate whether the estimated relationships remain robust to alternative specifications and sample restrictions, a series of additional tests addressing measurement, timing, and model specification concerns are conducted. First, observations of mispricing within the interval of -0.25 to 0.25 are excluded to focus on instances of more pronounced mispricing. This restriction allows the analysis to assess whether the documented relationships are driven by economically meaningful valuation signals rather than estimation noise. Second, alternative lag structures for both mispricing and M&A activity are introduced to further address potential endogeneity concerns. By varying the temporal alignment of the variables by two and three quarters, this specification evaluates the extent to which the results depend on the timing of managerial responses to valuation signals, as well as the persistence of those signals over time. Finally, an alternative specification incorporating time FE in Stage 1 is estimated to examine the implications of absorbing time-dependent variation in valuations. This test assesses whether the exclusion of time FE from the construction of the mispricing measure materially influences the relationships observed in the Stage 3 specifications.

6 Data and Sample Description

This section provides an overview of the data utilized for the purposes of the study, including its collection and the adjustments applied to ensure its suitability for the empirical analysis.

6.1 Sample Construction

6.1.1 Primary Sample Construction

The sample comprises all U.S. regional banks classified under CapitalIQ's regional banking category and listed on the NYSE or NASDAQ, subject to a minimum asset threshold of $5 billion in total assets. The dataset consists of quarterly observations from 2010 to 2019, corresponding to the final period in which all sample constituents reported exclusively under the Incurred Loss Model (ILM), before the transition to the forward-looking Current Expected Credit Loss (CECL) framework fundamentally altered provisioning practices, thereby limiting the comparability of discretionary provisioning estimates over time. Restricting the sample to publicly listed regional banks reporting under the GAAP framework further ensures comparability across business models, provisioning regimes, and regulatory requirements. Moreover, since all sample constituents were required to file quarterly reports with the SEC throughout the sample period (Federal Banking Agencies, 2006), provisioning decisions are observable at a consistent frequency across institutions over time, thereby improving comparability within the panel.

In addition, the imposed minimum asset threshold of $5 billion in total assets restricts the sample to banks with sufficient market presence and trading liquidity for stock prices to be informative (Bond et al., 2012; Goldstein et al., 2026). This restriction is also consistent with Bushman and Williams' (2012) study of discretionary loan loss provisioning (DLLP), which similarly limits the sample to banks with more than $5 billion in total assets to ensure sufficient scale and data availability. At the same time, because analyst coverage, liquidity conditions, and market perceptions evolve over time, differences in market informativeness are unlikely to be fully absorbed by bank FE alone.

While all bank-level data is extracted from CapitalIQ, relevant macroeconomic information is obtained from FRED. Variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers. To preserve sample continuity while minimizing excessive data loss, missing observations are forward-filled for up to one quarter where variables evolve gradually and incompleteness is likely driven by reporting irregularities rather than underlying economic changes. Additionally, change-based variables are adjusted to ensure that observations following reported gaps are calculated relative to the preceding reported quarter. Since the sample is restricted to banks that maintained a public listing throughout the analyzed period, the findings

may be subject to survivorship bias and therefore apply primarily to viable listed regional banks rather than the full cross-section of U.S. banking institutions. Following all sample restrictions and data adjustments, the final panel consists of 2,472 quarterly observations across 92 regional banks.

6.1.2 M&A Transaction Data

M&A transaction data used in testing the third hypothesis of the study is sourced from CapitalIQ's transaction screener, providing information on announcement dates, payment methods, and the identities of acquiring and target institutions. The dataset is constructed by identifying instances in which sample constituents act as acquirers in M&A transactions and matching these deals to the corresponding regional bank in the panel. The empirical analysis focuses exclusively on acquiring institutions, as equity valuations are expected to play the most economically meaningful role in stock-financed acquisitions and transaction-level data availability is substantially stronger on the acquirer side. Accordingly, the sample is restricted to stock-financed transactions, where equity valuations are most likely to influence acquisition incentives and financing capacity. For temporal identification, announcement dates are used throughout, as the valuation-driven incentives central to the analysis are expected to materialize at the point of deal announcement rather than at completion. The resulting dataset identifies 109 stock-financed M&A transactions announced by 55 distinct regional banks within the sample period, representing approximately 60% of all constituents.

6.2 Descriptive Statistics

To provide context for the methodological choices of the study, the present discussion documents the distributional properties and preliminary relationships observed among the variables used in the empirical analysis. Starting with market valuations, as proxied by P/B ratios, Table 3 shows that the mean and median of 1.426 and 1.337 are relatively closely aligned, suggesting a balanced distribution. Despite the relatively close alignment between the mean and median, however, the standard deviation of 0.524 indicates cross-sectional dispersion in valuations across banks, providing the variation needed for the empirical analysis to be informative. Further, the wide range between the minimum and maximum values points to the presence of tail observations, supporting the choice of winsorization at the 1st and 99th percentiles. Over time, the distribution pattern of market valuations broadly aligns with macroeconomic conditions, with the mean P/B ratio gradually recovering from post-crisis lows in 2011 before peaking during the low interest rate

environment of 2016, supporting the exclusion of time FE in Stage 1 (Figure 2; Federal Reserve Bank of St. Louis, 2025).

Moving from observed valuations to deviations from underlying fundamentals, Table 5 presents $Mispricing_{t-1}$ as the study's primary explanatory variable, capturing the extent to which market valuations diverge from intrinsic value. Consistent with its standardized construction, the variable exhibits a mean and standard deviation of approximately 0 and 1, respectively. As predicated in the limits to arbitrage literature, the wide range of the variable, spanning from -3.933 to 5.591, suggests that market valuations can deviate substantially from underlying fundamentals (Shleifer and Vishny, 1997). The alignment between the 75th and 25th percentiles suggests that positive and negative valuation deviations are relatively symmetric in magnitude across the sample, while the nearly equal number of over- and undervalued quarterly observations (1,200 and 1,236, respectively) indicates balanced representation across both groups, despite the median implying a slight tilt toward undervaluation. Together, these properties suggest that differences in over- and undervaluation are unlikely to be mechanically determined by differences in their respective sample representations.

The discretionary loan loss provision ($DLLP_{i,t}$) serves as the dependent variable in the main analysis and is constructed as the Stage 2 regression residual, capturing the component of provisioning unexplained by observable credit conditions. Consistent with its residual-based construction, the variable exhibits a mean close to zero, as reported in Table 5. One standard deviation corresponds to an approximate quarterly change of $4,000,000 in provisioning for a bank with $5 billion in total loans, highlighting the economic significance of adjustments to loan loss provisions (LLPs) within the sample. Further, the close alignment between the 25th and 75th percentiles points to banks engaging in both income-increasing and income-decreasing provisioning behavior at broadly comparable magnitudes, consistent with differing incentives such as capital and earnings management (Ahmed et al., 1999; Kanagaretnam et al., 2003).

Moving to the control variables, Table 5 indicates substantial size heterogeneity, with institutions ranging from approximately $5 billion to $183 billion in total assets. This variation provides an appropriate setting to examine whether the relationship between equity mispricing and DLLPs differs across bank sizes. While the remaining control variables exhibit broadly balanced distributions and cross-sectional variation, Table 6 shows that over- and undervalued banks

statistically differ in profitability ($ROE_{i,t}$) and loan growth, but not in regulatory capital ($Tier\ 1_{i,t}$) or capital reserves ($Allowance_{i,t-1}$). Since the mispricing measure is estimated after controlling for profitability in Stage 1, and loan growth is additionally controlled for in Stage 3, the observed valuation differences are unlikely to be explained solely by profitability or lending activity. The remaining valuation deviations therefore likely reflect factors that observable fundamentals alone cannot fully capture, pointing to the opacity of regional bank loan portfolios (Morgan, 2002) limiting investors' ability to determine intrinsic value.

To complement the distributional properties discussed above, preliminary relationships between the key variables are illustrated through pairwise correlations presented in Table 7. The highest correlation of -0.385 is observed between $ROE_{i,t}$ and $DLLP_{i,t}$, while $Mispricing_{t-1}$ exhibits a negative and modest association at -0.124. Beyond the relationships involving the dependent variable, pairwise correlations among the remaining variables are generally low, providing no initial indication of multicollinearity concerns. A more formal assessment through variance inflation factor (VIF) analysis, however, reveals elevated VIF values for $Firm\ Size_{i,t}$ and $Tier\ 1_{i,t}$ of 25.027 and 13.216, respectively, suggesting collinearity among these controls. Importantly, the VIF of $Mispricing_{t-1}$, the study's main variable of interest, remains low at 1.051, indicating that the statistical inference drawn from its coefficient estimate is unlikely to be affected by multicollinearity (Table 8). While elevated VIF values among control variables may inflate their standard errors, this does not bias coefficient estimates in FE models and is therefore not considered a threat to the validity of the main findings.

Lastly, it is worth mentioning that the panel structure of the dataset reflects both geographical and temporal variation. The sample comprises 92 regional banks across 37 U.S. states, with high concentrations in states such as California, New York, and Texas (Table 9). The number of observations also increases over time, rising gradually from 175 in 2010 to 351 in 2019, indicating an unbalanced panel with greater representation in later years, possibly reflecting asset inflation and firm growth that allowed additional institutions to exceed the sample inclusion threshold over time (Table 10). Overall, this distribution suggests that the sample captures a geographically diverse cross-section of regional banks.

7 Empirical Analysis

The following section presents the empirical findings of the analysis, examining whether equity mispricing influences discretionary provisioning behavior in U.S. regional banks and whether this relationship varies across valuation states, bank size, and acquisition activity. The discussion begins with the baseline estimation before turning to asymmetric specifications, size heterogeneity, the moderating role of M&A activity, and the results of the conducted robustness tests.

7.1 Baseline Results: Hypothesis 1

As presented in Table 11, the baseline specification analyzes the most direct and unconditional relationship between equity mispricing and discretionary loan loss provisioning (DLLP), without distinguishing between over- and undervaluation or considering moderating factors such as banks' M&A activity. With a coefficient estimate of -0.0217, the regression yields a statistically insignificant and negative association between $Mispricing_{t-1}$ and $DLLP_{i,t}$, providing no evidence in support of the study's first hypothesis. However, although this result cannot be statistically distinguished from zero, it is directionally consistent with the notion that DLLP responses reflect potentially conflicting managerial incentives that can offset one another in pooled specifications (Ahmed et al., 1999). More specifically, the incentive of overvalued banks to provision conservatively in order to sustain favorable valuations is expected to be offset by the incentive of undervalued banks to support reported earnings and narrow the valuation gap (Kanagaretnam et al., 2003). In fact, since the magnitude of mispricing is broadly similar across over- and undervalued banks and the sample contains marginally more undervalued observations, the direction of the coefficient is primarily determined by the group that has more observations, causing the incentives of undervalued banks to reduce provisions to carry slightly more weight in the baseline estimate. In this context, the negative tilt of the $Mispricing_{t-1}$ coefficient is expected if incentives to respond to mispricing differ between over- and undervaluation.

Turning to the control variables, several independently meaningful determinants of discretionary provisioning behavior emerge, motivating their inclusion in the model. First, $ROE_{i,t}$ is highly statistically significant with a negative coefficient estimate of -16.119, suggesting that a one standard deviation increase in $ROE_{i,t}$ is associated with an average reduction of $3,200,000 in quarterly loan loss provisions (LLPs) for a bank with $5 billion in total loans. $Allowance_{i,t-1}$is

also highly significant but positively associated with $DLLP_{i,t}$, while $Loan\ Growth_{i,t}$ and $Firm\ Size_{i,t}$ are marginally significant, suggesting that capital buffers, loan growth and bank size systematically influence DLLPs.

Overall, the results of the baseline model suggest that the aggregation of opposing valuation-dependent managerial incentives obscures the underlying relationship between mispricing and DLLP, thereby providing no support for H_1. The following section addresses this limitation by introducing an asymmetric specification that allows the estimated responses to vary with the direction of valuation deviations.

7.2 Asymmetric Effects and Size Heterogeneity: Hypothesis 2

7.2.1 Asymmetric Provisioning Responses to Over- and Undervaluation

As presented in Table 12, separating mispricing into components of over- and undervaluation reveals the asymmetric response that the baseline specification obscured. Column 2 shows a marginally significant and negative association between $Mispricing_{t-1}$ and $DLLP_{i,t}$ in undervalued banks, suggesting that managers facing depressed valuations tend to reduce DLLPs in response to undervaluation. In economic terms, the coefficient estimate of -0.1165 implies that a one-unit increase in undervaluation, corresponding to one standard deviation below the fundamentals-implied valuation, is associated with an approximate reduction of $582,500 in quarterly LLPs for a bank with $5 billion in total loans. Drawing on the catering mechanism of Polk and Sapienza (2008) and the income-smoothing behavior documented by Kanagaretnam et al. (2003), this pattern suggests that managers facing depressed valuations cater to investors by supporting reported earnings with the aim of narrowing the valuation gap. By contrast, Column 1 shows that $Mispricing_{t-1}$ is positively but insignificantly associated with $DLLP_{i,t}$ in overvalued banks. Thus, while the coefficient sign is directionally consistent with incentives to provision conservatively to sustain favorable valuations, the effect cannot be statistically distinguished from zero across overvalued institutions as a whole. This weaker relationship is further reflected in the substantially lower within R^2 of the overvalued subsample (0.0849 vs. 0.2923), suggesting that the included variables explain less of the variation in discretionary provisioning behavior relative to undervalued banks.

Overall, the observed disparity between under- and overvaluation is informative and indicates that the undervaluation channel operates across the full cross-section of undervalued banks, providing partial support for H_2. In essence, the feedback mechanism appears more pronounced across undervalued regional banks, while no statistically significant effect is detected among overvalued institutions in the full sample. Although the evidence for catering incentives appears stronger during periods of undervaluation, the findings indicate that the overvaluation channel may be more context-dependent, suggesting that additional bank characteristics may condition whether and where this effect materializes.

7.2.2 Size Heterogeneity in the Asymmetric Response

The asymmetric results observed in the previous section suggest that the relationship between mispricing and discretionary provisioning is not uniform across regional banks but may be shaped by additional institutional characteristics. Since the market feedback mechanism requires sufficient price informativeness through market presence and trading liquidity (Bond et al., 2012; Goldstein et al., 2026), all of which are likely to vary with institutional size, the present section extends the analysis by examining whether managerial responses to mispricing differ systematically across bank size. For this purpose, an interaction-based specification and piecewise subgroup regressions are estimated, with results reported in Tables 13 and 14, respectively.

As shown in the interaction specification in Table 13, the negative and highly statistically significant coefficient of -0.2031 on $Mispricing_{t-1}$ indicates that smaller undervalued banks tend to reduce DLLPs in response to mispricing. The estimated effect is also economically meaningful – expressed in nominal terms, a one standard deviation decrease in mispricing corresponds to an average quarterly reduction in LLPs of approximately $1,015,000 for a bank with $5 billion in total loans. The positive and highly statistically significant coefficient on the $Mispricing\ x\ Large$ interaction term, however, largely offsets the undervaluation effect within the pooled interaction framework, suggesting that large banks do not exhibit stronger undervaluation responses than smaller institutions. In fact, this interpretation is further reinforced by the piecewise subgroup regressions presented in Table 14, where both large and small undervalued banks exhibit negative and statistically significant provisioning responses of similar magnitude (β = -0.189*** vs. β = -0.1648*). Furthermore, the effect reaches a higher level of statistical significance among large banks, suggesting that the undervaluation channel operates more clearly where market valuations

are more informative. Overall, both the interaction and piecewise subgroup specifications yield a consistent pattern – regional banks tend to reduce DLLPs in response to undervaluation across bank sizes, consistent with the results of the asymmetric specification and the catering incentives presented in the previous section (Polk and Sapienza, 2008; Kanagaretnam et al., 2003).

Turning to the overvaluation channel, the interaction specification in Table 13 reveals heterogeneous responses across bank size. Specifically, the positive and highly statistically significant $Mispricing\ x\ Large$ coefficient estimate of 0.2078 is consistent with Bond et al.'s (2012) prediction that the market feedback mechanism operates more strongly where price informativeness is higher, as larger institutions benefit from greater market presence and trading liquidity. The positive and marginally significant $Mispricing\ x\ Overvaluation$ coefficient of 0.2042 further shifts the response in a positive direction during periods of overvaluation, consistent with market timing theory, as overvaluation reduces the relative cost of conservative provisioning while increasing the strategic payoff of signaling B/S strength to sustain the overvaluation window (Baker and Wurgler, 2002). Considered jointly, these interaction effects suggest that the strongest positive provisioning response is concentrated among large overvalued banks and is associated with an average increase in quarterly LLPs of approximately $1,050,000 for a bank with $5 billion in total loans. This interpretation is further corroborated by the piecewise subgroup regressions presented in Table 14. In particular, only large overvalued banks exhibit a positive and statistically significant provisioning response with a coefficient of 0.2561, whereas the corresponding effect remains negligible and statistically insignificant among small banks.

Taken together, managerial responses to mispricing vary both with the direction of the valuation deviation and bank size, providing further support for H_2. These findings suggest that the incentives to respond to equity market mispricing may become particularly pronounced in environments where market valuations carry direct strategic consequences, such as stock-financed acquisition activity where equity valuations directly determine transaction terms.

7.3 The M&A Channel: Hypothesis 3

To examine whether acquisition activity moderates the relationship between mispricing and DLLP, Table 15 presents interaction terms between mispricing, overvaluation, and M&A exposure. The positive and statistically significant $Mispricing\ x\ M\&A$ coefficient of 0.1286 indicates that the provisioning response to mispricing becomes more positive among acquisition-active banks

relative to non-acquirers, consistent with managers placing greater emphasis on conservative provisioning to signal B/S strength when equity valuations determine transaction terms and acquisition capacity. In line with the findings of the asymmetrical and size-based specifications, the baseline $Mispricing_{t-1}$ coefficient of -0.1575, representing the provisioning response of undervalued non-acquiring banks, remains negative and statistically significant. However, the positive and significant $Mispricing\ x\ M\&A$ coefficient of 0.1286 substantially offsets this baseline effect among acquisition-active banks, suggesting that acquisition activity attenuates the undervaluation effect observed elsewhere in the empirical analysis. This pattern suggests that the strategic importance of perceived B/S strength becomes more pronounced in acquisition-active environments, where the credit and capital risks associated with expansion may discourage managers from supporting reported earnings to the same extent observed among non-acquirers. By contrast, during periods of overvaluation, the positive and marginally significant $Mispricing\ x\ Overvaluation$ coefficient of 0.1904 further shifts the provisioning response in a more conservative direction among acquisition-active overvalued banks. This finding aligns with the equity-as-currency mechanism, whereby overvalued institutions have strong incentives to sustain favorable valuations through conservative provisioning, as this enables them to acquire relatively undervalued targets at favorable terms (Shleifer and Vishny, 2003).

Overall, these patterns suggest that the managerial response to mispricing becomes more sensitive in settings where banks are active acquirers, providing support for H_3. More specifically, the attenuation of the undervaluation effect, together with the more positive provisioning response observed among overvalued banks, suggests that acquisition activity increases the importance of B/S strength and thereby prompts a more conservative managerial response to mispricing when the economic consequences of market valuations are greatest.

7.4 Robustness Tests

To assess whether the documented relationships persist across alternative specifications and sample conditions, several robustness tests are conducted. First, the analysis is restricted to observations with more pronounced mispricing in order to focus on economically meaningful valuation deviations (Table 16). Second, alternative lag structures are applied to the M&A and mispricing variables to evaluate the sensitivity of the results to the timing of managerial responses and valuation effects (Tables 17 and 18). Lastly, the Stage 1 model is re-estimated with time FE

included to examine whether the construction of the mispricing measure materially influences the observed relationships (Table 19).

The first robustness test examines whether the documented relationships persist when the analysis is restricted to more economically meaningful instances of mispricing, thereby reducing the influence of weaker valuation signals and potential estimation noise. Consistent with theoretical expectations, the pooled baseline specification becomes slightly more negative, while the asymmetric and size-based specifications exhibit stronger directional effects overall. Importantly, the overvaluation channel remains concentrated among large banks, and the $Mispricing\ x\ Overvaluation$ interaction becomes more pronounced once weaker valuation signals are excluded. Interestingly, the strengthening of the overvaluation interaction alongside the modest attenuation of the $Mispricing\ x\ M\&A$ interaction suggests that part of the original acquisition effect may reflect the concentration of acquisition activity among more strongly overvalued banks. Overall, these findings reinforce the asymmetric interpretation underlying H_2 and H_3.

The second and third robustness tests further clarify the conditions under which the documented relationships operate by examining the sensitivity of the results to alternative lag structures and the inclusion of time FE in the construction of the mispricing measure. First, extending the lag structure gradually weakens the estimated relationships, suggesting that valuation-sensitive provisioning responses are primarily tied to relatively recent market conditions rather than persistent valuation signals. While the broader asymmetric effects dissipate under longer lag structures, the large-bank interaction remains comparatively persistent, indicating that valuation-sensitive behavior is strongest among banks with greater market exposure. Further, re-estimating the Stage 1 specification with time FE leaves the core asymmetric and size-related mechanisms largely intact, suggesting that the documented relationships are not solely driven by aggregate market-wide valuation movements, but instead by cross-sectional differences in valuation incentives. By contrast, the M&A interaction becomes more sensitive across both alternative timing and specification assumptions, indicating that acquisition-related incentives are more conditional and closely tied to near-term valuation conditions. Taken together, the robustness tests suggest that the asymmetric and size-based mechanisms underlying H_2 remain stable across alternative specifications, while the evidence supporting H_3 appears more context-dependent.

7.5 Limitations of the Study

While the preceding results provide consistent support for the study's hypotheses, the following limitations of the empirical design warrant careful consideration:

- Although U.S. regional banks provide a uniquely appropriate setting for analyzing the proposed mechanisms, they are relatively few and therefore amount to a modest number of observations. As shown in Appendix Table 5, a triple interaction model was estimated to analyze the association more directly, but the results lack the statistical power to draw meaningful inference. Future research expanding the sample to a broader set of banks could contribute to the understanding of how equity mispricing shape discretionary provisioning decisions by implementing more demanding interaction structures better suited to larger datasets.
- Since both mispricing and DLLPs are constructed through sequential stages rather than directly observed, the three-stage methodology introduces a risk of error propagation, where misestimations can carry across stages. While the empirical findings provide support for the proposed mechanisms, alternative measures of mispricing, DLLPs, and acquisition exposure may further strengthen the understanding of managerial responses to equity mispricing and the incentives underlying those responses.
- Although the lagged structures of M&A and mispricing mitigate most direct forms of reverse causality, residual endogeneity may remain due to unobserved bank characteristics associated with both acquisition activity and provisioning behavior. A formal Oster test of omitted variable bias was conducted on the three main regression models and found that all but the baseline specification are robust to omitted variable bias (Appendix Table 6). Even though the Oster test suggests an overall robustness to omitted variable bias in the study's research approach, the possibility that unobserved bank characteristics systematically influence both mispricing and discretionary provisioning cannot be fully eliminated. Future research using alternative specifications and controlling for additional factors could therefore meaningfully contribute to the understanding of the relationships documented in this study.
- Another limitation of the present study is that the effective endpoint of the sample becomes 2019 due to the transition from the Incurred Loss Model (ILM) to the Current Expected Credit Loss (CECL) regime. Since the latter shifted the focus from a backward- to a

forward-looking provisioning framework, identification of the discretionary component becomes substantially more complicated, and there is currently no established alternative methodology in the literature. Although the study attempted to extend the empirical framework to the post-ILM period by incorporating additional forward-looking variables, such as loan growth and forecasted GDP growth, and modifying the specification accordingly, the resulting coefficient estimates became unstable and economically unintuitive, likely reflecting the fundamentally different provisioning dynamics introduced under the CECL framework.

The outlined limitations suggest that the results should be interpreted as evidence consistent with the proposed mechanisms rather than definitive causal effects. Future research using larger samples, alternative measurements, and newly established methodologies could therefore further strengthen these findings.

8 Conclusion

The existing literature has extensively documented discretionary loan loss provisioning (DLLP) as a behavioral phenomenon driven by managerial incentives, but the extent to which these incentives are shaped by equity market mispricing remains unexplored. The present study addresses this gap by examining whether equity mispricing feeds back into discretionary provisioning decisions among U.S. regional banks. More specifically, the empirical framework analyzes the relationship of interest through three sequential specifications. First, the study tests whether mispricing predicts DLLP without imposing any directional restrictions on the observed valuation deviations. Second, it separates mispricing into over- and undervaluation to examine whether the association is directionally asymmetric and conditional on institutional size. Finally, the analysis tests whether provisioning responses are amplified among acquisition-active banks, where equity valuation is most economically consequential. The empirical setting composes a panel of 92 publicly listed regional banks yielding 2,472 quarterly observations over the 2010-2019 period, during which all institutions reported under the Incurred Loss Model (ILM).

The baseline specification yields no statistically significant association between mispricing and DLLP. Rather than indicating the absence of a mechanism, however, this reflects the fact that over- and undervalued banks respond in opposite directions, with their effects offsetting one

another when pooled together, and therefore pushing the aggregate coefficient toward zero. Separating mispricing into its directional components reveals the asymmetric pattern that the baseline conceals. Consistent with the income-smoothing incentives documented by Kanagaretnam et al. (2003), undervalued banks reduce discretionary provisioning broadly across the sample. In the context of our study, this finding points to a tendency across regional bank managers facing depressed valuations to prioritize reported earnings with the aim of narrowing the valuation gap, which is in line with the catering mechanism proposed by Polk and Sapienza (2008). By contrast, overvalued banks are observed to increase provisions primarily among larger institutions, suggesting that regional bank managers may use relatively low-cost signaling of B/S strength to sustain favorable market valuations. Such behavior is broadly consistent with the market timing framework of Baker and Wurgler (2002), as per which managers tend to respond to periods of overvaluation strategically. The relationship further intensifies in acquisition-active banks, with the overall provisioning response becoming more conservative across both valuation states, as incentives to signal B/S strength are greatest when equity valuations directly determine acquisition capacity (Shleifer and Vishny, 2003). Overall, the findings point to a mechanism that is real, asymmetric, and most meaningful precisely where the economic stakes of valuation are higher.

Through the discoveries presented above, this study extends Bond et al.'s (2012) framework beyond financing and investment decisions to show that market signals, as proxied by equity mispricing, feed back into discretionary provisioning, with the effect most pronounced among larger institutions where market presence and trading liquidity strengthen the conditions under which the feedback mechanism operates. Further, by identifying equity mispricing as a factor shaping discretionary provisioning behavior, the study also contributes to the comparatively scarce literature examining how market valuations influence banks' provisioning decisions. Moreover, the asymmetric incentive structure underlying this mispricing-provisioning relationship extends market timing and catering theories beyond financing and investment decisions to the domain of discretionary provisioning (Baker and Wurgler, 2002; Polk and Sapienza, 2008). Specifically, the opposing tendencies of overvalued banks to increase provisions and undervalued banks to reduce them suggest that managerial responses vary systematically with the nature of the valuation deviation, with the underlying incentive structure becoming further amplified among acquisition-active banks. In doing so, the findings also contribute to the broader literature

documenting the multiple and often competing incentives shaping discretionary provisioning behavior (Wahlen, 1994; Ahmed et al., 1999; Kanagaretnam et al., 2003).

This study's findings document that mispricing constitutes a previously undocumented sub-channel of discretionary provisioning dynamics under the ILM. It is important to note, however, that identifying this channel within the ILM framework may also suggest that the behavioral incentives underlying discretionary provisioning are not necessarily confined to a single accounting regime. In other words, although the ILM provides the institutional setting in which these incentives can be most clearly identified and measured, a transition in recognition standards does not automatically eliminate managers' tendency to respond to equity market signals through discretionary provisioning behavior; instead, it likely only alters the channel through which such discretion is exercised. For instance, within the Current Expected Credit Loss (CECL) framework, this discretion may manifest itself through inherently forward-looking elements such as macroeconomic forecast assumptions, scenario weighting, and expected-loss model selection at origination. Accordingly, regulators assessing the adequacy of provisioning practices among regional banks under CECL may benefit from considering whether market valuation signals continue to influence managerial judgement. Viewed from a broader perspective, the study also contributes to the growing post-CECL literature examining managerial discretion under the new regime and whether the new forward-looking framework meaningfully reduced provisioning procyclicality, or instead embedded these dynamics within the more judgement-intensive and forward-looking estimation processes underlying CECL (Narayanamoorthy and Wheeler, 2024; Chen et al., 2025).

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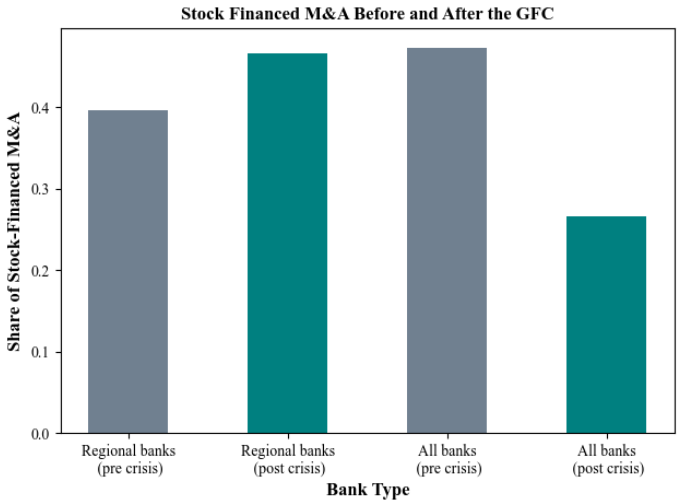
Declaration of Generative AI Technologies Used in the Writing Process

The authors of this study are fully responsible for the submitted regression results, texts, and any supporting tables and charts. Large Language Models (LLMs), such as Anthropic's Claude and OpenAI's GPT-4, were used as supporting tools with limited capacity. More specifically, LLMs' help was sought for enhancing the overall coherence and readability of the submitted text through improvements in grammar and sentence structure and for conducting basic fact-checking related to background information and methodological understanding.

LLMs were not utilized to generate substantive analysis or develop the core arguments presented in this study. Respectively, all key ideas, interpretations, and conclusions drawn represent the authors' original work. Additionally, all AI-assisted outputs have been critically scrutinized and independently verified, and the authors take full responsibility for the final content of this submission.

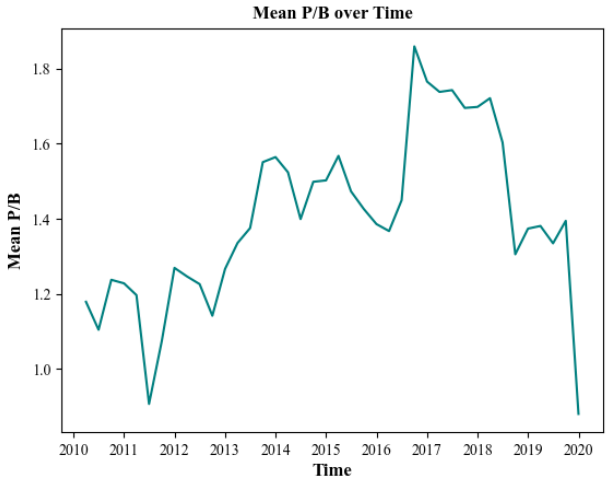
Figures

Figure 1: Comparison of Stock-Financed Acquisition Activity Between Regional Banks and the Full Banking Sample, Pre- and Post-Global Financial Crisis (2003-2007 vs. 2009-2013)



This table reports the share of completed mergers and acquisitions financed primarily through stock issuance among regional banks and the full banking sample. Transaction-level data is obtained from CapitalIQ.

Figure 2: Mean P/B over Time (2010-2019)



This figure illustrates the evolution of the average price-to-book (P/B) ratio across sample banks over the 2010-2019 period.

Tables

Table 1: Hausman Test: Fixed Effects vs Random Effects

Test	Chi-square	Degrees of Freedom	P-value
Hausman Test (FE vs RE)	48.130	6	0.0000

The null hypothesis is that the random effects estimator is consistent. The test strongly rejects the null, supporting the use of fixed effects.

Table 2: Modified Wald Test for Groupwise Heteroskedasticity

Test	Chi-square	Degrees of Freedom	P-value
Modified Wald Test	4,982.636	92	0.0000

The null hypothesis of homoskedasticity is strongly rejected, indicating the presence of heteroskedasticity across entities.

Table 3: Stage 1 Summary Statistics

Variable	N	Mean	Std. Dev.	Min	25th pct.	Median	75th pct.	Max
P/B	2,569	1.4256	0.5236	0.4954	1.0882	1.3366	1.6405	3.2911
ROE	2,569	0.0887	0.0395	-0.0750	0.0712	0.0895	0.1088	0.1913
Net Interest Margin	2,569	0.0363	0.0062	0.0200	0.0328	0.0358	0.0396	0.0558
Tier 1 Capital	2,569	0.1357	0.0388	0.0916	0.1148	0.1257	0.1437	0.3450
NPL Ratio	2,569	0.0126	0.0136	0.0006	0.0047	0.0079	0.0146	0.0775
Growth	2,569	0.3552	0.9822	-1.5429	0.0009	0.1390	0.3801	6.6133
GDP Growth	2,569	0.0103	0.0042	0.0003	0.0069	0.0104	0.0136	0.0187

This table reports descriptive statistics for the variables used in Stage 1 of the analysis, which are employed in the construction of the mispricing variable.

Table 4: Stage 2 Summary Statistics

Variable	N	Mean	Std. Dev.	Min	25th pct.	Median	75th pct.	Max
LLP/TL	2,569	0.0009	0.0014	-0.0009	0.0002	0.0005	0.0010	0.0085
EBLLP	2,569	0.0050	0.0019	-0.0001	0.0038	0.0047	0.0059	0.0117
Change NPL	2,569	-0.0003	0.0020	-0.0088	-0.0008	-0.0002	0.0004	0.0063
Change NPL_{t-1}	2,569	-0.0003	0.0022	-0.0092	-0.0009	-0.0002	0.0004	0.0090
Change NPL_{t-2}	2,569	-0.0002	0.0023	-0.0096	-0.0009	-0.0002	0.0004	0.0097
CAP_{t-1}	2,569	0.1160	0.0227	0.0614	0.0992	0.1158	0.1303	0.1749
$Size_{t-1}$	2,569	23.3480	0.8358	22.2997	22.7049	23.1615	23.8109	25.9313

This table reports descriptive statistics for the variables used in Stage 2 of the analysis, which are employed in the construction of discretionary loan loss provisions.

Table 5: Stage 3 Summary Statistics

Variable	N	Mean	Std. Dev.	Min	25th pct.	Median	75th pct.	Max
DLLP	2,569	-0.0000	0.0008	-0.0044	-0.0003	-0.0000	0.0003	0.0056
$Mispricing_{t-1}$	2,472	0.0002	0.9924	-3.9326	-0.5695	-0.0163	0.5306	5.5907
$Overvalued_{t-1}$	1,200	0.7351	0.7136	0.0015	0.2514	0.5376	0.9943	5.5907
$Undervalued_{t-1}$	1,236	-0.7225	0.6276	-3.9326	-0.9990	-0.5632	-0.2608	-0.0015
Firm Size	2,569	23.3693	0.8313	22.3468	22.7199	23.1856	23.8243	25.9328
ROE	2,569	0.0887	0.0395	-0.0750	0.0712	0.0895	0.1088	0.1913
Tier 1 Capital	2,569	0.1357	0.0388	0.0916	0.1148	0.1257	0.1437	0.3450
$Allowance_{t-1}$	2,564	0.0131	0.0081	0.0011	0.0082	0.0110	0.0152	0.0579
Loan Growth	2,569	0.0316	0.1264	-0.5762	0.0020	0.0133	0.0285	3.8695

This table reports descriptive statistics for the variables used in Stage 3 of the analysis. $Mispricing_{t-1}$ denotes lagged mispricing, while $Overvalued_{t-1}$ and $Undervalued_{t-1}$ represent its positive and negative components. The over- and undervalued components do not perfectly equate to the number of observations in the mispricing variable, as the quarterly observation requirement excludes observations where banks do not meet this requirement within the specific valuation state. The lagged allowance variable contains 5 missing observations, reducing the sample to 2,564 observations. The mispricing variable further loses one observation per bank (92) due to the lagged structure of the variable, yielding a final sample of 2,472 observations between 2010-2019. DLLP captures the discretionary component of loan loss provisioning derived from Stage 2.

Table 6: Welch's T-test of Mean Differences Between Overvalued and Undervalued Banks

Variable	Mean (Overvalued)	Mean (Undervalued)	Difference	T-statistic	P-value
DLLP	-0.0721	0.0607	-0.1328	-4.2573	0.0000
Mispricing_{t-1}	0.7383	0.7196	0.0187	0.6895	0.4906
Firm Size	23.3370	23.4330	-0.0960	-2.8899	0.0039
ROE	0.0955	0.0838	0.0116	7.6100	0.0000
Tier 1	0.1342	0.1368	-0.0025	-1.6412	0.1009
Allowance_{t-1}	0.0131	0.0128	0.0003	0.9672	0.3336
Loan Growth	0.0349	0.0203	0.0147	4.1537	0.0000

This table reports Welch's t-tests for differences in means between overvalued and undervalued banks. The difference is calculated as the mean for overvalued banks minus the mean for undervalued banks. Welch's t-test does not assume equal variances across groups. Note: The sign of mispricing in undervalued banks is adjusted to be comparable with overvalued banks.

Table 7: Pairwise Correlation Matrix

	DLLP	Mispricing_{t-1}	Assets	ROE	Tier 1	Allowance_{t-1}	Loan Growth
DLLP	1.0000	-0.1237	0.0040	-0.3852	-0.0281	0.1032	-0.0136
Mispricing_{t-1}	-0.1237	1.0000	-0.0700	0.1496	-0.0071	0.0085	0.1371
Firm Size	0.0040	-0.0700	1.0000	-0.0624	-0.1922	0.0437	-0.0209
ROE	-0.3852	0.1496	-0.0624	1.0000	-0.1861	-0.2793	-0.0419
Tier 1	-0.0281	-0.0071	-0.1922	-0.1861	1.0000	0.1606	-0.0441
Allowance_{t-1}	0.1032	0.0085	0.0437	-0.2793	0.1606	1.0000	-0.0442
Loan Growth	-0.0136	0.1371	-0.0209	-0.0419	-0.0441	-0.0442	1.0000

This table reports pairwise Pearson correlation coefficients for the main variables used in the baseline specification.

Table 8: Variance Inflation Factors (VIF)

Variable	VIF
Mispricing_{t-1}	1.0510
Firm Size	25.0273
ROE	7.1412
Tier 1	13.2164
Allowance_{t-1}	4.0006
Loan Growth	1.1380

Table 9: Geographical Distribution of Banks

State	Share (%)	Median Mispricing$_{t-1}$	Median DLLP	State	Share (%)	Median Mispricing$_{t-1}$	Median DLLP
CA	7.61	0.0167	-0.0661	IN	3.26	-0.0824	0.0455
NY	7.61	0.0568	0.0889	PR	3.26	0.0940	-0.2039
TX	6.52	0.0029	0.0134	AL	2.17	0.0399	-0.2640
NJ	5.43	-0.0971	0.0080	GA	2.17	0.5477	-0.0967
OH	5.43	-0.0406	-0.0776	IL	2.17	0.0923	-0.0760
PA	5.43	0.0245	-0.0593	KS	2.17	-0.4470	0.1889
WA	4.35	-0.0816	-0.0425	MT	2.17	0.1391	-0.2553
AR	3.26	0.1614	-0.1265	NC	2.17	-0.0185	-0.1308
FL	3.26	0.0169	-0.0135	TN	2.17	0.3251	-0.0568
HI	3.26	0.0511	-0.0214	VA	2.17	-0.1123	0.0133
MO	3.26	-0.1791	0.1448	WV	2.17	0.0111	0.1069
MS	3.26	-0.0314	-0.0007	AZ	1.09	-0.0559	-0.5721
CO	1.09	0.4038	-0.3069	RI	1.09	-0.1793	-0.0378
CT	1.09	0.0224	0.1164	SC	1.09	0.0851	-1.2290
DE	1.09	0.2250	-0.2823	SD	1.09	0.2548	-0.6389
KY	1.09	0.5725	-0.1803	UT	1.09	-0.0641	-0.1369
MA	1.09	-0.4433	-0.0817	WI	1.09	-0.2206	-0.2254
MD	1.09	0.4459	-0.0346				
NV	1.09	-0.8205	-0.0848				
OK	1.09	0.2125	0.1405				

This table reports the geographical distribution of banks in the sample based on their state of incorporation, sorted by the number of banks in each state. Shares are expressed as percentages of the total sample. The table further outlines median lagged mispricing and median discretionary loan loss provisions (DLLP) by state.

Table 10: Yearly Distribution of Observations (ILM Period, 2010–2019)

Year	Observations	Share (%)	Median Mispricing$_{t-1}$	Median DLLP
2010	175	6.81	-0.0691	-0.4291
2011	180	7.01	0.0793	-0.2380
2012	184	7.16	0.0634	-0.0343
2013	207	8.06	-0.1074	-0.0155
2014	238	9.26	-0.1623	0.0636
2015	278	10.82	-0.1897	-0.0681
2016	294	11.45	-0.0740	-0.0382
2017	316	12.30	0.0673	0.0073
2018	346	13.47	0.0630	-0.0514
2019	351	13.66	0.1476	-0.0433

Yearly distribution of observations in the sample over the ILM period (2010-2019). Shares are expressed as percentages of the total number of observations (N = 2,569). The table further reports the median lagged mispricing and median discretionary loan loss provisions (DLLP) observed in each year.

Table 11: Stage 3 Regression Results: Baseline Specification (Hypothesis 1)

	(1) Baseline
Mispricing_{t-1}	-0.0217
	(0.0405)
Firm Size	-0.5129*
	(0.2654)
ROE	-16.1190***
	(1.6663)
Tier 1 Capital	-3.3043
	(3.0730)
Allowance_{t-1}	28.7470***
	(11.0600)
Loan Growth	-0.5013*
	(0.2605)
Observations	2,472
R-squared (Within)	0.0989
Bank FE	Yes
Time FE	Yes

This table reports the baseline Stage 3 regression examining the direct effect of lagged mispricing on discretionary loan loss provisions (DLLP), without distinguishing between overvaluation and undervaluation. The dependent variable is DLLP. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 12: Stage 3 Regression Results: Asymmetry by Mispricing Direction (Hypothesis 2)

	(1) Overvalued	(2) Undervalued
Mispricing_{t-1}	0.0184	-0.1165*
	(0.0771)	(0.0619)
Firm Size	-0.2518	-0.2083
	(0.3672)	(0.1989)
Return on Equity	-12.7630***	-20.0000***
	(1.8095)	(3.0620)
Tier 1 Capital	-3.9725	-0.4159
	(4.2380)	(2.5982)
Allowance_{t-1}	34.4820***	21.8440
	(10.7000)	(18.1770)
Loan Growth	-0.3931	-0.8184*
	(0.2580)	(0.4732)
Observations	1,200	1,236
R-squared (Within)	0.0849	0.2923
Bank FE	Yes	Yes
Time FE	Yes	Yes

This table reports fixed effects panel regression results separately for overvalued and undervalued banks.This specification evaluates whether the relationship between mispricing and DLLPs differs according to the direction of valuation deviations by estimating the effect of overvaluation and undervaluation separately. The dependent variable is DLLP. Standard errors are clustered at the bank level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 13: Stage 3 Regression Results: Double Interaction Model (Hypothesis 2 Based on Institutional Size)

	(1) Double Interaction Model
Mispricing$_{t-1}$	-0.2031***
	(0.0749)
Large	0.2101*
	(0.1206)
Overvalued Dummy	0.1085*
	(0.0580)
Mispricing $\times$ Large	0.2078***
	(0.0837)
Mispricing $\times$ Overvalued	0.2042**
	(0.1050)
Large $\times$ Overvalued	-0.1241
	(0.0936)
Firm Size	-0.5482**
	(0.2405)
Return on Equity	-16.1730***
	(1.6361)
Tier 1 Capital	-2.9939
	(3.0641)
Allowance$_{t-1}$	25.5560**
	(10.8370)
Loan Growth	-0.4629*
	(0.2606)
Observations	2,472
R-squared (Within)	0.1212
Bank FE	Yes
Time FE	Yes

This table reports fixed effects panel regression results for the double interaction specification focusing on large overvalued banks. The model evaluates whether the relationship between mispricing and discretionary loan loss provisions differs jointly by bank size and over- or undervaluation. Standard errors are clustered at the bank level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 14: Stage 3 Regression Results: Piecewise Asymmetry by Bank Size (Hypothesis 2 Based on Institutional Size)

	(1) Large Banks	(2) Small Banks
Overvalued$_{t-1}$	0.2561**	-0.0089
	(0.1305)	(0.1693)
Undervalued$_{t-1}$	-0.1889***	-0.1648*
	(0.0724)	(0.0937)
Firm Size	0.8551**	-1.1249
	(0.4195)	(1.2848)
Return on Equity	-12.5090***	-18.2790***
	(2.3189)	(3.4927)
Tier 1 Capital	-5.6647	-7.1257
	(4.1239)	(6.8320)
Allowance$_{t-1}$	25.1790	-27.1290
	(19.5680)	(18.6120)
Loan Growth	-0.6940**	-0.8422
	(0.3459)	(0.6179)
Observations	632	590
R-squared (Within)	0.3159	0.2211
Bank FE	Yes	Yes
Time FE	Yes	Yes

This table reports fixed effects panel regression results for large and small banks using a piecewise asymmetry specification. Mispricing is decomposed into overvalued and undervalued components. The model evaluates whether the relationship between mispricing and DLLPs differs jointly by bank size and over- or undervaluation. Standard errors are clustered at the bank level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 15: Stage 3 Regression Results: M&A Interaction Model (Hypothesis 3)

	(1) M&A Interaction
Mispricing$_{t-1}$	-0.1575**
	(0.0680)
Overvalued Dummy	0.0674
	(0.0562)
M&A$_{t-1}$	-0.0060
	(0.0581)
Mispricing $\times$ Overvalued	0.1904*
	(0.1040)
Mispricing $\times$ M&A	0.1286**
	(0.0501)
Overvalued $\times$ M&A	-0.1659*
	(0.0920)
Firm Size	-0.5303**
	(0.2634)
Return on Equity	-15.0940***
	(1.5691)
Tier 1 Capital	-3.6045
	(3.1522)
Allowance$_{t-1}$	22.3880**
	(11.1120)
Loan Growth	-0.3077
	(0.2281)
Observations	2,472
R-squared (Within)	0.1160
Bank FE	Yes
Time FE	Yes

This table reports fixed effects panel regression results for the M&A interaction specification. The dependent variable is DLLP. M&A$_{t-1}$ is a lagged indicator for merger and acquisition activity. The model evaluates whether the relationship between mispricing and DLLPs becomes more pronounced among acquisition-active banks. Standard errors are clustered at the bank level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 16: Robustness Test 1: Mispricing Threshold Restriction (excl. 0.25> mispricing >-0.25)

	(1) Base	(2) OV	(3) UV	(4) Large	(5) Small	(6) Double Int.	(7) M&A
Mispricing$_{t-1}$	-0.0335	0.0375	-0.1565**			-0.2611***	-0.2107***
	(0.0406)	(0.0752)	(0.0696)			(0.0861)	(0.0756)
Overvalued$_{t-1}$				0.3035**	0.0576		
				(0.1458)	(0.1877)		
Undervalued$_{t-1}$				-0.2657***	-0.2976**		
				(0.0996)	(0.1360)		
Large						0.2012	
						(0.1541)	
OV Dummy						0.1564*	0.0872
						(0.0914)	(0.0857)
Mispricing × Large						0.2301**	
						(0.0993)	
Mispricing × OV						0.2671**	0.2482**
						(0.1071)	(0.1029)
Large × OV						-0.1951	
						(0.1704)	
M&A$_{t-1}$							-0.0159
							(0.0976)
Mispricing × M&A							0.1002*
							(0.0543)
OV × M&A							-0.0929
							(0.1214)
Firm Size	-0.6558**	-0.3968	-0.3112	0.8785*	-0.5794	-0.6646**	-0.7080**
	(0.2913)	(0.4126)	(0.2284)	(0.5170)	(1.2119)	(0.2586)	(0.2887)
ROE	-15.4130***	-11.2740***	-20.4380***	-11.8510***	-16.9070***	-15.4340***	-14.2180***
	(1.7481)	(1.8410)	(3.4809)	(1.9983)	(3.4045)	(1.7216)	(1.6305)
Tier 1	-4.1411	-4.8828	-2.0789	-8.3816	-8.6948	-3.7837	-4.5322
	(3.2778)	(4.4271)	(3.2895)	(5.5810)	(7.4320)	(3.2476)	(3.3636)
Allowance$_{t-1}$	29.5270**	37.3000***	20.9030	29.1450	10.8760	26.9890**	21.7440*
	(11.5390)	(11.3950)	(21.1600)	(21.2390)	(18.5130)	(11.3030)	(11.6280)
Loan Growth	-0.4804	-0.3033	-1.0399	-0.8068*	-1.1536*	-0.4506	-0.2330
	(0.2984)	(0.3256)	(0.6625)	(0.4601)	(0.6409)	(0.2977)	(0.2695)
Obs.	1,869	887	928	469	469	1,869	1,748
R^2 (Within)	0.087	0.074	0.320	0.325	0.216	0.106	0.117
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports robustness tests excluding observations with mispricing values between -0.25 and 0.25. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 17: Robustness Test 2: Mispricing Lagged by Two Quarters

	(1) Base	(2) OV	(3) UV	(4) Large	(5) Small	(6) Double Int.	(7) M&A
Mispricing$_{t-2}$	-0.0121	0.0304	-0.0716			-0.1517**	-0.0881
	(0.0345)	(0.0678)	(0.0557)			(0.0709)	(0.0628)
Overvalued$_{t-2}$				0.3101*	-0.1056		
				(0.1703)	(0.1468)		
Undervalued$_{t-2}$				-0.2061**	0.0101		
				(0.0834)	(0.0533)		
Large						0.2334*	
						(0.1255)	
OV Dummy						0.0668	-0.0020
						(0.0625)	(0.0611)
Mispricing × Large						0.2170**	
						(0.1023)	
Mispricing × OV						0.1566*	0.1497*
						(0.0925)	(0.0897)
Large × OV						-0.1636	
						(0.1086)	
M&A$_{t-2}$							-0.1707**
							(0.0720)
Mispricing × M&A							-0.0701
							(0.0600)
OV × M&A							0.1782
							(0.1137)
Firm Size	-0.5082*	-0.3142	-0.2535	0.7460*	-1.7251	-0.5489**	-0.5829**
	(0.2642)	(0.3670)	(0.2160)	(0.4092)	(1.4806)	(0.2417)	(0.2477)
ROE	-15.2270***	-10.4760***	-20.6900***	-11.5150***	-17.8560***	-15.3050***	-15.2870***
	(1.5901)	(1.5009)	(2.7280)	(2.2039)	(3.5643)	(1.5445)	(1.4755)
Tier 1	-3.6535	-4.6807	-0.8851	-7.2595	-8.2021	-3.3744	-4.1665
	(3.1577)	(3.9288)	(2.4305)	(4.7669)	(7.1802)	(3.1360)	(2.9609)
Allowance$_{t-1}$	22.6070*	32.1950***	7.0303	15.4830	-26.8390	19.3230*	9.4971
	(11.6640)	(10.7860)	(17.8320)	(17.6290)	(19.8310)	(11.3320)	(12.3120)
Loan Growth	-0.3595	-0.0941	-0.9706**	-0.6089**	-0.6211	-0.3186	-0.2702
	(0.2329)	(0.2258)	(0.4389)	(0.3085)	(0.6718)	(0.2298)	(0.2375)
Obs.	2,380	1,135	1,193	621	538	2,380	2,275
R^2 (Within)	0.110	0.059	0.315	0.277	0.231	0.130	0.149
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports robustness tests using two-period lagged specifications for mispricing and M&A variables. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 18: Robustness Test 3: Mispricing Lagged by Three Quarters

	(1) Base	(2) OV	(3) UV	(4) Large	(5) Small	(6) Double Int.	(7) M&A
Mispricing$_{t-3}$	-0.0020	-0.0240	-0.0875*			-0.1224**	-0.0985*
	(0.0298)	(0.0459)	(0.0467)			(0.0600)	(0.0588)
Overvalued$_{t-3}$				0.1211	0.2287		
				(0.0837)	(0.2250)		
Undervalued$_{t-3}$				-0.0570	-0.0157		
				(0.0589)	(0.0581)		
Large						0.1986*	
						(0.1096)	
OV Dummy						0.1030*	0.0773
						(0.0584)	(0.0477)
Mispricing × Large						0.1350**	
						(0.0684)	
Mispricing × OV						0.1169	0.0841
						(0.0773)	(0.0721)
Large × OV						-0.0887	
						(0.0950)	
M&A$_{t-3}$							-0.0398
							(0.0517)
Mispricing × M&A							0.0675
							(0.0437)
OV × M&A							-0.0711
							(0.0890)
Firm Size	-0.5682**	-0.5034	-0.2656	0.3831	-2.4714	-0.6195***	-0.6712***
	(0.2478)	(0.3649)	(0.2069)	(0.3183)	(1.6577)	(0.2315)	(0.2504)
ROE	-15.4270***	-12.4710***	-18.1670***	-11.6660***	-18.4180***	-15.5350***	-14.4390***
	(1.4790)	(2.0486)	(2.5685)	(1.7975)	(3.3668)	(1.4804)	(1.5201)
Tier 1	-4.1060	-4.8319	-1.3098	-5.1644	-10.9880	-3.9350	-4.2178
	(2.9373)	(3.4357)	(2.0952)	(4.6353)	(8.6125)	(2.9044)	(2.9638)
Allowance$_{t-1}$	10.1680	12.4930	4.8628	1.7594	-22.2490	6.8775	1.8473
	(12.7600)	(14.1270)	(17.6970)	(14.1920)	(23.1230)	(12.3980)	(12.1030)
Loan Growth	-0.3193	-0.1308	-0.3433	-0.4795	0.3901	-0.2865	-0.1863
	(0.2322)	(0.2028)	(0.4577)	(0.2951)	(1.1084)	(0.2307)	(0.2262)
Obs.	2,288	1,079	1,148	610	485	2,288	2,179
R^2 (Within)	0.144	0.080	0.321	0.240	0.248	0.163	0.162
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports robustness tests using three-period lagged specifications for mispricing and M&A variables. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 19: Robustness Test 4: Time Fixed Effects in Stage 1

	(1) Base	(2) OV	(3) UV	(4) Large	(5) Small	(6) Double Int.	(7) M&A
Mispricing$_{t-1}$	-0.0425	0.0277	-0.1277**			-0.2342***	-0.1844***
	(0.0376)	(0.0639)	(0.0607)			(0.0742)	(0.0691)
Overvalued$_{t-1}$				0.1572*	0.0574		
				(0.0820)	(0.1549)		
Undervalued$_{t-1}$				-0.1608***	-0.2941**		
				(0.0538)	(0.1208)		
Large						0.2168*	
						(0.1179)	
OV Dummy						0.0906	0.0360
						(0.0561)	(0.0570)
Mispricing × Large						0.2076***	
						(0.0662)	
Mispricing × OV						0.2395**	0.2226**
						(0.0984)	(0.0982)
Large × OV						-0.1423	
						(0.0997)	
M&A$_{t-1}$							-0.1039
							(0.1138)
Mispricing × M&A							0.0654
							(0.0678)
OV × M&A							0.0189
							(0.1530)
Firm Size	-0.5437**	-0.2683	-0.2468	0.8538**	-1.0602	-0.5670**	-0.5650**
	(0.2562)	(0.3549)	(0.2025)	(0.4341)	(1.2190)	(0.2320)	(0.2539)
ROE	-15.9920***	-12.5490***	-19.1670***	-12.4150***	-18.0170***	-15.9620***	-14.8970***
	(1.6618)	(1.8317)	(2.5900)	(2.3975)	(3.4417)	(1.6141)	(1.5495)
Tier 1	-3.3517	-3.8516	0.6647	-5.0226	-6.6819	-3.0561	-3.6839
	(3.0362)	(3.8135)	(2.9021)	(4.2647)	(6.6004)	(3.0330)	(3.0886)
Allowance$_{t-1}$	28.9110***	36.1490***	21.4230	24.9290	-26.5940	25.6530**	22.3430**
	(11.1390)	(10.6560)	(19.9010)	(19.3100)	(17.9440)	(10.8290)	(11.2200)
Loan Growth	-0.4624*	-0.3120	-0.5599	-0.6392*	-0.8390	-0.4216	-0.2535
	(0.2649)	(0.2752)	(0.4216)	(0.3279)	(0.5874)	(0.2580)	(0.2211)
Obs.	2,472	1,178	1,233	632	590	2,472	2,368
R^2 (Within)	0.096	0.052	0.310	0.312	0.231	0.124	0.117
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports robustness tests where mispricing is constructed from a Stage 1 specification including time fixed effects. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Appendix

Appendix Table 1: Variable Definitions

Variable	Measure	Definition and Role
Panel A: Stage 1 - Intrinsic Value Model		
P/B	Market value of equity divided by book value of equity	Dependent variable in Stage 1. Captures market valuation relative to accounting book value. Deviations from the fundamentally predicted P/B ratio are used to construct the mispricing measure.
ROE	Net income divided by total common equity	Bank-specific profitability measure capturing how efficiently a bank generates earnings from shareholder capital.
Net Interest Margin	Net interest income divided by average earning assets	Bank-specific lending profitability measure capturing the spread between interest earned on assets and interest paid on liabilities.
Tier 1 Capital	Tier 1 capital divided by risk-weighted assets	Regulatory capital adequacy measure capturing financial resilience and loss-absorbing capacity.
NPL Ratio	Non-performing loans divided by total loans	Credit risk measure capturing the share of the loan portfolio experiencing repayment difficulties.
Earnings Growth	Growth in earnings from cont. ops	Bank-specific growth measure capturing changes in earnings from cont. ops.
GDP Growth	Quarter-on-quarter change in real U.S. GDP	Macroeconomic control capturing aggregate economic conditions that may affect bank valuations.
Mispricing	Residual from the Stage 1 regression	Represents the deviation between observed and fundamentally predicted valuation. Positive values indicate overvaluation, while negative values indicate undervaluation.
Panel B: Stage 2 - DLLP Construction		
LLP/TL	Loan loss provisions divided by lagged total loans	Dependent variable in Stage 2. Captures the total provisioning rate before separating discretionary and non-discretionary components.
EBLLP	Earnings before loan loss provisions divided by lagged total loans	Earnings capacity measure capturing pre-provision profitability available to absorb expected credit losses.
Change NPL	Change in non-performing loans divided by lagged total loans	Credit quality measure capturing contemporaneous deterioration in the loan portfolio.

Variable	Measure	Definition and Role
Change NPL_{t-1}	Lagged change in non-performing loans divided by lagged total loans	Credit quality measure capturing prior-period deterioration in the loan portfolio.
Change NPL_{t-2}	Two-period lagged change in non-performing loans divided by lagged total loans	Credit quality measure capturing delayed provisioning responses to earlier changes in loan portfolio performance.
CAP_{t-1}	Lagged total common equity divided by lagged total assets	Capitalization measure capturing the equity buffer available to absorb losses.
$Size_{t-1}$	Natural logarithm of lagged total assets	Scale control capturing differences in bank size, balance sheet complexity, and provisioning behavior.
DLLP	Residual from the Stage 2 regression	Represents the discretionary component of loan loss provisioning unexplained by observable credit conditions and balance sheet fundamentals.
Panel C: Stage 3 - Main Analysis		
$Mispricing_{t-1}$	One-period lag of mispricing	Main explanatory variable capturing the valuation signal available to managers before the discretionary provisioning decision.
$Overvalued_{t-1}$	Positive component of $Mispricing_{t-1}$	Captures the effect of positive valuation deviations on discretionary provisioning.
$Undervalued_{t-1}$	Negative component of $Mispricing_{t-1}$	Captures the effect of negative valuation deviations on discretionary provisioning.
Firm Size	Natural logarithm of total assets	Control variable for bank size, capturing scale-dependent differences in provisioning behavior.
ROE	Return on equity	Control variable for profitability and earnings pressure in the discretionary provisioning decision.
Tier 1 Capital	Tier 1 capital divided by risk-weighted assets	Control variable for regulatory capital strength and balance sheet constraints.
Large	Indicator for banks classified as large	Used to examine whether the relationship between mispricing and DLLP differs across bank size groups.
$M\&A_{t-1}$	Lagged indicator for acquisition activity	Captures whether a bank was acquisition-active in the prior period, used to test whether acquisition incentives condition the mispricing–DLLP relationship.
$Allowance_{t-1}$	Lagged indicator for capital reserves	Captures a bank's stock of allowance for loan and lease losses as a share of total loans.
Loan Growth	Quarterly loan growth	Captures a bank's quarterly change in total loans.

Appendix Table 2: Abbreviations Glossary

Abbreviation	Term
B/S	Balance Sheet(s)
BCBS	Basel Committee on Banking Supervision
EPS	Enhanced Prudential Standards
FASB	Financial Accounting Standards Board
FDIC	Federal Deposit Insurance Corporation
FE	Fixed Effects
GFC	Global Financial Crisis
I/S	Income Statement
M&A	Mergers and Acquisitions
MTB	Market-to-Book
NPL	Non-Performing Loans
P/B	Price-to-Book
ROE	Return on Equity
VIF	Variance Inflation Factor

This table presents the supporting abbreviations used throughout the study.

Appendix Table 3: Stage 1 Residual Income Model

	(1) Stage 1
ROE	2.2748***
	(0.4229)
NIM	3.1745
	(5.5355)
Tier 1 Capital	-0.4319
	(0.6961)
NPL Ratio	-6.5652***
	(1.5836)
Growth	-0.0265***
	(0.0080)
GDP Growth	6.2881***
	(1.1891)
Observations	2,569
R-squared (Within)	0.1366
Bank FE	Yes
Time FE	No

This table reports the Stage 1 Residual Income Model (RIM) used to estimate fundamentally implied bank valuations and construct the mispricing measure employed in the main analysis. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 4: Stage 2 DLLP Construction

	(1) Stage 2
EBLLP	0.2129***
	(0.0415)
Change NPL	-0.0258
	(0.0201)
Change NPL_{t-1}	0.0024
	(0.0172)
Change NPL_{t-2}	0.0258*
	(0.0133)
CAP_{t-1}	-0.0133**
	(0.0056)
$Size_{t-1}$	0.0007*
	(0.0004)
Observations	2,569
R-squared (Within)	0.1083
Bank FE	Yes
Time FE	Yes

This table reports the Stage 2 non-discretionary provisioning model used to isolate DLLPs from total loan loss provisions. The resulting residual component is used as the dependent variable in the main analysis. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 5: Triple Interaction Specification

	(1) Triple Interaction Model
Mispricing_{t-1}	-0.1779**
	(0.0796)
Large	0.1349
	(0.1509)
Overvalued Dummy	0.1018*
	(0.0566)
Mispricing × Large	0.1236
	(0.1132)
Mispricing × OV	0.1636
	(0.1250)
Large × OV	-0.1306
	(0.0983)
Mispricing × Large × OV	0.1953
	(0.2209)
Firm Size	-0.5555**
	(0.2396)
ROE	-16.214***
	(1.6036)
Tier 1	-3.1052
	(3.0622)
Allowance_{t-1}	25.325**
	(10.906)
Loan Growth	-0.4630*
	(0.2612)
Observations	2,472
R-squared (Within)	0.1214
Bank FE	Yes
Time FE	Yes

This table reports an illustrative triple interaction specification examining whether the relationship between mispricing and DLLP differs jointly across bank size and overvaluation status. The specification includes a three-way interaction term between mispricing, the large bank indicator, and the overvaluation indicator. The model is presented for illustrative purposes in the appendix, as the additional interaction dimension substantially reduces statistical power within the available sample. Standard errors clustered at the bank level are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 6: Oster (2019) Coefficient Stability Analysis

Specification	β_u	β_c	δ	Result
(1) Baseline (full sample)	-0.0929	-0.0217	0.411	Not Robust
(2) Asymmetry – Overvalued	0.0096	0.0184	2.712	Robust
(3) Asymmetry – Undervalued	-0.2560	-0.1165	1.110	Robust

This table reports Oster (2019) coefficient stability tests using $R_{\text{max}} = 1.3 \times R^2_{\text{controlled}}$. The uncontrolled regression includes only the variable of interest, while the controlled regression adds the full set of Stage 3 controls. Values of $\delta \geq 1$ suggest robustness to omitted variable bias. The baseline specification does not pass the threshold, which is consistent with the idea that opposing incentives across over- and undervalued banks attenuate the aggregate effect toward zero.