



Does boardroom gender diversity affect shareholder wealth? Evidence from bank mergers and acquisitions

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Abstract

We explore the effect of the presence of female directors in boards of directors on the economic impact of bank mergers and acquisitions (M&As). Using a unique, hand-collected dataset on 1130 M&As announced by US banks between 2003 and 2018, we find a significant negative relationship between female board membership and shareholder wealth after the banking crisis. Our results are robust to alternative model specifications that control for different proxies for gender diversity, heteroskedasticity, endogeneity and firm-specific variables. Our findings suggest that board gender diversity should be promoted with caution, and policy makers should acknowledge its limitations as a corporate governance mechanism.

JEL classification

G21, G34

Keywords

Gender diversity; Mergers and acquisitions; Banks; Abnormal returns

1. Introduction

There is growing evidence of the effect of board gender diversity on organizational outcomes (Sila et al., 2016). Part of this evidence suggests that gender diversity in the board of directors (BoDs) may work as an effective internal corporate governance (CG) mechanism to induce managers to make decisions that maximize shareholder wealth (Denis and McConnell, 2003). However, despite extensive research on the consequences of board gender diversity on firm performance (e.g., Conyon & He, 2017; Joecks et al., 2013; Post & Byron, 2015; Sarhan et al., 2018), risk taking (e.g., Perryman et al., 2016; Sila et al., 2016), earnings management (e.g. Fan et al., 2019) and corporate social responsibility (e.g., Bear et al., 2010; Galbreath, 2018; Yasser et al., 2017), much less consideration has been given to the impact of gender diversity in the context of mergers and acquisitions (M&As). In this paper, we investigate the effect of the presence of women on BoDs on the economic impact of bank M&As in the US. Namely, we intend to identify whether banks with at least one female director experience higher abnormal returns compared to banks with male directors only.

Prior research has shown that firms promote gender diversity to increase the quality of collective decision-making (business case perspective) or individual and social justice (ethical perspective) (Kumar & Zattoni, 2016). This suggests that firms promote gender diversity voluntarily (laissez-faire approach)¹ or mandatorily through legislative (coercive approach)² or regulatory means (enabling approach)³. However, despite growing public concerns towards gender equality and the intense interest of academics, regulatory bodies and policy makers, the economic consequences of this practice are not adequately understood (Labelle et al., 2015; Sghaier & Hamza, 2018).

Carter et al. (2003) investigate the relationship between gender diversity and firm value in the context of the agency theory, suggesting that the presence of female directors may increase board

¹ In the laissez-faire approach, firms-on their own-determine the level of female representation by considering the pros and cons, scanning and interpreting their dynamic environment before they take action, which is the process for the adoption of each best practice (Daft and Weick, 1984). This means that firms act freely, without any intervention (Labelle et al., 2015). Therefore, board composition is endogenous.

² This is the most radical approach since firms are enforced to apply certain “best practices”. For example, many countries have adopted legislative quotas to alleviate the phenomenon of under-representation of women in BoDs (see Bertrand et. al., 2019).

³ Under this approach, firms adopt best practices promoted by national/supranational organizations. In this case, firms follow the process of “comply or explain” that was established by the Cadbury report (see Nerantzidis, 2015).

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3 independence. However, in this setting, a more diverse board does not necessarily imply a clear
4 prediction of the relationship between board diversity and firm value. This can be explained by the fact
5 that it is difficult to argue that the promotion of higher female participation will improve or deteriorate
6 CG and thereby shareholder value (Francoeur et al., 2008). The inclusion of more monitors with diverse
7 gender characteristics may be positive or negative (Adams & Ferreira, 2009; Carter et al. 2010), and
8 female board members may even be marginalized (Campbell & Mínguez-Vera, 2008; Carter et al.,
9 2010). Thus, gender diversity can increase shareholder value only when additional board monitoring
10 would enhance firm value (Adams and Ferreira, 2009). Agency theory does not provide an a priori
11 reason to explain how greater gender diversity would enhance board monitoring (Hermalin &
12 Weisbach, 2001).

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The inconclusive empirical evidence on the relationship between board diversity and firm value, mainly in the US, does not provide clear support for the direction of the link being positive, negative or neutral (e.g., Adams & Ferreira, 2009; Bohren & Strom, 2010; Farrell & Hersch, 2005; García-Meca et al., 2015; Levi et al., 2014; Pathan & Skully, 2010). Consequently, setting legislative quotas⁴ or nonbinding resolutions⁵ seeking equitable and diverse representation on BoDs may be little more than window dressing, since firms can determine the optimal board composition themselves (e.g., Duchin et al., 2010; Romano, 2005). Overall, it is not clear that external pressure for including more women on boards does businesses, or the economy, a service. In this context, our analysis intends to investigate the link between gender diversity and shareholder value, beyond sociological and political implications.

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This discussion highlights M&As as an appropriate setting for exploring the relationship between board gender diversity and shareholder value creation. The literature shows that M&As are risky decisions, with a high probability of failure (Haleblian et al., 2009). In this regard, agency theory provides a theoretical angle that could explain the reasoning behind more gender-equal boards in a

⁴ California became the first state to pass a law (Law SB 826) requiring public firms to have a minimum number of women on boards based on the total number of directors. New Jersey has introduced similar legislation to be passed in 2019.

⁵ Massachusetts, Illinois and Pennsylvania have passed resolutions encouraging companies to increase gender diversity on boards (Hentze, 2019).

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3 governance spectrum of a market-based economy⁶, such as the US (e.g., Goergen, 2007; Weimer and
4 Pape, 1999). An investigation of female participation in the boardroom may provide insights into
5 whether the wealth effects of mergers are related to gender diversity and if recent binding or nonbinding
6 measures to encourage the appointment of female directors are useful. A nascent stream of psychology-
7 based research shows that men negotiate significantly better than women in regard to maximizing their
8 own earnings and thus provide better outcomes (for more, see Rubin and Brown, 1975; Stuhlmacher
9 and Walters, 1999). Therefore, we could broadly argue that, since M&As involve competitively
10 orientated tasks, men might be more efficient and have better negotiation settlements than women
11 negotiators⁷.

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22 In our study, we explore gender diversity on BoDs in the banking sector. We focus on banks
23 because bank directors play a special role compared to directors in other sectors, since they are
24 accountable to a unique nexus of stakeholders that involves depositors, creditors and regulators (Macey
25 & O'Hara, 2003). Regulators, in particular, have stressed the importance of bank directors for bank risk
26 governance, corporate culture and implementation of the banks' strategic objectives (Bank of
27 International Settlements, 2015; Financial Stability Board, 2013). Furthermore, board structure, as a
28 corporate governance element, can operate as a substitute of the market of corporate control in banks
29 (Pathan & Faff, 2013). Using a unique, hand-collected dataset from the annual reports on Form 10-K
30 regarding the number of female directors on board, we investigate 1130 M&As announced by US banks
31 for the period 2003-2018, finding a negative relationship between female board membership and
32 shareholder wealth in acquiring banks after the banking crisis. We also examine whether the link
33 between gender diversity and acquiring banks' gains follows a U-shape under tokenism/critical mass
34 theory (Kanter, 1977; Dahlerup, 1988; Childs & Krook, 2008). Our results suggest that attaining a
35 critical mass of women directors (i.e. going from one or two women to at least three women) is still
36 associated with lower bidder returns than completely male boards. The results of multivariate analysis
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56 ⁶ Generally, the US has a more flexible labor market, highly liquid stock exchange, dispersion of ownership, and
57 follows the common-law system that provides better protection of minority shareholders.

58 ⁷ It is worth noting that the Commonsense Principles 2.0 - developed by a group of executive directors of major
59 listed companies and institutional investors in the US - state that "*The board should not be reflexively risk averse;
60 it should seek the proper calibration of risk and reward as it focuses on the long-term interests of the company's
shareholders*" (available at: <https://www.governanceprinciples.org>).

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3 further confirm these findings while controlling for firm-level characteristics, deal-related variables, as
4 well as the level of economic and financial development. In additional tests, we show that our main
5 findings are robust to alternative econometric specifications and different measures of the dependent
6 and independent variables. We also address endogeneity concerns regarding the gender of board
7 members employing a two-stage instrumental variable approach with the use of the Gender Equality
8 Score (GES) for the US states provided by Bloomberg. Our findings contribute to the literature on the
9 effects of boardroom gender diversity, indicating a negative and significant relationship between the
10 presence of female directors and shareholder value. These findings can affect investment choices and
11 corporate strategies in the banking sector. Moreover, our results suggest that businesses and regulators
12 should be cautious when they advocate gender diversity on BoDs.

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14 The remainder of this paper is organized as follows. Section 2 describes the data and the research
15 methodology. Section 3 presents the results of the univariate and multivariate analyses. Section 4
16 discusses the results of robustness checks. Section 5 contains concluding remarks and suggestions for
17 future research.

2. Data and Empirical Method

2.1 Sampling procedure

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42 The sample consists of M&A deals announced by US banks⁸ between 01/01/2003 and 31/12/2018.
43 Thomson Reuters⁹ records 7110 such deals during that period. The final sample of M&As analysed in
44 this paper includes 1130 deals that comply with the following criteria. First, the acquirer was a US bank
45 listed on a major US stock exchange (such as NASDAQ, NYSE, NYSE American). Second, the target
46 was a public, private or subsidiary firm located in the US. Third, the deal was completed before the end
47 of the sample period. Fourth, to avoid the effects of very small transactions, the deal value needed to be

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58 ⁸ Following Gandhi and Lustig (2015) and Leledakis and Pyrgiotakis (2019), acquirers are commercial banks and
59 saving institutions with three-digit primary Standard Industrial Classification (SIC) codes equal to 602 and 603,
60 respectively, or bank holding companies with four-digit primary SIC code equal to 6712.

⁹ Barnes et al. (2014) suggest that, from 1984 onward, Thomson Reuters is the best database for M&A research.

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3 greater than or equal to \$1 million, and the deal ratio, measured as the ratio of the deal value to the
4 acquirer market capitalization, needed to be greater than or equal to 1% (Masulis et al., 2007; Nguyen
5 & Phan, 2017). Fifth, to avoid the confounding effects of multiple bids, we exclude deals announced
6 by the same acquirer within 20 days (Fuller et al., 2002). Buybacks, exchange offers and
7 recapitalizations are omitted from the sample (Alexandridis et al., 2013; Barbopoulos & Wilson, 2016).
8 Finally, the acquirer had stock price data 270 days before and 20 days after the announcement day in
9 Thomson Reuters, and sufficient financial statement information at the year-end prior to the
10 announcement was available from Worldscope.
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20 Detailed information on the presence of women on BoDs in all acquiring banks was hand-
21 collected from the annual reports on Form 10-K sourced from the website of the US Securities and
22 Exchange Commission. To determine a board's gender composition, we examined the names of the
23 directors. When gender was not directly identified with the names, the issue was clarified with gender-
24 specific language in the annual report (e.g., Mr, Ms or Mrs), by a photograph provided in the annual
25 report, and by web sources.
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35 *2.2 Sample statistics*

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37 Table 1 reports the annual distribution of M&A deals announced by US banks between 01/01/2003 and
38 31/12/2018. The beginning of the sample period coincides with the emergence of the sixth merger wave,
39 which came to an end in approximately mid-2007 due to the eruption of the financial crisis
40 (Alexandridis et al., 2012). The number of M&A deals peaks in 2004 and records a downward trend
41 thereafter, bottoming out during the banking crisis (2007-2011). M&A activity recovers in 2012 and
42 remains upbeat until 2015. During the last three years of the sample, the number of M&A deals tends
43 to vary at lower levels compared to 2015. The table shows that US banks prefer to acquire targets from
44 the same state instead of extending their market, since the proportion of intrastate transactions (57%) is
45 well over the proportion of interstate deals (43%). The statistics also show that over four fifths of
46 transactions (81%) are between firms from the same industry (based on the 2-digit SIC code), while the
47 remaining one-fifth of transactions (19%) are diversified deals. Deals with listed targets are in
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3 proportion to deals with unlisted targets; however, there are notable differences between the number of
4 deals with regard to the listing status of targets over the sample period. Approximately one fifth (22%)
5 of transactions are settled in cash or stock, while a combination of cash and stock is used in almost one-
6 third of deals (31%). Cash-only deals appear mainly before the crisis (2003-2007), while the proportion
7 of stock-only deals increases significantly from the crisis onwards (2008-2018). The combination of
8 cash and stock constitutes the preferable means of payment for acquirers diachronically, recording a
9 steadily high proportion. The largest deals were announced during the financial crisis (\$2408.7 m),
10 followed by deals announced before and after the crisis period. The average size of acquirers has been
11 on the rise since 2003, peaks in 2008 (\$21139.5 m) and decreases thereafter, except in 2011. Acquiring
12 banks enjoy the highest announcement period abnormal returns in 2009 (1.54%), while they also gain
13 from 2013 onwards. In all other years, abnormal returns are negative.
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[Table 1 here]

33 Table 2 presents the descriptive statistics for the presence of women on US banks' BoDs, bank
34 specific characteristics and deal variables. With regard to gender diversity (Panel A), we find that the
35 average number of board seats held by women is 1.25. That is, 10.51% of board members are female
36 directors, which is above the 7.94% found by Pathan and Faff (2013) in a sample of 212 listed US bank
37 holding companies and the 10% found by García-Meca et al. (2015) in an international sample of 159
38 listed banks, from which 47.21% are located in the US. However, the percentage of female directors in
39 our sample is less the 12.5% found by Owen and Temesvary (2018) and Fan et al. (2019) in samples of
40 87 banks and 91 bank holding companies in the US, respectively. Figure 1 plots the percentage of
41 acquiring banks with no women on BoDs and the percentage of women on BoDs in banks with female
42 directorship. During the first years of the sample (2003-2005), more than a third of banks have only
43 male directors, while from 2006, the percentage of banks with no women on BoDs decreases, reaching
44 its lowest value in 2010 (14%). Then, it varies between 18% and 25%. Considering banks with women
45 on BoDs, the percentage of board seats held by women shows an upward trend over the period 2003 to
46 2009, exceeding 12% in 2009. There is a dramatic decrease in 2010, while it fluctuates thereafter above
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3 10%. In the last three years of our sample, the percentage of women on BoDs shows an increasing
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5 tendency, reaching its highest value in 2018 (13.23%).
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13 2.3 Methodology

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16 The effect of gender diversity on acquiring banks' gains is assessed using both univariate and
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18 multivariate frameworks. By univariate analysis, we first estimate the announcement period excess
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20 returns of acquirers with and without women on BoDs, followed by the comparison of the gains of such
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22 acquirers. We split our sample period into three sub-periods, namely, before, during and after the
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24 banking crisis (2007-2011), and we compare the abnormal returns for banks with and without female
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26 directors. By multivariate analysis, similar tests on the gains of acquirers are performed after controlling
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28 for the effects of other factors that may affect their gains.
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31 We build on the standard event study methodology to measure the excess returns of M&As on
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33 US banks surrounding the day of announcement of the deal. The announcement period abnormal returns
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35 are estimated using the four-factor model (Carhart, 1997), as shown in Eq. 1:
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$$38 \hat{R}_{it} - R_f = \alpha_i + \beta_{MKT}(R_{MKT} - R_f) + \beta_{SMB}SMB + \beta_{HML}HML + \beta_{MOM}MOM + \varepsilon_{it}, \quad (1)$$

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40 where \hat{R}_{it} is the expected return of bank i at day t ; R_f is the risk-free return; α_i is the model's intercept;
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42 and β_{MKT} , β_{SMB} , β_{HML} , and β_{MOM} are the factors' coefficients. R_{MKT} is the return on the market portfolio,
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44 SMB is a size factor that captures the performance of low capitalization firms over high capitalization
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46 firms, HML is a value factor that captures the excess returns of firms with high book-to-market value
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48 over firms with low book-to-market-value, and MOM is a momentum factor that captures the excess
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50 returns of past well-performing stocks over poorly performing stocks. ε_{it} is the error term, which is
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52 normally distributed with zero mean and constant variance $\varepsilon_{it} \sim N(0, \sigma^2)$. Historical market data for all
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54 factors for the US come from Kenneth French's website¹⁰. The estimation of the coefficients is carried
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¹⁰ Accessed at: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

out using the Ordinary Least Squares (OLS) method for a year of daily trading data (250-day period) starting 21 days before the announcement day.

The estimated coefficients are replaced in the four-factor model (Eq. 1) in order to calculate the expected returns for each bank. The abnormal returns are calculated as shown in Eq. 2:

$$AR_{it} = R_{it} - \hat{R}_{it} \quad (2)$$

where AR_{it} is the abnormal return of bank i at day t , R_{it} is the realized return of bank i at day t and \hat{R}_{it} is the expected return of bank i at day t calculated from Eq. 1.

The announcement period cumulative abnormal returns (CARs) are the sum of the abnormal returns over the length of the examined event window (t_1, t_2) surrounding the announcement day (day 0) of the M&A, as shown in Eq. 3.

$$CAR_{i(t_1, t_2)} = \sum_{t=t_1}^{t_2} AR_{it} \quad (3)$$

We apply an event window ranging from 20 days before to 20 days after the merger announcement (-20,20). The purpose of the 41-day window is threefold: to capture any potential information leakage or inside trading prior to the announcement, to assess the time required for full incorporation of the initial information shock and to comparatively evaluate the results of our study. More specifically, we apply eight event windows surrounding the day of announcement of the deal: i) two pre-announcement event windows (-20,0 and -5,0); ii) four symmetric event windows around the announcement day (-20,20; -5,5; -3,3; and 1,1); and iii) two post-announcement event windows (0,20 and 0,5).

The statistical significance of the mean CARs is assessed with the BMP test (Boehmer et al., 1991), which is robust against cross-sectional variation. We also apply the nonparametric rank test of Corrado and Zivney (1992), which has proven to be robust against event-induced volatility and cross-correlation¹¹.

¹¹ In addition to BMP and Corrado Rank tests, we apply other parametric and non-parametric tests (i.e. Patell test and Sign test). The statistical inferences of our results remain unaltered.

2.4 Multivariate analysis

M&A literature suggests that a number of factors relating to acquirer characteristics, deal features as well as industry and country features have an effect on acquirers' excess returns. To investigate the effect of board gender diversity on announcement period excess returns of the US acquiring banks after controlling for the effect of other factors, we estimate Eq. 4:

$$CAR_{i(t_1,t_2)} = a + \beta_i GD_i + \sum_{j=1}^m \lambda_j X_{ij} + \varepsilon_i \quad i = 1 \dots N \quad (4)$$

where the dependent variable is the cumulative abnormal return $CAR_{i(t_1,t_2)}$ of the acquiring bank from deal i for the period (t_1, t_2) . The intercept a measures the abnormal returns of acquirers after controlling for the effects of gender diversity (GD), and λ_j are the coefficients of m explanatory variables. The main measure of gender diversity on BoDs is the Blau Index (Bear et al., 2010; Blau, 1977; Owen and Temesvary, 2018), as shown in Eq. 5.

$$Blau\ Index = \left[1 - \sum_{g=1}^G P_g^2 \right] \times 100 \quad (5)$$

where P is the proportion of men and women on BoDs, and g denotes gender. The values of Blau Index can range from zero to $(G - 1)/G$. Hence, the maximum value of the Blau Index is 50%, indicating equal representation of men and women on the board. Lower values indicate greater gender inequality.

We also use three different measures as proxies for gender diversity: (a) the number of women on BoDs; (b) the percentage of women on BoDs; (c) a dummy variable that is assigned a value of 1 if the BoDs consist of at least one woman and 0 otherwise. We follow the literature on mergers and control for firm, deal and environmental factors in our cross-sectional regressions. The following paragraphs present the selected explanatory variables.

The board of directors' main responsibilities are to effectively monitor management and be accountable to the company and the shareholders (OECD, 2015). There is a growing literature (e.g., De Andres and Vallelado, 2008; García-Meca et al., 2015; Pathan and Faff, 2013) that examines the effect of board structure on bank performance. In addition to gender diversity, board size is a common variable used to control for board structure that has proven to have a significant impact on performance. In the

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3 context of mergers, Masulis et al. (2007) find an insignificant relationship between board size and bidder
4 announcement returns. Therefore, to control for board structure, we include in Eq. 4 the natural
5 logarithm of the total number of directors at year-end preceding the deal announcement.
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9 Moeller et al. (2004) suggest the existence of a “size effect” in announcement period abnormal
10 returns for acquirers. Small acquirers gain more from mergers compared to large ones, irrespectively of
11 the form of financing and the listing status of targets. Hankir et al. (2011) find similar results for bank
12 mergers, while Leledakis et al. (2017), Doukas and Zhang (2013) and Gupta and Misra (2007) report
13 an insignificant relationship between the abnormal returns of acquiring banks and their size. Kane
14 (2000) shows that large banks - being “too big to discipline adequately” - gain value when acquiring
15 large targets, while Brewer and Jagtiani (2013) find insignificant returns for acquirers that already have
16 or reach the “too big to fail” status after the merger. Therefore, to account for the size effect, we include
17 in Eq. 4 the size of the acquirers, measured by the natural logarithm of market capitalization twenty-
18 one days preceding the announcement date.
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30 Alexandridis et al. (2013) document a robust value effect in the market for corporate control,
31 which suggests that large deals destroy more value for acquirers than small ones. With regard to bank
32 mergers, the effect of deal value on bidders’ gains is inconclusive. Kane (2000) suggests that acquirers
33 gain value in large deals, while Barbopoulos and Wilson (2016) and Hagedorff et al. (2008) find no
34 significant relationship between deal size and bidder returns. Hence, we include in Eq. 4 the natural
35 logarithm of the deal value.
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43 Extant literature shows that the relative deal size has a significant impact on acquirer returns
44 (Fuller et al., 2002; Moeller et al., 2004). For banks, Leledakis et al. (2017) find a significant positive
45 effect on private deals, while the effect turns to negative for public acquisitions. Doukas and Zhang
46 (2013) report similar results for acquisitions with listed targets. Barbopoulos and Wilson (2016) find a
47 positive effect of the relative bid size on bidders’ returns irrespectively of the listing status of targets.
48 Therefore, we include the relative size of the deal, measured by the ratio of deal value to acquirers’
49 market capitalization twenty-one days preceding the announcement date.
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57 Prior research shows that the abnormal returns of acquirers may be affected by their growth
58 opportunities captured by the market-to-book ratio (Lang et al., 1989; Servaes, 1991; Sudarsanam and
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3 Mahate, 2003). Barbopoulos and Wilson (2016) and Doukas and Zhang (2013) do not find a significant
4 relationship between acquiring bank returns and their growth prospects. However, Brewer and Jagtiani
5 (2013) show that glamour banks (high market-to-book ratio) experience a lower market reaction.
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7 Therefore, to control for the growth opportunities of bidders, we use the market-to-book ratio twenty-
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9 one days prior to the announcement date.
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14 Following previous studies (e.g., Beltratti & Paladino, 2013; Hagendorff et al., 2008; Hankir et
15 al., 2011; Minhat & Abdullah, 2016; Pathan & Faff, 2013), we include in Eq. 4 additional variables to
16 control for bank profitability, total risk and leverage. We control for profitability as proxied by return
17 on equity at year-end preceding the deal announcement. The bank's total risk is calculated as the
18 standard deviation of the bank's daily stock returns for a year starting twenty-one days prior to the
19 announcement date. We also control for leverage using the ratio of total debt to common equity at year-
20 end preceding the deal announcement.
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29 The literature suggests that certain deal characteristics can have a significant influence on the
30 wealth effects of M&As on acquiring banks. One of the main issues with regard to M&A activity in the
31 US is the acquirers' choice to expand their activities across state lines or within a state. Interstate deals
32 allow banks to mitigate risks as they can minimize state exposure and create new sources of revenue.
33 However, geographic expansion may entail significant risks due to information asymmetry and
34 differences in culture, business practices and regulation. Intrastate transactions provide the opportunity
35 to enjoy cost savings derived from operational synergies, overlapping branches and better market
36 awareness. Gupta and Misra (2007) and DeLong (2001) find a significant negative effect of interstate
37 transactions on acquiring bank excess returns, while Doukas and Zhang (2013) come to the opposite
38 conclusion. Leledakis et al. (2017) do not find any empirical support for the notion that interstate or
39 intrastate deals affect bidder returns. Therefore, to control for potential effects of geographic focus, we
40 include in Eq. 4 a dummy variable that is assigned a value of 1 for intrastate acquisitions and 0 for
41 interstate ones.
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56 Another important parameter in M&As is the decision of acquirers to diversify across different
57 products or to specialize. Banks can mitigate risks and gain economies of scope through product
58 diversification. However, diversified banks may suffer from increased costs as diversification enhances
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3 the ability of managers to extract private benefits instead of creating shareholder value. DeLong (2001)
4 shows that acquiring banks destroy value in diversified deals, while Hagendorff et al. (2008) indicate
5 the opposite. Doukas and Zhang (2013) find no significant effect of activity focus or diversification on
6 bidder returns. Hankir et al. (2011) suggest a significant positive relationship between focused
7 transactions and the returns of acquirers in deals driven by the market power hypothesis. Therefore, to
8 control for potential effects of activity focus, we use a dummy variable that is assigned a value of 1 for
9 focused deals (i.e., bidder and target share the same 2-digit Standard Industrial Classification code) and
10 0 for diversified ones.
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20 A further factor that may affect the economic impact of mergers on acquiring banks is the listing
21 status of targets. Deals involving private targets create value-enhancing opportunities to acquirers
22 derived from the exploitation of information that is not available to the public. However, the uncertain
23 valuation of target firms complicates the assessment of their fair value and thus the premium offered by
24 acquirers. Leledakis et al. (2017), Barbopoulos and Wilson (2016) and Gupta and Misra (2010) confirm
25 the presence of a “listing effect” in bank mergers, since they find that acquirers of unlisted targets gain
26 more than acquirers of listed targets. Hence, to control for the listing status of targets, we use a dummy
27 variable that is assigned a value of 1 if the target is listed and 0 otherwise.
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37 The method of payment is another important deal characteristic that contributes towards
38 explaining bidders’ announcement period returns. The use of stock as a means of payment in M&As
39 signals overvaluation of bidder’s stock, which in turn results in a negative market reaction upon merger
40 announcement (Eckbo et al., 1990; Travlos, 1987). DeLong (2001), Brewer and Jagtiani (2013) and
41 Doukas and Zhang (2013) suggest that the payment method does not have a significant impact on wealth
42 gains for acquirers. Leledakis et al. (2017) find that bidders realize insignificant results in cash offers,
43 while they experience significant negative returns for mergers financed with any type of stock. Gupta
44 and Misra (2007) report a significant negative effect of stock payment on value-reducing deals.
45 Therefore, to control for the potential effects of the method of payment, we include in Eq. 4 a dummy
46 variable that is assigned a value of 1 for cash-only deals and 0 otherwise.
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58 We also include in our analysis a variable to measure financial development and market
59 performance at the national level. Firms are expected to gain more value and to have more resources
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3 when the stock market rises (Ellis et al., 2011). In addition, financial development has a positive impact
4 on the effectiveness of governance measures at the firm level (Doidge et al., 2007). Therefore, to control
5 for the country's financial development, we use the ratio of stock market capitalization to GDP at year-
6 end preceding the deal announcement.
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11 Finally, we control for governance at the national level by considering its effects on firm-level
12 governance mechanisms (Doidge et al., 2007). A country's corporate governance landscape is
13 determined to a great extent by the political, legal and regulatory frameworks; the ability of the
14 government to implement sound policies; and the enforceability of laws, procedures and contracts.
15 Following Ellis et al. (2011) and Beltratti and Paladino (2013), we use the Worldwide Governance
16 Indicators (WGI) published by the World Bank as a measure of country governance. The WGI include
17 estimates of six dimensions of governance: (1) voice and accountability; (2) political stability and
18 absence of violence; (3) government effectiveness; (4) regulatory quality; (5) rule of law; (6) control of
19 corruption. Therefore, to control for the effect of governance at the national level, we construct a
20 governance variable by calculating the arithmetic mean of all six dimensions of governance.
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[Table 2 here]

39 **3. Results**

40 41 42 43 *3.1 Event study results*

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46 The following paragraphs present and discuss the results from the event study analysis of the economic
47 impact of M&A announcements on acquiring banks with regard to the presence of women on BoDs.
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52 *3.1.1 Announcement returns*

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55 To investigate the effect of gender diversity on acquiring banks' gains, we split the sample into two
56 sub-groups, namely, one with female directors and one without. We compare the abnormal returns for
57 banks with and without female directors, since the presence of even one woman on the board can affect
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3 corporate strategic decisions on M&As (Chen et al., 2016). Table 3 reports the cumulative abnormal
4 returns (CARs) with respect to the female board directorship over the entire sample period (2003-2018),
5 while Tables, 4, 5 and 6 report the returns in the period prior to (2003-2006), during (2007-2011) and
6 after the banking crisis (2012-2018), respectively. We determine the banking crisis period according to
7 Laeven and Valencia (2018) and the Federal Reserve Bank of St. Louis¹². During the entire sample
8 period, the results show statistically significant and negative or not statistically significant excess
9 returns for acquiring banks with one or more women on the board and mainly not statistically significant
10 returns for banks without women on the board. Panel C of Table 3 shows that the mean differences
11 between the two sub-groups are significant over a few event windows around and before the
12 announcement day. Indeed, the division of the sample period into three sub-periods offers useful
13 insights for the acquiring banks' gains with reference to the number of women on the board. Consistent
14 with previous studies (e.g., DeYoung et al., 2009; Dunn et al., 2015), Table 4 provides evidence that
15 merger announcements are negative events for acquiring banks before the banking crisis. Banks with
16 one or more women on the board exhibit negative and statistically significant CARs across all event
17 windows, while the excess returns for banks without women on the board are negative and significant
18 in most cases. Panel C of Table 4 shows statistically insignificant differences between the mean CARs
19 for banks with and without female directors. With regard to the banking crisis period, Table 5 shows
20 mainly negative and statistically significant excess returns for banks with at least one woman on the
21 board and mainly statistically equivalent to zero returns for banks without women on the board. Panel
22 C of Table 5 does not confirm any value discrepancies between the two sub-groups, since the mean
23 differences are not significantly different from zero. The pattern of excess returns changes dramatically
24 after the banking crisis, indicating that M&As are value-enhancing events for all acquirers. Table 6
25 shows that banks with one or more women on the board present slightly positive (up to 0.6%) and
26 statistically significant abnormal returns (at the 5% level) in short event windows around the
27 announcement day, while banks without women on the board show much higher returns, varying from
28 1.48% to 2.69%, which are statistically significant (at the 1% level) across all event windows. Panel C
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¹² <https://www.stlouisfed.org/financial-crisis/full-timeline>.

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3 of Table 6 confirms that banks without female directors create more shareholder value compared to
4 banks with at least one female director. The mean CAR differences between the two sub-groups are
5 negative and significantly different from zero in almost all event windows. In summary, the results of
6 the univariate analysis confirm that, after the banking crisis, the acquirers' gains are negatively affected
7 by the presence of women on boards. This suggest that banks with male directors are able to create
8 more value for their shareholders through M&A transactions.
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18 [Tables 3, 4, 5 & 6 here]
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22 We also examine if the relationship between the number of female directors and acquiring banks' gains
23 could be U-shaped. According to tokenism/critical mass theory, members of a minority (female
24 directors) within a group (a board) are labelled "tokens" when there is only a marginal number of them
25 present (Kanter, 1977; Dahlerup, 1988; Childs and Krook, 2008). In such a case, women on BoDs are
26 treated as symbols of their gender rather than individuals, which discourages them from being active in
27 board meetings (i.e. asking questions, requesting more information, expressing their opinions, taking
28 initiatives). Once the minority group reaches a certain threshold or a critical mass, which is three in
29 number or around 30% of the group, female directors are enabled to play their role (Torchia et al., 2011;
30 Joecks et al., 2015). This changes qualitatively the interactions between minority-majority groups,
31 boards become more heterogeneous and optimize their performance in both monitoring and strategic
32 planning (Konrad et al., 2008; Schwartz-Ziv, 2017; Fan et al., 2019). Therefore, we construct a sub-
33 group of acquiring banks with at least three women on BoDs and compare the CARs with two different
34 sub-groups, one with banks having one or two female directors and the other with banks without female
35 directors. The mean differences between banks with at least three women on BoDs and banks having
36 one or two female directors are not statistically significant, while the mean differences between banks
37 with at least three women on BoDs and banks without female directors are statistically significant. Our
38 results fail to provide supporting evidence for tokenism/critical mass theory, thus confirming that banks
39 with male-dominated boards are more able to undertake value-enhancing M&As.
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3.2 Cross-sectional analysis of acquiring banks' gains

Given that gender diversity makes a difference only after the crisis, we proceed to explore the cross section of acquirers' gains in the 2012-2018 period. To enhance the robustness of the results, we: (a) winsorize at the 1% and 99% levels to reduce the effect of possibly spurious outliers; (b) measure the severity of multicollinearity using the variance inflation factors (VIFs); (c) run the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity (Breusch and Pagan, 1979; Cook and Weisberg, 1983).

Table 7 reports the estimates of the selected proxies for gender diversity as well as many other control variables that are likely to affect acquiring banks' announcement period excess returns. We use the 3-day event window (-1,1) to compare our results with those of the literature. We apply simple OLS with and without year fixed effects, as the Breusch-Pagan/Cook-Weisberg test does not indicate the presence of heteroskedasticity (except model 4). Gender diversity is found to have a significant negative effect on acquirers' CARs. This implies that, while gender diversity increases board effort that is invested in monitoring (Adams and Ferreira, 2009), it nevertheless bears a negative impact on corporate performance in cases where excessive monitoring (due to diversity) may hamper the implementation of strategic decisions and therefore destroy value. The negative impact of gender diversity on shareholder wealth implies that regulatory reform in corporate governance need not be gender-based and that agency conflicts may be better resolved via other contractual arrangements, such as managerial ownership (e.g., Carter et al., 2010). Table 7 shows that most control variables do not significantly explain the variation of acquirers' abnormal returns, except for the listing status of target companies and the profitability of bidding banks. Listed targets are associated with negative announcement abnormal returns for acquiring banks. Our findings corroborate the results of prior studies on the existence of a "listing effect" in bank M&As in the US (Barbopoulos and Wilson, 2016; Gupta and Misra, 2010; Leledakis et al., 2017). Bidders can realize positive returns acquiring unlisted firms to the extent that they are sold at a discount because they are less transparent, less protective of their investors and less exposed to price-setting market processes compared to their listed counterparts (Faccio et al., 2006; Fuller et al., 2002; Officer,

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3 2017). The results also indicate profitability as a significant determinant of acquirers' excess returns.
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5 The market may have concluded that more profitable banks have more resources available to exploit
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7 synergies arising from the merger (Beltratti & Paladino, 2013; Hagendorff et al., 2008; Hankir et al.,
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9 2011).
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18 **4. Robustness Analysis** 19

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22 In this section, we run a variety of robustness tests on our main findings.
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26 *4.1 Addressing heteroskedasticity* 27 28 29

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31 Given that the Breusch-Pagan/Cook-Weisberg test is designed to detect any linear form of
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33 heteroskedasticity, we use the Huber-White robust standard errors to address concerns of any other non-
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35 linear and unknown forms of heteroskedasticity. Table 8 reports the estimated coefficient values with
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37 heteroskedasticity-consistent standard errors. All proxies of gender diversity retain their negative and
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39 significant effect on acquiring banks' shareholder wealth, suggesting that the presence of female
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41 directors on BoDs is not a determinant of value creation in M&As. With respect to the control variables,
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43 the estimation with robust standard errors does not change our results, except for ROE, which now fails
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45 to significantly explain the cross section of CARs.
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54 *4.2 Endogeneity correction* 55 56 57 58 59 60

The corporate finance literature raises a major econometric issue with regard to the potential endogeneity of gender diversity (Adams, 2016). The appointment of female directors may not be random and can be endogenously determined. In such a case, the estimated coefficients are biased and inconsistent; thus, no statistical inferences can be drawn. To address endogeneity concerns, we employ an instrumental variable approach using a two-stage least squares (2SLS) method with year dummies. We follow Baixauli-Soler et al. (2015), Ho et al. (2015) and Huang and Kisgen (2013), adopting a state-level gender equality index as the instrumental variable. In this study, we use the 2019 Gender Equality Score (GES) for the US states provided by Bloomberg instead of Sugarman and Straus's (1988) indicators of gender equality for the US states due to the time lag between the latter and the sample of M&As¹³. The GES varies from 0 to 100; the higher the score, the more gender equal a state is. We conjecture that the more gender-equal a state is, the more likely that bank is to appoint a female director. This state-level variable is considered a suitable instrument, since it is uncorrelated with the firm-specific characteristics and has no causal relationship with the excess returns of acquirers. We estimate a 2SLS model where the first stage is shown in Eq. 6:

$$GD_i = a + \beta_i GES_i + \sum_{j=1}^m \lambda_j X_{ij} + \varepsilon_i \quad i = 1 \dots N \quad (6)$$

where the GD_i is a proxy for gender diversity, GES_i is the state-level gender equality score and X is a set of control variables. The fitted value of each proxy from the first-stage regression is used in the second-stage, which examines the effect of gender diversity on acquirers' excess returns.

[Table 9 here]

Table 9 reports the estimation of the first-stage and second-stage of 2SLS regressions. The estimated coefficients of the instrumental variable (GES) in the first-stage regressions for the three models in

¹³ In untabulated results, we use the state-level gender equality index proposed by Sugarman and Straus (1988) as an alternative exogenous instrument. Our main findings remain unaltered.

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3 which the gender diversity proxies are (a) the Blau Index; (b) the number of women on BoDs; (c) the
4 percentage of women on BoDs are significant at the 1% level, suggesting a strong relationship between
5 state-level gender equality and the presence of women on the board. Moreover, the robust F -statistic is
6 higher than the rule of thumb threshold of 10 implied by Stock and Yogo (2005), indicating that our
7 instrument is correlated with each predictor, and the Minimum Eigenvalue statistic is higher than the
8 Stock-Yogo critical value (at 10%), indicating that this correlation is not weak¹⁴. Furthermore, the
9 significant values of robust score Chi^2 and the robust regression F -statistic (Wooldridge, 1995) indicate
10 that the variables being tested must be treated as endogenous. Therefore, the 2SLS regression results
11 support our main findings and confirm that, after addressing endogeneity, the effect of gender diversity
12 on the wealth effects of M&As is significantly negative. Our 2SLS approach only produced different
13 results on some control variables. ROE is no longer significant, whereas board size, firm size and firm
14 risk emerge as significant determinants of CARs in bank M&As.

31 4.3 Other robustness checks

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34 We further investigate the validity of our results by using the market model to estimate the
35 announcement period abnormal returns using the S&P500 as market index. We also use alternative
36 proxies for bank profitability, risk profile, size, growth opportunities and leverage. We control for
37 profitability as proxied by return on assets (Hagendorff and Nieto, 2015; Leledakis et al., 2017). We
38 control for market risk sensitivity as proxied by market model beta¹⁵ (Bozos et al., 2013; Dunn et al.,
39 2015). We include bank size to control for bank complexity using the natural logarithm of total assets
40 (DeLong & DeYoung, 2007). We control for growth opportunities and charter value as proxied by
41 Tobin's Q (Adams and Mehran, 2012; Berger et al., 2014). We also control for leverage using the ratio
42 of total debt to total assets (Wang et al., 2010). Panel A and Panel B of Table 10 report the results with
43 robust standard errors and with year dummies of OLS regressions and the second-stage 2SLS
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57 ¹⁴ With regard to the dummy variable as a proxy for gender diversity, the statistics indicate that we cannot entirely
58 rule out weak instrument issues.

59 ¹⁵ Market model beta is estimated using daily returns over a year starting twenty-one days prior to the merger
60 announcement.

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3 regressions, respectively. Once again, our findings on gender diversity remain unaffected as the
4 estimated coefficients exhibit the significance patterns of the initial specifications. With respect to the
5 control variables, firm risk becomes insignificant when measured with beta, which implies that market
6 participants are more concerned with total rather than systematic risk. Interestingly, when firm size is
7 measured with the value of total assets (instead of market capitalization), its significance holds only in
8 the OLS specification, but it becomes insignificant in the 2SLS model.
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18 [Table 10 here]
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22 **5. Conclusion**

23 The effect of gender diversity on firm value has spawned an ongoing and often contentious CG debate.
24 In this paper, we use a hand-collected dataset on 1130 M&A deals announced by US banks during the
25 2003-2018 period to explore the effect of female directorship on shareholder wealth. We find that banks
26 with at least one woman on the BoDs experience lower announcement abnormal returns than banks
27 with male directors only after the banking crisis. Our results are robust to the choice of proxies for
28 gender diversity, heteroskedasticity, endogeneity and alternative control variables. These empirical
29 findings can have important implications for investors, bankers, regulators and policy makers. The
30 promotion of greater female participation on BoDs should be done with caution, and market participants
31 should consider the potential adverse effects of gender diversity as a CG mechanism.
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43 The limitations of our study should be acknowledged. First, qualitative research should employ
44 interviews with bank directors of both genders to better assess the effect of gender on strategic decision-
45 making in banks. Moreover, the effect of board gender diversity should be investigated in other business
46 sectors beyond banks and in countries with different CG frameworks. Extending the analysis to a
47 broader range of businesses and a stakeholder-based system, future studies could also assess whether
48 the effect of gender diversity is related to the banking sector and/or the market-based system.
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3 **Data availability statement:** The data that support the findings of this study are available from the
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5 corresponding author upon reasonable request.
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For Peer Review

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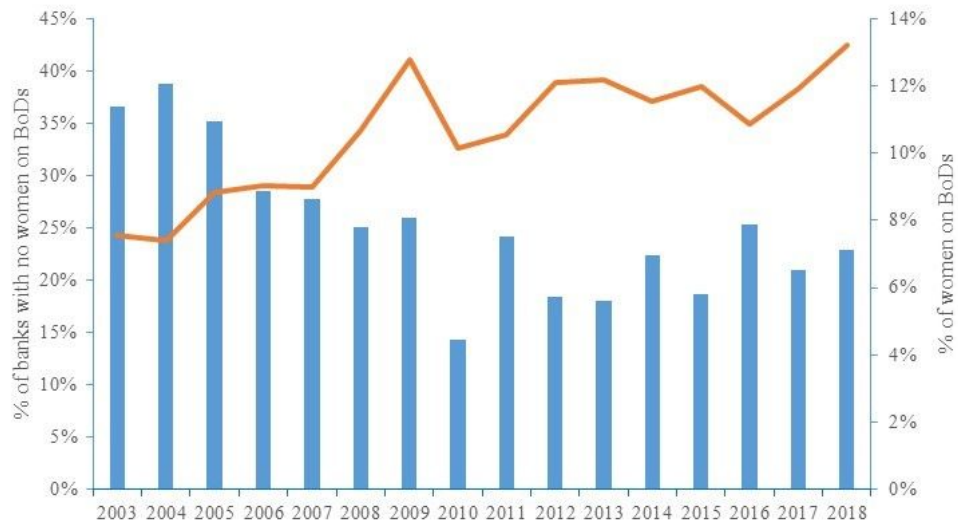
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51 52 53 54 55 56 57 58 59 60 **Tables and figures**

Table 1 Annual M&A activity by target firm’s state, industry, listing status and method of payment

Year	ALL	INTRA	INTER	FOC	DIV	LISTED	UNLISTED	CASH	STOCK	COMBO	DV	MV	CAR
2003	93	56	37	76	17	46	47	21	14	23	723.3	3178.6	-0.38%
2004	116	72	44	99	17	62	54	29	20	27	451.7	5034.1	-0.72%
2005	105	63	42	77	28	41	64	24	15	34	288.7	3857.6	-0.59%
2006	91	43	48	60	31	47	44	27	13	27	906.8	6453.5	-0.74%
2007	83	48	35	59	24	42	41	13	11	29	542.8	7785.1	-0.71%
2008	32	20	12	29	3	20	12	4	10	9	2408.7	21139.5	-1.73%
2009	27	19	8	18	9	15	12	6	11	4	323.3	3509.6	1.54%
2010	28	19	9	25	3	18	10	9	8	4	263.9	3365.3	-2.44%
2011	29	16	13	24	5	16	13	3	6	9	644.2	8089.7	-2.60%
2012	49	23	26	40	9	21	28	12	11	17	334.6	2919.0	-0.59%
2013	72	37	35	65	7	36	36	16	9	28	184.0	3108.8	1.08%
2014	94	51	43	86	8	48	46	17	27	26	123.8	1334.4	0.78%
2015	102	57	45	84	18	45	57	26	21	33	210.9	1936.7	0.12%
2016	75	43	32	61	14	39	36	12	14	31	216.5	1681.0	0.26%
2017	86	51	35	80	6	45	41	12	39	26	244.9	1248.8	0.05%
2018	48	25	23	35	13	19	29	12	14	19	225.0	2068.1	0.21%
Total	1130	643	487	918	212	560	570	243	243	346	-	-	-
% of all	-	57%	43%	81%	19%	50%	50%	22%	22%	31%	-	-	-
Average	-	-	-	-	-	-	-	-	-	-	505.8	4794.4	-0.41%

The table presents the annual distribution of M&As announced by US banks between 01/01/2003 and 31/12/2018. The sample of M&A deals is distributed according to the target’s state (intrastate and interstate), industry classification of bidders and targets (focused and diversified), target’s listing status (listed and unlisted), method of payment (cash, stock and combination of cash and stock), annual average deal value (DV), annual average acquirer size measured by its market capitalization twenty-one days prior to the M&A announcement, and annual average announcement period cumulative abnormal returns (CARs) as estimated using the four-factor model (Eq. 1) for acquiring banks.

Figure 1 Percentage of banks with no women on BoDs and percentage of women on BoDs

This figure plots the percentage of banks with no women on BoDs (left axis) and the percentage of women on BoDs considering the banks with female directorship (right axis) between 01/01/2003 and 31/12/2018.

Table 2 Summary statistics

	Unit	Definition	N	Mean	Q1	Median	Q3	Std. Dev.
Panel A. Gender Diversity Variables								
		$\left[1 - \sum_{g=1}^G P_g^2 \right] \times 100$						
Blau Index	Index	where P is the proportion of men and women on BoDs and g denotes gender at year-end preceding the deal announcement	1130	16.917	0	16.529	26.036	12.776
Percentage of Women on Board	%	Percent share of BoDs that is comprised of women at year-end preceding the deal announcement	1130	10.254	0	9.091	15.385	8.632
Number of Women on Board	N	Number of women on BoDs at year-end preceding the deal announcement	1130	1.248	0	1	2	1.053
Boards with at least 1 Woman	1/0	Dummy variable that is assigned a value of 1 if the BoDs consist of at least one woman and 0 otherwise at year-end preceding the deal announcement	1130	0.734	0	1	1	0.442
Panel B. Firm-level Characteristics								
Board Size	Natural Logarithm	Natural logarithm of the total number of directors at year-end preceding the deal announcement	1130	2.433	2.197	2.398	2.639	0.278
Market Capitalization	Natural Logarithm	Natural logarithm of acquirers' market capitalization twenty-one days prior to the announcement date	1130	6.482	5.393	6.381	7.418	1.586
Market-to-Book	Ratio	Acquirers' market to book ratio twenty-one days prior to the announcement date	1130	1.528	1.150	1.420	1.820	0.545
Return on Equity	%	Acquirers' return on equity ratio at year-end preceding the deal announcement	1130	10.314	7.333	9.860	13.628	5.395
Standard Deviation (%)	%	Standard Deviation of acquirers' stock returns for a year period (250 trading days) starting twenty-one days prior to the announcement date	1130	1.727	1.326	1.552	1.891	0.741
Total Debt to Common Equity	Ratio	Acquirers' ratio of total debt to common equity at year-end preceding the deal announcement	1130	1.354	0.587	1.029	1.797	1.134
Panel C. Deal-related Variables								
Deal Value	Natural Logarithm	Natural logarithm of the deal value	1130	4.294	3.261	4.155	5.126	1.495
Relative Deal Size	%	Ratio of deal value to acquirers' market capitalization twenty-one days prior to the announcement date	1130	24.810	4.917	11.308	27.047	42.209
Geographic Focus	1/0	Dummy variable that is assigned a value of 1 for intrastate acquisitions and 0 for interstate ones	1130	0.569	0	1	1	0.495

Activity Focus	1/0	Dummy variable that is assigned a value of 1 for focused deals (i.e., bidder and target share the same 2-digit Standard Industrial Classification code) and 0 for diversified ones	1130	0.812	1	1	1	0.391
Listed Target	1/0	Dummy variable that is assigned a value of 1 if the target is listed and 0 otherwise	1130	0.294	0	0	1	0.456
Cash Deals	1/0	Dummy variable that is assigned a value of 1 for cash-only deals and 0 otherwise	1130	0.215	0	0	0	0.411
<u>Panel D. Financial & Government Environment</u>								
Financial Development	%	Ratio of stock market capitalization to GDP at year-end preceding the deal announcement	1130	126.36	110.69	128.39	141.29	15.12
Governance	Index	Arithmetic mean of all dimensions of governance included at the Worldwide Governance Indicator: (1) voice and accountability; (2) political stability and absence of violence; (3) government effectiveness; (4) regulatory quality; (5) rule of law; (6) control of corruption	1130	1.277	1.244	1.261	1.297	0.047

The table defines the variables used in the empirical analysis. All variables are winsorized at the 1% and 99% levels.

Table 3 Acquirers' gains with regard to the number of women on BoDs across the entire sample period (2003-2018)

	Panel A: One or more women on board (N = 829)						Panel B: Without women on board (N = 301)						Panel C: Test for differences			
	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	t-test	MWU
Pre-announcement																
(-20...0)	-0.47 ^b	-0.80 ^c	7.08	44	-2.246	-1.790	-0.05	-0.51	7.62	45	-0.171	-0.265	-0.42	-0.29	-0.858	-0.994
(-5...0)	-0.54 ^a	-0.45 ^a	4.16	42	-4.343	-2.620	0.54 ^c	0.13 ^b	5.30	52	1.815	2.192	-1.07 ^a	-0.58 ^a	-3.173	-3.508
Announcement																
(-20...20)	-0.08	-0.26	9.94	49	-0.159	-0.124	-0.68	-0.82	11.15	46	-1.108	-1.607	0.61	0.56	0.878	-0.622
(-5...5)	-0.11	-0.19	5.88	49	-0.977	0.528	0.67	-0.14	6.69	48	1.438	1.510	-0.77 ^c	-0.05	-1.876	-1.095
(-3...3)	-0.12	-0.24	5.01	47	-1.392	0.584	0.53	0.05 ^b	6.11	50	1.359	2.123	-0.65 ^c	-0.28	-1.657	-1.578
(-1...1)	-0.32 ^a	-0.18	4.12	47	-3.248	-0.806	-0.10	-0.32	5.60	45	-0.155	0.039	-0.22	0.13	-0.612	-0.047
Post-announcement																
(0...20)	-0.07	-0.34	7.16	47	-0.347	0.510	-0.52	-0.45 ^c	9.05	45	-0.819	-1.662	0.44	0.11	0.766	-0.348
(0...5)	-0.04	-0.11	5.33	49	-0.738	1.264	0.24	-0.16	6.18	49	0.669	0.446	-0.28	0.04	-0.699	-0.284

This table reports the cumulative abnormal returns (CARs) upon M&A announcements during the period 2003-2018. Panels A and B present the mean and median CARs, standard deviation, percentage of firms with positive CARs and *t*-statistics of BMP and Corrado tests for banks with one or more women on board (N = 829) and for banks without women on board (N = 301), respectively. Panel C reports the mean and median differences of CARs between banks with one or more women on board and banks without women on board. The statistical significance of the differences between the means and the medians of the two samples are tested using the *t*-test of equality of means and the Mann-Whitney U test, respectively. The superscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

Table 4 Acquirers' gains with regard to the number of women on BoDs before the banking crisis (2003-2006)

	Panel A: One or more women on board (N = 263)						Panel B: Without women on board (N = 142)						Panel C: Test for differences			
	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	t-test	MWU
Pre-announcement																
(-20...0)	-0.36 ^c	-1.27	5.95	42	-1.737	-1.560	-0.79 ^c	-1.48	5.75	38	-1.799	-1.387	0.43	0.21	-0.701	-0.463
(-5...0)	-0.48 ^a	-0.66 ^a	3.49	40	-3.398	-3.154	0.02	-0.09	3.33	49	-0.105	0.568	-0.50	-0.56 ^c	1.407	-1.837
Announcement																
(-20...20)	-0.68 ^c	-1.02	7.88	46	-1.903	-1.625	-1.78 ^a	-1.75 ^a	7.24	40	-3.263	-2.671	1.09	0.72	-1.371	-1.148
(-5...5)	-0.56 ^a	-0.57 ^a	4.59	43	-3.068	-2.948	-0.30	-0.23	4.15	45	-1.494	-0.484	-0.26	-0.34	0.552	-0.941
(-3...3)	-0.68 ^a	-0.73 ^a	4.07	40	-3.535	-3.135	-0.33	-0.47	3.94	42	-1.495	-0.626	-0.35	-0.26	0.824	-1.210
(-1...1)	-0.55 ^a	-0.45 ^a	3.20	41	-3.527	-3.594	-0.73 ^a	-0.50 ^c	3.20	37	-2.793	-1.929	0.18	0.05	-0.534	-0.094
Post-announcement																
(0...20)	-0.76 ^b	-0.96 ^c	5.68	41	-2.417	-1.680	-1.29 ^a	-0.75 ^b	5.43	39	-3.097	-2.557	0.54	-0.21	-0.920	-0.574
(0...5)	-0.51 ^a	-0.91 ^a	4.14	41	-2.772	-2.652	-0.63 ^b	-0.43	3.79	45	-2.311	-1.620	0.12	-0.49	-0.286	-0.510

This table reports the cumulative abnormal returns (CARs) upon M&A announcements during the period 2003-2006. Panels A and B present the mean and median CARs, standard deviation, percentage of firms with positive CARs and *t*-statistics of BMP and Corrado tests for banks with one or more women on board (N = 263) and for banks without women on board (N = 142), respectively. Panel C reports the mean and median differences of CARs between banks with one or more women on board and banks without women on board. The statistical significance of the differences between the means and the medians of the two samples are tested using the *t*-test of equality of means and the Mann-Whitney U test, respectively. The superscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

Table 5 Acquirers' gains with regard to the number of women on BoDs during the banking crisis (2007-2011)

	Panel A: One or more women on board (N = 150)						Panel B: Without women on board (N = 49)						Panel C: Test for differences			
	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	t-test	MWU
Pre-announcement																
(-20...0)	-0.76	-1.10	11.26	43	-0.848	-1.224	-1.62	-1.19	11.97	37	-1.296	-0.841	0.86	0.09	-0.459	-0.314
(-5...0)	-1.12 ^b	-1.01 ^c	6.48	41	-2.378	-1.700	-0.69	-0.45	9.24	43	-0.646	0.460	-0.44	-0.56	0.365	-0.449
Announcement																
(-20...20)	-0.19	-1.52	15.78	44	0.242	-0.563	-3.95 ^c	-2.92 ^c	19.40	41	-1.937	-1.928	3.76	1.39	-1.364	-0.951
(-5...5)	-1.23 ^b	-1.47	9.40	40	-2.010	-1.359	-1.07	-1.69	9.94	33	-0.924	-0.513	-0.16	0.22	0.102	-0.234
(-3...3)	-1.06 ^b	-1.73 ^c	7.83	37	-2.563	-1.863	-0.81	-1.17	9.09	41	-0.750	0.220	-0.25	-0.57	0.188	-0.497
(-1...1)	-0.84 ^a	-0.79 ^c	6.85	37	-2.581	-1.671	-1.84	-1.69	9.06	35	-1.512	-0.717	1.00	0.90	-0.815	-0.729
Post-announcement																
(0...20)	-0.30	-0.70	10.92	43	-0.152	-0.429	-3.04 ^c	-1.46 ^c	15.36	39	-1.738	-1.715	2.74	0.76	-1.371	-0.494
(0...5)	-0.97 ^b	-1.01 ^c	8.52	40	-2.301	-1.763	-1.10	-1.67	8.96	39	-0.788	-0.897	0.12	0.66	-0.088	-0.114

This table reports the cumulative abnormal returns (CARs) upon M&A announcements during the period 2007-2011. Panels A and B present the mean and median CARs, standard deviation, percentage of firms with positive CARs and *t*-statistics of BMP and Corrado tests for banks with one or more women on board (N = 150) and for banks without women on board (N = 49), respectively. Panel C reports the mean and median differences of CARs between banks with one or more women on board and banks without women on board. The statistical significance of the differences between the means and the medians of the two samples are tested using the *t*-test of equality of means and the Mann-Whitney U test, respectively. The superscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

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Table 6 Acquirers' gains with regard to the number of women on BoDs after the banking crisis (2012-2018)

	Panel A: One or more women on board (N = 416)						Panel B: Without women on board (N = 110)						Panel C: Test for differences			
	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	t-test	MWU
Pre-announcement																
(-20...0)	-0.44	-0.56	5.67	46	-1.387	-0.686	1.59 ^a	0.81 ^c	7.04	57	2.831	1.800	-2.03 ^a	-1.37 ^a	-2.798	-2.872
(-5...0)	-0.36 ^b	-0.17	3.40	45	-2.162	-0.399	1.74 ^a	0.91 ^b	4.78	62	3.764	2.572	-2.10 ^a	-1.09 ^a	-4.330	-3.913
Announcement																
(-20...20)	0.35	0.49	8.26	52	0.939	1.338	2.18 ^a	1.46 ^c	9.70	55	3.150	1.893	-1.83 ^c	-0.97	-1.816	-1.623
(-5...5)	0.59 ^b	0.51 ^a	4.80	56	2.158	3.654	2.69 ^a	1.89 ^a	7.11	59	4.034	3.380	-2.10 ^a	-1.38 ^b	-2.931	-2.463
(-3...3)	0.57 ^b	0.40 ^a	4.08	54	2.199	4.135	2.23 ^a	1.28 ^a	6.44	65	3.644	4.053	-1.67 ^b	-0.88 ^b	-2.582	-2.390
(-1...1)	0.01	0.18 ^b	3.22	54	-0.314	2.443	1.48 ^a	0.58 ^a	5.71	58	2.824	2.860	-1.46 ^b	-0.40 ^c	-2.583	-1.807
Post-announcement																
(0...20)	0.44	0.35 ^b	6.20	52	1.247	2.193	1.61 ^a	1.36	8.69	56	2.649	1.523	-1.17	-1.01	-1.327	-1.410
(0...5)	0.60 ^b	0.57 ^a	4.35	57	2.333	4.668	1.97 ^a	0.59 ^a	6.82	57	3.254	3.274	-1.37 ^b	-0.02	-2.002	-1.608

This table reports the cumulative abnormal returns (CARs) upon M&A announcements during the period 2012-2018. Panels A and B present the mean and median CARs, standard deviation, percentage of firms with positive CARs and *t*-statistics of BMP and Corrado tests for banks with one or more women on board (N = 416) and for banks without women on board (N = 110), respectively. Panel C reports the mean and median differences of CARs between banks with one or more women on board and banks without women on board. The statistical significance of the differences between the means and the medians of the two samples are tested using the *t*-test of equality of means and the Mann-Whitney U test, respectively. The superscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

Table 7 The effect of gender diversity on acquiring banks' returns after the banking crisis (2012-2018): A cross sectional analysis

	Blau Index (1)	Percentage of Women (2)	Number of Women (3)	One or more Women (4)	Blau Index (5)	Percentage of Women (6)	Number of Women (7)	One or more Women (8)
Gender Diversity proxy	-0.111 ^b (-2.49)	-0.104 ^b (-2.33)	-0.111 ^b (-2.31)	-0.130 ^b (-1.98)	-0.107 ^b (-2.40)	-0.101 ^b (-2.26)	-0.106 ^b (-2.21)	-0.123 ^a (-2.62)
Board Size	-0.066 (-1.45)	-0.070 (-1.56)	-0.041 (-0.87)	-0.034 (-0.72)	-0.066 (-1.45)	-0.071 (-1.56)	-0.043 (-0.90)	-0.036 (-0.75)
Market Capitalization	-0.072 (-0.91)	-0.074 (-0.93)	-0.074 (-0.93)	-0.074 (-1.15)	-0.051 (-0.63)	-0.053 (-0.65)	-0.053 (-0.66)	-0.054 (-0.67)
Market-to-Book	-0.009 (-0.17)	-0.008 (-0.15)	-0.010 (-0.19)	-0.016 (-0.21)	-0.010 (-0.19)	-0.009 (-0.17)	-0.011 (-0.21)	-0.017 (-0.32)
Return on Equity	0.139 ^a (3.05)	0.139 ^a (3.05)	0.140 ^a (3.08)	0.142 (1.46)	0.132 ^a (2.85)	0.132 ^a (2.85)	0.134 ^a (2.88)	0.135 ^a (2.92)
Standard Deviation	-0.041 (-0.89)	-0.039 (-0.84)	-0.040 (-0.86)	-0.049 (-0.84)	0.004 (0.07)	0.007 (0.12)	0.005 (0.10)	-0.005 (-0.09)
Total Debt to Common Equity	-0.085 ^c (-1.95)	-0.085 ^c (-1.95)	-0.083 ^c (-1.91)	-0.089 ^c (-1.66)	-0.080 ^c (-1.82)	-0.079 ^c (-1.81)	-0.078 ^c (-1.78)	-0.084 ^c (-1.93)
Deal Value	0.077 (0.95)	0.079 (0.97)	0.080 (0.98)	0.072 (0.95)	0.069 (0.84)	0.071 (0.86)	0.071 (0.86)	0.064 (0.77)
Relative Deal Size	-0.002 (-0.04)	-0.002 (-0.04)	-0.004 (-0.06)	0.002 (0.03)	0.010 (0.16)	0.010 (0.16)	0.009 (0.14)	0.014 (0.21)
Geographic Focus	0.024 (0.56)	0.024 (0.55)	0.021 (0.48)	0.027 (0.62)	0.024 (0.56)	0.024 (0.54)	0.021 (0.48)	0.027 (0.62)
Activity Focus	-0.023 (-0.53)	-0.022 (-0.50)	-0.022 (-0.49)	-0.025 (-0.66)	-0.020 (-0.44)	-0.019 (-0.42)	-0.018 (-0.40)	-0.022 (-0.49)
Listed Target	-0.231 ^a (-4.85)	-0.231 ^a (-4.84)	-0.232 ^a (-4.86)	-0.233 ^a (-4.35)	-0.230 ^a (-4.81)	-0.230 ^a (-4.80)	-0.231 ^a (-4.82)	-0.232 ^a (-4.86)
Cash Deals	-0.010 (-0.23)	-0.009 (-0.20)	-0.011 (-0.24)	-0.009 (-0.18)	-0.009 (-0.19)	-0.008 (-0.17)	-0.010 (-0.21)	-0.008 (-0.16)
Financial Development	-0.058 (-1.02)	-0.057 (-0.99)	-0.059 (-1.02)	-0.064 (-0.91)	0.038 (0.46)	0.041 (0.50)	0.037 (0.45)	0.027 (0.33)
Governance Index	-0.003 (-0.06)	-0.004 (-0.07)	-0.005 (-0.09)	-0.004 (-0.08)	0.035 (0.21)	0.037 (0.23)	0.031 (0.19)	0.022 (0.14)

Year Dummy	No	No	No	No	Yes	Yes	Yes	Yes
F-Stat	3.84 ^a	3.79 ^a	3.78 ^a	3.58 ^a	3.21 ^a	3.17 ^a	3.16 ^a	3.27 ^a
R ²	0.1016	0.1002	0.1001	0.1042	0.1075	0.1063	0.1060	0.1094
AdjR ²	0.0751	0.0738	0.0736	-	0.0740	0.0728	0.0724	0.0760
Mean VIF	1.67	1.66	1.69	1.68	3.18	3.18	3.20	3.20
Breusch-Pagan (χ^2)	0.68	0.16	0.11	4.43	0.31	0.02	0.00	(2.89)
Breusch-Pagan (<i>p</i> -value)	(0.40)	(0.68)	(0.74)	(0.04)	(0.58)	(0.89)	(0.99)	(0.09)
N	526	526	526	526	526	526	526	526

This table reports the results of the cross sectional OLS regression analysis for announcement period (3-days) excess returns of acquirers estimated using the four-factor model. Standardized betas are reported and *t*-statistics are presented in parentheses. We run the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity. In model 4, the results are estimated using OLS regression with the Huber-White robust standard errors, since the Breusch-Pagan χ^2 test indicates the presence of heteroskedasticity (*p*-value = 0.04). All variables are winsorized at the 1% and 99% levels. For more details with respect to the impact of each variable on acquirers' returns see Section 2.3 and for the definition of each variable see Table 2. The subscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

Table 8 The effect of gender diversity on acquiring banks' returns after the banking crisis (2012-2018): A cross sectional analysis with robust standard errors

	Blau Index (1)	Percentage of Women (2)	Number of Women (3)	One or more Women (4)	Blau Index (5)	Percentage of Women (6)	Number of Women (7)	One or more Women (8)
Gender Diversity proxy	-0.111 ^b (-2.15)	-0.104 ^b (-2.11)	-0.111 ^b (-2.13)	-0.130 ^b (-1.98)	-0.107 ^b (-2.05)	-0.101 ^b (-2.02)	-0.106 ^b (-2.01)	-0.123 ^c (-1.83)
Board Size	-0.066 (-1.50)	-0.070 (-1.61)	-0.041 (-0.91)	-0.034 (-0.72)	-0.066 (-1.50)	-0.071 (-1.61)	-0.043 (-0.95)	-0.036 (-0.76)
Market Capitalization	-0.072 (-1.12)	-0.074 (-1.14)	-0.074 (-1.15)	-0.074 (-1.15)	-0.051 (-0.79)	-0.053 (-0.81)	-0.053 (-0.82)	-0.054 (-0.83)
Market-to-Book	-0.009 (-0.12)	-0.008 (-0.11)	-0.010 (-0.13)	-0.016 (-0.21)	-0.010 (-0.13)	-0.009 (-0.12)	-0.011 (-0.15)	-0.017 (-0.23)
Return on Equity	0.139 (1.42)	0.139 (1.42)	0.140 (1.43)	0.142 (1.46)	0.132 (1.38)	0.132 (1.38)	0.134 (1.39)	0.135 (1.41)
Standard Deviation	-0.041 (-0.70)	-0.039 (-0.66)	-0.040 (-0.68)	-0.049 (-0.84)	0.004 (0.05)	0.007 (0.08)	0.005 (0.07)	-0.005 (-0.06)
Total Debt to Common Equity	-0.085 (-1.58)	-0.085 (-1.58)	-0.083 (-1.55)	-0.089 ^c (-1.66)	-0.080 (-1.45)	-0.079 (-1.44)	-0.078 (-1.42)	-0.084 (-1.53)
Deal Value	0.077 (1.02)	0.079 (1.03)	0.080 (1.04)	0.072 (0.95)	0.069 (0.85)	0.071 (0.87)	0.071 (0.87)	0.064 (0.79)
Relative Deal Size	-0.002 (-0.05)	-0.002 (-0.05)	-0.004 (-0.08)	0.002 (0.03)	0.010 (0.22)	0.010 (0.22)	0.009 (0.19)	0.014 (0.29)
Geographic Focus	0.024 (0.56)	0.024 (0.55)	0.021 (0.49)	0.027 (0.62)	0.024 (0.55)	0.024 (0.54)	0.021 (0.48)	0.027 (0.60)
Activity Focus	-0.023 (-0.62)	-0.022 (-0.59)	-0.022 (-0.57)	-0.025 (-0.66)	-0.020 (-0.53)	-0.019 (-0.50)	-0.018 (-0.48)	-0.022 (-0.58)
Listed Target	-0.231 ^a (-4.27)	-0.231 ^a (-4.26)	-0.232 ^a (-4.28)	-0.233 ^a (-4.35)	-0.230 ^a (-4.29)	-0.230 ^a (-4.28)	-0.231 ^a (-4.30)	-0.232 ^a (-4.36)
Cash Deals	-0.010 (-0.21)	-0.009 (-0.19)	-0.011 (-0.23)	-0.009 (-0.18)	-0.009 (-0.19)	-0.008 (-0.16)	-0.010 (-0.20)	-0.008 (-0.16)
Financial Development	-0.058 (-0.83)	-0.057 (-0.81)	-0.059 (-0.84)	-0.064 (-0.91)	0.038 (0.32)	0.041 (0.34)	0.037 (0.31)	0.027 (0.22)
Governance Index	-0.003 (-0.06)	-0.004 (-0.07)	-0.005 (-0.10)	-0.004 (-0.08)	0.035 (0.22)	0.037 (0.23)	0.031 (0.20)	0.022 (0.14)

Year Dummy	No	No	No	No	Yes	Yes	Yes	Yes
F-Stat	3.67 ^a	3.67 ^a	3.75 ^a	3.58 ^a	2.96 ^a	2.96 ^a	3.02 ^a	2.87 ^a
R ²	0.1016	0.1002	0.1001	0.1042	0.1075	0.1063	0.1060	0.1094
Mean VIF	1.67	1.66	1.69	1.68	3.18	3.18	3.20	3.20
N	526	526	526	526	526	526	526	526

This table reports the results of the cross sectional OLS regression analysis with robust standard errors for announcement period (3-days) excess returns of acquirers estimated using the four-factor model. Standardized betas are reported and *t*-statistics are presented in parentheses. The Huber-White robust standard errors are used to calculate *t*-statistics in all models. All variables are winsorized at the 1% and 99% levels. For more details with respect to the impact of each variable on acquirers' returns see Section 2.3 and for the definition of each variable see Table 2. The subscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

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Table 9 2SLS regression analysis for the effect of gender diversity on acquiring banks' returns

	Blau Index		Percentage of Women		Number of Women		One or more Women	
	First-Stage (1)	Second-Stage (2)	First-Stage (3)	Second-Stage (4)	First-Stage (5)	Second-Stage (6)	First-Stage (7)	Second-Stage (8)
Instrumented Gender Diversity proxy	-	-0.206 ^a (-2.68)	-	-0.305 ^a (-2.68)	-	-0.025 ^a (-2.74)	-	-0.136 ^b (-1.98)
Board Size	0.062 ^b (2.54)	-0.001 (-0.10)	0.028 ^c (1.68)	-0.005 (-0.59)	1.515 ^a (8.83)	0.024 (1.56)	0.583 ^a (7.93)	0.065 (1.60)
Market Capitalization	0.015 ^b (2.12)	0.001 (0.44)	0.010 ^b (2.02)	0.001 (0.43)	0.111 ^c (1.97)	0.001 (0.33)	0.035 (1.60)	0.003 (0.65)
Market-to-Book	0.024 (1.22)	0.003 (0.30)	0.019 (1.45)	0.004 (0.41)	0.165 (1.00)	0.002 (0.22)	-0.002 (-0.03)	-0.002 (-0.21)
Return on Equity	-0.067 (-0.56)	0.100 (1.20)	-0.047 (-0.60)	0.100 (1.18)	-0.270 (-0.32)	0.107 (1.28)	0.028 (0.06)	0.118 (1.25)
Standard Deviation	-3.718 ^a (-2.83)	-0.756 (-0.98)	-2.289 ^b (-2.51)	-0.689 (-0.90)	-29.199 ^a (-2.99)	-0.724 (-0.96)	-17.558 ^a (-3.74)	-2.375 (-1.55)
Total Debt to Common Equity	0.001 (0.09)	-0.004 (-0.89)	0.002 (0.24)	-0.003 (-0.79)	0.033 (0.45)	-0.003 (-0.74)	-0.014 (-0.50)	-0.006 (-1.14)
Deal Value	0.004 (0.51)	0.002 (0.89)	0.004 (0.71)	0.003 (1.00)	0.047 (0.78)	0.003 (1.03)	-0.006 (-0.27)	0.001 (0.20)
Relative Deal Size	-0.012 (-0.81)	0.000 (-0.07)	-0.008 (-0.87)	-0.001 (-0.11)	-0.133 (-1.11)	-0.001 (-0.24)	0.001 (0.02)	0.002 (0.22)
Geographic Focus	0.000 (0.00)	0.003 (0.80)	-0.001 (-0.08)	0.003 (0.75)	-0.067 (-0.76)	0.002 (0.40)	0.026 (0.77)	0.007 (1.09)
Activity Focus	-0.030 ^c (-1.89)	-0.010 (-1.64)	-0.020 ^c (-1.71)	-0.010 (-1.60)	-0.206 (-1.59)	-0.009 (-1.56)	-0.118 ^a (-2.76)	-0.020 (-1.63)
Listed Target	0.008 (0.56)	-0.018 ^a (-3.32)	0.007 (0.68)	-0.017 ^a (-3.12)	0.060 (0.52)	-0.018 ^a (-3.35)	0.013 (0.33)	-0.018 ^a (-2.63)
Cash Deals	0.023 (1.49)	0.003 (0.55)	0.019 ^c (1.76)	0.004 (0.73)	0.173 (1.44)	0.003 (0.49)	0.072 (1.60)	0.008 (0.99)
Financial Development	-0.001 (-1.14)	0.000 (-0.26)	0.000 (-0.87)	0.000 (-0.17)	-0.007 (-1.35)	0.000 (-0.33)	-0.005 ^b (-2.25)	-0.001 (-1.06)
Governance Index	0.772 (0.53)	0.239 (0.49)	0.691 (0.67)	0.291 (0.59)	3.742 (0.33)	0.174 (0.37)	-0.562 (-0.13)	0.004 (0.01)

GES	0.002 ^a (5.17)	-	0.001 ^a (5.15)	-	0.013 ^a (5.65)	-	0.002 ^b (2.51)	-
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Stat	7.34 ^a	-	6.39 ^a	-	13.11 ^a	-	7.63 ^a	-
R ²	0.1598	-	0.1511	-	0.2733	-	0.2143	-
Predicted Power of Excluded Instrument								
Partial-R ²	0.0465	-	0.044	-	0.051	-	0.012	-
Robust F	26.899 ^a	-	26.663 ^a	-	32.150 ^a	-	6.345 ^b	-
Minimum Eigenvalue	24.697	-	23.316	-	27.344	-	6.197	-
Stock & Yogo critical value (10%)	16.38	-	16.38	-	16.38	-	5.53 (25%)	-
Endogeneity Model Diagnostics								
Wald-Chi ²	-	50.61 ^a	-	49.58 ^a	-	52.27 ^a	-	28.38 ^c
Robust score Chi ²	-	7.606 ^a	-	7.776 ^a	-	7.741 ^a	-	8.661 ^a
Robust Regression F	-	7.855 ^a	-	8.010 ^a	-	7.982 ^a	-	8.946 ^a
N	526	526	526	526	526	526	526	526

This table reports the results of the cross sectional 2SLS regression analysis using the 2019 Gender Equality Score (GES) for the US states provided by Bloomberg as exogenous instrument for the proxies of gender diversity. Year dummies are included but not reported. The dependent variable in the first-stage of 2SLS is a proxy for gender diversity. The dependent variable in the second-stage of 2SLS is the announcement period (3-days) excess returns of acquirers estimated using the four-factor model. The Huber-White robust standard errors are used to calculate *t*-statistics for the first-stage and *z*-statistics for the second-stage. All variables are winsorized at the 1% and 99% levels. For more details with respect to the impact of each variable on acquirers' returns see Section 2.3 and for the definition of each variable see Table 2. The validity of the instrumental variable is tested with the Partial R², the Robust *F*-statistic and the Minimum Eigenvalue in comparison with the Stock & Yogo critical value at the 10% level. The score diagnostics for the 2SLS regression models are performed using the Wald-Chi², the Robust score Chi² and the Robust Regression *F*-statistic. The subscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

Table 10 Cross-section OLS and second-stage of 2SLS results with robust standard errors for the effect of gender diversity on acquiring banks' returns

	Panel A: Ordinary Least Squares				Panel B: Second-Stage of 2SLS			
	Blau Index (1)	Percentage of Women (2)	Number of Women (3)	One or more Women (4)	Blau Index (5)	Percentage of Women (6)	Number of Women (7)	One or more Women (8)
Gender Diversity proxy	-0.030 ^c (-1.86)	-0.040 ^c (-1.81)	-0.003 ^c (-1.66)	-0.012 ^c (-1.83)	-0.222 ^a (-2.69)	-0.327 ^a (-2.69)	-0.027 ^a (-2.75)	-0.154 ^c (-1.92)
Board Size	-0.005 (-0.68)	-0.006 (-0.78)	-0.002 (-0.27)	0.000 (-0.03)	0.007 (0.58)	0.002 (0.16)	0.033 ^c (1.82)	0.082 ^c (1.67)
Total Assets	-0.008 ^a (-2.69)	-0.008 ^a (-2.68)	-0.008 ^a (-2.69)	-0.008 ^a (-2.73)	-0.004 (-1.34)	-0.004 (-1.30)	-0.004 (-1.26)	-0.001 (-0.21)
Tobin's Q	0.020 (0.52)	0.020 (0.51)	0.020 (0.51)	0.018 (0.49)	0.036 (0.96)	0.037 (0.97)	0.038 (0.97)	0.031 (0.68)
Return on Assets	1.145 (1.43)	1.144 (1.42)	1.140 (1.42)	1.187 (1.48)	1.205 (1.52)	1.204 (1.51)	1.165 (1.47)	1.795 ^c (1.81)
Beta	0.009 (1.59)	0.009 (1.57)	0.008 (1.52)	0.009 (1.63)	0.009 (1.49)	0.008 (1.35)	0.006 (1.03)	0.012 (1.34)
Total Debt to Total Assets	0.022 (0.44)	0.023 (0.45)	0.023 (0.45)	0.021 (0.42)	0.010 (0.20)	0.010 (0.20)	0.012 (0.24)	-0.019 (-0.31)
Deal Value	0.003 (0.99)	0.003 (1.01)	0.003 (1.00)	0.003 (0.95)	0.003 (0.86)	0.003 (0.98)	0.003 (0.96)	0.000 (0.04)
Relative Deal Size	-0.003 (-0.41)	-0.003 (-0.43)	-0.003 (-0.42)	-0.002 (-0.37)	-0.002 (-0.25)	-0.003 (-0.33)	-0.002 (-0.30)	0.002 (0.15)
Geographic Focus	0.002 (0.45)	0.002 (0.43)	0.001 (0.38)	0.002 (0.54)	0.003 (0.73)	0.003 (0.65)	0.001 (0.29)	0.009 (1.22)
Activity Focus	-0.006 (-1.27)	-0.006 (-1.24)	-0.006 (-1.20)	-0.006 (-1.31)	-0.014 ^b (-2.15)	-0.014 ^b (-2.10)	-0.013 ^b (-2.06)	-0.024 ^c (-1.81)
Listed Target	-0.020 ^a (-3.96)	-0.019 ^a (-3.95)	-0.020 ^a (-3.98)	-0.020 ^a (-3.99)	-0.017 ^a (-2.91)	-0.016 ^a (-2.75)	-0.017 ^a (-3.01)	-0.015 ^c (-1.92)
Cash Deals	0.004 (0.77)	0.004 (0.78)	0.004 (0.74)	0.004 (0.81)	0.008 (1.35)	0.009 (1.47)	0.007 (1.27)	0.014 (1.53)

Financial Development	0.000 (0.22)	0.000 (0.23)	0.000 (0.19)	0.000 (0.14)	0.000 (0.30)	0.000 (0.39)	0.000 (0.09)	0.000 (-0.35)
Governance Index	0.240 (0.52)	0.245 (0.53)	0.230 (0.50)	0.219 (0.48)	0.163 (0.29)	0.201 (0.36)	0.072 (0.13)	-0.177 (-0.21)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Stat	2.83 ^a	2.84 ^a	2.83 ^a	2.84 ^a	-	-	-	-
R ²	0.1166	0.1155	0.1142	0.1199	-	-	-	-
VIF	3.11	3.11	3.13	3.12	-	-	-	-
Endogeneity Model Diagnostics								
Wald-Chi ²	-	-	-	-	48.14 ^a	47.02 ^a	48.92 ^a	29.29 ^c
Robust score Chi ²	-	-	-	-	8.00 ^a	8.13 ^a	8.26 ^a	8.92 ^a
Robust Regression F	-	-	-	-	8.30 ^a	8.42 ^a	8.59 ^a	9.26 ^a
N	494	494	494	494	494	494	494	494

This table reports the results of the cross sectional OLS regression analysis and the results of the second stage 2SLS method with alternative model specifications. Year dummies are included but not reported. Panel A presents the OLS results for announcement period (3-days) excess returns of acquirers estimated using the market return model. Return on assets is the ratio of net income to total assets. Beta is the coefficient of the market portfolio from a market-model regression. Total assets is the book value of bank total assets. Tobin's Q is the ratio of enterprise value to book value of total assets. Total debt to total assets is the ratio of total debt to total assets. For the definition of all other variables see Table 2. Panel 2 presents the results of the second-stage 2SLS using the 2019 Gender Equality Score (GES) for the US states provided by Bloomberg as exogenous instrument for the proxies of gender diversity. The Huber-White robust standard errors are used to calculate *t*-statistics for the OLS regressions and *z*-statistics for the second-stage. All variables are winsorized at the 1% and 99% levels. The score diagnostics for the 2SLS regression models are performed using the Wald-Chi², the Robust score Chi² and the Robust Regression *F*-statistic. The subscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

Table A1 Acquirers’ gains with regard to the number of women on BoDs after the banking crisis (2012-2018)

	Panel A: One or two women on board (N = 335)						Panel B: Three or more women on board (N = 81)						Panel C: Test for differences			
	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	t-test	MWU
Pre-announcement																
(-20...0)	-0.41	-0.42	5.81	46	-1.091	-0.423	-0.55	-1.12	5.08	42	-0.876	-0.724	0.15	0.70	0.208	-0.406
(-5...0)	-0.33 ^c	-0.16	3.45	45	-1.711	-0.131	-0.50	-0.19	3.20	44	-1.362	-0.680	0.17	0.03	0.413	-0.140
Announcement																
(-20...20)	0.52	0.55	8.43	54	1.269	1.594	-0.32	-0.26	7.64	47	-0.337	-0.078	0.84	0.81	0.817	-0.906
(-5...5)	0.76 ^b	0.64 ^a	4.85	57	2.542	3.828	-0.12	0.03	4.55	51	-0.211	0.703	0.89	0.61	1.490	-1.073
(-3...3)	0.68 ^b	0.39 ^a	4.18	55	2.373	4.105	0.09	0.44	3.66	53	0.126	1.259	0.60	-0.05	1.181	-0.618
(-1...1)	0.11	0.33 ^a	3.21	55	0.173	2.654	-0.38	-0.16	3.28	48	-0.942	0.229	0.49	0.49	1.234	-1.423
Post-announcement																
(0...20)	0.61 ^c	0.47 ^b	6.32	54	1.666	2.393	-0.24	-0.52	5.74	48	-0.442	0.276	0.86	0.98	1.112	-1.172
(0...5)	0.77 ^a	0.64 ^a	4.43	58	2.754	4.831	-0.10	-0.66	3.98	48	-0.267	0.998	0.88	1.30	1.627	-1.460

This table reports the cumulative abnormal returns (CARs) upon M&A announcements during the period 2012-2018. Panels A and B present the mean and median CARs, standard deviation, percentage of firms with positive CARs and *t*-statistics of BMP and Corrado tests for banks with one or two women on board (N = 335) and for banks with three or more women (N = 81), respectively. Panel C reports the mean and median differences of CARs between banks with one or two women on board and banks with three or more women on board. The statistical significance of the differences between the means and the medians of the two samples are tested using the *t*-test of equality of means and the Mann-Whitney U test, respectively. The superscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.

Table A2 Acquirers' gains with regard to the number of women on BoDs after the banking crisis (2012-2018)

	Panel A: Three or more women on board (N = 81)						Panel B: Without women on board (N = 110)						Panel C: Test for differences			
	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	Std. Dev.	% Pos.	BMP	Corrado	Mean	Median	<i>t</i> -test	MWU
Pre-announcement																
(-20...0)	-0.55	-1.12	5.08	42	-0.876	-0.724	1.62 ^a	1.01 ^c	7.02	57	2.846	1.827	-2.17 ^b	-2.13 ^b	-2.478	-2.360
(-5...0)	-0.50	-0.19	3.20	44	-1.362	-0.680	1.75 ^a	0.92 ^b	4.78	62	3.771	2.572	-2.25 ^a	-1.11 ^a	-3.884	-2.953
Announcement																
(-20...20)	-0.32	-0.26	7.64	47	-0.337	-0.078	2.22 ^a	1.27 ^c	9.67	56	3.196	1.920	-2.54 ^b	-1.52 ^c	-2.024	-1.790
(-5...5)	-0.12	0.03	4.55	51	-0.211	0.703	2.70 ^a	1.96 ^a	7.10	59	4.056	3.388	-2.82 ^a	-1.93 ^b	-3.341	-2.466
(-3...3)	0.09	0.44	3.66	53	0.126	1.259	2.24 ^a	1.29 ^a	6.43	65	3.652	4.060	-2.15 ^a	-0.85 ^b	-2.923	-2.156
(-1...1)	-0.38	-0.16	3.28	48	-0.942	0.229	1.48 ^a	0.67 ^a	5.70	59	2.828	2.863	-1.86 ^a	-0.84 ^b	-2.839	-2.100
Post-announcement																
(0...20)	-0.24	-0.52	5.74	48	-0.442	0.276	1.63 ^a	1.39	8.69	56	2.677	1.529	-1.87 ^c	-1.91 ^c	-1.787	-1.695
(0...5)	-0.10	-0.66	3.98	48	-0.267	0.998	1.98 ^a	0.57 ^a	6.82	57	3.268	3.276	-2.08 ^a	-1.23 ^b	-2.644	-2.169

This table reports the cumulative abnormal returns (CARs) upon M&A announcements during the period 2012-2018. Panels A and B present the mean and median CARs, standard deviation, percentage of firms with positive CARs and *t*-statistics of BMP and Corrado tests for banks with three or more women on board (N = 81) and for banks without women on board (N = 110), respectively. Panel C reports the mean and median differences of CARs between banks with three or more women on board and banks without women on board. The statistical significance of the differences between the means and the medians of the two samples are tested using the *t*-test of equality of means and the Mann-Whitney U test, respectively. The superscripts a, b and c denote significance at 1%, 5% and 10% levels, respectively.