

Why do banks acquire non-banks?

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Abstract This study focuses on the reasons for and the implications of banks' decisions to acquire non-bank financial service firms (non-banks). The choice to acquire non-banks is driven by both external forces such as deregulation and regulatory capital and by internal forces such as a diversification strategy and efforts to enhance revenue and return to equity holders. We find that whereas the impact of acquiring non-banks increases their non-interest income, it also increases their non-interest expense. The net effect of choosing non-bank acquisitions lowers their subsequent return on assets, market value, and stock returns, as well as increasing their risk. However, the non-bank acquisitions do significantly increase the acquiring banks top executives' subsequent compensation. We conclude that non-bank acquisitions are driven by both regulatory and strategic forces within the banking industry. However, such acquisitions manifest into agency problems.

Keywords Non-Bank Acquisitions · Subsequent Performance · Executives Compensation

JEL Classification G2 · G21 · G34

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1 Introduction

During the past decade, the US financial industry has experienced an increasing number, as well as a larger transaction volume of acquisitions between banks and non-bank financial services firms (non-banks hereafter). While the banking industry has been experiencing consolidations along with a series of deregulations since the Riegle-Neal Act (1994) and the Financial Services Modernization Act (1999), even prior to these deregulations banks had started to acquire non-bank financial firms. Our sample indicates that commercial banks have acquired non-banks since 1992.¹ Yet, we find limited studies that empirically investigate the acquisitions between banks and other types of financial service firms as a result of these deregulations. This study also sheds light on policy implications on banking sector where major economic and political shifts currently swamp the sector in a significant fashion.²

As the press and research literature have documented, when Chase Manhattan Bank acquired JP Morgan (an investment bank) in 2000, the CEOs of both companies claimed that the merger was driven more by *revenue growth potential* than by cost reduction (Cornett et al. 2006). Fewer than 4 years later, JP Morgan Chase acquired Bank One for almost twice the deal value of its earlier acquisition and claimed that the combined entity was anticipating an annual cost savings of \$2.2 billion. There appear to be significantly different objectives between *acquisitions of banks* by banks and *those of non-banks* by banks. While cost savings is anticipated from mergers between two banks, revenue growth is usually the goal of banks acquiring non-banks. However, there has been no empirical evidence to determine whether banks that acquire non-banks yield revenue-enhancement and/or cost savings over the combined entities after the mergers.

Extensive studies have examined merger and acquisition activities among banks in the United States.³ Most of them studies focus on consolidations within the commercial banking industry, but a limited number of papers does address banks' diversifying mergers. For example, DeLong (2001) reviews the market valuation of focus versus diversifying mergers in banking industry. However, her sample excludes bank-non-bank mergers. Instead of basing her study on the difference in organizational types, she defines diversifying mergers as a low correlation between the stock returns of the bidder and the target at the time of the merger announcements. Cornett et al. also use the same methodology to test the post-merger performance of diversifying mergers.

¹ For example, SouthTrust Bank acquired Carolina Financial Corp. (investment securities) and Citizens Fidelity Bank acquired Cowger & Miller Mortgage (a mortgage company) in early 1992.

² As we revise this version of manuscript as of 2009, we are witnessing continuing turbulences in financial sector, where fire sale types of acquisitions are ubiquitous. JP Morgan Chase bought Bear Sterns at a bargaining price after Bear Sterns went down under the wind of sub-prime mortgages crisis, started in 2007. Lehman Brothers Holdings were purchased piecemeal by Barclays Capital and Nomura Securities. On 22 September 2008, Barclays Capital completed its acquisition of Lehman Brothers' North American Investment Banking and Capital Markets businesses. As a part of the transaction, Lehman Brothers indices have become part of Barclays Capital. Japan's Nomura announced they will buy most of Lehman Brothers' business in Europe in an attempt to catapult itself into the major league of Western investment banks. The federal government bailed out Fannie Mae and Freddie Mae as well as AIG with cash infusion of \$85 billion. JP Morgan acquired major assets of Washington Mutual after WaMu sets a record as the largest bank failure in US history. Wells Fargo acquired the troubled Wachovia.

³ See Berger et al. (1998); Berger et al. (1999); and Knapp, Gart, and Becher (2005) for surveys of literature on bank consolidation activities.

Johnston and Madura (2000) examine market valuation at the announcement of the Citicorp-Travelers Insurance Group merger and find favorable share price responses for commercial banks, insurance companies, and brokerage firms. However, they only review market reaction based on the announcement of one event—the Citicorp and Travelers Insurance Group merger in 1998—and examine its carry-over effect on other financial firms. Gleason et al. (2006) examine market reaction to mergers between banks and non-banks and joint ventures between the same.

Several studies examine Section 20 subsidiaries, the channel that the commercial banks have taken advantage of to conduct investment banking services.⁴ These studies specifically review the effect of commercial banks entering investment banking territory only, rather than examining the motivations of diversification across different financial service industries.

Existing studies offer several explanations of why mergers and acquisitions occur in the financial sector: (1) External factors such as changes in a bank's competitive environment resulting from deregulation and regulatory capital restrictions can affect the decisions to provide financial services other than loans and deposits (Mitchell and Mulherin 1996; Berger et al. 1999; DeLong 2001). (2) Consolidation is also driven internally by the need for cost reduction and/or revenue-enhancing activities, as documented by Cornett et al. (2006). (3) Diversification of financial activities and geographic locations also may influence such decisions (Gorton and Rosen 1995; Klein and Saidenberg 2000; Rajan et al. 2000; Cyree et al. 2002a). (4) According to the agency theory, managerial self-interest and incentive also play important roles in bank consolidation (Bliss and Rosen 2001; Houston et al. 2001; Anderson et al. 2004). In this study, we examine whether banks' decisions to acquire non-banks is driven by changes in the regulatory and business environments or a diversification strategy specifically due to the Financial Services Modernization Act (1999). We also investigate whether decisions to acquire non-banks have resulted in higher subsequent revenue, lower costs, higher operating profit and market value, lower risk, or merely increased pay for top executives of the combined entities after the mergers.

In the first stage, this study investigates the external and internal factors that drive banks' decisions to acquire non-banks during the 1992–2005 period. Second, we examine the impact of choosing non-bank acquisitions on the combined entities' financial condition subsequent to these acquisitions. And last, we explore the agency problem in non-bank acquisitions by examining the impact on the acquirers' top managers' compensation after the mergers. Using a Heckman two-stage regression, we examine whether banks' decisions to acquire non-banks (as opposed to acquiring other banks) affect their subsequent net interest margin, non-interest income, non-interest expense, ROA, Tobin Q, stock returns, risk, and top executives' compensation.

The remainder of this paper is organized as follows. Section 2 provides a brief summary of relevant literature on bank consolidations, banks managers' incentives, and how this paper contributes to the literature. Section 3 describes our sample and methodology for the empirical estimation. Section 4 discusses the major empirical findings, and Section 5 concludes.

⁴ See Puri (1999); Bhargava and Fraser (1998); Cornett et al. (2002); Gande et al. (1999) for studies of Section 20 affiliates.

2 Why banks are interested in acquiring non-bank financial firms

Commercial banks may be interested in acquiring non-bank financial firms for several reasons. External factors such as regulatory changes and bank capital adequacy requirements may force banks to expand their activities through acquisitions of non-banks. Their internal desires to seek cost efficiency and to increase revenue or simply to maximize profit can also be determining factors. One can posit that a bank with a non-bank subsidiary is able to offer a wider array of financial services to its customers beyond traditional banking services, thus enhancing its revenue and market value. Lastly, bank managers may have their own personal incentives for acquiring non-banks.

2.1 Regulatory environment

A series of intermittent deregulations has intensified the competition not only among members of the traditional banking sector but also among those of the various sub-sectors of the financial industry including the non-banking sector. Starting in mid-1980, the financial industry experienced steady and often drastic deregulations—demolishing restrictions and constraints imposed on the practices of commercial banks. For instance, the Depository Institutions Deregulation and Monetary Control Act of 1980 (dismantle Regulation Q) and the Garn-St. Germain Depository Institutions Act of 1982 were passed to solve the savings and loans (S&Ls) crisis. These two Acts have permitted S&Ls' activities to spillover into traditional commercial banks territory.

Before 1963, the banking industry had been subject to the Glass-Steagall Act of 1933 which sought to impose a rigid separation between commercial and investment banking, preventing the former from becoming “principally engaged in security dealings.” The spirit of the Glass-Steagall Act was a prevailing regulatory obstacle to commercial banks who often attempt to diversify their banking practices into non-commercial banking practices. However, in 1963 and later culminating in 1987, commercial banks entered the world of underwriting businesses such as municipal revenue bonds, commercial paper, and mortgage-backed securities. Citicorp, J.P Morgan, and Bankers Trust were part of the movement in this period. In 1987, Section 20 subsidiaries were created with 5% revenue restrictions; later in 1989 the restriction was relaxed to 10%, followed by 25% in 1996.

Banks also started diversifying their assets into brokerage services. In 1981, BankAmerica acquired Charles Schwab and Company, and many others followed suit. In 1994, the Riegal-Neal Banking Act allowed banks to branch across state lines. For example, banks can more easily enjoy multi-bank holding company structures, or build de novo branches across state lines. Certainly, interstate branching allows geographic expansion and as a result, it allows increasing revenue sources. However, a promise of a cost reduction has had a less clear outcome.

In 1998, banks started combining their activities with insurance businesses. For example, Travelers Group, a financial services company with everything but retail/commercial banking, bought out Citibank to form Citigroup. This era also witnessed mega deals such as Bank of America/NationsBank, Bank One/First Chicago, and Norwest/Wells Fargo.

In 1999, the Financial Services Modernization Act was passed repealing the Glass Steagall Act and increasing competition in banking activities from financial

institution outside the realm of banking. This increased competition had to play a role in influencing bank managers' strategic choices to acquire non-banks in order to stay competitive. The 1999 law allows banks to establish other financial services through their subsidiaries, thus compelling banks to consider providing financial services such as investment banking and insurance in addition to traditional banking activities (Berger et al. 1999; Akhibe et al. 2004). With a series of deregulations in banking, one would expect non-bank acquisition activities to evolve over time.

2.2 Revenue enhancement versus cost savings

Two common internal reasons for mergers and acquisitions are cost reduction and revenue growth.⁵ While there are extensive studies examining both the non-bank financial and bank sectors that conclude limited synergy from mergers, more recent studies find a benefit to mergers among these two groups. Both current literature and bank managers claim that the main objective for mergers among banks is to reduce redundancy of staff and back-office operations, lowering their average cost to reach certain *economies of scale* (Rhoades 1994; Houston et al. 2001). Houston et al. (2001) specifically finds that cost savings outweigh revenue enhancement in identifying the source of merger gains. They argue that revenue enhancement is less important and even suggests that potential revenue loss may occur from a part of consolidations. Their results sharply contrast with the later study of Cornett et al. (2006) that finds simultaneous effects of both revenue growth and cost reduction for the combined entity. Because of these inconsistent results, we posit merger gains in bank-non-bank consolidation could stem from revenue growth, cost-savings, or both. If the motive for the acquisition is to enhance interest and non-interest revenues (reduce interest and non-interest costs), we would expect that acquirers' post-merger revenues (costs) are positively (negatively) affected by the choice to acquire non-banks.

2.3 Focusing versus diversifying strategy

Stein (1997) and Hubbard and Palia (1999) argue that firms' internal efforts to obtain cash flows from various lines of business divisions enhance their market value and reduce their unsystematic risk. However, the recent studies find the opposite. For example, Lang and Stulz (1994) and Berger and Ofek (1995) find that firms that are focused on their core businesses have higher market valuations. Rajan et al. (2000) find that diversification is costly because misallocation of resources can occur in the presence of internal power struggles among diversified divisions.

In the banking literature, Cyree et al. (2000b) find that banks' growth through acquisitions increases the combined entities' market performance. Cyree et al. (2000a) show that a bank's growth choice between the options of de novo and external acquisitions depend on its internal characteristics and regulatory environment. DeLong (2001, 2003) finds that bank mergers of two enterprises with similar earnings streams

⁵ Merger strategy among banks to reduce costs is known as mergers strategy to gain the *economies of scale*. Merger strategy to increase revenue from activities other than traditional banking is known as mergers to explore the *economies of scope*. Therefore, the terms revenue-enhancement and cost savings mergers refer to the economies of scope and scale.

enhance the combined firms' long-term stock returns performance. She finds that bank acquisitions that focus on the same states and business activities have higher market valuations and greater long-term performance. Cornett et al. (2006) also find that large bank mergers and geographically focused mergers produce greater operating performance gains. However, in addressing diversifying mergers, both studies use bank sample, instead of a bank-non-bank sample. Therefore, our study fills the gap in literature to address diversifying mergers directly (i.e., banks acquiring non-banks).

Johnston and Madura (2000) argue that the benefit of diversifying assets is to increase non-interest income by offering insurance or brokerage services, so reducing the unsystematic risk. This can occur as a result of decreasing dependence on loan quality condition and interest rate movements by acquiring non-banking assets. They find positive and significant valuation effects upon the announcement of the Citigroup merger. Interestingly, they examine market reactions among non-financial firms on the announcement date of the Citigroup merger only, rather than examining market reaction on the actual announcement dates of individual merger events. The results may be biased because they are not purely a direct measure of actual mergers announcements on market value.

Gleason et al. (2006) demonstrate that the market react favorably over diversifying mergers and joint ventures between banks and non-banks. They also find that mergers between banks and non-banks increase the unsystematic and the total risk of the combined entities while joint ventures between banks and non-banks reduce the risks.

If decisions to acquire non-banks are driven by a diversification motive as opposed to a focus strategy, then we would expect that they enhance sources of revenue for the combined entity. More importantly, the market measure of return (risk) for the combined entities after merging will be positively (negatively) affected by the merger choice.

2.4 Managers' incentives for mergers

Mergers can be driven by the managers' self-interest (Roll 1986; Gorton and Rosen 1995; Houston et al. 2001). In a large organization where diffused ownership is typical, inadequate incentives to monitor the behavior of managers undermines the integrity of managers. Hence, when compensation plans for managers are option-based, managers may use resources of the firm to engage in mergers to increase the size of firm, thus increasing the potential size of their benefits. Aggarwal and Samwick (2003) find empirical evidence to support the agency theory that is consistent with a managerial desire to increase private benefits through diversification. Managers also utilize mergers to diversify their personal risk (Amihud and Lev 1981; Agrawal and Mandelker 1987; Morck et al. 1990; May 1995); therefore, the form of compensation package could also dictate merger consequences. Datta et al. (2001) find a strong positive relationship between equity-based compensation received by acquiring managers and stock price response around and following corporate acquisition announcements. Houston and James (1995) find that bank CEOs receive a lower percentage of incentive compensation and that their salaries are more likely to be linked to performance than incentive compensation.

Several banking studies consider the effect of bank deregulation on the sensitivity of pay for performance. For example, Crawford et al. (1995) and Hubbard and Palia (1995) find higher levels of pay and stronger pay-performance relation in deregulatory,

competitive corporate control markets, i.e., those in which interstate banking is permitted. Anderson et al. (2004) find that the change in CEO compensation after mergers is positively related to anticipate merger gains. Collins et al. (1995) find that the amount of total compensation and the incidence of long-term incentive compensation of large BHCs were positively related to the expanded investment opportunities available to banks during the 1980s. Bliss and Rosen (2001) find that bank CEO compensation increases after mergers even if the mergers cause the acquiring bank's stock to fall after the announcement, indicating the existence of the agency problem in bank mergers. However, using a Section 20 subsidiaries sample, Fields and Fraser (1999) find that entry by commercial banks into investment banking has had only a very limited effect on the pay-performance sensitivity of their CEOs compensation.

Overall, the existing literature finds the sensitivity of pay relative to bank expansions, but it is inconclusive on whether the agency problem exists in typical bank mergers. Thus, it is an empirical matter to test whether the same agency problem exists in a bank-non-bank sample. We posit that if non-bank acquisitions are driven by managers' private benefits (agency problem), we would expect a positive relation between the choice to acquire non-banks and the top managers' pay structures.

2.5 Hypotheses

Our study investigates merger events in which banks decide to acquire non-banks rather than acquiring other banks. We conduct tests for our investigation based on theories from the existing literature. The main goal of our study is to answer the following three questions:

1. What are the factors that determine banks' decisions to acquire non-banks?
2. How does the decision to acquire a non-bank affect the combined entity's net interest margin (NIM), non-interest income and expenses, operating profit, market value, stock returns, and volatility of stock returns during the period after acquisitions?
3. Is the acquiring banks' top managers' compensation structure affected by their choice to acquire non-banks as opposed to banks?

While there are extensive studies examining the reason for mergers among banks, none of the existing studies focuses specifically on the reasons behind banks' acquisition of non-banks.

3 Sample description and methodology of estimation

3.1 Sample description

This study uses the sample of mergers and acquisitions between banks and non-banks as well as banks and banks during the 1992–2005 period. The acquisitions data are compiled from the Securities Data Corporation Mergers and Acquisitions (SDC M&A) database. In the sample, acquisitions must be completed with a transaction value of \$1 million or more and acquirers must own less than 50% before acquisitions and own 100% of target firms after acquisitions (Marsulis et al. 2007). Financial information and stock returns are extracted from Compustat Bank Annual data and the CRSP. The

top five executives' compensation for acquirers is collected from the Standard and Poor's (S&P) Execucomp database.⁶ We define banks based on the four-digit primary Standard Industrial Codes (SICs) from 6020 to 6099. Financial firms with SICs from 6100 to 6799 are considered non-banks.⁷ Our full sample consists of 1,009 completed acquisitions conducted by 174 banks, of which 291 transactions are non-banks acquisitions by 41 banks. When we merge our data with the Execucomp data, our sample reduces to 598 completed acquisitions across 89 banks with 188 non-banks acquisitions by 30 banks. Table 8 provides a sample list of banks that acquired non-banks. Table 9 provides a description of the variables that we use in this study.

The total transaction value and frequency of non-bank acquisitions over bank acquisitions started to increase during the past decade. Figure 1a indicates that the total transaction value for non-bank acquisitions reached its peak in 2000. Figure 1b shows that the frequency of non-bank relative to bank acquisitions increases significantly in 1999 and non-bank acquisitions surpass bank acquisitions in 2002, but start to decline thereafter. These figures indicate that the enactment of the Financial Services Modernization Act in 1999 has stimulated non-bank acquisitions. The Financial Services Modernization Act also allows banks to have non-bank subsidiaries.

Table 1 summarizes the top-ten banks that acquire non-banks based on the amount of the merger transactions. We find that the top ten banks have only a few non-bank acquisitions with significantly large transactions. The top ten banks conducted more than \$114.5 billion in non-bank acquisitions (57% of the total transaction value) across 51 cases of mergers (17.5% of the total cases). Citigroup and Chase Manhattan banks lead the group of banks that acquire non-bank financial firms, with total transaction value of over \$80 billion in 12 acquisitions. The rest of the non-bank acquisitions are relatively small transactions compared to those of these top ten acquiring banks.⁸

Figure 2 displays the proportion of non-bank acquisitions based on the transaction values across all different financial service lines of businesses. We classify non-banks' lines of business based on their four-digit primary SIC codes stated by the Bureau of Labor and Statistics (BLS) and the Compustat database.⁹ Consumer finance (SIC 6141) and investment banking (SIC 6211) represent 66% of the non-bank acquisitions. Other financial services, such as life insurance, property and casualty, health insurance, pension funds, etc., represent 6% of non-bank acquisitions. When we classify non-bank acquisitions based on the frequency of acquisitions (pie chart not reported), we find that acquisitions of mortgage companies, investment banks, consumer finance companies, investment advising

⁶ Ang et al. (2002) show that the bank's CEO is not the only top executive that is affected by bank performance. We add all top-five executives' salaries, bonuses, and stock options (incentives) to compute their annual pay. We use only observations that have the pay of at least five top executives. When firms report more than five top executives, we pick the five executives who have the highest total pay. The univariate test between the full sample of 1,009 and a subsample of 598 is reported in Table 7 (and available upon request).

⁷ We exclude foreign banks (SIC 6082) as targets and acquirers and bank holding company (SIC 6712) as targets.

⁸ We conduct a sensitivity analysis by excluding Citigroup and Chase Manhattan only and excluding the top ten of the non-bank acquisitions. We find that all our results in this study remain robust with these exclusions.

⁹ Gleason et al. (2006) also utilize the two-digits SIC codes to distinguish non-banks from banks.

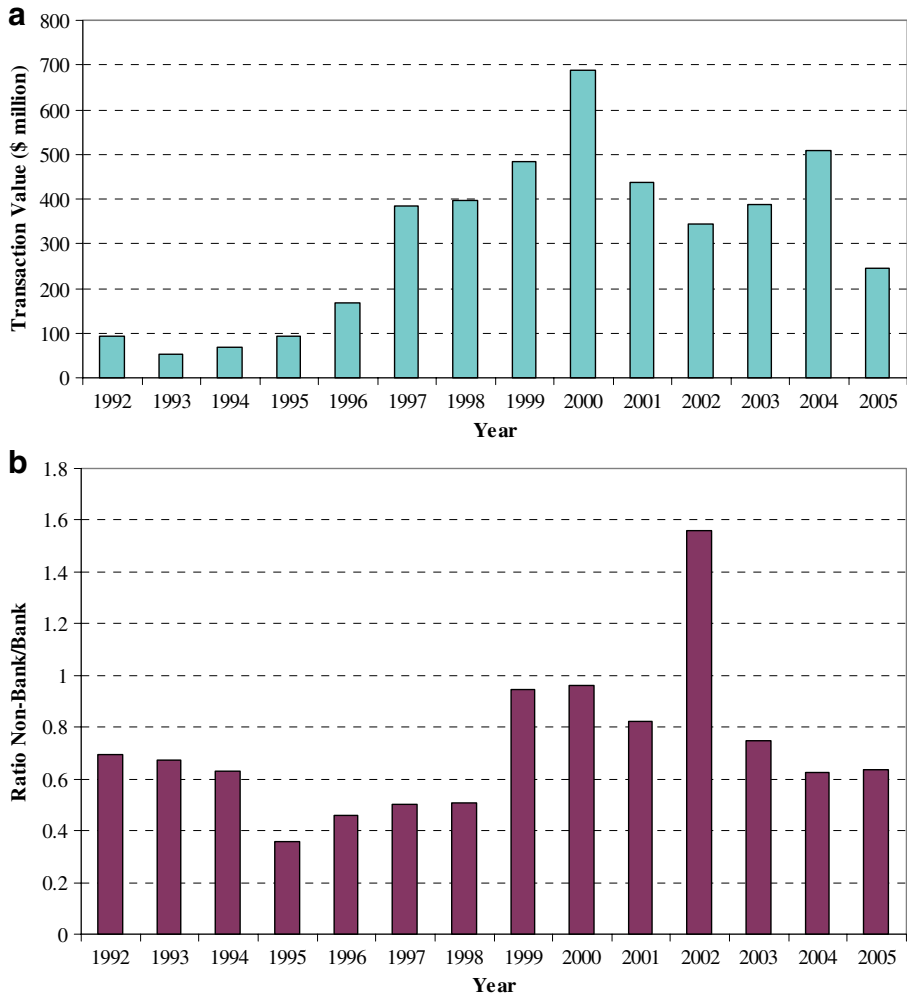


Fig. 1 a Total transaction value for non-bank acquisitions. b Ratio of frequency of non-bank versus bank acquisition

firms, and miscellaneous financial firms represent more than half of the total merger frequencies, followed by business credits, life insurance, and pension funds.

Table 2 provides the descriptive statistics of our sample of over 1,009 acquisitions during the 1992–2005 period. There are 291 non-bank acquisitions versus 718 bank acquisitions (29% of the sample represents non-bank acquisitions). Univariate tests reveal that the acquirers’ net interest margin (net interest income minus net interest expense) 1 year after non-bank acquisitions is significantly lower compared to that of bank acquisitions. The non-interest income following non-bank acquisitions is significantly higher than that of bank acquisitions. However, non-bank acquisitions also have significantly higher non-interest expense. Overall, the univariate tests indicate that the post-merger performance for non-bank acquirers shows higher revenue from other sources outside of traditional banking, indicated by higher non-interest income, but lower

Table 1 Top 10 non-bank acquirers

| Acquirers name | Acquisition frequency | Transaction value (\$ million) |
|----------------------------------|-----------------------|--------------------------------|
| Citigroup Inc | 8 | 45,346.5 |
| Chase Manhattan Corp | 4 | 35,239.36 |
| Washington Mutual | 8 | 11,888.66 |
| First Union Corp | 8 | 4,605.58 |
| NationsBank Corp | 3 | 3,625 |
| PNC Bank Corp | 7 | 3,536.884 |
| Bankers Trust New York Corp | 3 | 2,862.351 |
| Fleet Financial Group Inc | 3 | 2,640.489 |
| Bank One Corp | 4 | 2,591.18 |
| Bank of New York Co Inc | 3 | 2,233.75 |
| Total top 10 non-banks acquirers | 51 | 114,569.754 |
| Others | 240 | 86,891.246 |
| Total | 291 | 201,461 |

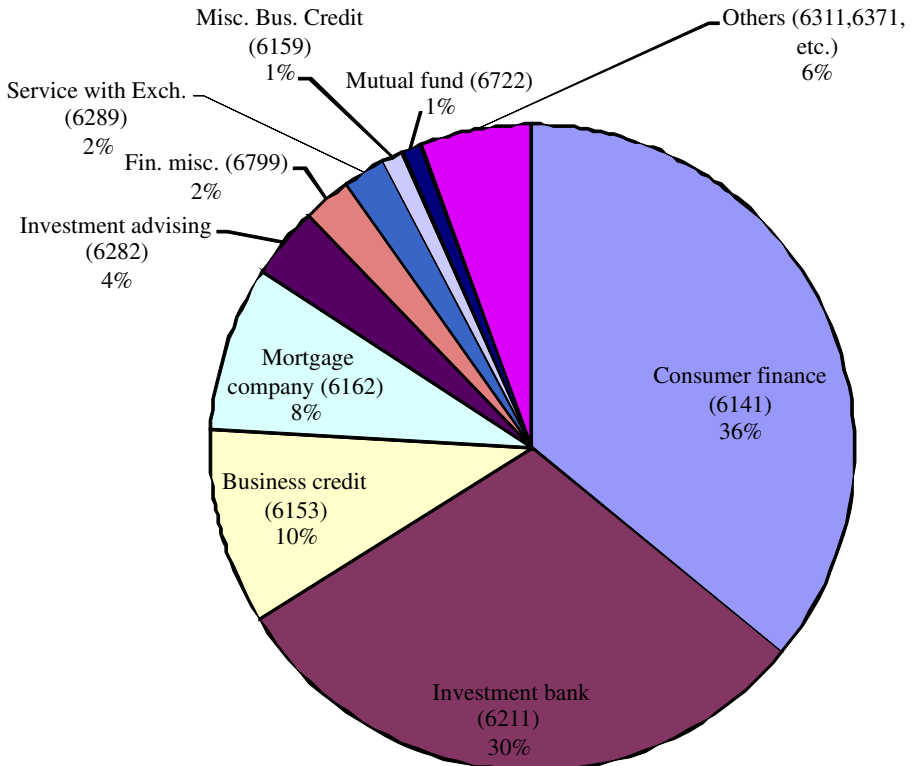


Fig. 2 The distribution of non-bank targets based on merger transaction value

Table 2 Sample descriptive statistics

| Variable | All sample | Target banks | Target non-bank | T-test |
|--------------------|------------|--------------|-----------------|----------------------|
| NIM | 4.076 | 4.149 | 3.867 | 5.667 ^c |
| NONINTINC | 0.940 | 0.712 | 1.583 | -10.675 ^c |
| NONINTEXP | 3.322 | 3.188 | 3.710 | -7.313 ^c |
| ROA | 1.133 | 1.143 | 1.110 | 0.853 |
| Tobin Q | 1.103 | 1.104 | 1.102 | 0.325 |
| ROE | 13.318 | 13.468 | 12.947 | 1.780 ^a |
| RETURN | 1.055 | 1.068 | 1.020 | 0.247 |
| CAR (-2, +2) | -0.224 | -0.366 | 0.131 | -1.614 |
| DEVRET | 6.562 | 6.467 | 6.801 | -1.885 ^a |
| DEPAST | 0.7424 | 0.7444 | 0.7197 | 5.405 ^c |
| LOGASSET | 8.652 | 8.573 | 8.845 | -2.323 ^b |
| ASSETG | 23.671 | 23.494 | 24.108 | -0.367 |
| TIER1CAP | 10.803 | 11.067 | 10.043 | 4.925 ^c |
| CASHFLOW | 2.241 | 2.253 | 2.210 | 0.996 |
| NPA | 0.482 | 0.462 | 0.533 | -2.530 ^b |
| SEGDIV | 1.041 | 1.006 | 1.127 | -4.090 ^c |
| STATEBRANCH | 0.987 | 0.987 | 0.986 | 0.154 |
| TRANSACTION VAL. | 418.132 | 460.409 | 316.445 | 0.685 |
| CASH | 0.163 | 0.141 | 0.216 | -2.968 ^c |
| STOCK | 0.495 | 0.540 | 0.381 | 4.618 ^c |
| SUBSID | 0.100 | 0.068 | 0.179 | -5.365 ^c |
| PRIVATE | 0.430 | 0.462 | 0.351 | 3.266 ^c |
| PUBLIC | 0.468 | 0.468 | 0.467 | 0.018 |
| RELSIZE | 0.134 | 0.130 | 0.143 | -0.755 |
| TENDER | 0.002 | 0.001 | 0.003 | -0.661 |
| DBIDS | 0.247 | 0.238 | 0.268 | -0.997 |
| PRE1999 | 0.589 | 0.606 | 0.546 | 1.740 ^a |
| Total observations | 1,009 | 718 | 291 | |

The target banks are a subsample of the acquisitions by acquiring banks when the targets are also banks. The target non-banks are a subsample of acquisitions by acquiring banks at which the targets are not banks, based on their four-digit primary SIC codes. Definitions and the unit measurement of variables are provided in Table 9. ^c, ^b, and ^a indicate 1%, 5%, and 10% levels of statistical significance, respectively.

net income from its core banking businesses (NIM), lower deposit-to-asset ratio (DEPAST) and higher non-interest expense compared to bank acquisitions. However the post-acquisition financial performance (ROA and Tobin Q), stock return and risk from non-bank acquisitions are not significantly different from bank acquisitions.

We find that non-bank acquirers are usually banks with larger asset size (LOGASSET), a higher percentage of non-performing assets (NPA), and broader business segments (SEGDIV) than bank acquirers. More importantly, banks with lower tier 1 equity capital (TIER1CAP) are more likely to conduct non-bank acquisitions. These findings indicate that non-bank acquisitions can be driven by the acquirers'

internal strategic choice to diversify their lines of business outside of the traditional banking services to increase their asset utilization and their reaction to reduced regulatory capital requirements that are imposed on their traditional banking business.

Examining the merger deal characteristics, we find that non-bank acquisitions tend to be cash rather than equity-financed deals (STOCK), and most likely targets are subsidiaries (SUBSID) rather than private or public firms. The mean transaction value for non-bank acquisitions seems to be smaller than that of bank acquisitions, but the difference is not statistically significant. Interestingly, we find that non-bank acquisitions compared to bank are less frequent before the Financial Services Modernization Act (1999), but this difference is only marginally significant at the 10% level.

3.2 Multivariate regression estimation

The choice of banks to acquire non-bank financial firms as opposed to acquiring other banks is an indicator variable (DNONBANK). We use a standard logistic (logit) regression to determine the factors that significantly affect the probability of banks to acquire non-banks.¹⁰ This logistic regression represents the first-stage regression to estimate the impact of external and internal factors of acquiring banks and merger-deal characteristics on banks' choices to acquire non-banks. Since there is no literature on bank mergers that examines the likelihood of banks to acquire non-bank targets, we build our first-stage logistic regression model based on recent empirical literature on general mergers and acquisitions.

We use the acquirers' Tier 1 capital equity, cash flow, log assets and asset growth to represent the bidders' characteristics and payment methods, target types, relative size, tender offer, and multiple bids to represent the deal characteristics. These variables are consistent with those used in Marsulis et al. (2007) and Moeller et al. (2005). We include two variables that represent diversifying activities and location acquisitions (SEGDIV and STATEBRANCH). We use return on equity (ROE) to represent the acquirers' pre-merger performance and a dummy variable (PRE1999) to capture the structural change from the Financial Services Modernization Act on non-banks' acquisition activities before versus after the Act. We also use a time trend year dummy variable to capture structural changes that may occur in the financial services industry from year to year.

This study also examines the impact of banks' choice to acquire non-bank targets on the acquirers' subsequent revenue (net interest margin and non-interest income), cost (non-interest expense), operating profit (ROA) and market performance (Tobin Q and annual stock return), risk, and top executives' compensation structure. Since the choice to acquire non-banks is endogenous, we model this estimation using the two-stage Heckman treatment regression estimation. The first stage estimates the probability of banks acquiring non-banks using a logistic (probit) regression, as explained above. In the second stage, we estimate the impact of banks' choice to acquire non-banks on acquirers' subsequent revenue, cost, profit, performance, risk, and top executives' compensation structure and correct for unobservable factors that affect banks' choices to acquire non-banks.

¹⁰ The bank decision to acquire non-bank instead of other bank is conditional upon its decision to acquire or not to acquire. Therefore, we also conduct a conditional logistic regression estimation to test the robustness of our results. We find that the results from conditional logistic regression estimation are qualitatively the same as logistic regression reported on Table 3.

Greene (1993) provides a description for estimating the Heckman treatment regression. The second-stage regression of acquirers' post-merger condition can be stated as:

$$Y = \beta'X + \delta S + \varepsilon, \quad \varepsilon \sim N(0, \sigma_\varepsilon^2) \tag{1}$$

where Y represents the acquirers' (or the combined entities') subsequent conditions, such as revenue, cost, profit, market performance, risk, or top managers' compensation after completed acquisitions. X is a vector of independent variables that affect the acquirers' post-merger conditions, such as the acquirers' equity capital, cash flow, non-performing asset ratio, log assets, asset growth, payment methods, target types, relative size, tender offer, and multiple bids. S is the choice variable, taking a value of 1 if the banks acquire non-banks and zero if the banks acquire other banks (DNONBANK). Delta (δ) is a coefficient that determines whether there is a difference in acquirers' post-merger conditions if they acquire non-banks instead of banks. If δ is not significant, it implies that the acquirer experiences no significant difference between acquiring a non-bank versus acquiring bank during the post-merger period.

However, there are unobservable (omitted) variables besides the observable variables (bidders' and deal characteristics) that determine banks' choices to acquire non-banks as opposed to acquiring banks. Therefore, we need to include these omitted factors in our second-stage regression. We resolve this issue by adding a correction to the model above using the Heckman treatment effect known as the inverse Mills ratio. When S equals one, i.e., banks acquire non-banks, the residual ε has the following expectation:

$$E(\varepsilon|S = 1) = E(\varepsilon|S^* > 0) = E(\varepsilon|u > -\gamma'X) = \rho\sigma_\varepsilon \left[\frac{\varphi(\gamma'X)}{\Phi(\gamma'X)} \right]$$

where $\rho = \text{Corr}(\varepsilon, u)$, and σ_ε is the standard deviation of ε . This implies that

$$E(Y|S = 1) = \beta'X + \delta + \rho\sigma_\varepsilon \left[\frac{\varphi(\gamma'X)}{\Phi(\gamma'X)} \right]$$

For estimation purposes, we write the second-stage regression as the following ordinary least squares (OLS) equation:

$$Y = \delta + \beta'X + \beta_m m(\gamma'X) \tag{2}$$

where, $m(\gamma'X) = \phi(\gamma'X)/\Phi(\gamma'X)$, and $\beta_m = \rho\sigma_\varepsilon$. Thus, $[\delta, \beta, \beta_m]$ are the slope coefficients estimated from the second-stage regression. The $m(\gamma'X)$ is also known as the inverse Mills ratio.¹¹

¹¹ The inverse Mills ratio (sometimes also called the correction for "sample selection bias") is used in regression analysis to take account of a possible endogeneity bias due to omitted variables that influence the choice variable. If a dependent variable is censored, i.e., not all observations have an observable outcome, it causes a concentration of observations at zero values. With a censored dependent variable, there is a violation of the Gauss-Markov assumption of a zero correlation between independent variables and the error term. Heckman (1979) proposed a two-stage estimation procedure using the inverse Mills ratio to take account of the endogeneity bias due to omitted variables. In the first stage, a regression for observing banks acquiring non-banks is modeled with a probit (logit) model. The estimated parameters from the probit (or logit) are used to calculate the inverse Mills ratio, which represents the unobservable factors that affect banks' decisions to acquire non-banks beyond the bidders financials and deal characteristics, and is then included as an additional explanatory variable in the second-stage OLS estimation.

When banks decide to acquire banks as opposed to non-banks:

$$E(Y|S = 0) = \beta'X + \rho\sigma_\varepsilon \left[\frac{-\varphi(\gamma'X)}{1 - \Phi(\gamma'X)} \right]$$

This also may be estimated by a linear, cross-sectional regression equation (OLS):

$$Y = \beta'X + \beta_m m'(\gamma'X) \quad (3)$$

where, $m'(\gamma'X) = -\phi(\gamma'X)/[1-\Phi(\gamma'X)]$, and $\beta_m = \rho\sigma_\varepsilon$.

If δ is statistically significant after correcting for the unobservable factors by including the inverse Mills ratio in the second-stage regression, the empirical evidence supports the hypothesis that the choice of a non-bank acquisition significantly affects the acquirer's post-acquisition conditions.

4 Major findings

4.1 Probability of banks acquiring non-banks

The results from logistic regressions that examine the factors influencing banks' decision to acquire non-banks are presented in Table 3. The reported slope coefficients are stated in the marginal effect (dY/dX) format. We find that banks with return on equity (ROE) one percent higher than the mean of the sample have an approximate 0.5% less likelihood of acquiring non-banks. Banks with more than one business segment (SEGDIV) have 3.4–5.8% more likelihood of acquiring non-banks. This implies that banks already having diversified lines of business are more likely to conduct non-bank acquisitions to further diversify their financial services as their main objective. The banks with higher Tier 1 equity capital are less likely to acquire non-banks. A one-percent increase in acquirers' Tier 1 capital decreases their likelihood of acquiring non-banks by 13% (third column) to 23% (first column). The impact of acquirers Tier 1 capital is economically significant. We believe that this result is driven by the banks' desire to reduce the regulatory capital requirement. Banks with higher Tier 1 equity capital are more likely to acquire other banks rather than non-banks. In other words, by acquiring non-banks, banks can reduce their regulatory burden to hold enough capital equity to meet the requirements imposed on depository institutions.

The acquirers' operating cash flow over total assets (CASHFLOW) also positively affects the probability of non-bank acquisitions. A one-percent rise in acquirers' cash flow increases the likelihood of non-bank acquisitions by 1.5–2.4%. This finding is consistent with Jensen's (1986) free cash flow, which states that firms with higher free cash flow are more likely to conduct acquisitions that may not necessarily maximize stockholders' wealth. We find that acquirers' size (LOGASET) increases the likelihood of non-bank acquisitions but the asset growth (ASSETG) does not affect the banks' likelihood of acquiring non-banks. We also find no evidence that non-bank acquisitions are driven by the acquirers' desire to expand their business location into other states (STATEBRANCH).

Table 3 Logistic regression for determinants of non-bank acquisitions

| Logistic regression | DNONBANK | DNONBANK | DNONBANK |
|---------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| ROE | -0.0050 (2.05) ^b | -0.0048 (2.35) ^b | -0.0041 (2.40) ^b |
| SEGDIV | 0.0577 (2.42) ^b | 0.0346 (1.81) ^a | 0.0342 (1.76) ^a |
| TIER1CAP | -0.2291 (3.23) ^c | -0.1886 (2.18) ^b | -0.1302 (1.98) ^b |
| CASHFLOW | 0.0242 (2.85) ^c | 0.0177 (2.48) ^b | 0.0150 (2.33) ^b |
| LOGASSET | 0.0165 (2.85) ^c | 0.0214 (4.23) ^c | 0.0199 (3.97) ^c |
| ASSETG | -0.0004 (0.89) | -0.0002 (0.61) | -0.0004 (0.96) |
| STATEBRANCH | | 0.0742 (0.83) | 0.0189 (0.23) |
| STOCK | | -0.0450 (2.13) ^b | -0.0555 (2.80) ^c |
| SUBSID | | 0.1579 (6.26) ^c | 0.1587 (6.24) ^c |
| PRIVATE | | 0.1121 (5.91) ^c | 0.1112 (5.99) ^c |
| RELSIZE | | 0.0335 (1.14) | 0.0211 (0.65) |
| TENDER | | 0.3053 (2.39) ^b | 0.2893 (1.70) ^a |
| DBIDS | | 0.0207 (1.06) | 0.0299 (1.55) |
| PRE1999 | -0.0656 (3.59) ^c | -0.0502 (2.98) ^c | |
| D1992 | | | -0.1039 (2.03) ^b |
| D1993 | | | -0.1103 (2.19) ^b |
| D1994 | | | -0.1178 (2.60) ^c |
| D1995 | | | -0.1263 (2.50) ^b |
| D1996 | | | -0.0520 (1.83) ^a |
| D1997 | | | -0.0634 (1.78) ^a |
| D1998 | | | 0.0073 |

Table 3 (continued)

| Logistic regression | DNONBANK | DNONBANK | DNONBANK |
|---------------------|--------------------|--------------------------------|--------------------------------|
| | | | (0.19) |
| D2000 | | | 0.0112 (0.29) |
| D2001 | | | 0.0268 (0.72) |
| D2002 | | | 0.0261 (0.67) |
| D2003 | | | -0.0676 (1.62) |
| D2004 | | | -0.0664 (1.62) |
| D2005 | | | -0.0329 (0.82) |
| Intercept | -0.1568 (1.41) | -0.3239 (2.31) ^b | -0.2766 (2.04) ^c |
| Pseudo R-square | 0.0661 | 0.1536 | 0.1884 |
| Chi-square | 54.50 ^c | 139.89 ^c | 155.38 ^c |
| Observations | 1,009 | 1,009 | 1,009 |

The dependent variable is a choice variable that is equal to one if the acquiring banks acquire non-bank financial firms and zero if acquiring banks acquire other banks (DNONBANK). In column (3), we include year dummies to capture structural changes in financial sectors from year to year. The omitted year dummy is 1999 at which the Financial Services Modernization Act is enacted. The reported coefficients are stated in marginal effects. T-ratio is reported in parentheses below the coefficient. ^c, ^b, and ^a indicate 1%, 5%, and 10% levels, respectively.

Looking at merger deal variables, we find that the probability of non-bank acquisitions is reduced by approximately 5% when acquirers use stock only as a method of payment. It seems that acquirers use cash only or a combination of cash and stock to acquire non-banks. Non-bank acquisitions are also more likely for targets that are subsidiaries of firms (SUBSID) or those that are privately (PRIVATE) rather than publicly held (PUBLIC is the omitted dummy). We do not find the relative size of targets over acquirers (RELSIZE) and multiple bids (DBIDS) to significantly influence the choice to acquire non-banks. The tender offer bid increases the likelihood of non-bank acquisitions by approximately 30%. We also find empirical evidence that non-bank acquisitions are 5–6% less likely prior to the 1999 Financial Services Modernization Act (PRE1999). We replace the PRE1999 with year-dummies and find structural changes of non-bank acquisition activities from 1992 to 1997 banks are less likely to acquire non-banks compared to 1999.¹² Therefore, we find empirical evidence that banks' regulatory changes favor their decision to acquire non-banks rather than other.

¹² The estimated slope coefficients for year dummies are not reported in column (3) to conserve space. They are available from the authors upon request.

4.2 Revenue enhancement versus cost savings

Most managers and existing studies claim that bank acquisition activities are driven to enhance revenue or/and cut costs. Table 4 presents the Heckman regression results

Table 4 The bank choice to acquire a non-bank and its subsequent performance

| Heckman regression | NIM | NONINTIN | NONINTEXP | ROA | TOBINQ |
|------------------------|---|--|--|---|---|
| <i>DNONBANK</i> | <i>-1.2947</i> <i>(4.52)^c</i> | <i>1.3577</i> <i>(4.39)^c</i> | <i>1.3658</i> <i>(6.49)^c</i> | <i>-0.6679</i> <i>(3.04)^c</i> | <i>-0.0695</i> <i>(2.30)^b</i> |
| TIER1CAP | 0.0165 (2.12) ^b | -0.0396 (4.83) ^c | -0.0334 (5.62) ^c | 0.0121 (3.14) ^c | 0.0066 (9.12) ^c |
| CASHFLOW | 0.8488 (7.29) ^c | 1.0029 (9.44) ^c | 0.7865 (21.23) ^c | 0.5347 (9.38) ^c | 0.0655 (4.83) ^c |
| NPA | -0.0725 (1.44) | 0.0245 (0.45) | 0.2443 (6.54) ^c | -0.1891 (4.65) ^c | -0.0375 (6.46) ^c |
| LOGASSET | -0.1289 (6.79) ^c | 0.0859 (4.29) ^c | 0.0626 (4.40) ^c | 0.0295 (2.10) ^b | 0.0116 (5.85) ^c |
| ASSETG | 0.0040 (3.85) ^b | -0.0026 (2.39) ^b | -0.0037 (4.67) ^c | -0.0005 (1.82) ^a | -0.0002 (1.88) ^a |
| STOCK | -0.0626 (1.07) | 0.0185 (0.30) | 0.0868 (1.97) ^b | -0.0521 (1.16) | -0.0053 (0.86) |
| SUBSID | 0.1536 (1.35) | -0.1277 (1.06) | -0.3228 (3.83) ^c | 0.2543 (2.86) ^c | 0.0225 (1.74) ^a |
| PRIVATE | 0.1179 (1.90) ^a | 0.0351 (0.53) | -0.0998 (2.15) ^b | 0.0095 (0.20) | 0.0077 (1.19) |
| RELSIZE | -0.2847 (2.46) ^b | 0.4172 (3.43) ^c | 0.0806 (0.86) | -0.1477 (2.02) ^b | -0.0217 (2.16) ^b |
| TENDER | -0.1341 (0.26) | -0.7631 (1.43) | -0.9708 (2.50) ^b | 1.0449 (2.82) ^c | 0.0211 (0.40) |
| DBIDS | 0.0579 (0.93) | -0.0452 (0.69) | -0.0660 (1.41) | -0.0701 (1.47) | -0.0085 (1.32) |
| Intercept | 3.4293 (15.49) ^c | -2.0124 (8.63) ^c | 0.4992 (2.98) ^c | -0.4373 (2.83) ^c | 0.8240 (7.06) ^c |
| Year Dummies | Yes | Yes | Yes | Yes | Yes |
| Inverse Mills ratio | 0.6397 (4.12) ^c | -0.6128 (3.64) ^c | -0.6830 (6.01) ^c | 0.3796 (3.18) ^c | 0.0429 (2.61) ^c |
| Wald chi-square | 694.36 ^c | 856.07 ^c | 833.52 ^c | 1,438.42 ^c | 981.91 ^c |
| Observations | 1,009 | 1,009 | 1,009 | 1,009 | 1,009 |

The regression estimations are conducted using the Heckman two-stage regression method. The following are estimated slope coefficients from the second stage of the Heckman regression. The dependent variables are net interest margin over assets (%), non-interest income over assets (%), non-interest expense over assets (%), return on assets (%) and Tobin's Q during one year subsequent to acquisitions. The estimated coefficients of the year dummies are not reported to conserve space. The t-ratio is reported in parentheses below the coefficient. ^c, ^b, and ^a indicate 1%, 5%, and 10% levels of statistical significance, respectively.

from examining the impact of non-bank acquisitions on acquirers' net interest margins (NIM), non-interest income, non-interest expense, ROA, and Tobin Q 1 year subsequent to acquisitions. We find that non-bank acquisitions increase the acquirers' non-interest income by 1.36% in the following year after acquisitions.

Table 5 The bank choice to acquire a non-bank and its risk-returns and deposit-to-asset ratio

| Heckman regression | RETURN | CAR(-2, +2) | DEVRET | DEPAST |
|---------------------|---------------------------------------|--------------------------------|--------------------------------------|---------------------------------------|
| <i>DNONBANK</i> | -1.9618 (4.26) ^c | 1.4174 (0.77) | 3.1888 (6.74) ^c | -0.1714 (4.28) ^c |
| TIER1CAP | 0.0086 (0.79) | 0.0520 (1.83) ^a | -0.1059 (6.74) ^c | 0.0011 (1.02) |
| CASHFLOW | -0.0543 (1.07) | 0.0223 (0.17) | -0.2718 (3.71) ^c | 0.0541 (8.04) ^c |
| NPA | -0.4790 (3.97) ^c | -0.1817 (0.57) | 0.1834 (1.12) | -0.0181 (2.55) ^b |
| LOGASSET | 0.0585 (1.45) | -0.3323 (3.10) ^c | -0.1245 (2.14) ^b | -0.0317 (12.19) ^c |
| ASSETG | 0.0044 (2.14) ^b | 0.0101 (1.80) ^a | 0.0129 (4.31) ^c | 0.0003 (1.88) ^a |
| STOCK | -0.2680 (2.09) ^b | -0.4044 (1.19) | -0.0427 (0.23) | -0.0126 (1.58) |
| SUBSID | 0.4814 (1.86) ^a | 0.5152 (0.75) | -0.5102 (1.40) | 0.0364 (2.34) ^b |
| PRIVATE | 0.2095 (1.52) | 1.2580 (3.43) ^c | -0.1389 (0.71) | 0.0267 (3.13) ^c |
| RELSIZE | 0.1463 (0.69) | -1.9703 (3.53) ^c | -0.0656 (0.21) | -0.0378 (2.53) ^b |
| TENDER | 2.7967 (2.58) ^c | 0.6662 (0.23) | 0.6391 (0.41) | 0.0265 (0.38) |
| DBIDS | 0.2671 (1.97) ^b | -0.5383 (1.52) | -0.3151 (1.62) | 0.0035 (0.41) |
| Intercept | -1.9618 (4.26) ^c | 0.3635 (0.30) | 9.6359 (14.67) ^c | 0.8728 (2.58) ^c |
| Year Dummies | Yes | Yes | Yes | Yes |
| Inverse Mills ratio | 0.7000 (1.88) ^a | -0.5989 (0.60) | -1.6058 (3.08) ^c | 0.0840 (3.86) ^c |
| Wald chi-square | 1,134.68 ^c | 219.23 ^c | 827.40 ^c | 566.64 ^c |
| Observations | 1,009 | 1,009 | 1,009 | 1,009 |

The regression estimations are conducted using the Heckman two-stage regression method. The following are estimated slope coefficients from the second stage of the Heckman regression. The dependent variables are annualized stock return during one year subsequent to acquisitions (%), cumulative abnormal returns during two days prior and after acquisition announcement dates (%), and deviation returns during one year subsequent to acquisitions (%). The estimated coefficients of the year dummies are not reported to conserve space. The t-ratio is reported in parentheses below the coefficient. ^c, ^b, and ^a indicate 1%, 5%, and 10% levels of statistical significance, respectively.

This finding is consistent with managers' claims that non-bank mergers indeed result in increased revenue from non traditional banking activities. However, non-bank acquisitions also reduce the net interest margin (net interest income minus net interest expense) by 1.29% and increase non-interest expense of the new combined entity by 1.37% during the year following the acquisition.

Table 6 The impact of a bank's choice to acquire a non-bank on its top five executives' compensation

| Heckman regression | Salary | Bonus | Incentive |
|------------------------|---|---|---|
| <i>DNONBANK</i> | <i>1,023.576</i> <i>(2.50)^b</i> | <i>2,701.297</i> <i>(6.06)^c</i> | <i>3,209.081</i> <i>(4.56)^c</i> |
| TIER1CAP | -35.128 (1.54) | 18.999 (1.24) | -38.311 (1.58) |
| CASHFLOW | 593.647 (13.19) ^c | -47.872 (0.85) | 620.343 (7.01) ^c |
| NPA | -35.491 (0.38) | -151.032 (1.55) | 196.238 (1.28) |
| LOGASSET | 459.664 (13.04) ^c | 121.873 (2.93) ^c | 246.764 (3.76) ^c |
| ASSETG | 3.893 (2.85) ^c | 1.265 (0.75) | 12.030 (4.53) ^c |
| STOCK | -1.919 (0.02) | 133.405 (1.33) | -187.49 (1.18) |
| SUBSID | -228.710 (1.27) | -622.053 (3.00) ^c | -992.959 (3.04) ^c |
| PRIVATE | -111.269 (1.22) | -323.722 (2.98) | -376.593 (2.20) ^b |
| RELSIZE | -37.902 (0.31) | -92.999 (0.61) | -156.089 (0.65) |
| DBIDS | 46.888 (0.52) | -161.684 (1.44) | -258.208 (1.46) |
| Intercept | 1,451.39 (8.83) ^c | 1,186.261 (2.55) ^b | 3,232.697 (4.40) ^c |
| Year Dummies | Yes | Yes | Yes |
| Inverse Mills ratio | -362.322 (1.63) | -1,360.476 (5.72) ^c | -1,498.167 (3.99) ^c |
| Wald chi-square | 1,154.60 ^c | 261.13 ^c | 392.56 ^c |
| Observations | 598 | 598 | 598 |

The regression estimations are conducted using the Heckman two-stage regression method. The following are estimated slope coefficients from the second stage of the Heckman regression. The dependent variables are the top five executives' total annual salary, bonus, and incentive (stocks and options) compensation during one year subsequent to acquisitions (stated in real \$1,000 value by deflating the nominal dollar compensation from Execucomp with the U.S. annual inflation rate from the Bureau of Labor Statistics). The estimated coefficients of the year dummies are not reported to conserve space. The t-ratio is reported in parentheses below the coefficient. ^c, ^b, and ^a indicate 1%, 5%, and 10% levels of statistical significance, respectively.

Overall, non-bank acquisitions reduce return on assets (ROA) by 0.67% and Tobin Q by 0.07 of the combined entities 1 year following the acquisitions. This implies that while bank managers' claim over that non-bank mergers bring revenue enhancement activities to enhance revenue is supported, their costs after the mergers increase more than their revenue. We also find that the inverse Mills ratios are statistically significant across different revenue and cost models. This implies that controlling for the endogeneity of the choice to acquire non-banks from unobservable factors is important to avoid sample selection bias in the OLS estimation.

4.3 Focusing versus diversifying strategy

Since banks' choices to acquire non-banks significantly affect their revenue and costs, profit and market value, naturally we investigate the impact on shareholder wealth in terms of annual stock returns, cumulative abnormal return (CAR) and standard deviation of returns as measures of shareholders' returns and risk. Table 5 displays the impact of banks' choices to acquire non-banks on the acquirers' stock return, CAR, and standard deviation of returns 1 year after acquisitions, using the Heckman regression. We find that the banks' choices to acquire non-banks adversely affects their subsequent annualized stock returns by 2%. We also find that the same choices do not significantly produce abnormal returns during 2 days before and 2 days after the announcement dates. Instead, non-bank acquisitions increase the risk (volatility) of the new combined entity, as measured by the standard deviation of the stock returns, by 3.2%. This finding is consistent with those of previous studies (DeLong 2001, 2003), which find that focusing mergers among banks are more value-enhancing to shareholders than diversifying mergers.

We also analyze the deposit-to-asset ratio (DEPAST) as another bank performance measure. Banks may hold off their deposits as cash and cash equivalent assets rather than loans to enable them to use funding for acquisitions. The last column of Table 5 presents the result for deposit-to-asset-ratio. We find the acquirers' post mergers deposit-to-asset ratio is significantly lower when banks acquire non-banks. This implies that banks hold the cash from their deposits to fund for mergers.

4.4 Executive compensation

It is important to examine top managers' incentives for non-bank acquisition activities. We believe that not only CEOs make merger decisions. Rather than focusing only on the CEO's compensation, we examine the impact of the banks' choice to acquire non-banks on the total compensation of the top five executives provided by Execucomp.¹³ Table 6 provides the Heckman regression results for the

¹³ The Execucomp database covers top executives compensation for mostly large firms since 1992. Due to the data limitation from Execucomp, our sample is significantly reduced from 1,009 to 517 completed acquisitions. We conduct a sensitivity test by using only the CEOs' salary, bonus, and incentive compensation and find that the results are qualitatively similar to the results of the compensation of the total top-five executives. We also conducted a univariate statistics between the full sample and the subsample that contains the executives compensation. The results of univariate analysis are presented in Table 7.

top executives' compensation in terms of their annual salary, bonus, and stocks and options (Incentive) compensation, stated in real-dollar values. We find that the banks' decisions to acquire non-banks significantly increases top managers' annual salary compensation by \$1.02 million and their annual bonus compensation by \$2.7 million (in real-dollar values). The top managers' stock and options compensation also increases by \$3.2 million when banks choose to acquire non-banks as opposed to other banks. This finding supports the agency problem hypothesis, which argues that managers' choices to acquire non-banks are driven by increases in executives' pay but do not necessarily maximize shareholders' wealth (Bliss and Rosen 2001).

5 Concluding remarks

Merger activities in the banking industry, on average, do not add value to the new combined entity and its shareholders (Berger et al. 1998; Rhoades 1994; Bliss and Rosen 2001). However, bank managers continue to claim that mergers result in improved efficiency through cost savings and/or revenue enhancement. While most studies focus on mergers among banks and estimate the potential cost savings from bank mergers, none investigates the difference between banks acquiring non-banks versus banks that acquire other banks. To fill this gap in the literature, this study examines the external and internal factors that compel banks to acquire non-bank financial firms. This study also tests whether non-bank acquisitions enhance acquirers' revenue or reduce their costs subsequent to acquisitions. Furthermore, this study explores the impact of banks' choices to acquire non-banks on their subsequent profit, market value, stock returns, risk, and top executives' compensation.

We find that the banks' choices to acquire non-banks is driven by internal factors based on their strategic choices to enhance revenue from different lines of businesses and by external factors such as from regulatory capital requirements and deregulations that are currently imposed on their traditional banking activities. The impact of banks' choice to acquire non-banks increases their subsequent revenue from non traditional banking activities, measured by non-interest income. However, it also increases their operating costs (measured by non-interest expense) and lowers the net income from traditional banking activities (measured by net interest margin). Overall, we find that non-bank acquisitions reduce acquiring banks' subsequent profit, market value, and stock return.

When we examine acquirers' abnormal stock returns, we do not find that the market reactions surrounding the announcement dates are affected by the choice of non-bank acquisitions. Instead we find that the acquirers' market risk (measure of volatility of stock returns) subsequent to acquisitions increases when the banks' choose to acquire non-banks as opposed to choosing to acquire other banks. Furthermore, we find that the choice to acquire non-banks significantly increases the top executives' salary, bonus, and incentive compensation.

In short, this study finds that the banks' choice to acquire non-banks is driven by internal pressures to increase profit and to seek alternative sources of revenue beyond traditional banking. The choice to acquire non-banks is also driven by external competitive forces from deregulation and capital equity restrictions over

Table 7 Univariate statistics between all sample and subsample with executives compensation data

| Variable | All sample | Subsample | T-test |
|--------------------|------------|-----------|-----------|
| NIM | 4.076 | 3.982 | 2.468** |
| NONINTINC | 0.940 | 1.089 | -3.144*** |
| NONINTEXP | 3.322 | 3.281 | 0.398 |
| ROA | 1.133 | 1.181 | -0.208 |
| Tobin Q | 1.103 | 1.126 | -0.471 |
| ROE | 13.318 | 14.252 | -6.970*** |
| RETURN | 1.055 | 1.024 | 0.875 |
| CAR (-2, +2) | -0.224 | -0.540 | 1.321 |
| DEVRET | 6.562 | 6.806 | 1.882* |
| LOGASSET | 8.652 | 9.738 | -2.347** |
| ASSETG | 23.671 | 25.862 | -4.623*** |
| TIER1CAP | 10.803 | 9.356 | 6.941*** |
| CASHFLOW | 2.241 | 2.325 | -1.120 |
| NPA | 0.482 | 0.455 | 1.530 |
| SEGDIV | 1.041 | 1.075 | -0.826 |
| STATEBRANCH | 0.987 | 0.989 | 0.067 |
| TRANSACTION VAL. | 418.132 | 806.232 | -4.393*** |
| CASH | 0.163 | 0.216 | -2.968*** |
| STOCK | 0.495 | 0.533 | 1.618 |
| SUBSID | 0.100 | 0.135 | -3.490*** |
| PRIVATE | 0.430 | 0.347 | 4.925*** |
| PUBLIC | 0.468 | 0.515 | -8.255*** |
| RELSIZE | 0.134 | 0.102 | 5.875*** |
| TENDER | 0.002 | 0.003 | -1.465 |
| DBIDS | 0.247 | 0.202 | 1.286 |
| PRE1999 | 0.589 | 0.642 | -3.199*** |
| Total observations | 1,009 | 598 | |

traditional banking. However, the non-bank acquisitions have been manifested in an agency problem by the top managers. The non-bank activities do not deliver higher profit, market value, stock returns or lower risk to the shareholders. Instead, the banks' choices of non-bank acquisitions result in top managers' personal gains through increases in their own compensation. This agency problem is closely linked to the recent development in financial sector—public outcry on excessive bank CEO compensation package. Our findings may warrant tight regulations on the way how CEOs are paid when banks are heavily subsidized with taxpayers' money. With recent financial crisis in the United States and across the globe, future studies that focus on the impact of financial crisis in mergers and acquisitions activities in financial services including banks and non-banks will shed further policy implications in this industry.

Appendix

Table 8 Sample of top 30 non-bank acquisitions by banks

| Announcement Date | Acquirer name | Acquirer SIC | Target name | Target SIC | Transaction Value (\$mil) |
|-------------------|------------------------|--------------|----------------------------------|------------|---------------------------|
| 13-Sep-00 | Chase Manhattan Corp | 6021 | JP Morgan & Co Inc | 6211 | 33,554.58 |
| 6-Sep-00 | Citigroup Inc | 6021 | Associates First Capital Corp | 6141 | 30,957.5 |
| 20-Jan-97 | Bank One Corp | 6021 | First USA Inc | 6141 | 7,304.26 |
| 15-Jul-03 | Citigroup Inc | 6021 | Sears Roebuck & Co-Credit Card | 6141 | 7,100 |
| 6-Jun-05 | Washington Mutual | 6036 | Providian Financial Corp | 6153 | 6,454.368 |
| 18-Dec-97 | Citicorp | 6021 | AT&T Universal Card Services | 6153 | 4,571 |
| 23-Feb-98 | First Union Corp | 6021 | Money Store Inc | 6162 | 2,215.237 |
| 17-Nov-92 | NationsBank Corp | 6021 | Chrysler First Inc (Chrysler) | 6153 | 2,200 |
| 11-Dec-01 | Washington Mutual | 6036 | Home Side International Inc | 6162 | 2,125 |
| 7-Apr-97 | Bankers Trust NY Corp | 6022 | Alex Brown Inc | 6211 | 2,077.351 |
| 8-Jan-03 | Bank of New York Co | 6021 | Pershing | 6289 | 2,050 |
| 9-Apr-01 | Bank One Corp | 6021 | Wachovia Corp-Credit Card Loan | 6141 | 1,960 |
| 16-Sep-97 | Fleet Financial Group | 6021 | Quick & Reilly Group Inc | 6211 | 1,525.489 |
| 8-May-95 | US Bancorp | 6021 | West One Bancorp | 6722 | 1,476.069 |
| 14-Sep-92 | Mellon Bank Corp | 6021 | Boston Co | 6282 | 1453 |
| 28-Sep-99 | Chase Manhattan Corp | 6021 | Hambrecht & Quist Group Inc | 6211 | 1,368.036 |
| 28-Aug-02 | Washington Mutual | 6036 | SR Investment Inc(National) | 6162 | 1,300 |
| 12-May-04 | Citigroup Inc | 6021 | Principal Residential Mtg Inc | 6162 | 1,260 |
| 30-Jun-97 | NationsBank Corp | 6021 | Montgomery Securities, CA | 6211 | 1,200 |
| 26-Apr-99 | First Union Corp | 6021 | EVEREN Capital Corp | 6211 | 1,172.166 |
| 20-Jul-99 | PNC Bank Corp | 6021 | First Data Investor Services | 6289 | 1,100 |
| 5-Jun-01 | FleetBoston Financial | 6021 | Liberty Financial Cos-Asset | 6282 | 1,010 |
| 29-May-98 | BankBoston Corp | 6021 | Robertson Stephens & Co | 6799 | 800 |
| 18-Dec-00 | Regions Financial Corp | 6022 | Morgan Keegan Inc | 6799 | 774.367 |
| 15-Dec-97 | US Bancorp | 6021 | Piper Jaffray Cos | 6211 | 767.823 |
| 20-Nov-98 | Fleet Financial Group | 6021 | Sanwa Business Credit | 6159 | 715 |
| 2-Feb-98 | Mercantile Bancorp | 6021 | Firstbank of IL, Springfield, IL | 6799 | 669.217 |
| 2-Apr-01 | Washington Mutual | 6036 | Fleet Mortgage Corp | 6162 | 600 |
| 2-Jun-05 | Citigroup Inc | 6021 | Federated-Visa Receivables | 6141 | 592 |
| 22-Aug-96 | Bankers Trust NY Corp | 6022 | USL Capital-RE Financing Op | 6798 | 575 |

Table 9 Variable description

| Variable | Description |
|---------------------------------|---|
| Compustat and CRSP data: | |
| NIM | Acquirer net interest margin (NIM) divided by total assets (%) |
| NONINTINC | Acquirer non-interest income divided by total assets (%) |
| NONINTEXP | Acquirer non-interest expense divided by total assets (%) |
| ROA | Return on asset defined as acquirer net income over total asset (%) |
| Tobin Q | Acquirer market value of asset over book value of asset |
| ROE | Return on asset defined as acquirer net income over total equity (%) |
| CAR (-2, +2) | Cumulative abnormal return for acquirer stock during 2 days before and after acquisition announcement date (%) |
| RETURN | Acquirer annualized monthly stock return above the market return (abnormal return) during one year after acquisition date (%) |
| DEVRET | Acquirer standard deviation of monthly stock return during one year after acquisition date (%) |
| DEPAST | Acquirer total core deposits divided by total assets (deposit-to-asset ratio) one year after acquisition date |
| LOGASSET | Natural log of acquirers total asset |
| ASSETG | Acquirer one-year asset growth (%) |
| TIER1CAP | Acquirer Tier One Capital Requirement (%) |
| CASHFLOW | Acquirer operating cash flow over total asset (%) |
| NPA | Acquirer non-performing asset over total asset (%) |
| SEGDIV | Acquirer number of divisions (4-digit SIC) that differs from their primary SIC |
| STATEBRANCH | Dummy variable equals to one if acquirer state is different from target state |
| SDC Mergers & Acquisition data: | |
| CASH | Dummy variable equals to one if acquisition is funded with cash only |
| STOCK | Dummy variable equals to one if acquisition is funded with stock only |
| SUBSID | Dummy variable equals to one if target is a subsidiary |
| PRIVATE | Dummy variable equals to one if target is a privately held firm |
| PUBLIC | Dummy variable equals to one if target is a publicly traded firm |
| RELSIZE | Ratio of target acquisition transaction value over acquirer market value |
| TENDER | Dummy variable equals to one if acquisition is a tender offer |
| DBIDS | Dummy variable equals to one if acquisition has multiple bids |
| PRE1999 | Dummy variable equals to one if year of acquisition occurs prior to the Financial Services Modernization Act in 1999 |
| D1992, D1993 etc | Year dummy variables to represent structural differences in each year |
| Execucomp data: | |
| SALARY | Total annual salary for acquirer top executives (real \$1,000) |
| BONUS | Total bonus for acquirer top executives (real \$1,000) |
| INCENTIVE | Restricted stocks and options values for acquirer top executives (real \$1,000) |

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