

NEW EVIDENCE ON THE IMPACT OF MERGERS AMONG COMMUNITY BANKS

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ABSTRACT

The banking industry has experienced considerable consolidation in the last few decades. However, there is little consensus on the overall impact of the merger and acquisition activity on bank performance. The objective of this study is to investigate the change in operating performance, efficiency, and value creation following a number of recent merger deals among community banks in the US. We extend the previous research by focusing on community banks and by supplementing traditional accounting-based performance measures with market-based metrics. The study finds that, in general, operating performance and efficiency of acquiring banks were superior to that of target banks prior to mergers and further improved during the post-merger period. However, the shareholders' value-added measures did not produce uniformly positive results. This study addresses possible reasons for community bank mergers in recent years (2010-2015), including diversification opportunities, revenue synergies, risk reduction, and the possibility of a takeover premium.

Key Words: Banking, Mergers, Community Banking, Performance Measures

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I. INTRODUCTION

In the last few decades, the banking industry has undergone significant reorganization and consolidation through a wave of merger activity. Since the mid-1980s, the

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consolidation has been driven by improvements in information technology, globalization of financial markets, and regulatory changes, including the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 that allows banks to merge across state lines and the Gramm-Leach-Bliley Act or the Financial Services Modernization Act of 1999 that removes the barriers between banking and non-banking firms. The consolidation trend has disproportionately affected smaller community banks. Researchers document that over 90% of all bank merger transactions during the 2000s involved community banks. Overall, the number of large banks has been growing significantly in the past decade, while there has been a substantial decline in the number of community banks. As a result, more than 90% of all US banks are small community banks with less than \$1 billion in assets, but more than 90% of the banking assets are controlled by larger banking institutions (Jagtiani, Kotliar, and Maingi, 2016).

Most practitioners and academics speculate that bank consolidation will continue because of the more favorable acquisition environment tied to a stronger economy, continued regulatory burdens, benefits of scale economies, and a continuing need for access to lower-cost funding sources. The most recent wave of consolidation has been between medium and larger community banks (those between \$5 billion and \$10 billion in assets). These banks are able to capture lucrative multiples because they can be both buyers and sellers, have a good opportunity to expand their market share, benefit from market synergies, and improve access to deposits. Industry experts maintain that banks that get close to the \$10 billion-asset threshold are well positioned to offset technology and compliance costs.

There is no simple, uniform reason for bank mergers. Devos, Krishnamurthy, and Narayanan (2016) argue that some large institutions that participate in megamergers are growing larger in order to pursue “monopoly rents and regulatory subsidies” that result from becoming too-big-to-fail. In contrast, smaller bank mergers may be motivated by improvements in operating efficiencies, revenue enhancement, economies of scale, diversification opportunities, and increased market power. However, there is little consensus regarding the actual impact of the M&A activity on bank performance (Jayaratne and Strahan, 1997, 1998; and Ely and Robinson, 2001). Many studies analyzed the period during the 1980s and 1990s when the number of banks exceeded 14,000 compared to today’s 5,000 banking institutions. The banking landscape and regulations governing the industry are quite different now. This study investigates the impact of recent consolidation activity among community banks on performance, risk, efficiency, and value creation.

Augmenting traditional accounting-based performance measures with newer, market-based measures of shareholder value-added, our results suggest that, on average, acquiring banks were larger and exhibited superior operating performance and efficiency compared to target banks prior to mergers. By some measures, their performance improved during the post-merger period. We perform an analysis of mergers by geography, separating mergers by in- and out-of-state deals, and find that there are significant revenue gains from mergers of banks not headquartered in the same state. Finally, we examine the impact of mergers on performance based on the relative size of

banks involved. We find that while there were revenue improvements for all bank-size combinations, performance improved significantly more in mergers of non-equals. Thus, there appear to be incentives for small banks to grow larger to exploit scale economies and to achieve other scale-related benefits in terms of lending efficiency and lower costs, including compliance and technology costs. This study addresses possible reasons for community bank mergers in the last few years (between 2010 and 2015), including risk reduction and the possibility of a takeover premium. Our findings should be of interest to academic researchers and practitioners looking to better understand the consequences of mergers among community banks in the US.

The rest of the paper is organized as follows. Section 2 discusses existing literature related to the impact of bank mergers on performance, risk, efficiency, and value added. Section 3 describes the data sources and methodology used. Section 4 presents the performance characteristics of targets, acquirers, and the combined banking firms resulting from recent mergers involving community banks as well as statistical analysis of the pre- and post-merger performance. Finally, Section 5 discusses the results and implications for the banking industry.

II. LITERATURE REVIEW

There are multiple reasons for mergers within the banking industry. Consolidation may be motivated by the possibility for the acquirer to improve performance through economies of scale and scope, revenue enhancement, cost and profit efficiency, increased market power, or reduced earnings volatility. Banks may find it challenging to grow organically due to cost considerations (such as technology, compliance, and interchange fees) that disproportionately affect smaller banks (Hughes, Jagtiani, Mester, and Moon, 2018). Smaller financial institutions may need additional services, such as trust offerings and specialty financing to compete more effectively. While banks can initiate these services on their own, it involves risk and significant upfront investment in expertise, time, and money.

There is little consensus in academic research regarding the actual impact of consolidation on industry performance. Some studies suggest that consolidation during the 1980s and 1990s resulted in significant positive outcomes, including efficiency gains (Jayaratne and Strahan, 1997, 1998). Other studies suggest that consolidation had a negative effect on credit availability, particularly for small businesses (Ely and Robinson, 2001). Empirical evidence presented in Berger, Demsetz, and Strahan (1999), DeLong and DeYoung (2007), and DeYoung, Evanoff, and Molyneux (2009) shows that the M&A activity in the US banking industry has not improved performance. The discrepancies in findings can be driven by the differences in the time periods analyzed and various methodologies used. The 1980s and 1990s were considered a “pre-equilibrium” period, i.e., the period during which the number of banks declined from more than 14,000 to roughly 8,000 (it is slightly below 5,000 banks today).

Analyzing a more recent period, Beccalli and Frantz (2013) examine the determinants of bank mergers that occurred during 1990s and early 2000s and find that target banks are

on average cost- and profit-inefficient, less liquid, and less well-capitalized. On the other hand, acquiring banks are better diversified and well-managed, and their managers leveraged their profits by pursuing higher growth strategies. Acquirers that were involved in multiple merger deals tended to be larger banks. An important study by Cornett, McNutt, and Tehranian (2006) analyzed bank mergers from 1990 to 2000 and found that industry-adjusted operating performance of merged banks and long-run stock returns increased following a merger. They also found that large bank mergers produced greater performance gains than small bank mergers, activity-focusing mergers produce greater performance gains than activity-diversifying mergers, and geographically-focusing mergers produce greater performance gains than geographically-diversifying mergers. Similarly, Kane (2000) found that mergers are more likely to generate value when both firms are located in the same state. DeLong (2001) also distinguished between types of mergers according to their focus or diversification along the dimensions of activity and geography and found that diversifying mergers have a low correlation between the stock return of the bidder and the target at the time of the merger announcements. The results of these studies suggest that by focusing on their core business, banks can improve profitability and market value, while mergers between banks that are different in scope and geography can destroy shareholder value. Thus, the main task in this study is to examine banks' pre- and post-merger performance and risk characteristics in recent years to see if M&A activity has produced favorable results.

This study analyzes the impact of mergers on community banks. Given the recent trends in consolidation, there are more mid-sized banks with the capacity to purchase other institutions. Jagtiani (2008) examined close to 4,000 merger deals during the 1990s and early 2000s and showed that more than half of the acquiring banks that bought community banks were themselves community banks. In the process of consolidation, small banks are growing larger and the number of small banks is declining (Jagtiani, Kotliar, and Maingi, 2016).³ The same study found that during the recent financial crisis, community bank targets were on average riskier than the acquirers and that the post-merger combined banking firms were in fact financially healthier and more efficient, which resulted in improved safety and soundness of the whole banking system (Jagtiani et al., 2016). This study addresses possible reasons for community bank mergers in recent years, including risk reduction and the possibility of a takeover premium.

This study also analyzes the impact on operating performance based on traditional measures as well as value-added measures. The drawbacks of using traditional accounting-based performance metrics arises from the shortcomings inherent to the measurement of accounting profit, which includes accounting treatment of historical revenues, costs, and the choice of depreciation methods (Stern, Stewart, and Chew, 1999; Young, 1999). Several studies have shown that using the traditional ROE ratio to measure improvement in banks' performance may be flawed because increases in this ratio may

³ One strand of literature has examined the impact of the recent bank consolidation on small business lending (SBL) (Berger & Udell, 2006; Berger, Cerqueiro, & Penas, 2014; Jagtiani et al., 2016). These studies show that larger banks are assuming a more important role in the SBL market. Large banks that step into this role tend to grow SBL significantly faster after the mergers, filling the gap in the market that was previously served by smaller institutions.

not necessarily be a measure of increased value, but rather the result of risk-implementing strategies by the banks. Since the denominator of ROE contains stockholders' equity, more equity and less debt can lower the ratio, assuming that the change in equity has a greater impact than the reduction in the after-tax interest expense on debt. Conversely, to increase ROE, managers can change the funding mix and leverage a bank through borrowing. Motivated by empire-building or compensation considerations, managers may choose to target higher ROEs, but this behavior involves increased borrowing and higher risks that ultimately can harm creditors and taxpayers (Admati and Hellwig, 2013). These distorted incentives inherent in traditional performance metrics contributed to risk-taking behavior prior to the recent financial crisis (Haldane, Brennan, and Madouros, 2010; Admati, DeMarzo, Hellwig, and Pfleiderer, 2011; Admati and Hellwig, 2013; Klaassen and van Eeghen, 2015). Thus, for the publicly traded acquirers, we examine several measures of performance pre- and post-mergers based on their market value.

Regarding geography, there is evidence that mergers tend to cluster in certain areas and states at any given time, and the majority of mergers in the 1990s and early 2000s were between community banks headquartered in the same state (Jagtiani, 2008). Studies propose that banks can achieve potential economies of scale through geographical diversification because once the basic infrastructure is in place, organizations can expand the system elsewhere potentially at a reduced cost. Benefits of geographical diversification include better access to capital markets in other regions or countries, which potentially leads to reduced cost of capital (Deng and Elyasiani, 2008), and a greater market power (Khan, Hassan, Maroney, and Rubio, 2016). This study examines geographic trends in M&A activity among community banks in recent years and contributes to the conversation about benefits of geographically focused or diversified merger activity in recent years.

III. DATA AND METHODOLOGY

3.1 Data

We obtained the data used in this study from S&P Global Market Intelligence's Capital IQ and SNL platforms, along with Call Reports.⁴ Capital IQ contains information on all banks involved in M&A, including announced and closed transactions. Call reports and SNL provide financial statements and data for all banks, and Capital IQ contains Compustat market-based data. Our sample comprises M&A deals with at least 50% ownership sought by the acquirer with the transaction date falling between 2010 and 2015, in which the acquirer and the target are US commercial banks. To track post-merger financial performance of acquirers, we end our sample in 2015 so we can obtain two full years of data after the merger. The initial M&A bank sample resulted in 1,546 transactions. Although this study focuses on community banks, an exact definition for a community bank is elusive. According to the FDIC (2012), community banks are known for their focus

⁴ Each quarter, all FDIC-insured institutions are required to submit a Report of Condition and Income (known as a Call Report) to the FDIC.

on traditional banking activities within their local communities where they obtain core deposits and make loans. This focus on local community banking is what makes them “relationship” banks rather than “transactional” banks (FDIC, 2012). Typically, community banks are identified by asset size, such as less than \$1 billion, but according to the FDIC study, some researchers have used \$3 billion, \$5 billion, and some refer to community banks being as large as \$10 billion in consolidated assets. Using the detailed financial statements data of these banks and their geographic scope and list of activities, FDIC proposed to define community banks as those banks that concentrate on traditional banking activities (thus, excluding specialty institutions, such as credit card companies and consumer nonbank companies) within their local communities. Based on this definition, about 95% of all US banks were considered community banks in 2010. We concentrate on community banks with assets of less than or equal to \$10 billion. This criterion reduces the number of deals to 657. Finally, we wanted to include market value data in our study. The publicly traded entities allow us to compare accounting measures of performance with the market’s expectation of their future profitability. Although publicly traded firms represent only about a fifth of acquiring community banks (129), this smaller sample of deals shows important evidence of the investment incentives provided by the capital market. Finally, like previous studies, we removed observations for acquiring institutions that participated in mergers in two consecutive years to ensure that we are only accounting for the effects of one merger at a time (Khan et al., 2016). The last step taken to prepare our data for analysis was to remove banks with missing performance information, which reduced our sample to 66 transactions involving 66 target banks and 54 unique acquiring banks.

In terms of geographic patterns, Figure 1 depicts M&A activity in our sample of community banks between 2010 and 2015, with Panel A showing acquisitions by target, Panel B showing transaction dollar values, and Panel C showing acquisitions by acquirer. Shown by the heat map in Panel A and Panel B, some geographic areas in the US, such as Maryland, California, Delaware, and Pennsylvania, have experienced more M&A activity in terms of the number of mergers and dollar value of transactions. One of the reasons for this trend is that certain markets are highly populated with banks that are suitable for mergers, as they contain many small banks struggling to grow. For example, the average size of target banks in Maryland was about \$350 million during this period, with an average size of acquiring institutions of about \$5.4 billion. On the other hand, in certain markets like Delaware, Pennsylvania, and Washington, the opportunity to do acquisitions may be diminishing and we see either mergers between mid-size community banks or, in some cases, banks that were active acquirers in the past may be considering selling now. For example, according to FDIC data, North Carolina has seen a dramatic decrease in banks after a wave of acquisitions by out-of-state buyers in recent years, as the number of banks in the state fell by more than 40% since 2012. The heat map in Panel C of Figure 1 shows there were significantly more acquisitions initiated by banks headquartered in Delaware, most likely owing to various advantages to incorporating in the state. The average size of the acquiring institutions in the state is about \$9.3 billion and the average size of targets is \$3.5 billion, for a relative size of acquisition around 40%. Similarly, the

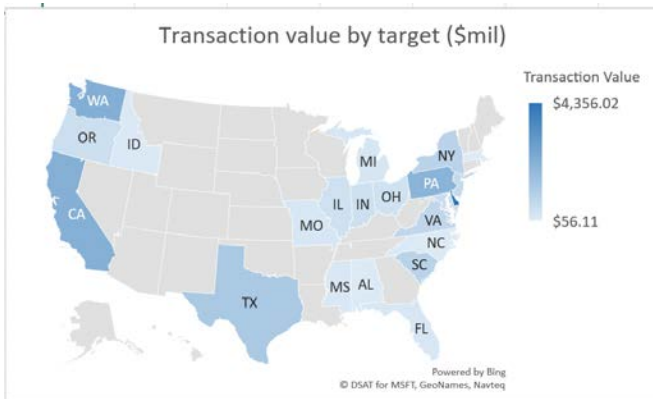
relative size of the target to acquirer ranges between 30% to 40% in New York, Massachusetts, and California, while this size differential is much greater in Florida, Maryland, and Pennsylvania, where target institutions are only 5% to 10% of the acquirers' size. We will discuss the bank-size differential in more detail below. About half of all merger deals were between banks headquartered in the same state.

Figure 1. M&A Deals Between 2010 and 2015

Panel A



Panel B



Panel C



Sources: S&P Global Market Intelligence

3.2 Methodology

The financial gain from M&A can come from improving operating performance, so we compare pre- and post-merger levels of financial performance for this sample of banks. In addition to traditional performance metrics *ROA* and *ROE*, we also examine whether mergers create value for shareholders of community banks. Given the shortcomings of traditional accounting-based performance measures that contributed to greater risk-taking behavior prior to the recent financial crisis (Haldane, et al., 2010; Amati, et al., 2011; Admati and Hellwig, 2013; Klaassen and van Eeghen, 2015), we examine several market-based measures of performance for our sample of community banks. For publicly traded companies, we estimate the return on invested capital (*ROIC*) and shareholder value added (*SVA*). *ROIC* is a metric typically used by Wall Street analysts to examine the performance of large, nonfinancial multinational firms. A recent application of this methodology was performed for large financial institutions in Chen (2014), and for smaller community banks in Walker and Geyfman (2016) and Geyfman and Walker (2017). In contrast to the traditional performance measures *ROA* and *ROE*, *ROIC* examines the return on *total* invested capital, which consists of debt and equity:

$$ROIC = \frac{\text{Adjusted Net Operating Profit (NOPAT)} \times (1 - \text{Tax rate})}{\text{Invested Capital}}, \quad (1)$$

where:

$$\text{Adjusted NOPAT} = \text{EBT}(1 - T) + \text{Provisions for Loan Losses} - \text{Net Charge-Offs} + \text{After-Tax Interest on Borrowings},$$

and

$$\text{Invested Capital} = \text{Total Equity} + \text{Loan Loss Reserves} + \text{Long-Term Debt}. \quad (2)$$

We also include the shareholder value added (*SVA*) measure from Capital IQ, which adjusts for merger-related charges in the following manner:

$$SVA = \text{Net income} + \text{Amortization expenses} + \text{Restructuring \& merger and related charges} - \text{Cost of capital}. \quad (3)$$

The initial objective is to explore the differences in pre- and post-merger financial characteristics between target and acquiring community banks. The second objective is to examine the effect of mergers on changes in performance and risk of acquiring institutions based on various financial explanatory variables used in previous studies and applied here to community banks for a more recent period. We run the following regression:

$$\begin{aligned} \Delta \text{Performance}_{ACQUIRER} \text{ or } \Delta \text{Risk}_{ACQUIRER} = & \beta_0 + \beta_1 \text{Relative Size}_{t-1} + \beta_2 \ln(\text{Transaction Value})_t + \\ & \beta_3 \text{Performance}_{TARGET_{t-1}} + \beta_4 \text{Credit Risk}_{ACQUIRER_{t+1}} + \beta_5 \text{Net Interest Margin}_{ACQUIRER_{t+1}} + \\ & \beta_6 \text{Risk Based Capital}_{ACQUIRER_{t+1}} + \beta_7 \text{Noninterest Expense}_{ACQUIRER_{t+1}} + \beta_8 \text{State}_t \end{aligned} \quad (4)$$

3.2.1 Dependent Variables

The change in performance of the acquiring institution is measured by the change in operating performance between pre-merger, $t-1$, and post-merger, $t+1$, for which we will use the change in the ratio of earnings before taxes to average assets ($EBT/assets$) and the change in ROIC ($\Delta ROIC$) of the acquirers. The change in risk will be measured by the change in price volatility ($PVOL$) and change in market beta ($beta$). Investors expect to be compensated commensurately for the risk taken. When a major new investment (such as the purchase of another bank) is being contemplated, it is important to consider not only the impact to return, but also the effect on the acquiring firm's risk profile. An investment's impact to a firm's risk profile depends on the size and riskiness of the investment. Because of its large scale, acquiring another bank can dramatically affect another bank's returns and risks.

3.2.2 Explanatory Variables

Many researchers have documented the impact of bank size on operating costs and overall performance. Hughes et al. (2018) found that the costs of technology and regulatory compliance have a disproportionate impact on small community banks. Their study shows that average costs decrease, while investment opportunities increase with bank size; and large banks may exhibit more efficient lending, especially in the business and real estate categories (Hughes et al., 2018). In the case of mergers between community banks, their relative size difference may be more important than the absolute size difference. We will measure *Relative Size* by the ratio of the target's assets to the acquirer's assets. A positive association between the relative size difference and the change in performance would suggest that relatively larger targets may offer more opportunities to realize post-merger cost efficiencies. However, post-merger performance may be weaker in a "merger of equals" due to a more difficult integration process or may suggest that the relation is positive up to a certain point and then levels off. Cornett et al. (2006) and Khan et al. (2016) find that the larger the target bank size relative to the acquirer, the greater the improvement in performance around the merger.

All variables associated with targets are as of $t-1$, transaction value is reported at the time of the merger announcement, t , and acquirers' values are reported post-merger, at $t+1$. *Transaction Value* is the amount the acquirer paid to acquire the target. The amount includes total consideration to shareholders plus net assumed liabilities as well as cash and cash-equivalents (Capital IQ definition). If the acquirer believes the target is more valuable and pays a premium to acquire it, we would expect a positive association between the change in performance and the transaction value. On the other hand, post-merger performance may be weaker because of the increased complexity of the higher values of the merger and acquisition (Akhavain, Berger, and Humphrey, 1997; Khan et al., 2016).

Several pre- and post-merger performance measures are included to account for banks' strategies. To capture the effect of the target bank's performance

($Performance_{TARGET}$) on the acquirer's performance, we include return on equity of target (ROE_{TARGET}) and shareholder value added of target (SVA_{TARGET}). Targets that are more profitable should lead to increased performance of the acquirer post-merger; thus, we anticipate positive coefficients on these variables. Aside from the effects of mergers, acquirers' performance will depend on their own business strategies. DeLong (2001) showed that while the market reacts immediately to the type of a merger (focusing or diversifying), the long-term stock performance depends on the behavior and efficiency of the surviving institution. Similar to Khan et al. (2016), we include several post-merger variables for the acquirers, such as $CHARGEOFFS$ (chargeoffs/gross loans) and nonperforming loans, NPL (nonperforming loans/gross loans) as proxies for credit risk. Chargeoffs are the value of loans removed from the books and charged against loss reserves; they are measured net of recoveries as a percentage of average loans. Nonperforming loans are typically comprised of nonaccrual loans, restructured loans, and loans 90-days past due and accruing interest. Khan et al. (2016) found that credit risk was negatively related to the changes in performance; however, it is possible that more risk-taking will be associated with higher returns. We also include net interest margin (NIM) of the acquirer as an indicator of post-merger lending efficiency. We anticipate NIM to be positively associated with the change in performance. Risk-based capital ratio of the acquirer ($RBC_{ACQUIRER}$) is included to account for post-merger capital adequacy of the acquiring institution. The relationship between capital and risk is uncertain. Conservative banks tend to hold high levels of capital, suggesting a low level of risk. However, risky banks might hold high levels of capital expecting to absorb losses from their volatile activities. Research into the relationship regarding bank size, diversification, and risk shows that larger banks, although better diversified, on average take greater risks than smaller banks. They counterbalance their diversification advantage by pursuing risk-enhancing activities, such as commercial and industrial lending and trading activities, and operating with less capital (Demsetz and Strahan, 1997). However, our sample contains smaller community banks, where we expect better capitalization and lower risk. We also include the ratio of noninterest expenses to assets ($NONINT_EXP_ASST_{ACQUIRER}$) to account for the acquirer banks' operating efficiency and anticipate seeing a positive association between efficiency and change in performance.

Finally, *State* is a dummy variable that captures the effect of geographic diversification, which is assigned a value of 1 if both the target and acquirer are in the same state at the time of merger announcement; it is assigned 0 otherwise. A bank's location may have an important role for the types of activities and lending in which a bank participates. On the one hand, Deng and Elyasiani (2008) show that geographic diversification is associated with banks' value enhancement and risk reduction due to better access to capital, greater synergies, and improved investment opportunities. On the other hand, the increased distance between a parent company and its branches is associated with value reduction and greater risk (Demsetz and Strahan, 1997). Banks that operate in narrower geographic markets tend to be experts in those markets, develop deeper relationships in local areas, and respond more effectively to their clients' needs.

DeLong (2001) found that the market rewards mergers between partners that focus (rather than diversify) their activity and geography. By including a state dummy, we want to examine whether the geography component plays a role in mergers and how it relates to acquirers' performance and risk.

IV. RESULTS

4.1 Pre- and Post-Merger Performance Analysis

Table 1 provides descriptive statistics for the sample of target and acquiring banks, both pre- and post-merger between 2010 and 2015. In terms of size, the acquiring banks' pre-merger average assets, loans, deposits and equity are 3.7 to 4.4 times larger relative to the target banks' averages. In terms of profitability, the acquiring banks' pre-merger average net interest income, noninterest income, noninterest expense and net income are 3.1 to 6.5 times larger relative to the target banks' averages. The targets and acquirers had similar revenue breakdown between net interest income and noninterest income of 76% versus 24%. After the merger, all but one of the key financial variables (namely, provisions for loan losses) of the acquirers increased by about 30%. Earnings before taxes and net income of the acquirers increased 74% and 57%, respectively.

Table 1. Descriptive Statistics for Target and Acquiring Banks' Balance Sheet and Income Statement Items

<i>Target banks (pre-merger)</i>	Mean (\$MM)	Standard deviation (\$MM)	Minimum (\$MM)	Maximum (\$MM)
Total assets	1,000.42	1,025.86	77.86	5,802.41
Total loans	686.38	684.89	55.83	3,330.01
Allowances for loan losses	59.70	37.35	17.48	190.42
Total deposits	796.61	759.51	53.97	3,528.34
Total equity	105.18	112.99	13.26	559.60
Interest income	40.55	39.51	3.41	186.15
Interest expense	2.03	3.09	0.006	17.16
Net interest income	32.69	32.79	2.73	149.89
Provision for loan losses	5.51	11.26	(2.30)	77.47
Noninterest income	11.62	21.40	0.17	155.05
Noninterest expense	43.20	37.14	9.00	193.35
EBT excluding unusual items	8.51	21.46	(46.92)	111.37
Net income	5.37	15.65	(47.85)	61.90
<i>Acquiring banks (pre-merger)</i>	Mean (\$MM)	Standard deviation (\$MM)	Minimum (\$MM)	Maximum (\$MM)
Total assets	4,027.74	2,692.52	302.76	9,727.00
Total loans	2,552.57	1,709.47	144.82	5,934.29

Allowances for loan losses	80.56	78.19	11.64	491.74
Total deposits	3,171.92	2,087.90	238.82	7,566.36
Total equity	465.78	337.70	29.97	1,275.77
Interest income	165.36	109.50	10.24	391.98
Interest expense	9.08	9.89	0.07	41.65
Net interest income	139.57	92.94	8.32	348.94
Provisions for loan losses	13.77	18.72	(8.90)	70.20
Noninterest income	41.79	46.13	(70.97)	189.82
Noninterest expense	132.78	90.77	19.96	365.76
EBT excluding unusual items	49.48	46.03	(23.75)	183.61
Net income	34.85	30.13	(8.96)	118.61
<i>Acquiring banks (post-merger)</i>	Mean (\$MM)	Standard deviation (\$MM)	Minimum (\$MM)	Maximum (\$MM)
Total assets	5,741.34	3,820.57	392.92	18,890.14
Total loans	3,895.62	2,758.82	222.77	14,563.12
Allowances for loan losses	99.37	174.55	17.32	1,331.00
Total deposits	4,526.40	3,027.24	313.99	15,574.88
Total equity	701.73	522.16	55.47	2,794.87
Interest income	209.02	134.47	11.32	662.56
Interest expense	7.61	7.32	0.10	35.40
Net interest income	188.13	123.24	9.48	601.51
Provisions for loan losses	7.88	8.53	(7.38)	33.64
Noninterest income	55.86	51.38	1.55	219.41
Noninterest expense	169.13	107.78	30.12	473.11
EBT excluding unusual items	85.93	75.47	(5.52)	423.55
Net income	54.65	47.97	(0.09)	269.98

Source: S&P Global Market Intelligence, Call Reports, and authors' calculations.

To account for the contemporaneous effect from completing a merger, Table 2 reports several pre-merger profitability and industry-specific operating performance measures for our sample of target and acquiring banks. We find that the acquiring banks exhibited better performance in terms of traditional measures of *ROA*, *ROE*, and the ratio of operating profit to average assets, *EBT/assets*. Their net interest margin was also higher. We used two measures of value added. First, *SVA* from Capital IQ indicates that both targets and acquirers produced, on average, negative values, with targets closer to the break-even point. When we counted the number of banks that reported a positive *SVA* prior to merger, there were just 11 out of 64 target banks (or about 17%) and just 16 out of 54 acquiring banks (or about 30%). In contrast, the *ROIC* estimate using Equation (1) was significantly higher for acquiring banks. Overall, it appears that acquiring banks

performed better than target banks prior to mergers without sacrificing quality in terms of the percentage of nonperforming loans (acquirers' *NPL* were lower than those of the target banks) or regulatory capital buffers (Tier 1 leverage ratio and *RBC* were not significantly different from those of the targets). Both groups appear to be very similar in terms of cost efficiency, as measured by the ratio of noninterest expenses to average assets.

Table 2. Selected Pre-merger Performance Statistics for Targets and Acquirers

	Target Banks	Acquiring Banks	Significant difference?
Tier 1 ratio (%)	9.89	10.12	No
Risk-based capital ratio (%)	15.71	15.23	No
Noninterest expense/average assets (%)	3.24	3.05	No
Noninterest income/average assets (%)	0.93	0.95	No
ROA (%)	0.48	0.89	Yes**
ROE (%)	5.01	8.17	Yes***
EBT/assets (%)	0.58	1.18	Yes***
Shareholder value added (SVA) ^a (%)	(0.75)	(13.87)	Yes**
NIM (% of average assets)	3.27	3.69	Yes***
Nonperforming loans/total loans (%)	2.53	1.99	Yes*
ROIC ^b (%)	4.00	6.44	Yes***

The superscripts ***, **, and * signify 1%, 5%, and 10% statistical significance based on *p-values*.

Source: S&P Global Market Intelligence, Call Reports, and authors' calculations.

^a SVA is obtained from Capital IQ. ^b Authors' calculations from Equation (1).

Table 3 compares the performance of acquiring banks pre- and post-merger. The risk-based capital ratio of acquirers declined somewhat after mergers, but continues to remain well above international capital requirements. The ratio of noninterest expenses to assets decreased, suggesting some post-merger efficiency gains. While *ROA* of the acquirers increased post-merger, *ROE* did not change significantly. We examined the change in equity multiplier (*TA/TE*), which connects *ROA* and *ROE*, and found that the post-merger equity multiplier of acquirers decreased slightly. This change implies a higher proportion of equity (or a lower proportion of debt) financing, but the change was not suggestive of a long-term trend in banks' leverage position. Importantly, merger increased operating performance of acquirers in terms of *EBT/assets* by about 0.2%, which was statistically significantly different from zero. The nonperforming loans ratio, *NPL*, decreased from 1.99% of loans to 1.28% post-merger, and this change was statistically significant. Among

other significant changes is the improvement in the calculated *ROIC* from 6.44% to 7.54% immediately following the merger, but the ratio declined one to two years post-merger. On the other hand, improvements in price to tangible book values (*PTBV*) persisted even several years after the initial merger announcements, indicating a positive market reaction to these deals. The changes in *EPS* and *PE* ratios were not statistically significant. Since all acquiring institutions in our sample are publicly traded, we supplemented value-added measures with Economic Value Added (*EVA*) from Bloomberg. Bloomberg's methodology for calculation of *EVA*, which computes the difference between *ROIC* and *WACC*, is similar to Capital IQ's methodology for calculating *SVA*, but it does not make any industry-specific adjustments that are relevant to derivation of the bank financials and regulatory variables.⁵ For the acquirers, the *EVA* worsened somewhat following the merger deals. More importantly, the number of acquiring banks with a positive *EVA* (i.e., those that are creating shareholder value) prior to merger declined from 25 out of 54 banks (46% of acquirers) to 13 banks immediately after the merger to 11 banks (about 20% of all banks) one to two years post-merger. Combined, Tables 2 and 3 show that acquiring banks in our sample were relatively more efficient and their performance was superior to that of target banks prior to mergers. Their accounting-based (*ROA*, *EBT/assets*) and market-based (*PTBV*) performance improved immediately post-merger, suggesting a positive investor reaction to these deals. However, the value-added measures (*SVA*, *EVA*) were more ambiguous, suggesting that a more detailed long-term analysis of surviving firms is needed to correctly identify the type of merger deals that enhance shareholders' value.

Table 3. Pre-Merger and Post-Merger Performance of Acquirers

	Pre-merger	Post-merger	Significant difference?
Tier 1 ratio (%)	10.12	10.28	No
Risk-based capital ratio (%)	15.23	14.10	Yes**
Noninterest expense/average assets (%)	3.05	2.91	Yes*
Noninterest income/average assets (%)	0.95	0.91	No
ROA (%)	0.89	0.97	Yes*
ROE (%)	8.17	8.30	No
EBT/assets (%)	1.18	1.38	Yes**
Shareholder value added	(13.87)	(12.09)	No

⁵ *ROIC* is calculated similar to our Equation (1), i.e., it is the ratio of NOPAT to Total Operating Capital (note: Bloomberg does not adjust for the industry-specific differences) and $WACC = w_d r_d (1 - T) + w_p r_p + w_e r_e$, where w_d , w_p , and w_e are the weights of debt, preferred stock, and common equity; r_d , r_p , and r_e are the costs of debt, preferred stock, and common equity; and T is the firm's marginal tax rate. Cost of equity is estimated using the capital asset pricing model (CAPM) $r_e = r_{RF} + (RP_M) \times b_i$, where r_{RF} is the risk-free rate, RP_M is the market risk premium, and b_i is the beta coefficient of the i th stock.

(SVA) ^a (%)			
NIM (%)	3.69	3.62	No
Nonperforming loans/total loans (%)	1.99	1.28	Yes***
EPS (\$)	1.31	1.49	No
ROIC ^b (%)	6.44	7.54	Yes*
PTBV	1.42	1.57	Yes*
PE	29.03	28.08	No
ROIC (Bloomberg) (%)	6.56	5.37	No
WACC (Bloomberg) (%)	7.15	7.00	No
(ROIC-WACC)(%)	(0.59)	(1.54)	No
Beta	0.93	0.90	No

The superscripts ***, **, and * signify 1%, 5%, and 10% statistical significance based on *p-values*. Source: S&P Global Market Intelligence, Bloomberg, Call Reports, and authors' calculations. Because all acquiring institutions in our sample are publicly traded, we can supplement accounting-based variables from Table 2 with ratios based on market values.

^a SVA is obtained from Capital IQ.

^b ROIC is calculated using authors' methodology in Equation (1).

Typically for M&A deals, relevant valuation details are reported. For example, in a recent acquisition of Pennsylvania-based Mercersburg Financial by Orrstown Financial Services, Mercersburg's shareholders received a combination of stock and cash valued at about \$32.4 million. The deal had a one-day premium of 62.16% and a one-month premium of 69.42%. On a per-share basis, the deal value was 156.0% of tangible book and 35.7x earnings (*SNL Financial*). An analyst can compare these valuation details to an average for merger activity in the region. Table 4 provides summary statistics for M&A deals for our sample between 2010 and 2015. Generally, the industry has exhibited faster consolidation during this period as evidenced by a greater number of deals and higher average annual value of deals.

Table 4. Statistics for Merger and Acquisition Deals between 2010 and 2015

Valuation Summary				
Total Deal Value (\$MM):				17,535.34
Average Deal Value (\$MM):				135.93
Average Day Prior Premium (%):				52.59
Average Month Prior Premium (%):				56.14
	Mean	Std. Dev.	Min	Max
Implied Equity Value/Book Value (×)	1.35	0.34	0.47	2.39
Implied Equity Value ^a (\$MM)	180.31	325.44	9.95	2,350.98
Market Value_Target (\$MM)	141.79	272.30	1.34	1,899.70
Market Value_Acquirer (\$MM)	688.10	631.93	15.08	3,387.03

Source: S&P Global Market Intelligence

According to Table 4, the aggregate M&A total transaction value for this sample was over \$17.5 billion. The average stock price premium one day and one month prior to the transaction was above 50%. The average premium to the share price a month before the

announcement tends to be higher for companies with lower capitalization. Even though deal sizes are increasing, most of transactions in this sample was less than \$500 million, constituting smaller transactions. Moore (2009) proposes several metrics to evaluate M&A deals based on the implied values and the premium/discount values. The implied equity to book value for our sample of M&A deals is approximately 1.35x, indicating that, on average, acquirers paid substantial premiums over book value of targets. Another metric used for evaluating deal pricing is the premium to deposits (sometimes referred to as the franchise premium-to-deposits), which is evaluated as the ratio of the difference between the transaction value and total equity to core deposits. The average for our sample was about 4.7%. On a national basis, the average deposit premiums were about 5% during the same period, a level that is significantly lower than the 20% paid in merger deals during the pre-crisis period, but the recent trend in premia is upward (Ambassador Financial Group, 2018). These premia paid by acquirers is one of the contributing factors to the continuing wave of consolidation among community banks in this country.

Another important measure tracked by analysts in merger deals is earnings accretion. An accretive acquisition increases the acquirer's *EPS* and tends to be favorable for the company's market price. However, it is important to remember that expected potential accretive value of the acquisition is forecasted 12 to 24 months ahead of time and sometimes synergies from the merger may not be realized unless the companies are integrated efficiently and effectively (Moore, 2009). If these expectations do not materialize, the realized *EPS* may fall short of expectations, which may cause the firm to lose some of its value gain. *EPS* of the acquirers increased from \$1.31 the year prior to merger to \$1.49 in the first full year after the merger to \$1.63 in year two. This is consistent with the earlier findings that mergers benefited acquiring banks based on *ROA* and *PTBV*.

4.2 Correlation and Regression Analysis

Before we run the formal regression models, we examine correlations between changes in several financial measures for banks in our sample, presented in Table 5. Not surprisingly, we observe positive correlation coefficients between changes in the main performance metrics of acquiring institutions, such as *EBT/assets*, *ROA*, and *ROE*. Interestingly, we note that the changes in these measures are also positively correlated with the changes in newer value-added measures of *SVA* and *ROIC*.

Table 5. Analysis of Correlations

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]
ΔEBT/assets [1]	1																
ΔROA_Acquirer [2]	0.5527**	1															
ΔROE_Acquirer [3]	0.4562**	0.9442**	1														
ΔROIC_Acquirer [4]	0.5710**	0.1545	0.1344	1													
ΔSVA_Acquirer [5]	0.4661**	0.6865**	0.7358**	0.2985**	1												
ΔPrice volatility_Acquirer [6]	-0.2840**	-0.2570**	-0.2387	0.0625	-0.2014	1											
ΔBeta_Acquirer [7]	-0.2608**	-0.1033	-0.0338	-0.201	0.0677	0.2295	1										
log TransactionValue [8]	-0.0347	0.1954	0.0707	-0.0037	-0.1527	-0.0808	-0.1785	1									
Relative Bank Size [9]	-0.1387	-0.0236	-0.1415	-0.1451	-0.3161**	0.0099	-0.1695	0.4514**	1								
ROE_Target [10]	-0.1064	-0.1387	-0.2468	-0.0504	-0.3496**	0.2423	-0.0541	0.3269**	0.3283**	1							
SVA_Target [11]	-0.0689	0.0547	-0.1403	-0.235	-0.2427	0.046	-0.1062	0.3102**	0.4778**	0.5575**	1						
Chargeoffs_Acquirer [12]	-0.3390**	-0.2256	-0.2204	-0.0563	-0.2907**	0.5993**	0.08	-0.119	0.1411	0.1445	0.0005	1					
NPL_Acquirer [13]	0.3457**	0.2768**	0.2944**	0.0706	0.3140**	-0.2781**	-0.0497	-0.2665**	-0.0847	-0.1881	-0.0641	-0.2692**	1				
NIM_Acquirer [14]	-0.0927	-0.1135	-0.1396	-0.0629	-0.0202	0.0285	0.1869	0.0496	0.2604**	0.1666	0.3101**	-0.0415	-0.2064	1			
RBC_Acquirer [15]	0.2101	0.1857	0.1331	-0.1606	-0.0027	-0.3050**	-0.0737	0.0078	0.1576	0.007	0.0915	-0.088	0.1669	0.213	1		
Noninterest Expense_Acquirer [16]	-0.0706	-0.1752	-0.1124	-0.2710**	-0.0548	-0.0986	0.0979	-0.2281	0.0025	0.024	-0.0985	-0.0057	0.2789**	0.1727	0.2253	1	
Price volatility_Target [17]	-0.0777	-0.2154	-0.165	-0.0327	0.0147	-0.2359	0.2854**	-0.3443**	-0.114	-0.3799**	-0.0921	-0.2247	-0.0084	0.3134**	0.0405	0.1035	1

** indicates significance at 5%. Δ indicates changes in various pre- and post-merger performance measures for the acquirers. Variables [10] and [11] are pre-merger for the targets and [12] through [16] are for post-merger for the acquirers.

Table 6 presents the regression results for Equation (4). The regressions estimate the sensitivities between the dependent variables, discussed in the methodology section, and the changes in operating performance based on *EBT/assets* and the newer ROIC measure. The results suggest that post-merger performance of acquiring banks improves with the positive changes in transaction value, the post-merger *NIM*, and the level of post-merger *RBC* of the acquirer. Across all specifications, the relative size of the target has a negative effect on operating performance. This could indicate that the acquirer has a tougher time consolidating a bank closer in size and producing a favorable outcome, suggesting that perhaps acquirers should choose smaller merger targets. This contrasts with other studies that find that the relative size of the target has a positive effect on performance of acquirers (Khan et al., 2016), and that large bank mergers produce greater performance gains than small bank mergers (Cornett et al., 2006). Since our sample includes only community banks, and most of the mergers involve deals in which larger community banks acquire smaller institutions, these regression results suggest that mergers of equals are not necessarily performance-improving among community banks. Among other results, the acquirers’ noninterest expense ratio has a negative association with changes in operating performance, suggesting that lower cost efficiency dampens banks’ performance gains from mergers. The coefficient on the state dummy is not significant, which means that there are no performance differences between geographically focused versus diversifying mergers in this sample.

Table 6. Results of Regression Analysis: Performance

The table reports coefficient estimates of the regression models of change in operating performance/average assets ($\Delta EBT/ASSETS$) of acquiring institutions and the change in $ROIC$ between pre-merger and post-merger years. Data are for 2010 to 2015. Heteroskedasticity-consistent asymptotic standard errors appear in parentheses. ***, **, and * signify 1%, 5%, and 10% significance, respectively.

Variable	$\Delta EBT/ASSETS$ (Model I)	$\Delta EBT/ASSETS$ (Model II)	$\Delta ROIC$ (Model III)	$\Delta ROIC$ (Model IV)
Constant	-1.7571** (0.7507)	-2.139** (0.7506)	-1.0856 (4.008)	-3.0303 (3.6773)
Relative Size	-0.6386** (0.2633)	-0.6956** (0.2675)	-2.8752** (1.4059)	-1.8307 (1.3105)
Ln (Transaction Value)	0.1504** (0.0764)	0.1894** (0.0725)	0.8312** (0.4084)	0.9119** (0.3552)
ROE Target Bank (prior to merger, %)	-0.0044 (0.0068)		-0.0359 (0.0365)	
SVA Target Bank (prior to merger, \$MM)		-0.0014 (0.0017)		-0.0247** (0.0083)
Chargeoffs Acquirer Bank (post-merger, %)	-0.0182** (0.0076)		0.0075 (0.0404)	
NPL Acquirer Bank (post-merger, %)		0.1668** (0.0652)		0.4078 (0.3194)
NIM Acquirer Bank (post-merger, %)	0.0944 (0.1204)	0.2170* (0.1267)	0.9146 (0.6427)	1.4830** (0.6211)
RBC Acquirer Bank (post-merger, %)	0.0797** (0.0360)	0.0736** (0.0363)	-0.1259 (0.1919)	-0.1622 (0.1781)
Noninterest Expense Ratio Acquirer (post-merger, %)	-0.0924 (0.0907)	-0.1646* (0.0958)	-0.9688* (0.4841)	-1.3333** (0.4691)
Same State dummy (0;1)	0.1671 (0.1231)	0.1424 (0.1239)	0.9911 (0.6575)	1.0181 (0.6068)
Number of obs.	57	57	57	57
Adj R ²	0.3234	0.3206	0.2200	0.3306

Next, we run the risk regressions where risk is proxied by the change in price volatility of the acquiring institutions ($\Delta PVOL$), and the change in market beta (β). Price volatility is estimated as the standard deviation of historical weekly returns (annualized log-normal returns) derived from Capital IQ. The change in price volatility is the difference between post- and pre-merger $PVOL$ and it measures the change in acquirers' risk. Among the most notable results presented in Table 7, a higher risk-based capital ratio is associated with lower price volatility across all specifications. The result is consistent with economic theory that suggests that capital serves as defense against bank risk by providing a cushion against risk and promoting public confidence in the long-term viability of a financial institution (Koch and MacDonald, 2015). When we substitute the change in market beta for the measure of risk for models III and IV, one of the size variables has a statistically significant effect: larger transaction values are associated with the reduction in the beta coefficient of the acquirer. Interestingly, geographically focused mergers are associated with the decline in market betas. (More results on geographic changes appear in the next section.)

Table 7. Results of Regression Analysis: Risk

The table reports coefficient estimates of the regression models of change in price volatility ($\Delta PVOL$) of acquiring institutions and the change in market beta ($\Delta Beta$) between pre-merger and post-merger years. Data are for 2010 to 2015. Heteroskedasticity-consistent asymptotic standard errors appear in parentheses. ***, **, and * signify 1%, 5%, and 10% significance, respectively.

Variable	$\Delta PVOL$ Model I	$\Delta PVOL$ Model II	$\Delta Beta$ Model I	$\Delta Beta$ Model II
Constant	15.2446 (13.3808)	24.5868 (16.8133)	0.6459 (0.5153)	0.5868 (0.5201)
Relative Size	-5.1047 (4.6937)	-0.3695 (5.9916)	0.0834 (0.1765)	0.1328 (0.1806)
Ln (Transaction Value)	0.5530 (1.3634)	-0.4294 (1.6239)	-0.1182** (0.05515)	-0.1108** (0.04992)
ROE Target Bank (prior to merger, %)	0.2358* (0.1220)		0.0032 (0.0046)	
SVA Target Bank (prior to merger, \$MM)		0.0193 (0.0381)		-0.0003 (0.0011)
Chargeoffs Acquirer Bank (post-merger, %)	0.7315*** (0.1350)		0.0029 (0.0051)	
NPL Acquirer Bank (post-merger, %)		-3.8248** (1.4605)		0.0157 (0.0444)
NIM Acquirer Bank (post-merger, %)	3.3788 (2.1458)	0.5996 (2.8396)	0.1317 (0.0808)	0.1469** (0.0858)
RBC Acquirer Bank (post-merger, %)	-1.8524*** (0.6408)	-1.8990** (0.8141)	-0.0429** (0.0248)	-0.0465** (0.0254)
Noninterest Expense Ratio Acquirer (post-merger, %)	-0.5884 (1.6161)	0.8641 (2.1450)	0.0591 (-0.0608)	0.0507 (0.0648)
Same State dummy (0;1)	-2.4195 (2.1952)	-1.7378 (2.7744)	-0.3070*** (0.0835)	-0.3029*** (0.0849)
Number of obs.	57	57	57	57
Adj. R ²	0.5363	0.2646	0.2646	0.3459

4.3 Mergers by Geography and Size

In terms of geography, we ran the analysis separating mergers by in- and out-of-state deals. The key findings are presented in Table 8. In the mergers where partners are not headquartered in the same state (30 deals), we find that gains occur on the revenue side from increases in net interest income, noninterest income, and loan volume. These findings suggest the presence of operating efficiencies associated with larger business volume in market expansion mergers. On the other hand, for same-state mergers we find that gains show up on the cost side from reductions in noninterest expense ratios. The loan volumes increase in both types of mergers, but to a somewhat greater extent in the out-of-state mergers, suggesting that such mergers may be driven by the market power considerations. Improvements in performance measures, *ROA*, *ROE*, and *SVA* are more

pronounced in the out-of-state (geographically diversified) merger deals. Similar findings were observed in bank megamergers in Devos et al. (2016), but it is interesting that these conclusions remain true in the case of community banks.

Table 8. Summary of Results by Geography and Relative Size of Merged Banks

The table reports mean measures of performance by geography (*Same state* if merging banks' headquarters are in the same states, *Out-of-state* otherwise) and by relative size (*Smaller target* if the relative size of the target to acquirer is less than 50%, *Larger target* otherwise). Data are for the years 2010 to 2015. ** indicates significance at 5%.

	Geography		Relative size	
	Same state	Out-of-state	Smaller target	Larger target
Δ Loan volume (\$MM)	1,022.93	1,855.39**	1,225.50	1,894.88
Δ Net interest income (\$MM)	40.98	68.91**	45.96	74.23
Δ Non-interest income (\$MM)	6.83	23.01**	12.98	17.39
Δ Non-interest expense ratio (%)	-0.23**	-0.03	-0.12	-0.20
Δ EBT/assets (%)	0.25**	0.13	0.20	0.18
Δ ROA (%)	0.06	0.09	0.07	0.10
Δ ROE (%)	0.23	0.46	0.13	-0.08
Δ SVA (\$MM)	1.14	1.97	3.71**	-4.66

We also attempted to examine whether there were any differences in terms of the size of the resulting combinations. As mentioned above, experts assert that banks that get close to the \$10 billion-asset threshold are in a good position to offset technology and compliance costs. In our sample of 66 mergers, only in seven deals did the acquirers grow and cross the \$10 billion-asset threshold. However, the relative size of targets compared to acquirers is an important factor, as discussed in the regression results. About three-quarters of our mergers are between banks where a target is less than half the size of the acquirer. When we separated mergers by the relative size of banks involved, we observe revenue improvements for both merger types (less than 50% target-to-acquirer ratio), but performance measures *EBT/assets*, *ROE*, and *SVA* improve more when target banks are smaller than acquirers, i.e., in the mergers of non-equals. Thus, there appear to be incentives for smaller banks to grow larger through mergers in order to exploit scale economies and to achieve other scale-related benefits in terms of lending efficiency and lower costs, which may include compliance and technology costs (Hughes et al., 2018).

V. CONCLUSIONS

There has been a great number of bank mergers in the last few decades, and most analysts agree that the process will continue due to a more favorable acquisition environment and anticipated regulatory relief for banks exceeding the \$10 billion threshold. However, there is no consensus in the literature on whether bank mergers unequivocally lead to improvements in bank performance. Some argue that large banks merge mostly to gain market power, while smaller bank mergers are typically motivated

by scale economies, improvements in operating efficiencies, revenue enhancement and other profitable synergies. This study contributes to existing literature by analyzing several recent mergers among community banks with less than \$10 billion in total assets. We contribute to the extant research by using accounting-based and market-based measures to examine how recent merger activity affected performance of acquiring institutions.

Using a sample of 66 merger deals among community banks in the US between 2010 and 2015, we find that in general, operating performance and efficiency of acquiring banks were superior to that of target banks prior to mergers. Several traditional performance measures (*ROA*, *EBT/assets*), market-based *PTBV*, and *ROIC* improved immediately post-merger, suggesting a positive result from these deals. However, other measures that assess shareholders' value added did not produce uniformly positive results. Separating deals by geography and relative bank size pointed to greater revenue-enhancing opportunities in the out-of-state (geographically diversified) merger deals, but a greater possibility of cost reductions in the same-state mergers. In contrast to other research that finds that large bank mergers produce greater performance gains, this study finds evidence that acquiring community banks improve performance by merging with smaller, rather than similar-sized targets. In sum, the results suggest that a more detailed case-by-case analysis of post-merger performance may be warranted to identify the type of merger deals (by geography and size) that enhance shareholder value.

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