

ARTICLE

Real regulatory capital management and bank payouts: Evidence from available-for-sale securities

Michele Fabrizi¹ | Elisabetta Ipino² | Michel Magnan³ | Antonio Parbonetti⁴

¹ Department of Economics and Management, University of Padova, Padova, Italy

² School of Business, Government, and Economics, Seattle Pacific University, Seattle, Washington, USA

³ John Molson School of Business, Concordia University, Montreal, Quebec, Canada

⁴ Department of Economics and Management, University of Padova, Padova, Italy

Correspondence

Michele Fabrizi, Department of Economics and Management, University of Padova, Via del Santo, 33, 35123, Padova, Italy.
Email: michele.fabrizi@unipd.it

Abstract

This study examines whether payout policies create incentives for banks to engage in cherry-picking activities using available-for-sale (Afs) securities, otherwise known as gains trading. Such activities are more likely to arise in situations in which capital ratios would otherwise constrain banks' ability to distribute resources to shareholders. Using a large sample comprising 766 unique US banks, we find a significant and positive association between total payout and realized gains on Afs securities for banks with low regulatory capital. This is consistent with the conjecture that capital-constrained banks engage in gains trading to free up resources for dividend payments or share repurchases. When partitioning our sample, we find that capital-constrained banks realize gains and losses on Afs securities only when it is costly to decrease the payout and when the monitoring level is weaker. Further analyses reveal that banks engaging in gains trading to distribute cash to shareholders exhibit significantly higher levels of future default risk and more negative extreme bank-specific daily returns, patterns that are consistent with risk-shifting. Finally, with the advent of Basel III, the practice seems to continue among banks that chose to retain prudential filters.

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2021 The Authors. *Journal of Business Finance & Accounting* published by John Wiley & Sons Ltd

KEYWORDS

Available-for-sale securities, banks, Basel III, gains trading, realized gains, realized losses, regulatory capital, total payout

1 | INTRODUCTION

Accounting rules, through their interactions with capital regulations, affect financial institutions' trading behavior. Previous studies show that banks selectively sell assets to realize gains while keeping those assets with unrealized losses. Such an activity allows banks to manage regulatory capital, smooth earnings, avoid losses, meet or beat the consensus analyst earnings per share forecast, increase low regulatory capital or take a big bath (Barth et al., 2017; Dong & Zang, 2018). In this paper, we investigate whether payout policies also create incentives for banks to engage in cherry-picking activities using available-for-sale (Afs) securities, an activity otherwise known as gains trading.

We base our inferences on a large sample of financial institution data. Our findings reveal that banks use realized gains and losses on Afs securities to free up resources for distributions to shareholders in situations in which capital ratios would otherwise constrain their ability to do so. By partitioning our sample, we find that banks realize gains and losses on Afs securities when external pressure to distribute cash to shareholders is stronger and their level of monitoring by investors is weaker. Finally, we document that banks engaging in gains trading to distribute cash to shareholders exhibit significantly higher levels of future default risk and more negative extreme bank-specific daily returns.

Overall, our results show that banks take advantage of the discretions provided by accounting rules and regulatory capital requirements, which exclude unrealized securities gains and losses from earnings and regulatory capital to pay dividends or repurchase shares. In additional analyses, we find that dividends and share repurchases both underlie gains trading. The majority of banks actually use both means to distribute resources to shareholders, a finding that is consistent with the evidence reported by Floyd et al. (2015).

The Afs category of financial securities arises from Accounting Standards Codification (ASC) Topic 320 (formerly Statement of Financial Accounting Standards No. 115, FASB 1993). ASC 320 requires Afs securities to be measured at fair value in a bank's statement of financial position, with unrealized gains and losses due to changes in their fair values included in equity through *accumulated other comprehensive income* until their realization. Book equity—as determined by accounting rules—is the starting point when computing a bank's regulatory capital. Regulators then apply prudential filters to adjust book equity. A prominent filter is the accumulated other comprehensive income, which excludes unrealized fair value gains and losses on Afs securities from Tier 1 capital.¹ Therefore, actual transactions determine when these gains or losses are included in regulatory capital, as well as in earnings. The original motivation behind this prudential treatment was to exclude (the presumably temporary) unrealized fair value changes in Afs securities that were deemed irrelevant for regulatory purposes, especially if banks held the securities until maturity (Laux, 2012).

Prior literature shows that banks exploit the realization of securities gains (or the postponement of securities losses) to manage regulatory capital and earnings (e.g., Barth et al., 2017; Dong & Zang, 2018). Nonetheless, the practice of engaging in gains trading requires scrutiny when it is ultimately used to distribute cash to shareholders, since it ultimately reduces the quantity and quality of capital available to repay bank debtholders (Onali, 2014; Srivastav et al., 2014).

The banking sector is one of the industries with the highest payouts to shareholders. Dividends represent a critical source of information for depositors and credit market investors, as they signal profitability and liquidity, thereby providing reassurance about an institution's financial strength (Kauko, 2012). Floyd et al. (2015) show that most

¹ Unrealized losses on Afs equity securities are deducted from Tier 1 capital, while fair value gains on Afs equity securities can be included in Tier 2 capital using a haircut to account for market illiquidity and future taxes. The more restrictive regulatory treatment of equity securities might explain the low proportion of securities classified as Afs. Typically, the percentage of Afs equity securities banks hold is small. Barth et al. (2017) suggest they are less than 1% of all Afs securities in the 75th percentile. Therefore, we follow the previous literature and proceed as if all Afs securities are debt securities. Should Afs equity securities be present in some banks, it would weaken the ability to realize gains and losses on such securities to pay dividends, thus inhibiting us from finding support for our hypothesis. Starting from fiscal years beginning after December 15, 2017, Afs securities only represent debt securities.

financial institutions consistently paid dividends in 1990–2008, with most banks increasing the dividend per share each year. Even during the 2007–2009 financial crisis, banks continued to do so to communicate their financial strength to the market and depositors (Acharya et al., 2011; Floyd et al., 2015; Hirtle, 2014). However, prior research does indicate that a bank's level of regulatory capital potentially constrains its dividend distribution decisions (Abreu & Gulamhussen, 2013; Casey & Dickens, 2000; Casey et al., 2009; Onali, 2014).

Nevertheless, focusing solely on dividends misses an important part of the story, because share repurchases are another means by which a firm can return capital to shareholders. Banks often make substantial common share repurchases, frequently in amounts that rival the size of dividend payments (Hirtle et al., 2016). Banks repurchase shares in order to distribute cash to shareholders without altering dividends or exposing shareholders to taxes due on dividend income (Hirtle, 1998). Because share repurchases affect regulatory capital, the Federal Reserve prohibits banks from making repurchases that would threaten their ability to meet capital adequacy standards (Hirtle, 1998).

In this context, gains trading with AfS assets provides a unique opportunity to free up resources for distribution to shareholders from banks where capital ratios would otherwise constrain their ability to do so. Understanding whether and when this behavior takes place is the focus of our investigation.

Our analysis is based on the relationship between realized gains and losses on AfS securities and bank payout policies using control variables identified in previous research. Data are obtained from bank regulatory reports, which include detailed information about securities and regulatory capital. Our sample consists of 5381 bank-year observations for 766 unique banks in 1998–2013. We begin by focusing on the use of realized AfS gains and losses to free up resources for distribution to shareholders when the bank's regulatory capital is low. We focus on capital-constrained banks, as previous research shows AfS securities gains and losses are used as an earnings management tool when regulatory capital is low (Barth et al., 2017; Dong & Zang, 2018). Our results reveal a significant and positive association between total payout and realized gains on AfS securities for banks with low regulatory capital ratios. This is consistent with the conjecture that when banks have regulatory capital constraints that prevent them from distributing resources to shareholders, they engage in gains trading to free up capital to pay dividends and/or repurchase shares.

In the next set of analyses, we explore whether cross-sectional variation is present in the observed association between banks' payouts and gains trading. We find that the need to raise funds in capital markets at a lower cost, as well as shareholders' expected returns in the form of either dividends or share repurchases, both exert pressure on banks to engage in gains trading. Additionally, our results show that larger (smaller) banks and banks with a higher (lower) percentage of institutional investors—i.e., banks with stronger (weaker) monitoring—are less (more) likely to engage in gains trading to return cash to shareholders.

Overall, these results reveal that capital-constrained banks engage in gains trading to maintain or boost payouts to shareholders when it is costly to decrease the payout and when the monitoring level is weaker. Additional tests reveal that the banks that are most likely to engage in gains trading are traditional banks, which rely more on deposits to finance their operations, have a larger proportion of their assets invested in loans and are more dependent on interest income to generate profits.

When banks engage in gains trading, they sell (good) assets with unrealized gains and withhold (bad) assets with unrealized losses. The income generated is used to distribute cash to shareholders in situations in which regulatory capital constraints would not allow a payout. These bank managers are *de facto* increasing the bank's level of risk. Analysis of the economic consequences of such behavior shows that banks engaging in cherry-picking activities to distribute cash to shareholders exhibit significantly higher levels of future default risk and more negative extreme bank-specific daily returns.

In a final test, we exploit a regulatory change introduced by Basel III to investigate the effects of the requirement of the Final Rule to remove the prudential filter and include unrealized fair value gains and losses on investment securities in Tier 1 regulatory capital. Our results show that the removal of prudential filters is associated with significantly less gains trading.

Our paper contributes to the following literature streams. First, we shed light on a new determinant of AfS gains trading, namely the need for capital-constrained banks to distribute resources to shareholders. Prior studies (Barth et al., 2017; Dong & Zang, 2018) show gains trading is used by banks to manage regulatory capital, to smooth earnings,

to avoid losses, to take a big bath and to meet or beat analysts' forecasts. We build on Barth et al. (2017) and show that, in addition to these incentives, financial institutions resort to cherry-picking activities using AFS securities to return resources to shareholders in situations in which regulatory capital constraints would prevent them from doing so.

Second, the paper contributes to the literature on payouts in the banking industry (Acharya et al., 2011; Dickens et al., 2002; Floyd et al., 2015; Hirtle, 2014; Kanas, 2013; Kauko, 2012; Koussis & Makrominas, 2019; Onali, 2014). Previous studies show payout policies are pivotal to financial institutions, as high payouts are a crucial source of information for depositors, allowing them to assess an institution's liquidity and profitability (Hirtle, 2014; Kauko, 2012). We add to this debate by providing new evidence that when capital constraints prevent banks from distributing resources to shareholders, banks engage in gains trading to circumvent these restraints and boost payouts. In this respect, our results complement the evidence provided by Koussis and Makrominas (2019) and Onali (2014) and are consistent with banks engaging in risk-shifting via their payout policies.

Finally, results presented in this paper are also relevant from a regulatory perspective, because it is essential to understand whether and how the interaction of accounting standards with capital regulation may carry unintended consequences (Bischof et al., 2019; Laux & Leuz, 2009). Therefore, our evidence may be useful to regulators such as the Federal Deposit Insurance Corporation (FDIC) and others when assessing the safety and soundness of financial institutions.

The remainder of the paper is organized as follows. In Section 2, we review the literature and develop our hypothesis. In Section 3, we describe the research design, the methodology and the data set. In Section 4, we report the results. In Section 5, we provide concluding remarks.

2 | CONCEPTUAL BACKGROUND AND HYPOTHESIS

This study combines two streams of research: 1) gains trading in financial institutions, and 2) the debate on payout policies in the financial industry. We now review and combine them to develop the research hypothesis investigated.

2.1 | Gains trading in the financial services industry

There is extensive prior research on gains-trading activities in the financial services industry, most of which focuses on the use of realized securities gains and losses as a gains trading tool to smooth earnings or to circumvent capital adequacy requirements.² Barth et al. (1990) find that, on average, realized gains and losses have a negative effect on stock returns, which is consistent with investors perceiving that reported gains and losses in banks' investment securities are timed by management to offset losses and gains from other earnings sources. Warfield and Linsmeier (1992) re-examine this finding using quarterly earnings announcement returns and find evidence consistent with Barth et al.'s (1990) results, but only for the fourth quarter. Beatty and Harris (1999) note that smoothing is well documented, and they compare the association between pre-discretion earnings and securities gains and losses for publicly traded and privately held banks using a 1991–1992 sample. While they find a negative association for both groups, the association is stronger for publicly traded banks, consistent with earnings management arising from greater information asymmetry in publicly traded firms. They conclude that earnings management may convey management's private information to external stakeholders and may not necessarily reduce the quality of earnings. Beatty et al. (2002) further compare securities gains and losses in publicly traded and privately held banks and find that public banks use more discretion than private banks in recognizing gains and losses to achieve earnings targets.

A related stream of research focuses on banks' incentives to manage regulatory capital. Overall, it appears that banks tend to recognize abnormal realized gains in securities portfolios (Beatty et al., 1995; Collins et al., 1995; Moyer,

² Another stream of research investigates alternative earnings management tools (such as loan-loss provisions) used by managers to engage in capital-management activities or to meet or exceed analyst consensus forecasts. Beatty and Liao (2014) provide a recent review of the empirical literature on the banking industry, including addressing earnings managements.

1990; Scholes et al., 1990). Scholes et al. (1990) suggest banks exploit the realization of securities gains (or the postponement of securities losses) to increase regulatory capital. Moyer (1990) reveals that securities gains are used to manage capital, but only when a bank's capital adequacy ratio falls below its regulatory minimum. Beatty et al. (1995) find a negative association between miscellaneous gains and losses and regulatory capital.

Lifschutz (2002), Barth et al. (2017), and Dong and Zhang (2018) focus on gains trading using AfS securities to manage earnings and regulatory capital. Lifschutz (2002), using a sample of 88 bank holding companies during 1997–2000, shows banks use realized gains and losses from AfS securities to smooth earnings. Consistent with findings in Lifschutz (2002), Barth et al. (2017) find evidence that the accounting for AfS securities gains and losses enables banks to manage earnings in a variety of ways and to replenish low regulatory capital. Their results apply to listed and non-listed banks, indicating earnings management incentives do not derive solely from public capital markets.

Dong and Zhang (2018) suggest that banks engage in earnings management through selective selling of AfS securities. They find that earnings management activities are more significant among banks that report unrealized gains and losses in their shareholders' equity than among banks in which unrealized net gains are reported either below net income in the income statement, or in a separate statement of comprehensive income. Dong and Zang (2018) also show that banks use the amount of realized gains and losses from selling AfS securities to meet or beat the consensus analyst earnings per share forecast.

To the best of our knowledge, previous research is silent on whether banks realize gains and losses from AfS securities to free up cash and capital for payout policy purposes.

2.2 | Payout policies in the banking industry

There is scant literature on banks' payout policies, even though the banking sector is among the industries with the highest payout ratios. For instance, Dickens et al. (2002) show that 92% of US banks paid dividends in 2000, compared to only 49% of nonfinancial firms.

Since Lintner (1956), extensive empirical research indicates that managers are reluctant to cut dividends. Such reluctance is one of the strongest empirical regularities in corporate finance (Brav et al., 2005; DeAngelo et al., 2009; Kanas, 2013; Lintner, 1956). For instance, Brav et al. (2005) report that chief financial officers are willing to sell assets, lay off employees, raise external funds and even bypass projects with a positive net present value before they are willing to cut dividends. In this regard, Daniel et al. (2008) show that firms actively manage earnings to maintain dividends. This result is consistent with Miller and Modigliani (1961), who suggest managers could use dividends to convey information about future earnings. In this regard, DeAngelo et al. (2009) further affirm that dividends are of first-order importance to investors.

This reluctance to cut dividends is also observed in the financial services industry. Because banks are inherently opaque—it is difficult for outsiders to assess the quality of a bank's assets—by paying dividends, bank managers provide a strong signal to external constituents about the bank's solvency. Kauko (2012) provides an analytical model in which dividends are a critical source of information for depositors because they signal profitability and liquidity. Floyd et al. (2015) show that most banks consistently paid dividends during 1990–2008, with most banks increasing the dividend per share each year. Even during the 2007–2009 financial crisis, banks continued to pay dividends to communicate their financial strength to the market and depositors. Acharya et al. (2011) observe that the fear of “runs” leads banks to continue paying dividends to keep depositors calm even when it would be prudent to cease paying dividends. Koussis and Makrominas (2019) provide some nuance to these earlier findings by showing that both US and European banks engage in dividend payout smoothing, conditional on the prevalence of some agency-based determinants such as lower ownership concentration, lower growth opportunities, smaller size and weaker investor protection.

When deciding on dividend distribution, one of the major constraints banks face is the level of regulatory capital. Existing literature suggests regulatory capital limits dividend payouts by banks with lower capital standards (Abreu & Gulamhussen, 2013; Casey & Dickens, 2000; Casey et al., 2009; Onali, 2014).

However, Hirtle (2014) and Floyd et al. (2015) claim that focusing on dividends alone misses a crucial part of the story, because another significant manner in which a firm can return capital to shareholders is through stock repurchases. Compared with dividend payments, stock repurchases generally provide bank holding companies more flexibility to adjust shareholder payments over time in response to fluctuations in earnings (Guay & Harford, 2000; Skinner, 2008). Over the years, banks have made substantial common stock share repurchases, frequently in amounts that rivaled the size of dividend payments (Hirtle, 2014). Bank holding companies often repurchase stock in order to distribute earnings to shareholders without altering dividends or exposing shareholders to the taxes on dividend income (Hirtle, 1998). Like dividend payments, stock repurchases redistribute cash from a firm to its shareholders and reduce the amount of capital. Because share repurchases affect regulatory capital, the Federal Reserve prohibits share repurchases that would threaten a bank's ability to meet capital adequacy standards (Hirtle, 1998).

Given the incentives to pay dividends or repurchase shares, we argue that capital-constrained banks opportunistically use the discretion afforded to them by accounting standards and bank regulatory requirements to engage in gains-trading activities that boost earnings and regulatory capital. Such activities allow them to free up resources to pay dividends to shareholders or repurchase shares. Therefore, we posit the following research hypothesis:

H1: In the presence of regulatory capital constraints, banks engage in gains trading using AfS securities to distribute resources to shareholders.

3 | RESEARCH DESIGN

3.1 | Empirical model

Our analysis builds on Barth et al. (2017), who show that banks use AfS securities gains and losses to smooth earnings and increase low regulatory capital. We consider bank payout policies to be an additional incentive to engage in gains trading using AfS securities. We begin our analysis by estimating Equation (1) to determine whether banks engage in gains trading and distribute cash to shareholders:

$$RGL_{it} = \beta_0 + \beta_1 TOTAL_PAYOUT_{it} + \beta_2 LowRegCapital_{it} + \beta_3 TOTAL_PAYOUT * LowRegCapital_{it} + \sum_{i=4}^{14} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (1)$$

where our dependent variable *RGL* is the realized gains and losses on AfS securities scaled by the beginning-of-the-year total assets. Realized gains and losses on AfS are reported on line 6b of the Schedule HI Income Statement for bank holding companies. *RGL* is designed to capture bank transactions intended to realize gains by selling securities with unrealized gains (Barth et al., 2017; Dong & Zhang, 2018). *TOTAL_PAYOUT* is computed as common share dividends plus share repurchases scaled by beginning-of-the-year total assets.

We follow Floyd et al. (2015) and measure net repurchases, after removing from share purchases the effect of shares issued to fund acquisitions for employee stock option programs and other purposes. If the firm uses the treasury stock method for repurchases, they are computed as the increase in common treasury stock (Compustat item #226). If the firm uses the retirement method instead, we measure repurchases as the difference between stock purchases (#115) and share issuances (#118) from the cash flow statement. If either of these amounts (the change in treasury shares or the difference between #115 and #118) is negative or missing, repurchases are set to zero.

As documented in prior research (e.g., Floyd et al., 2015; Hirtle, 2014; Koussis & Makrominas, 2019; Onali, 2014), extending the analysis to both dividends and share repurchases is necessary to fully analyze bank payout policies. We follow Barth et al. (2017) and define *LowRegCapital* as an indicator variable that equals one if the bank's regulatory

ratio—defined by bank regulators as allowable Tier 1 and allowable Tier 2 regulatory capital, deflated by risk-weighted assets—before *RGL* and after taxes is in the lowest decile for the year, and zero otherwise. i and t denote bank and year. If a bank engages in gains trading to free up capital to pay dividends (or buy back shares) when regulatory capital is low, we predict β_3 will be positive.

Equation (1) and the following equations, unless otherwise stated, include bank fixed effects. In addition, several control variables (CONTROLS in Equation (1)) are included in our empirical models. We follow Barth et al. (2017) and include in Equation (1) the following bank-specific characteristics related to AfS securities which are now presented and defined.

NI (net income before taxes and *RGL*, deflated by beginning-of-the-year total assets) controls for earnings management incentives that relate to gains trading. *SIZE* is the natural log of total assets. Large banks are more likely to raise capital in equity markets; therefore, we expect a positive relationship between size and payout. *UG (UL)* is accumulated unrealized gains (losses) at the beginning of the period. Banks with more beginning-of-the-year accumulated unrealized losses (gains) are more likely to realize losses (gains) during the period (Barth et al., 2017; Beatty & Harris, 1999; Scholes et al., 1990). Accumulated unrealized gains and losses on AfS securities are the difference between the total fair value and amortized cost for these securities as reported in Schedule HC-B Securities for bank holding companies.

Accumulated unrealized gains and losses are reported separately for 21 categories of securities. Following Barth et al. (2017), we use the by-category information to construct *UG (UL)*. If the difference between fair value and amortized costs for a given category is positive (negative) we include that difference in *UG (UL)*. To control for liquidity constraints in distributing cash to shareholders, the model includes the total amount of liquid assets (*LIQUID*). *LIQUID* is the sum of currency and coin, cash items being collected, balances due from banks in foreign countries and foreign central banks, balances due from depository institutions in the United States, and balances due from the Federal Reserve (Barth et al., 2017; Beatty et al., 1995).

To control for a bank's underlying business model, we include also the total amount of securities it holds (*SECURITIES*). *UG*, *UL*, *LIQUID*, and *SECURITIES* are scaled by beginning-of-the-year total assets. Finally, we include macroeconomic control variables (*VIX*, *UNEMP* and *LIBOR*), given that securities gains and losses often depend on economic conditions. *VIX* is the S&P 500 Index options' implied volatility; *UNEMP* is the one-year-ahead consensus forecast of the US unemployment rate and *LIBOR* is the difference between the London Interbank Offered Rate (otherwise known as *LIBOR*) and overnight indexed swap rates. All variables are defined in the Appendix. Equation (1) mirrors the model used in Barth et al. (2017) to investigate whether banks use realized gains and losses on AfS securities to smooth earnings, adjusted to include our focus on total payouts. We winsorize all variables at the 1st and 99th percentiles.

3.2 | Sample

To compute the variables used in this study, we merge data from Compustat with data from the consolidated financial statements (FR 9-YC) of the Federal Reserve Bank of Chicago database and retain all bank-year observations with non-missing data in 1998–2013. We exclude observations from 2008 and 2009 to ensure the financial crisis does not affect our results. *VIX* is obtained from the Federal Reserve Bank of St. Louis, *UNEMP* from the Consensus Economics' Consensus Forecasts database and *LIBOR* from the International Monetary Fund.

The final sample consists of 5381 firm-year observations generated by 766 unique bank holding companies (96% of sample) and commercial banks (4% of sample). Untabulated results show that removing commercial banks from the analyses does not affect our inferences.

Table 1 shows the distribution of the observations over the sample period. An overall drop in the number of observations occurs in 2006 due to the Federal Reserve System's revision in the asset-size threshold (from \$150 million to \$500 million) for filing FR 9-YC reports.

TABLE 1 Sample distribution

Year	Frequency	%	Cumulative %
1998	341	6.34	6.34
1999	358	6.65	12.99
2000	433	8.05	21.04
2001	427	7.94	28.97
2002	454	8.44	37.41
2003	460	8.55	45.96
2004	453	8.42	54.38
2005	451	8.38	62.76
2006	376	6.99	69.75
2007	350	6.5	76.25
2010	317	5.89	82.14
2011	312	5.8	87.94
2012	314	5.84	93.77
2013	335	6.23	100
Total	5381	100	

Notes: This table reports the distribution of observations over the sample period.

Table 2 presents distributional statistics for the variables used in our main analysis. To ease exposition, in Table 2 we multiply the variables *RGL*, *UG* and *UL* by 100. The table shows that, on average, banks realize gains on AfS securities (*RGL* mean = 0.035; median = 0.008) and distribute resources to shareholders in the form of either common dividends or share repurchases (*TOTAL_PAYOUT* mean = 0.005; median = 0.004). The mean of regulatory capital, used to construct *LowRegCapital*, is 0.147. On average, banks' accumulated unrealized gains on AfS securities is 0.17% of total assets (mean *UG* = 0.171) and accumulated unrealized losses on AfS securities is 0.077% (mean *UL* = -0.077).

4 | RESULTS

4.1 | Hypothesis testing

In Table 3, we present results from Equation (1) in which we test whether banks, to distribute cash to shareholders, cherry-pick securities with unrealized gains and withhold those with unrealized losses. Specifically, we examine whether banks opportunistically exploit accounting discretion to prop up reported earnings and distribute cash to shareholders despite low regulatory capital ratios. We focus on regulatory capital concerns because banks with low capital ratios tend to benefit most from gains-trading activities (Barth et al., 2017).

Consistent with our hypothesis, we find that banks with low regulatory capital ratios exhibit a significantly higher use of gains trading to pay cash to shareholders (coefficient for *TOTAL_PAYOUT* * *LowRegCapital* = 0.023; *p*-value < 0.10). Table 3 reveals also that banks with lower income use AfS assets to smooth earnings (coefficient for *NI* = -0.008; *p*-value < 0.01) and banks realize more net gains when they have more accumulated unrealized gains (coefficient for *UG* = 0.036; *p*-value < 0.01) and losses (coefficient for *UL* = 0.090; *p*-value < 0.01).

Overall, results reported in Table 3 provide empirical support for H1. In untabulated analyses, we decompose the variable *TOTAL_PAYOUT* into its two components, dividends and share repurchases to analyze whether one component is more important than the other in explaining our results. We find that both dividends and share repurchases underlie

TABLE 2 Descriptive statistics

	N	Mean	Standarddeviation	25th centile	Median	75th centile
RGL	5381	0.035	0.001	0.000	0.008	0.055
TOTAL_PAYOUT	5381	0.005	0.005	0.002	0.004	0.007
RegCapital	5381	0.147	0.037	0.124	0.139	0.161
LowRegCapital	5381	0.098	0.298	0.000	0.000	0.000
NI	5381	0.014	0.011	0.01	0.015	0.02
SIZE	5381	14.435	1.57	13.347	14.051	15.14
UG	5381	0.171	0.003	0.005	0.059	0.227
UL	5381	-0.077	0.002	-0.078	-0.011	0.000
LIQUID	5381	0.048	0.035	0.026	0.037	0.056
SECURITIES	5381	0.253	0.134	0.156	0.231	0.322
VIX	5381	20.932	6.754	14.233	19.318	27.91
UNEMP	5381	5.738	1.57	4.433	5.433	5.867
LIBOR	5381	0.03	0.023	0.012	0.023	0.053

Notes: This table reports the descriptive statistics for the main variables used in the analysis. RGL represents the realized gains and losses on AFS securities scaled by beginning-of-the-year total assets; TOTAL_PAYOUT is the sum of common share dividends plus share repurchases scaled by beginning-of-the-year total assets; RegCapital is the bank's regulatory capital ratio—defined by bank regulators as allowable Tier 1 plus allowable Tier 2 regulatory capital, scaled by risk-weighted assets; LowRegCapital is an indicator variable that equals one if the bank's regulatory capital ratio—defined by bank regulators as allowable Tier 1 plus allowable Tier 2 regulatory capital, scaled by risk-weighted assets—before RGL and after taxes is in the lowest decile for the year, and zero otherwise; NI is net income before taxes and RGL scaled by beginning-of-the-year total assets; SIZE is the natural logarithm of total assets; UG is accumulated unrealized gains on Afs scaled by beginning-of-the-year total assets; UL is accumulated unrealized losses on Afs scaled by beginning-of-the-year total assets; LIQUID is the total amount of liquid assets scaled by the beginning-of-the-year total assets; SECURITIES is the total amount of securities scaled by beginning-of-the-year total assets; VIX is implied volatility of options on the S&P 500 Index; UNEMP is the one-year-ahead consensus forecast of the US unemployment rate; LIBOR is the difference between the London Interbank Offered Rate and overnight indexed swap rates. All variables are winsorized at the 1st and 99th percentile. To ease exposition, in this table the variables RGL, UG and UL have been multiplied by 100.

gains-trading activities. The majority of banks actually use both vehicles to distribute resources to shareholders, a finding that is consistent with the evidence reported by Floyd et al. (2015).

Results documented are both statistically and economically significant, since coefficients reported in Table 3 suggest that a 10% increase in total payout for capital-constrained banks translates into a 3.3% increase in net realized gains.

4.2 | Cross-sectional analyses: Evidence from banks' incentives and monitoring

In additional analyses, we investigate whether there is cross-sectional variation in the association between bank payouts and gains-trading activities. We argue that, due to stronger external pressure, certain banks are more likely to engage in gains trading to distribute cash to shareholders. For example, we expect results documented in Table 3 to be stronger when the need to raise capital pressures the banks to return resources to shareholders (DeFond & Jiambalvo, 1994). Therefore, we anticipate that when capital-constrained banks issue new equity, they are more likely to cherry-pick securities with unrealized gains and withhold those with unrealized losses to be able to free up resources. Additionally, we expect that when a bank has a long history of high payouts, it would be punished for not distributing resources to shareholders and therefore its incentives to engage in gains trading would be higher.

TABLE 3 Relationship between RGLs and total payout

	RGL
TOTAL_PAYOUT	0.002
	[0.448]
LowRegCapital	0.000*
	[1.657]
TOTAL_PAYOUT*LowRegCapital	0.023*
	[1.913]
NI	-0.008***
	[-3.991]
NI*LowRegCapital	-0.005
	[-1.349]
SIZE	-0.000***
	[-3.559]
UG	0.036***
	[4.813]
UL	0.090***
	[7.987]
LIQUID	-0.001
	[-1.434]
SECURITIES	0.002***
	[10.565]
VIX	0.000***
	[6.301]
UNEMP	0.000***
	[3.051]
LIBOR	-0.006***
	[-5.017]
Constant	0.002***
	[2.779]
Observations	5381
R-squared	0.133

This table shows results from estimating Equation (1):

$$RGL_{it} = \beta_0 + \beta_1 TOTAL_PAYOUT_{it} + \beta_2 LowRegCapital_{it} + \beta_3 TOTAL_PAYOUT * LowRegCapital_{it} + \sum_{i=4}^{14} \beta_i CONTROLS_{it} + \varepsilon_{it}$$

Notes: RGL represents the realized gains and losses on AfS securities scaled by beginning-of-the-year total assets; TOTAL_PAYOUT is the sum of common share dividends plus share repurchases scaled by beginning-of-the-year total assets; LowRegCapital is an indicator variable that equals one if the bank's regulatory ratio—defined by bank regulators as allowable Tier 1 plus allowable Tier 2 regulatory capital, scaled by risk-weighted assets—before RGL and after taxes is in the lowest decile for the year, and zero otherwise; NI is net income before taxes and RGL scaled by beginning-of-the-year total assets; SIZE is the natural logarithm of total assets; UG is accumulated unrealized gains on AfS scaled by beginning-of-the-year total assets; UL is accumulated unrealized losses on AfS scaled by beginning-of-the-year total assets; LIQUID is the total amount of liquid assets scaled by the beginning-of-the-year total assets; SECURITIES is the total amount of securities scaled by beginning-of-the-year total assets; VIX is implied volatility of options on the S&P 500 Index; UNEMP is the one-year-ahead consensus forecast of the US unemployment rate; LIBOR is the difference between the London Interbank Offered Rate and overnight indexed swap rates. We include firm-fixed effects, but do not report coefficients. t-statistics are reported in brackets. *, ** and *** indicate statistical significance at 10%, 5%, and 1% levels (two-tailed).

To test these conjectures, we apply the same research design used in Barth et al. (2017) to explore cross-sectional variation in our setting. We estimate the following regression model:

$$\begin{aligned}
 RGL_{it} = & \varphi_0 + \varphi_1 TOTAL_PAYOUT [High Incentives]_{it} + \varphi_2 TOTAL_PAYOUT [Low Incentives]_{it} \\
 & + \varphi_3 LowRegCapital_{it} + \varphi_4 TOTAL_PAYOUT [High Incentives]_{it} * LowRegCapital_{it} \\
 & + \varphi_5 TOTAL_PAYOUT [Low Incentives]_{it} * LowRegCapital_{it} + \varphi_6 NI_{it} + \varphi_7 NI * LowRegCapital_{it} \\
 & + \sum_{i=8}^{15} \beta_i CONTROLS_{it} + \varepsilon_{it}
 \end{aligned} \tag{2}$$

Equation (2) mirrors Equation (1) but splits the variable *TOTAL_PAYOUT* into two components (see Barth et al., 2017): *TOTAL_PAYOUT [High Incentives]* is the bank's payout in banks for which incentives to engage in gains trading are high and zero otherwise; *TOTAL_PAYOUT [Low Incentives]* is the bank's payout in banks for which incentives to engage in gains trading are low and zero otherwise. In terms of incentives, we consider 1) issuance of new equity and 2) a history of high payouts.

In Table 4, column 1, we focus on the issuance of new equity as an incentive to engage in gains trading to return cash to shareholders. Following Eisfeldt and Muir (2012), net *Equity Issuance* is computed as the Compustat item *SSTK* (sale of common and preferred stock) less item *PRSTKC* (purchase of common and preferred stock) less item *DV* (cash dividend). Therefore, column 1 defines banks with high incentives as those for which the net *Equity Issuance* is positive.

Column 2, instead, defines banks with high incentives to engage in gains trading those for which total payout in the last two years has been higher than the median of the sample. If our conjecture holds true, we should observe in Equation (2) that φ_4 is positive and statistically significant, while φ_5 is not significantly different from zero. Estimates reported in Table 4 provide strong evidence supporting results from our main analysis (Table 3) that capital-constrained banks engage in gains trading to a larger extent when it is more costly to decrease the payout to shareholders, with coefficients for *TOTAL_PAYOUT [High Incentives]*LowRegCapital* in both columns 1 and 2 being positive and statistically significant.

Next, we investigate whether situations exist in which it is more difficult for a bank to engage in gains trading because the level of monitoring is high. First, we argue that the larger the firm size, the less earnings management is feasible. The firm's size is related to its internal control system and large banks may have more sophisticated internal control systems and more competent internal auditors compared to smaller ones. An effective internal control system contributes to the reliability of financial information disclosed to the public. Moreover, the size of the bank is related to its visibility and the public scrutiny it attracts (Gan, 2006).

Second, we posit that institutional investors have better knowledge of the firm and a larger influence on management and, thus, are more likely to engage in monitoring efforts than other shareholders (Callen & Fang, 2013; Chen et al., 2007; Elyasiani & Jia, 2008; Elyasiani et al., 2010). Chen et al. (2007) argue that more stable institutional investors are better motivated and possess a better ability to monitor effectively. Consistent with this view, Elyasiani and Jia (2008) find a significant positive relation between institutional ownership stability and bank holding company performance. Elyasiani et al. (2010) reveal a significant negative relation between institutional ownership stability and firms' debt. Consequently, we expect that monitoring is stronger when institutional ownership increases. To ascertain whether the level of monitoring explains the cross-sectional variation in our results, we estimate the following regression model:

$$\begin{aligned}
 RGL_{it} = & \sigma_0 + \sigma_1 TOTAL_PAYOUT [Strong Monitoring]_{it} + \sigma_2 TOTAL_PAYOUT [Weak Monitoring]_{it} \\
 & + \sigma_3 LowRegCapital_{it} + \sigma_4 TOTAL_PAYOUT [Strong Monitoring]_{it} * LowRegCapital_{it} \\
 & + \sigma_5 TOTAL_PAYOUT [Weak Monitoring]_{it} * LowRegCapital_{it} + \sigma_6 NI_{it} + \sigma_7 NI * LowRegCapital_{it} \\
 & + \sum_{i=8}^{15} \beta_i CONTROLS_{it} + \varepsilon_{it}
 \end{aligned} \tag{3}$$

TABLE 4 Gains trading and incentives

	(1)	(2)
	Incentives	
	Equity issuance RGL	Payout history RGL
<i>TOTAL_PAYOUT</i> [<i>High Incentives</i>]	0.014***	0.007*
	[2.714]	[1.662]
<i>TOTAL_PAYOUT</i> [<i>Low Incentives</i>]	-0.005	-0.004
	[-1.177]	[-0.715]
<i>LowRegCapital</i>	0.000	0.000*
	[1.571]	[1.658]
<i>TOTAL_PAYOUT</i> [<i>High Incentives</i>] <i>LowRegCapital</i>	0.034**	0.039***
	[2.241]	[2.996]
<i>TOTAL_PAYOUT</i> [<i>Low Incentives</i>] <i>LowRegCapital</i>	0.013	-0.002
	[0.910]	[-0.126]
<i>NI</i>	-0.009***	-0.009***
	[-4.269]	[-4.108]
<i>LowRegCapital</i> <i>NI</i>	-0.005	-0.005
	[-1.372]	[-1.418]
<i>SIZE</i>	-0.000***	-0.000***
	[-2.675]	[-3.393]
<i>UG</i>	0.035***	0.036***
	[4.743]	[4.843]
<i>UL</i>	0.088***	0.089***
	[7.865]	[7.885]
<i>LIQUID</i>	-0.001*	-0.001
	[-1.803]	[-1.502]
<i>SECURITIES</i>	0.002***	0.002***
	[10.146]	[10.423]
<i>VIX</i>	0.000***	0.000***
	[4.550]	[6.267]
<i>UNEMP</i>	0.000***	0.000***
	[3.428]	[2.916]
<i>LIBOR</i>	-0.006***	-0.006***
	[-4.590]	[-5.215]
Constant	0.001*	0.002***
	[1.958]	[2.650]
Observations	5381	5381
R-squared	0.137	0.136

(Continues)

TABLE 4 (Continued)

Notes: This table shows results from estimating Equation (2):

$$\begin{aligned} RGL_{it} = & \varphi_0 + \varphi_1 TOTAL_PAYOUT [High Incentives]_{it} \\ & + \varphi_2 TOTAL_PAYOUT [Low Incentives]_{it} + \varphi_3 LowRegCapital_{it} \\ & + \varphi_4 TOTAL_PAYOUT [High Incentives]_{it} * LowRegCapital_{it} \\ & + \varphi_5 TOTAL_PAYOUT [Low Incentives]_{it} * LowRegCapital_{it} \\ & + \varphi_6 NI_{it} + \varphi_7 NI * LowRegCapital_{it} + \sum_{i=8}^{15} \beta_i CONTROLS_{it} + \varepsilon_{it}. \end{aligned}$$

We split the sample based on two incentives to engage in gains trading: equity issuance (*Equity Issuance*) and having a long payout history (*Payout History*). *Equity Issuance* is sale of common and preferred stock (*SSTK*) less purchase of common and preferred stock (*PRSTKC*) less cash dividends (*DV*). We deem banks with positive net Equity Issuance to have high incentives to engage in gains trading. *Payout History* is average total payout ratio of the bank in the past two years and we deem banks with above the sample median *Payout History* to have high incentives to engage in gains trading. *RGL* represents the realized gains and losses on AFS securities scaled by beginning-of-the-year total assets; *TOTAL_PAYOUT* is the sum of common share dividends plus share repurchases scaled by beginning-of-the-year total assets; *LowRegCapital* is an indicator variable that equals one if the bank's regulatory capital ratio—defined by bank regulators as allowable Tier 1 plus allowable Tier 2 regulatory capital, scaled by risk-weighted assets—before *RGL* and after taxes is in the lowest decile for the year and zero otherwise; *NI* is net income before taxes and *RGL* scaled by beginning-of-the-year total assets; *SIZE* is the natural logarithm of total assets; *UG* is accumulated unrealized gains on AFS scaled by beginning-of-the-year total assets; *UL* is accumulated unrealized losses on AFS scaled by beginning-of-the-year total assets; *LIQUID* is the total amount of liquid assets scaled by the beginning-of-the-year total assets; *SECURITIES* is the total amount of securities scaled by beginning-of-the-year total assets; *VIX* is implied volatility of options on the S&P 500 Index; *UNEMP* is the one-year-ahead consensus forecast of the US unemployment rate; *LIBOR* is the difference between the London Interbank Offered Rate and overnight indexed swap rates. We include firm-fixed effects in the regressions but do not report the coefficient. *t*-statistics are reported in brackets. *, ** and *** indicate statistical significance at 10%, 5%, and 1% levels (two-tailed).

In Equation (3), we split the variable *TOTAL_PAYOUT* into two components: *TOTAL_PAYOUT [Strong Monitoring]* is the amount of a bank's payout for banks where the monitoring level is high and zero otherwise; *TOTAL_PAYOUT [Weak Monitoring]* is the amount of a bank's payout for banks where monitoring level is low and zero otherwise. We proxy for monitoring level using: 1) market capitalization and 2) percentage of institutional investors. Data on institutional investor ownership are taken from Form 13F filings.

Results reported in Table 5 show that when regulatory capital is low, banks with low-level monitoring engage in gains trading to distribute cash to shareholders (σ_5 is statistically significant in both columns), while such an association is not observed when the monitoring level is higher (σ_4 is statistically insignificant in both columns). Overall, the results presented in Tables 4 and 5 help us to better understand the phenomenon under investigation and provide insights on when banks are more likely to engage in gains-trading activities to distribute resources to shareholders.

4.3 | Characteristics of banks engaging in gains trading

We have established the existence of cross-sectional variations in the incentives to use realized gains and losses to distribute cash to shareholders exist. We now attempt to identify the main characteristics of the banks that engage in gains trading. In other words, we seek to determine the most common business model of the banks that drive our main results.

To do so, we generate three variables to describe a bank's business model: *DEPOSITS*, the ratio between the total amount of customers' deposits scaled by beginning-of-the-year assets; *LOANS*, the total amount of loans issued by the bank scaled by beginning-of-the-year assets; and *NI*, noninterest income scaled by total income. Banks with more deposits, more loans and less noninterest income tend to conduct operations based on a traditional intermediation model, in which the collection of money from depositors and the subsequent lending to households and companies are the main activities. In contrast, financial institutions in which noninterest income is the main source of income and

TABLE 5 Gains trading and monitoring

	(1)	(2)
	Monitoring	
	Market capitalization	Institutional investors
	RGL	RGL
TOTAL_PAYOUT [Strong Monitoring]	0.006	0.001
	[1.319]	[0.231]
TOTAL_PAYOUT [Weak Monitoring]	-0.004	-0.001
	[-0.832]	[-0.133]
LowRegCapital	0.000	0.000
	[1.544]	[1.209]
TOTAL_PAYOUT [Strong Monitoring] [†] LowRegCapital	0.009	0.004
	[0.702]	[0.288]
TOTAL_PAYOUT [Weak Monitoring] [†] LowRegCapital	0.042 ^{**}	0.036 ^{**}
	[2.662]	[2.184]
NI	-0.008 ^{**}	-0.012 ^{**}
	[-4.084]	[-5.071]
NI [†] LowRegCapital	-0.004	-0.003
	[-1.115]	[-0.713]
SIZE	-0.000 ^{**}	-0.000 ^{**}
	[-3.700]	[-3.911]
UG	0.035 ^{**}	0.025 ^{**}
	[4.684]	[3.158]
UL	0.089 ^{**}	0.090 ^{**}
	[7.879]	[7.277]
LIQUID	-0.001	-0.002 ^{**}
	[-1.469]	[-3.077]
SECURITIES	0.002 ^{**}	0.002 ^{**}
	[10.668]	[11.207]
VIX	0.000 ^{**}	0.000 ^{**}
	[6.380]	[4.781]
UNEMP	0.000 ^{**}	0.000 ^{**}
	[3.087]	[2.758]
LIBOR	-0.006 ^{**}	-0.007 ^{**}
	[-5.085]	[-5.553]
Constant	0.002 ^{**}	0.002 ^{**}
	[2.929]	[3.457]
Observations	5381	4435
R-squared	0.136	0.15

(Continues)

TABLE 5 (Continued)

Notes: This table shows results from estimating Equation (3):

$$\begin{aligned} RGL_{it} = & \sigma_0 + \sigma_1 TOTAL_PAYOUT [Strong Monitoring]_{it} \\ & + \sigma_2 TOTAL_PAYOUT [Weak Monitoring]_{it} + \sigma_3 LowRegCapital_{it} \\ & + \sigma_4 TOTAL_PAYOUT [Strong Monitoring]_{it} * LowRegCapital_{it} \\ & + \sigma_5 TOTAL_PAYOUT [Weak Monitoring]_{it} * LowRegCapital_{it} \\ & + \sigma_6 NI_{it} + \sigma_7 NI * LowRegCapital_{it} + \sum_{i=8}^{15} \beta_i CONTROLS_{it} + \varepsilon_{it} \end{aligned}$$

split the sample based on two proxies of monitoring: *Market Capitalization* and *Institutional Investors*. *Market Capitalization* is the bank's market value of equity and we deem banks with above the sample median *Market Capitalization* to have strong monitoring. *Institutional Investors* is the percentage of institutional investors' ownership and we deem banks with above the sample median *Institutional Investors* to have strong monitoring. RGL represents the realized gains and losses on AfS securities scaled by beginning-of-the-year total assets; *TOTAL_PAYOUT* is the sum of common share dividends plus share repurchases scaled by beginning-of-the-year total assets; *LowRegCapital* is an indicator variable that equals one if the bank's regulatory capital ratio—defined by bank regulators as allowable Tier 1 plus allowable Tier 2 regulatory capital, scaled by risk-weighted assets—before RGL and after taxes is in the lowest decile for the year and zero otherwise; *NI* is net income before taxes and RGL scaled by beginning-of-the-year total assets; *SIZE* is the natural logarithm of total assets; *UG* is accumulated unrealized gains on AfS scaled by beginning-of-the-year total assets; *UL* is accumulated unrealized losses on AfS scaled by beginning-of-the-year total assets; *LIQUID* is the total amount of liquid assets scaled by the beginning-of-the-year total assets; *SECURITIES* is the total amount of securities scaled by beginning-of-the-year total assets; *VIX* is implied volatility of options on the S&P 500 Index; *UNEMP* is the one-year-ahead consensus forecast of the US unemployment rate; *LIBOR* is the difference between the London Interbank Offered Rate and overnight indexed swap rates. We include firm-fixed effects in the regressions but do not report the coefficient. *t*-statistics are reported in brackets. *, ** and *** indicate statistical significance at 10%, 5%, and 1% levels (two-tailed).

TABLE 6 Gains trading and banks' characteristics

	Deposits	Loans	NII
<i>GAINS_TRADING</i> = 0 [a]	0.850	0.657	0.175
<i>GAINS_TRADING</i> = 1 [b]	0.896	0.702	0.158
Difference [a] - [b]	-0.047	-0.045	0.017
<i>p</i> -value	0.000	0.000	0.052
Observations	5381	5381	5381

Notes: This table shows the average amount of deposits, loans and noninterest income for banks that engaged in gains trading (*GAINS_TRADING* = 1) and those that did not engage in such behaviors (*GAINS_TRADING* = 0). *GAINS_TRADING* is a dummy variable equal to one if the bank paid dividends or bought back shares (*TOTAL_PAYOUT* > 0) and the Regulatory Capital is low (*LowRegCapital* = 1) and it realized gains on AfS (*RGL* > 0); *DEPOSITS* is bank's deposits divided by beginning-of-the-year assets; *LOANS* is total loans divided by beginning-of-the-year assets; *NII* is noninterest income divided by total income. *p*-values reported are two-tailed.

deposits and loans are relatively less important on the balance sheet are more involved in the investment banking sector or in other non-traditional activities, such as loan servicing or fiduciary activities.

We do not have *ex ante* expectations of the characteristics of banks that use net realized gains and losses to boost payouts; instead, we approach the analysis from an empirical point of view. We define the variable *GAINS_TRADING* that takes the value of 1 if: (i) a bank is in the lowest decile of regulatory capital (computed as described above) for a given year; (ii) the net realized gain and losses are positive; and (iii) the bank has distributed resources to shareholders. It takes the value of zero otherwise. Our belief is that banks that simultaneously satisfy all three conditions are more likely to engage in gains trading to boost payouts.

Table 6 tabulates the average value of *DEPOSITS*, *LOANS*, and *NII* for both groups and tests for statistical significance. Results suggest that banks with a traditional business model are more likely to use net realized gains and losses

to return resources to shareholders ($GAINS_TRADING = 1$). For these banks, noninterest income is a less important component, while financial intermediation (i.e., taking deposits and extending loans) represents core activities. This is significant because it allows us to advance our understanding about the types of financial institutions more likely to engage in gains trading.

4.4 | The economic consequences of gains trading

We next investigate the economic consequences related to the use of net realized gains and losses to distribute resources to shareholders. When banks engage in gains-trading activities they sell (good) assets with unrealized gains and withhold (bad) assets with unrealized losses. The resulting income is then used to distribute cash to shareholders in a situation in which regulatory capital constraints would not allow such disbursements. In so doing, bank managers are de facto increasing the bank's risk: The quality of the assets in the bank's portfolio decreases as the remaining assets are riskier while the liquidity is funneled to shareholders. As such, risk is shifted from shareholders to the bank's depositors and other creditors (e.g., Koussis & Makrominas, 2019; Onali, 2014). Thus, the next step is to investigate whether gains trading is associated with higher future risk and so we estimate the following regression model:

$$ZSCORE (CRASH_RISK)_{it+1} = \alpha_0 + \alpha_1 GAINS_TRADING_{it} + \sum_{i=2}^5 \alpha_i CONTROLS_{it} + \varepsilon_{it} \quad (4)$$

We employ two proxies to measure bank risk, one that uses accounting data ($ZSCORE$) and one that uses market data ($CRASH_RISK$). $ZSCORE$ is used extensively in previous literature to assess risk in financial institutions and measures of bank stability insofar as it indicates the institution's distance from insolvency (e.g., Chircop et al., 2017; Jin et al., 2013; Koussis & Makrominas, 2019; Laeven & Levine, 2009). We compute $ZSCORE$ as the logarithm of $(ROA+CAR)/\sigma(ROA)$, where ROA is earnings before taxes and loan loss provisions divided by assets, CAR is capital-asset ratio, and $\sigma(ROA)$ is the standard deviation of ROA . We calculate ROA and CAR as the mean over the sample period and $\sigma(ROA)$ as the standard deviation of ROA estimated over that time. We multiply the score by -1 , meaning a higher $ZSCORE$ implies more risk taking. $CRASH_RISK$ measures the bank-specific stock price crash risk, a market-based measure of riskiness (Callen & Fang, 2015; Kim et al., 2011). $CRASH_RISK$ is the difference between the number of days with negative extreme bank-specific daily returns and the number of days with positive extreme bank-specific daily returns. As in Callen and Fang (2015), $CRASH_RISK$ is based on the number of firm-specific daily returns exceeding 3.09 standard deviations above and below the mean firm-specific daily return over the fiscal year; 3.09 generates frequencies of 0.1% in normal distribution (Callen & Fang, 2015; Hutton et al., 2009; Kim et al., 2011).

$GAINS_TRADING$ is computed as previously defined and proxies for a bank's gains-trading behavior to distribute resources to shareholders. In order to specify control variables that allow bank risk as the dependent variable, we follow Lepetit et al. (2008) and include $SIZE$, the logarithm of total assets; $HISTORICAL_GROWTH$, the annual growth rate of total assets; ROE , net income divided by total equity; and $OEQUITY$, or the equity orthogonalized with total assets, in the regression model. Bank fixed effects are included, and standard errors are clustered at the bank level.

Table 7, columns 1, 2 and 3 report results using $ZSCORE$ as the dependent variable, while columns 4, 5 and 6 show results using $CRASH_RISK$ as the dependent variable. To demonstrate that results are not driven by the selection of specific control variables in Equation (4), in columns 2, 3, 5 and 6 we add the control variables included in Equation (1). The difference in the number of observations between Table 7 and the previous analyses is due to the fact that Equation (4) includes dependent variables computed at time $t+1$. When $CRASH_RISK$ is the dependent variable, we lose 264 observations because of missing market data. Table 7 provides strong support for our conjecture that banks engaging in gains trading to boost payouts experience significantly higher levels of risk. In particular, they teeter closer to insolvency and experience more negative extreme bank-specific daily returns.

TABLE 7 Consequences of gains trading

	(1)	(2)	(3)	(4)	(5)	(6)
	Z-score	Z-score	Z-score	CRASH_RISK	CRASH_RISK	CRASH_RISK
GAINS_TRADING	0.051*** [4.713]	0.051*** [4.719]	0.037*** [3.665]	0.244* [1.882]	0.246* [1.902]	0.253* [1.950]
SIZE	0.047*** [8.272]	0.061*** [10.214]	0.081*** [12.228]	0.163** [2.443]	0.141** [2.010]	0.208** [2.505]
HISTORICAL_GROWTH	0.056*** [4.217]	0.048*** [3.661]	0.122*** [8.177]	0.418*** [2.722]	0.433*** [2.808]	0.314* [1.680]
ROE	-0.126*** [-2.996]	-0.144*** [-3.465]	-0.205*** [-5.172]	0.094 [0.193]	0.119 [0.244]	0.393 [0.791]
OEQUITY	-3.653*** [-19.058]	-3.639*** [-19.140]	-3.810*** [-20.947]	5.048** [2.265]	5.016** [2.249]	6.430*** [2.830]
UG		-8.547*** [-7.985]	-0.024 [-0.021]		11.089 [0.866]	-3.707 [-0.255]
UL		3.078* [1.814]	-2.904* [-1.749]		-13.186 [-0.654]	-32.128 [-1.527]
LIQUID			-0.304*** [-3.665]			0.375 [1.008]
SECURITIES			-0.428*** [-14.742]			0.883 [0.850]
VIX			0.000 [0.783]			-0.000 [-0.044]
UNEMP			-0.032*** [-10.908]			-0.123*** [-3.374]
LIBOR			-0.411** [-2.363]			-9.852*** [-4.495]
Constant	-4.050*** [-44.758]	-4.220*** [-45.552]	-4.203*** [-42.162]	-3.117*** [-2.934]	-2.830*** [-2.581]	-2.996** [-2.382]
Observations	4615	4615	4615	4351	4351	4351
R-squared	0.153	0.167	0.274	0.007	0.007	0.013

Notes: This table shows results from additional analyses investigating whether banks' gains-trading activities change when there is an increase in the average riskiness of the bank assets (Equation (4)):

$$ZSCORE(CRASH_RISK)_{it+1} = \alpha_0 + \alpha_1 GAINS_TRADING_{it} + \sum_{i=2}^5 \alpha_i CONTROLS_{it} + \varepsilon_{it}$$

ZSCORE is the logarithm of $(ROA+CAR)/\sigma(ROA)$ where ROA is earnings before taxes and loan loss provisions divided by assets, CAR is capital-asset ratio and $\sigma(ROA)$ is the standard deviation of ROA. The ROA and capital-asset ratio are calculated as the mean over the sample period, and $\sigma(ROA)$ is the standard deviation of ROA estimated over the sample period. We multiply the score by -1, so the higher Z-score implies more risk taking; CRASH_RISK is the difference between the number of days with negative extreme bank-specific daily returns and the number of days with positive extreme bank-specific daily returns; GAINS_TRADING is a dummy variable equal to one if the bank paid dividends or bought back shares ($TOTAL_PAYOUT > 0$) and the Regulatory Capital is low ($LowRegCapital = 1$) and it realized gains on AFS ($RGL > 0$); HISTORICAL_GROWTH is the annual growth rate of total assets; ROE is the returns on equity; OEQUITY is the Equity orthogonalized with total assets; UG is accumulated unrealized gains on AFS scaled by beginning-of-the-year total assets; UL is accumulated unrealized losses on AFS scaled by beginning-of-the-year total assets; LIQUID is the total amount of liquid assets scaled by the beginning-of-the-year total assets; SECURITIES is the total amount of securities scaled by beginning-of-the-year total assets; VIX is implied volatility of options on the S&P 500 Index; UNEMP is the one-year-ahead consensus forecast of the US unemployment rate; LIBOR is the difference between the London Interbank Offered Rate and overnight indexed swap rates. We include firm-fixed effects in the regressions but do not report the coefficient. t-statistics are reported in brackets. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels (two-tailed).

Results documented are both statistically and economically significant, since coefficients reported in column 3 of Table 7 suggest that banks that engage in gain-trading activities experience a 3.5% increase in their probability to default, as proxied by the Z-score.

4.5 | Gain trading and the removal of prudential filters

In this section, we extend the sample to 2018 and exploit a regulatory change introduced by Basel III in January 2014 that removes the prudential filters shielding regulatory capital from fair value changes on AfS securities. However, due to fierce opposition from US banks, regulators granted a one-time option to retain the prudential filters for banks using a non-advanced approach to the calculation of risk-weighted assets (see Bischof et al., 2019). Consequently, in the post-2014 period, some banks removed the filters (reducing their benefits from gains trading), while others continued their use (enjoying the benefits of their gains trading behavior). If the benefits of engaging in gains trading decreased after Basel III, we would expect such activities to also decrease. We use this regulatory change and the variation in bank decision-making to maintain or remove the filters in order to corroborate our primary findings by estimating the following probit model:

$$GAINS_TRADING_{it} = \mu_0 + \mu_1 POST_{it} + \mu_2 OPT_OUT_{it} + \mu_3 POST * OPT_OUT_{it} + \sum_{i=4}^{14} \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (5)$$

where *GAINS_TRADING* captures gains-trading behaviors to boost payout by sample banks and is computed as previously defined, *POST* is a dummy variable for the post-Basel III period and zero otherwise, and *OPT_OUT* is a dummy variable for banks that continue to apply prudential filters on AfS securities after Basel III and zero otherwise. Equation (5) includes all control variables used in Equation (1), as well as bank fixed effects. Standard errors are clustered at the firm level. The information on whether banks continue to apply prudential filters on AfS securities after Basel III is obtained from FR Y-9C reports. Since, all banks used in this analysis must have complete data for all variables the number of observations is somewhat lower. Results are reported in Table 8. The negative and statistically significant coefficient on *POST* indicates that—for banks that removed prudential filters on AfS securities after Basel III (*OPT_OUT* = 0)—gains-trading activities have significantly decreased. In contrast, the positive and significant coefficient on the interaction term (*POST*OPT_OUT*) indicates that, as expected, the opposite is true for banks that continued to employ the filters. Significantly, the sum of the coefficients μ_1 and μ_3 is not statistically different from zero at any conventional level, suggesting that gains-trading activities decreased after Basel III only for banks that do not use prudential filters.

5 | CONCLUSION

This study examines whether the need to distribute resources to shareholders induces banks to engage in gains trading within their portfolio of AfS securities, especially in situations in which their capital ratio level would otherwise constrain their ability to do so. Using a large sample of US banks, we document a significant and positive association between a bank's total payout and net realized gains on AfS securities for banks with low regulatory capital ratios. This suggests banks with regulatory capital constraints engage in gains-trading activities to free up capital to pay dividends or buy back shares.

Additional analyses probe the cross-sectional variation in our results and show that gains trading are more pronounced when banks issue new equity, have a history of high payouts or have weak monitoring. In addition, further

TABLE 8 Evidence from a regulatory change

	GAINS_TRADING
POST	-3.524***
	[-12.426]
POST*OPT_OUT	3.306***
	[12.279]
OPT_OUT	0.415
	[1.451]
NI	-26.139***
	[-6.904]
SIZE	0.069**
	[2.044]
UG	14.045
	[0.815]
UL	55.111
	[1.458]
SECURITIES	-1.585***
	[-3.600]
LIQUID	-2.072*
	[-1.711]
VIX	0.006
	[0.929]
UNEMP	-0.219***
	[-3.363]
LIBOR	-7.859*
	[-1.901]
Constant	-1.009
	[-1.282]
Observations	4129

Notes: This table shows results from estimating Equation (5) with a probit model:

$$GAINS_TRADING_{it} = \mu_0 + \mu_1 POST_{it} + \mu_2 OPT_OUT_{it} + \mu_3 POST * OPT_OUT_{it} + \sum_{i=4}^{14} \beta_i CONTROLS_{it} + \varepsilon_{it}.$$

GAINS_TRADING is a dummy variable equal to one if the bank paid dividends or bought back shares (*TOTAL_PAYOUT* > 0) and the Regulatory Capital is low (*LowRegCapital* = 1) and if realized gains on AfS (*RGL* > 0); *POST* is a dummy variable equal to one for the year after 2014, zero otherwise; *OPT_OUT* is a dummy variable equal to one if the bank petitioned to opt out of the advanced approach, zero otherwise; *RGL* represents the realized gains and losses on AfS securities scaled by beginning-of-the-year total assets; *LowRegCapital* is an indicator variable that equals one if the bank's regulatory capital ratio—defined by bank regulators as allowable Tier 1 plus allowable Tier 2 regulatory capital, scaled by risk-weighted assets—before *RGL* and after taxes is in the lowest decile for the year and zero otherwise; *NI* is net income before taxes and *RGL* scaled by beginning-of-the-year total assets; *SIZE* is the natural logarithm of total assets; *UG* is accumulated unrealized gains on AfS scaled by beginning-of-the-year total assets; *UL* is accumulated unrealized losses on AfS scaled by beginning-of-the-year total assets; *LIQUID* is the total amount of liquid assets scaled by the beginning-of-the-year total assets; *SECURITIES* is the total amount of securities scaled by beginning-of-the-year total assets; *VIX* is implied volatility of options on the S&P 500 Index; *UNEMP* is the one-year-ahead consensus forecast of the US unemployment rate; *LIBOR* is the difference between the London Interbank Offered Rate and overnight indexed swap rates. *t*-statistics are reported in brackets. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels (two-tailed).

analysis reveals that banks that engage in gains trading are more likely to do so if they rely on a traditional banking business model, i.e., mostly act as a financial intermediary. Finally, our results indicate that when executives use net realized gains to boost payouts in the presence of capital constraints, they significantly increase the institution's risk.

The paper is subject to two significant limitations. First, we rely on proxies for gains trading and therefore inevitably measure our construct of interest with error. Second, we lack insight into the potential role of a bank's board in determining payout policies and moderating the relationship documented in this paper. Future research should consider the impact of such gains trading on debt and equity markets and on financial analysts' information environment.

ACKNOWLEDGEMENTS

The authors acknowledge financial support from the University of Padova, the CARIPARO Foundation, the S.A. Jarislowsky Chair in Corporate Governance (Concordia University), the Institute for the Governance of Public and Private Organizations and the Desjardins Centre for Business Finance Innovation (Concordia University). They thank Christof Bueselinck, Martin Jacob and the workshop participants at the CREM (IGR-IAE, University of Rennes I), HEC Paris, Parthenope University (Naples), CAAA 2015, IX Financial Reporting Workshop (University of Bologna) and European Accounting Association 39th Annual Congress (Maastricht) for their helpful comments. DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Wharton Research Data Services. Restrictions apply to the availability of these data, which were used under license for this study. Data are available at <https://wrds-web.wharton.upenn.edu/wrds/index.cfm> with the permission of the data provider.

REFERENCES

- Abreu, J. F., & Gulamhussein, M. A. (2013). Dividend payouts: Evidence from US bank holding companies in the context of the financial crisis. *Journal of Corporate Finance*, 22, 54–65. <https://doi.org/10.1016/j.jcorpfin.2013.04.001>
- Acharya, V. V., Gujral, I., Kulkarni, N., & Shin, H. S. (2011). *Dividends and bank capital in the financial crisis of 2007–2009* (NBER Working Paper 16896). National Bureau of Economic Research. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1789477
- Barth, M. E., Beaver, W. H., & Wolfson, M. A. (1990). Components of earnings and the structure of bank share prices. *Financial Analysts Journal*, 46(3), 53–60. <https://doi.org/10.2469/faj.v46.n3.53>
- Barth, M. E., Gomez-Biscarri, J., Kasznik, R., & López-Espinosa, G. (2017). Bank earnings and regulatory capital management using available for sale securities. *Review of Accounting Studies*, 22(4), 1761–1792. <https://doi.org/10.1007/s11142-017-9426-y>
- Beatty, A., Chamberlain, S. L., & Magliolo, J. (1995). Managing financial reports of commercial banks: The influence of taxes, regulatory capital, and earnings. *Journal of Accounting Research*, 33(2), 231–261. <https://doi.org/10.2307/2491487>
- Beatty, A., & Harris, D. G. (1999). The effects of taxes, agency costs and information asymmetry on earnings management: A comparison of public and private firms. *Review of Accounting Studies*, 4(3–4), 299–326. <https://doi.org/10.1023/A:1009642403312>
- Beatty, A., & Liao, S. (2014). Financial accounting in the banking industry: A review of the empirical literature. *Journal of Accounting and Economics*, 58(2), 339–383. <https://doi.org/10.1016/j.jacceco.2014.08.009>
- Beatty, A. L., Ke, B., & Petroni, K. R. (2002). Earnings management to avoid earnings declines across publicly and privately held banks. *The Accounting Review*, 77(3), 547–570. <https://doi.org/10.2308/accr.2002.77.3.547>
- Bischof, J., Laux, C., & Leuz, C. (2019). *Accounting for financial stability: Lessons from the financial crisis and future challenges* (CFS Working Paper). <https://doi.org/10.2139/ssrn.3393148>
- Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2005). Payout policy in the 21st century. *Journal of Financial Economics*, 77(3), 483–527. <https://doi.org/10.1016/j.jfineco.2004.07.004>
- Callen, J. L., & Fang, X. (2013). Institutional investor stability and crash risk: Monitoring versus short-termism? *Journal of Banking & Finance*, 37(8), 3047–3063. <https://doi.org/10.1016/j.jbankfin.2013.02.018>
- Callen, J. L., & Fang, X. (2015). Religion and stock price crash risk. *Journal of Financial and Quantitative Analysis*, 50(1–2), 169–195. <https://doi.org/10.1017/S0022109015000046>
- Casey, K. M., & Dickens, R. N. (2000). The effects of tax and regulatory changes on commercial bank dividend policy. *The Quarterly Review of Economics and Finance*, 40(2), 279–293.

- Casey, K. M., Theis, J., & Dutta, A. S. (2009). Explanatory factors of bank dividend policy: Revisited. *Managerial Finance*, 35(6), 501–508. <https://doi.org/10.1108/03074350910956963>
- Chen, X., Harford, J., & Li, K. (2007). Monitoring: Which institutions matter? *Journal of Financial Economics*, 86(2), 279–305. <https://doi.org/10.1016/j.jfineco.2006.09.005>
- Chircop, J., Fabrizi, M., Ipino, E., & Parbonetti, A. (2017). Does branch religiosity influence bank risk-taking? *Journal of Business Finance & Accounting*, 44(1-2), 271–294. <https://doi.org/10.1111/jbfa.12227>
- Collins, J. H., Shackelford, D. A., & Wahlen, J. M. (1995). Bank differences in the coordination of regulatory capital, earnings, and taxes. *Journal of Accounting Research*, 33(2), 263–291. <https://doi.org/10.2307/2491488>
- Daniel, N. D., Denis, D. J., & Naveen, L. (2008). Do firms manage earnings to meet dividend thresholds? *Journal of Accounting and Economics*, 45(1), 2–26. <https://doi.org/10.1016/j.jacceco.2007.11.002>
- DeAngelo, H., DeAngelo, L., & Skinner, D. J. (2009). Corporate payout policy. *Foundations and Trends in Finance*, 3(2–3), 95–287. <https://doi.org/10.1561/05000000020>
- DeFond, M. L., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, 17(1–2), 145–176. [https://doi.org/10.1016/0165-4101\(94\)90008-6](https://doi.org/10.1016/0165-4101(94)90008-6)
- Dickens, R., Casey, K. M., & Newman, J. A. (2002). Bank dividend policy: Explanatory factors. *Quarterly Journal of Business and Economics*, 41(1–2), 3–12.
- Dong, M., & Zhang, X. J. (2018). Selective trading of available-for-sale securities: Evidence from US commercial banks. *European Accounting Review*, 27(3), 467–493. <https://doi.org/10.1080/09638180.2017.1304227>
- Eisfeldt, A., & Muir, T. (2012). *The joint dynamics of internal and external finance* (Unpublished working paper). University of California at Los Angeles.
- Elyasiani, E., & Jia, J. J. (2008). Institutional ownership stability and BHC performance. *Journal of Banking & Finance*, 32(9), 1767–1781.
- Elyasiani, E., Jia, J. J., & Mao, C. X. (2010). Institutional ownership stability and the cost of debt. *Journal of Financial Markets*, 13(4), 475–500. <https://doi.org/10.1016/j.finmar.2010.05.001>
- Floyd, E., Li, N., & Skinner, D. J. (2015). Payout policy through the financial crisis: The growth of repurchases and the resilience of dividends. *Journal of Financial Economics*, 118(2), 299–316. <https://doi.org/10.1016/j.jfineco.2015.08.002>
- Gan, A. (2006). The impact of public scrutiny on corporate philanthropy. *Journal of Business Ethics*, 69(3), 217–236. <https://doi.org/10.1007/s10551-006-9087-4>
- Guay, W., & Harford, J. (2000). The cash-flow permanence and information content of dividend increases versus repurchases. *Journal of Financial Economics*, 57(3), 385–415. [https://doi.org/10.1016/S0304-405X\(00\)00062-3](https://doi.org/10.1016/S0304-405X(00)00062-3)
- Hirtle, B. (1998). Bank holding company capital ratios and shareholder payouts. *Current Issues in Economics and Finance*, 4(9), 1–6. <https://doi.org/10.2139/ssrn.997395>
- Hirtle, B. (2014). *Bank holding company dividends and repurchases during the financial crisis* (Staff Report No. 666). Federal Reserve Bank of New York Staff Report <https://doi.org/10.2139/ssrn.2423384>.
- Hirtle, B., Kovner, A., Vickery, J., & Bhanot, M. (2016). Assessing financial stability: The capital and loss assessment under stress scenarios (CLASS) model. *Journal of Banking & Finance*, 69, S35–S55. <https://doi.org/10.1016/j.jbankfin.2015.09.021>
- Hutton, A. P., Marcus, A. J., & Tehranian, H. (2009). Opaque financial reports, R2, and crash risk. *Journal of Financial Economics*, 94(1), 67–86. <https://doi.org/10.1016/j.jfineco.2008.10.003>
- Jin, J. Y., Kanagaretnam, K., Lobo, G. J., & Mathieu, R. (2013). Impact of FDICIA internal controls on bank risk taking. *Journal of Banking & Finance*, 37(2), 614–624. <https://doi.org/10.1016/j.jbankfin.2012.09.013>
- Kanas, A. (2013). Bank dividends, risk, and regulatory regimes. *Journal of Banking & Finance*, 37(1), 1–10. <https://doi.org/10.1016/j.jbankfin.2012.05.018>
- Kauko, K. (2012). External deficits and non-performing loans in the recent financial crisis. *Economics Letters*, 115(2), 196–199. <https://doi.org/10.1016/j.econlet.2011.12.018>
- Kim, J. B., Li, Y., & Zhang, L. (2011). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*, 100(3), 639–662. <https://doi.org/10.1016/j.jfineco.2010.07.007>
- Koussis, N., & Makrominas, M. (2019). What factors determine dividend smoothing by US and EU banks? *Journal of Business Finance & Accounting*, 46(7–8), 1030–1059. <https://doi.org/10.1111/jbfa.12399>
- Laeven, L., & Levine, R. (2009). Bank governance, regulation and risk taking. *Journal of Financial Economics*, 93(2), 259–275. <https://doi.org/10.1016/j.jfineco.2008.09.003>
- Laux, C. (2012). Financial instruments, financial reporting, and financial stability. *Accounting and Business Research*, 42(3), 239–260. <https://doi.org/10.1080/00014788.2012.681857>
- Laux, C., & Leuz, C. (2009). The crisis of fair-value accounting: Making sense of the recent debate. *Accounting, Organizations and Society*, 34(6), 826–834. <https://doi.org/10.1016/j.aos.2009.04.003>
- Lepetit, L., Nys, E., Rous, P., & Tarazi, A. (2008). Bank income structure and risk: An empirical analysis of European banks. *Journal of Banking & Finance*, 32(8), 1452–1467. <https://doi.org/10.1016/j.jbankfin.2007.12.002>

- Lifschutz, S. (2002). The effect of SFAS 115 on earnings management in the banking industry. *The Journal of Applied Business Research*, 18(4), 1–11. <https://doi.org/10.19030/jabr.v18i4.2124>
- Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *The American Economic Review*, 46(2), 97–113. <http://www.jstor.org/stable/1910664>
- Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *The Journal of Business*, 34(4), 411–433. <https://doi.org/10.1086/294442>
- Moyer, S. E. (1990). Capital adequacy ratio regulations and accounting choices in commercial banks. *Journal of Accounting and Economics*, 13(2), 123–154. [https://doi.org/10.1016/0165-4101\(90\)90027-2](https://doi.org/10.1016/0165-4101(90)90027-2)
- Onali, E. (2014). Moral hazard, dividends, and risk in banks. *Journal of Business Finance & Accounting*, 41(1–2), 128–155. <https://doi.org/10.1111/jbfa.12057>
- Scholes, M. S., Wilson, G. P., & Wolfson, M. A. (1990). Tax planning, regulatory capital planning, and financial reporting strategy for commercial banks. *Review of Financial Studies*, 3(4), 625–650. <https://doi.org/10.1093/rfs/3.4.625>
- Skinner, D. J. (2008). The evolving relation between earnings, dividends, and stock repurchases. *Journal of Financial Economics*, 87(3), 582–609. <https://doi.org/10.1016/j.jfineco.2007.05.003>
- Srivastav, A., Armitage, S., & Hagendorff, J. (2014). CEO inside debt holdings and risk-shifting: Evidence from bank payout policies. *Journal of Banking & Finance*, 47, 41–53. <https://doi.org/10.1016/j.jbankfin.2014.06.016>
- Warfield, T. D., & Linsmeier, T. J. (1992). Tax planning, earnings management, and the differential information content of bank earnings components. *The Accounting Review*, 67(3), 546–562. <http://www.jstor.org/stable/247977>

How to cite this article: Fabrizi, M, Ipino, E, Magnan, M, & Parbonetti, A. Real regulatory capital management and bank payouts: Evidence from available-for-sale securities. *J Bus Fin Acc.*2021;48:1918–1939. <https://doi.org/10.1111/jbfa.12525>

APPENDIX

Variable	Description
RGL	Realized gains and losses on AfS securities scaled by beginning-of-the-year total assets
TOTAL_PAYOUT	Common share dividends plus share repurchases scaled by beginning-of-the-year total assets
LowRegCapital	Indicator variable that equals one if the bank's regulatory ratio – defined by bank regulators as allowable Tier 1 plus allowable Tier 2 regulatory capital, scaled by risk-weighted assets – before RGL and after taxes, is in the lowest decile for the year, and zero otherwise
NI	Net income before taxes and RGL scaled by beginning-of-the-year total assets
SIZE	Natural logarithm of total assets
UG	Accumulated unrealized gains on AfS scaled by beginning-of-the-year total assets
UL	Accumulated unrealized losses on AfS scaled by beginning-of-the-year total assets
LIQUID	Total amount of liquid assets scaled by the beginning-of-the-year total assets
SECURITIES	The total amount of securities scaled by beginning-of-the-year total assets
VIX	Implied volatility of options on the S&P 500 Index
UNEMP	One-year-ahead consensus forecast of the US unemployment rate
LIBOR	Difference between the London Interbank Offer Rate and overnight indexed swap rates