Difficult to Digest: Takeovers of Distressed Banks

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ABSTRACT: Government induced or voluntary takeovers are frequently used as an indirect way to bail out distressed banks. In this paper, we analyze the effect of takeovers on the profitability of the acquiring banks in Vietnam for the period 2000-2017. We demonstrate that these takeovers substantially weaken the profitability and liquidity of the acquiring banks and that this negative effect persists over a prolonged period of time. After the takeover, the acquiring bank is more financially constrained and less able to carry out its economic functions as a financial intermediary, suffering restricted growth in customer deposits and short-term funding. These results do not only demonstrate that shareholders should be wary of acquisitions but also suggest that the strategy of stabilizing a financial system through bank mergers may have detrimental indirect long-term consequences on financial systems.

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"No, we would not do something like Bear Stearns again - in fact, I don't think our Board would let me take the call."

Jamie Dimon in his 2015 letter to shareholders

1. Introduction

Takeovers of distressed banks are frequently used to stabilize a financial system without explicitly bailing out a bank. Habitually, these takeovers are government-induced as the above quote by Jamie Dimon suggests (the phone call he is referring to in the quote above came from the government). Sometimes, however, these takeovers are also voluntary as acquirers see these transactions as a cheap way to increase their market share.

In this paper, we focus on the takeovers of Vietnamese banks after the 2008 crisis. Almost all of these takeovers involved banks that were known to have followed risky strategies and had suffered from the repercussions of the 2008 financial crisis in Vietnam.

Using a difference in difference approach, we demonstrate that these takeovers had a strong detrimental effect on the profitability and liquidity of the acquiring bank. Simple indicators of profitability such as return on assets, cost income ratio or recurring earning power strongly deteriorate after the merger. This effect remains visible even years after the merger. In addition, acquiring banks show higher ratios of net loans to total assets, deposit and short-term funding or total deposit and borrowing, reflecting lower liquidity in the short- and medium term. We also observe that acquiring banks suffer lower growth in deposit and short-term funding. Overall, there seem to be no positive consequences that would counterbalance these additional costs, so governments seem to use threats rather than incentives to coerce the acquirers to bail out the failed banks.

Our results do not only demonstrate that shareholders should be wary of acquisitions but also suggest that the strategy of stabilizing a financial system through bank mergers may have detrimental indirect long-term consequences on financial systems. The acquiring banks will be negatively affected by the merger and the efficiency of financial intermediation and the allocation of capital will be reduced. This may have negative long term consequences that may at least partially be offset the positive effect of avoiding a financial shock after a bank failure.

The rest of the paper is organized as follows. Section II reviews the prior literature on acquiring banks' performance post-merger. Section III describes the different phases of the crisis in Vietnam and the related bank takeovers. We then introduce in Section IV the construction of the dataset and methodology. Section V presents the main empirical findings and discusses their economic significance. Section VI conducts robustness tests and Section VII concludes.

2. Literature review

General history – extensive empirical literature on M&A mostly in developed countries

Merger and Acquisition (M&A) transactions have been globally recognized as one of the major strategic decisions in corporations during the past decades. In addition, these strategies are of high importance to all stakeholders, which are not only limited to firms in the role of buyers or sellers but also include their employees, shareholders, government regulators, investment bankers, lawyers, and lobbyists. Given the fact that mergers have been largely adopted by many organizations for both national and cross-border business expansion, researchers are inspired to study the causes

and effects of these transactions, seeking to understand the motivation of the deals, the ways M&A deals are carried out, what are the economic consequences and which parties benefit or suffer the most. It follows that empirical literature on M&A in finance has been extensive – according to a recent "survey of the surveys" by Mulherin et al. (2017), they could select 120 articles focusing on empirical work about M&A from several leading finance journals. Whereas the authors report the creation of wealth by M&A activity as a basic important finding in the early literature, they also emphasize the change in the research topics and results over time in accordance with the evolution of M&A activity, the globalization trend, and new databases availability. Therefore, their perspective on the historical development of the study of M&A reminds the importance of incremental findings in the overall understanding of the value of research in M&A.

Recent literature on M&A in banking sector

DeYoung et al. (2009) provide a review of the post-2000 financial institution mergers and acquisition (M&A) literature covering over 150 studies. The authors highlight the main findings where North American bank mergers tend to improve efficiency but stockholder wealth creation effect is non-conclusive. In contrast, European bank mergers witness both efficiency gains and stockholder value enhancement. The relationship between high CEO compensation and merger activity seems to be robust, and research results strongly imply that deals can be motivated by the intention to obtain 'too-big-to-fail' status and the associated subsidies.

Later literature continues to study banking M&A from different angles, notably the wealth creation effect. Bercher (2009) advocates the anticipated components of bidder returns by examining the banking industry mergers around the passage of a deregulatory act (Riegle Neal Act of 1994) and claims that focusing only on narrow event windows underestimates gains to

bidders. He also observes positive bidder returns, thus confirms that mergers are motivated by synergy rather than disciplinary motives. Egger and Hahn (2010) provide evidence in favor of cost-performance gains in horizontal mergers among Austrian banks, and smaller banks are more likely to enjoy this effect earlier than larger banks involved in mergers. Erel (2011) looks at US commercial banks and finds that, on average, mergers decrease loan spreads, confirming efficiency gains over increased market power. Al-Khasawneh and Essaddam (2012) show that the CARs (cumulative abnormal returns) of acquirers are positively associated with their technical efficiency and geographic diversification. They also find a negative relationship between targets' CARs and both their size and revenue efficiency. The positive and significant value creation for the shareholders of the targets, as opposed to almost no value creation found for the shareholders of acquirers, is again observed by Asimakopoulos and Athanasoglou (2013) in an event study for a sample of European banks spanning a period of 15 years. In addition, shareholders of acquirers prefer listed, smaller and less profitable banks having higher non-interest related income, but are concerned when the target is weakly liquid, inefficiency with heightened credit risk. Finally, the quality of investment banks and shareholder wealth in bank mergers have been examined in an empirical study by Chuang (2014), who suggests that overall, financial advisors seem to add value for bidding firms but not target firms.

By examining 600 intra-industry M&A transactions by public banks in North America and Europe in the period from 1990 to 2008, Hankir et al. (2011) assert that market power hypothesis predominates over four other frequently proposed M&A motives: merger wave, pre-emptive merger, synergy, and financial distress hypothesis. Caiazza et al. (2012) find support for the ‘acquire to restructure’ hypothesis, which posits that targets are typically less efficient banks that are acquired for restructuring, with the intention of enhancing profitability. Weiß et al. (2014) are

concerned by the “concentration-fragility” hypothesis, showing evidence for a significant increase contribution to systemic risk following mergers in the banking system, from both the merged banks as well as their competitors.

The financial crisis has substantially affected the outlook of the global banking sector. The difference between pre-crisis mergers (2004-2007) and crisis mergers (2007-2010) among US commercial banks was empirically studied by Dunn et al. (2015), where the latter is more significant events for both acquirers and targets. The authors demonstrate that overall merger announcement value creation during the financial crisis is positively associated with targets’ assets and capitals quality, but negatively associated with targets’ efficiency. In contrast with previous long literature showing that abnormal returns around the announcement date are negative for acquirers and positive for targets, Beltratti and Paladino (2013) find that abnormal returns for EU bank acquirers during the credit crisis (2007-2010) are zero on average at the announcements but positive after completion. They conjecture that acquisitions implemented during a financial crisis may have created more value for acquirers, as involved acquirers were sufficiently strong to take advantage of forced sales from weaker competitors under a global liquidity shortage. However, due to substantial uncertainty, investors postpone repricing of stocks to completion of the transaction.

Ferris et al. (2013) investigate the role of CEO overconfidence in international mergers and acquisitions of Fortune Global 500 firms during the period 2000-2006. The authors find that overconfidence helps to explain the number of offers made by a CEO, the diversifying nature and the method of payment to finance a merger deal, and is most extensively observed in individualistic cultures. While equity-based compensation for bank CEOs is believed to cause excessive risk-taking, evidenced by widespread bank losses during the financial crisis, banks have adopted debt-based compensation to align CEOs’ interests with those of external creditors. Srivastav et al. (2018)

examine the impact of the so-called inside debts on listed US banks' acquisitions between 2007 and 2012 and show that deals announced by these banks' CEOs are associated with a wealth transfer from equity to debt holders, followed by lower market measures of risk and lower loss exposures for taxpayers.

The failure of a bank is often resolved through mergers and takeovers by incumbent banks. Perotti and Suarez (2002) argue that promoting the takeover of failed banks by solvent institutions can reinforce stability by offering surviving incumbents larger rents under greater market concentration when their competitors fail. Acharya and Yorulmazer (2007) develop a theoretical framework that involves granting liquidity to surviving banks in the purchase of failed banks, arguing that this liquidity provision policy gives banks incentives to differentiate, rather than to herd and is a substitute to the bailout policy from an ex-post standpoint. However, Gomez (2015) proves that incumbent takeovers may also undermine financial stability by creating a systemically important financial institution (SIFI) if they have high discount rates. In fact, the "too big to fail" guarantee is supposed to provide the bank with incentives to take excessive risk, thereby, sows the seed of future systemic failures and the benefits of failed-bank takeovers turn into costs for bank supervisors. Vallascas and Hagendorff (2011) convey a critical view of the risk-reduction potential of M&A among European banks, recommending policymakers to consider the costs and benefits of bank consolidation carefully. Behr and Heid (2011) exploit a sample of bank mergers in nine EU economies between 1997 and 2007 and find that merger premiums are paid to obtain safety-net subsidies, suggesting moral hazard in banking systems. Nevertheless, Montes (2014) finds an only small impact on competition in the mortgage market of the consolidation of the Spanish banking sector resulting from the financial crisis of 2008.

Despite the rich literature in the field of M&A, little is known of the reasons why some announced transactions have turned out unsuccessful. Caiazza and Pozzolo (2016) seek to provide an answer by analyzing over 20,000 announcements of banking M&As in over 150 countries between 1992 and 2010. The authors show that the most important factors leading to failures are the hostility of the bidder and the competition of multiple potential acquirers. Moreover, lengthier negotiations, deals of larger size announced by smaller, more levered banks, or greater unfavorable interference by supervisory authorities contribute to a lower probability of success.

Cross-border M&A in banking

Cross-border mergers and acquisitions are recorded in a fewer number of deals due to the cultural differences and regulatory barriers. Cultural differences may create high transaction costs and integration difficulties may reduce the value of internalization. Indeed, Steigner and Sutton (2011) show that greater cultural distance in cross-border takeovers has a positive influence on the long-run performance of bidders with high intangibles, implying significant internalization benefits from technological know-how. By analyzing EU-25 bank acquisitions over the period 1997–2004, Hernando et al. (2009) find evidence that less cost-efficient banks and larger banks in low concentrated markets are more likely to be acquired by other banks in the same country. On the other hand, the probability of being a target in a cross-border deal increases with both a bank being listed on the stock market and its country's concentration. Karolyi and Taboada (2015) emphasize the role of "regulatory arbitrage" in which cross-border bank acquisitions involve primarily acquirers from countries with stronger, more restrictive regulatory environment than that of their targets and these acquisitions are associated with more positive announcement effects. Our study highlights the role of non-corporate customers and of psychic distance in the

cross-border expansion of commercial banks through M&As. Interestingly, in contrast with traditional perception, Caiazza and Pozzolo (2016) find evidence that cross-border announcements are more likely to conclude than domestic ones, probably because such operations are only announced when all parties involved have found a preliminary agreement.

M&A in banking sector in developing countries

Goddard et al. (2012) use sample of 132 events in Asia and Latin America between 1998 and 2009 and find that on average, M&A creates shareholder value for target firms without causing any loss to the acquiring firm. In the same research, a multivariate regression identifies that acquirer shareholders benefit from the acquisition of underperforming targets and from government-instigated M&A transactions. Du and Sim (2016) corroborate the hypothesis that target banks are mainly the ones to benefit from efficiency improvements in a study of six Asian emerging countries bank M&A. Under the oligopolistic nature of South African banking industry, Wanke et al. (2017) find that the drivers of virtual efficiency in M& A are bank type and origin, suggesting criteria to be taken into account to identify suitable targets. Rahman et al. (2018) report an overall negative market response towards the M&A in the banking sector of Pakistan.

Using data Thomson ONE Investment Banking and Datastream on all the M&A deals of Asian listed banks, Shirasu (2018) empirically examines the long-term changes in banking management strategies for the acquirer banks. The author finds that M&A contribute to increasing new loans and enhancing capital adequacy, but banks fail to make profits because of the non-performing loans. In our study which includes all M&A deals in Vietnam of both listed and non-listed banks, on the contrary, we observe no improvement in loan growth or capital

quality. However, we report a similar effect of worsening profitability and efficiency of merged banks, which is supposedly attributable to the bad debts burden.

3. Forced and voluntary mergers of distressed banks in Vietnam

During the global financial crisis in 2008, although the Vietnamese government did not officially acknowledge that the country was facing a financial crisis, the turmoil in world markets had important consequences for Vietnam. Numerous emergency loans from the State Bank of Vietnam, especially for providing short-term liquidity, have helped its commercial banks avoid instantaneous failures, however, the measures were more likely to postpone than really solve the problem. The bad debts crisis was declared in 2011 and touched almost every bank, though the real figures were not revealed immediately. In September 2012, the State Bank of Vietnam disclosed a ratio of 17.21% of bad debts over total outstanding loans - the real figure might have been substantially higher. In order to deal with this situation, the government issued Decision No. 254/QD-TTg on the first of March, 2012, approving the project to restructure the system of credit institutions in the period 2011 – 2015. The primary objective was to achieve healthy financial conditions and to improve the capability, the safety, and the efficiency of Vietnamese credit institutions.

Among various solutions pointed out in the project, voluntary merger and acquisition activities are strongly encouraged on the principle of ensuring the depositors' interests, the legal economic rights and obligations of relevant parties. In order to ensure the safety and stability of the system, credit institutions facing high risks shall be subject to special measures, i.e. forced merger or similar actions. In details, the regulations distinguish (i) healthy credit institutions to (ii) those in a

temporary shortage of liquidity, and (iii) substandard credit institutions. The first group is invited to participate in the restructuring of the two others by lending to the weak credit institutions and acquiring substandard credit institutions. On the other hand, the second group is encouraged to merge among themselves and to merge with the healthy banks. Finally, for the weakest group, after employing methods to ensure their solvency and putting them under special supervision if necessary, specific steps with regard to merger requirement are stipulated. In particular, those banks shall be merged, consolidated, acquired on a voluntary basis, in default of which the State Bank of Vietnam shall take measures to compel the merger, consolidation, or acquisition. The State bank of Vietnam shall compel substandard credit institutions to transfer their capital; major and controlling shareholders shall have to transfer their shares. The State Bank of Vietnam shall directly repurchase the charter capital or shares of the weak credit institutions to initially consolidate and fortify them before merging with other credit institutions or selling to qualified investors. Foreign credit institutions are allowed to repurchase or merge weak banks, the foreign shareholding limit at restructured weak joint-stock commercial banks will be considered for a raise.

As a result of this project, there were 11 merger-acquisition deals in the Vietnamese banking system during 2011-2015. To sum up, these deals fall into three main categories: voluntary mergers among healthy banks, voluntary acquisitions of a bank in difficulties by a healthy bank, forced takeovers of distressed banks by the State Bank of Vietnam. There has been no case where a foreign bank played the principal role of rescuing the failed banks, either as an investor buying controlling shares or as an acquirer. The full list of these deals can be found in Annex 1.

Given the context of overwhelming bad debts together with low transparency in the Vietnamese banking system, acquirers may not have had the best information for evaluating their targets before a takeover. While each bank is dealing with a large amount of non-performing loans,

mergers will add bad debts, accompanied by a series of other issues post-merger. Once the deal is concluded, it turns out that recovering overdue debts, handling bad debts transferred from acquired banks become one of the main missions of acquirers[2]. Bad debts negatively affect banks because they absorb capital, increase operational costs and hence decrease profitability, necessitate management time and attention, thus divert focus from the bank's core activities; and they may even sabotage the sustainability of the bank. The difficulties that acquirers will have to face appear foreseeable. Nonetheless, the merger deals on voluntary basis indicate that there are expected advantages from the standpoint of the acquirers, for example, a quick increase in market share and customer network that requires years to develop otherwise. The remaining question is whether the advantages outrank the drawbacks in these mergers and acquisition.

4. Data and summary statistics

4.1. Construction of the data set

In our investigation of mergers and acquisitions of Vietnamese banks, we use a difference-in-difference method, comparing acquiring banks with other banks and with themselves pre-acquisition. We consider a set of *operation/ profitability ratios* including *Return on Average Assets (ROAA), Recurring Earning Power, Non-Interest Expense / Average Assets,* and *Cost to Income Ratio*. Regarding the banks' *liquidity,* indicators like *Interbank Ratio, Net Loans / Total Assets, Net Loans / Deposit and Short-term Funding,* or *Net Loans / Total Deposit and Borrowing* are taken into

[2] For example, at Saigon - Hanoi Commercial Joint Stock Bank (SHB), the merger of Hanoi Building Commercial Joint Stock Bank (Habubank) has made its NPL rate constantly high due to bad debts from Habubank (at the time of the merger, Habubank's bad debt ratio was approximately 15%). SHB's key task has been to recover overdue debt, dealing with bad debts transferred from Habubank, especially those of failed state-owned corporations such as Vinashin (Vietnam Shipbuilding Industry Group, now Shipbuilding Industry Corporation abbreviated SBIC).

account. In addition, we explore the growth of *Deposits and Short term Funding* and *Liquid Assets* to further study the banks' liquidity post-merger.

In order to discern the impact caused by mergers to banks, we construct an *Acquiring* dummy variable, which takes the value one for acquiring banks in the post-merger period. Furthermore, we introduce dummy variables that determine time (in years) since acquisition for those acquiring banks to inspect the recovery effect on banking performance, where *Acquiring Year 1* dummy indicates the year when the targets' financial figures are consolidated to the acquirers' statements, *Acquiring Year 2* dummy is the year that follows and so on. Finally, we examine a set of control variables, taking into account the *bank size*, *banking ownership*, and *GDP growth rates*.

We collected Vietnamese commercial banks' financial data from BankScope for over 40 commercial banks during the period 2000-2015. The sample is then merged with data from Orbis Bank Focus to cover up to 2017. The information regarding merger years is hand-collected from the acquirers' financial statements. Vietnam's macroeconomic data, GDP growth, is from the World Bank's reports.

All commercial banks in Vietnam are required to publish financial reports in local generally accepted accounting practices (local GAAPs - Vietnamese Accounting Standards – VAS). A few banks having foreign investors also produce IFRS financial reports. We keep only local GAAPs standardized observations during our data treatment and eliminate the observations from the reports that did not meet audit statement qualification (the "qualified" reports). Finally, duplicates are deleted if any. Our sample covers the period from 2000 to 2017 and includes 581 observations.

Table 1 below provides the definition of the variables used in the empirical analysis.

Table 1: Variables and data

Variables	Definition
Operation/ Profitability	
Return on Average Assets (ROAA)	After tax profits as a percentage of Total Assets, shows how a bank can convert its asset into net earnings.
Recurring Earning Power	After tax profits adding back provisions for bad debts as a percentage of Total Assets. Effectively this is a return on assets performance measurement without deducting provisions.
Non-Interest Expense / Average Assets	Non-interest expenses (overheads plus provisions) give a measure of the cost side of the banks performance relative to the assets invested.
Cost to Income Ratio	Measures the overheads or costs of running the bank (majorly salaries) as percentage of income generated before provisions.
Liquidity	
Interbank Ratio	Money lent to other banks divided by money borrowed from other banks. A ratio greater than 100 indicates the bank is net placer rather than a borrower of funds in the market place, and therefore more liquid.
Net Loans / Total Assets	Indicates what percentage of the assets of the bank is tied up in loans. The higher this ratio the less liquid the bank will be.
Net Loans / Deposit and Short-term Funding	Indicates the percentage of the bank's loans compared to its deposit and short-term funding. The higher this ratio the less liquid the bank will be.
Net Loans / Total Deposit and Borrowing	Indicates the percentage of the bank's loans compared to its total deposit and borrowing. The higher this ratio the less liquid the bank will be.
Deposits and Short term Funding Growth	The annual growth of Deposits and Short term Funding Growth
Liquid Assets Growth	The annual growth of Liquid Assets. Liquid Assets are the sum of Cash and Due from Banks, Deposits with Banks, Due from Central Banks, Due from Other Banks, Due from Other Credit Institutions, Treasury Bills, Other Bills, Government Securities, Trading Securities, CDs.
Acquiring	
Acquiring	Dummy - 1 for the acquiring banks post-merger
Acquiring Year 1	Dummy - 1 for the first year of acquiring banks since the merger
Acquiring Year 2	Dummy - 1 for the second year of acquiring banks since the merger
Acquiring Year 3	Dummy - 1 for the third year of acquiring banks since the merger
Acquiring Year 4	Dummy - 1 for the fourth year of acquiring banks since the merger
Acquiring Year 5	Dummy - 1 for the fifth year of acquiring banks since the merger
Acquiring Year 6	Dummy - 1 for the sixth year of acquiring banks since the merger
Ownership	
100% foreign-owned	Dummy - 1 if the bank is 100% foreign-owned; 0 otherwise
Joint-venture	Dummy - 1 if the bank is a joint-venture*; 0 otherwise
State-owned	Dummy - 1 if the bank is state-owned**; 0 otherwise
Control variables	
Bank size	Natural logarithm of Total assets
GDP growth rate	Annual growth rate of Gross domestic product

* Joint-venture banks are all established by Vietnamese government/ central bank and a foreign counterpart, prone to fulfill their mission of financing bilateral trade and investment activities

** State-owned banks are banks where the State holds more than 50% stake

Sources of data: BankScope, Orbis Bank Focus, State Bank of Vietnam, World Bank and author's calculation from these sources

4.2. Descriptive statistics

We provide an overview of the data in tables 2a and 2b. The profitability variables average nearly 2%, with Return on Average Assets (ROAA) ratio stretches from as low as -25.08% to as high as 7.94% and Recurring Earning Power from -19.24% to 8.68%. On the operation side, cost efficiency differs widely from banks to banks as well, whereby Non-Interest Expense / Average Assets ratio ranges from 0.35% to 34.86%, and Cost to Income Ratio varies between 18.82% and 234.76%.

Table 2a: Summary Statistics - Continuous variables

Continuous variables					
Variable	**n**	**Mean**	**S.D.**	**Min**	**Max**
Operation/ Profitability					
Return on Average Assets (ROAA)	576	0.93	1.72	-25.08	7.94
Recurring Earning Power	576	1.83	1.62	-19.24	8.68
Non-Interest Expense / Average Assets	576	2.63	2.52	0.35	34.86
Cost To Income Ratio	571	52.42	20.40	18.82	234.76
Liquidity					
Interbank Ratio	530	148.66	145.76	3.60	999.39
Net Loans / Total Assets	578	52.53	15.08	3.67	93.56
Net Loans / Deposit and Short-term Funding	578	67.20	27.01	10.85	291.69
Net Loans / Total Deposit and Borrowing	471	64.50	24.59	10.85	291.69
Deposits & Short-term Funding Growth	527	56.16	418.04	-80.07	9181.63
Liquid Assets Growth	530	73.42	601.05	-90.66	9696.94
Control variables					
Bank size	581	16.07	1.62	8.35	19.56
GDP growth rate	581	6.29	0.68	5.25	7.55

Notes: Variables are defined in Table 1.

In our sample, the post-merger acquiring banks observations account for 6%, distributed roughly equally by time since mergers (from year 1 which is the year of the merger to year 6). Due to the fact that before Vietnam's entry to the World Trade Organization in 2007, restriction on foreign ownership in banking was the norm and even after this event, foreign banks are still prudent

when entering this emerging market, only 8% of our observations belong to 100% foreign-owned banks. Joint-venture banks account for 12% of the observations and 13% are state-owned banks'.

Table 2b: Summary Statistics - Dummy variable

Dummy variables		
Variable	**n**	**Frequency**
Acquiring dummies		
Acquiring	581	0.06
Acquiring Year 1	581	0.01
Acquiring Year 2	581	0.01
Acquiring Year 3	581	0.01
Acquiring Year 4	581	0.01
Acquiring Year 5	581	0.01
Acquiring Year 6	581	0.01
Ownership		
100% foreign-owned bank	581	0.08
Joint-venture bank	581	0.12
State-owned bank	581	0.13
Notes: Variables are defined in Table 1.		

5. Empirical analysis

5.1. The Empirical Strategy

We run regressions of Operations/ Profitability and Liquidity ratios on banks' acquiring status dummies, ownership, and control variables. Put differently, we intend to estimate the equations:

$$Profitability_{i,t} = \alpha + \beta_{\mathrm{j}}(Acquiring_{\mathrm{j}})_{i,t} + \sum_{k} \gamma_{k,i,t}\ \mathrm{Controls}_{i,t} + \varepsilon_{i,t}$$

Eq. (1)

$$Liquidity_{i,t} = \alpha + \beta_{\mathrm{j}}(Acquiring_{\mathrm{j}})_{i,t} + \sum_{k} \gamma_{k,i,t}\ \mathrm{Controls}_{i,t} + \varepsilon_{i,t}$$

Eq. (2)

Our primary estimation method is a random effect regression with ownership independent variables. With this approach, the effects of time-invariant variables like bank types (state ownership, joint-venture or foreign ownership) can be estimated together with acquisition-related dummy variables.

5. 2 Baseline results

Table 3 reports our baseline results. Columns (1) to (4) document the estimates from regressions on Operation/ Profitability indicators and columns (5) to (10) disclose the estimates for Liquidity indicators. For the last two indicators in the Liquidity group, i.e. Deposit and short-term funding Growth (column 9) and Liquid Assets Growth (column 10), the dummy variable Acquiring Year 1 is omitted in order to eliminate the growth owing mostly to the acquisition.

Overall, acquiring banks are associated with worse performance in terms of Operation/ Profitability at high significance. The Return on Average Assets (ROAA) for these banks is 1.1% lower than that of non-acquiring banks, whereas the Recurring Earning Power suffers a 2% decrease; both effects are significant at 1% level. Acquiring banks' below par profitability is partially recovered in the following years, in particular 0.3% (at 5% significance level) for ROAA in the second year since acquisition, and 0.79% and 0.67% (both at 1% significance level) for Recurring Earning Power respectively in the second and third year since acquisition. Note, however, that the recovery effect is still by far below the inferior performance suffered by the acquiring banks; furthermore, some years following the acquisition are characterized by negative effects on ROAA, even not significant but these negative effects convey a mixed message about their recovery.

Table 3: Regression results

	Robust Random-effects Least Squares Model									
	Operation/ Profitability				*Liquidity*					
	Return on Average Assets (ROAA)	**Recurring Earning Power**	**Non-Interest Expense / Average Assets**	**Cost to Income Ratio**	**Interbank Ratio**	**Net Loans / Total Assets**	**Net Loans / Deposit & Short-term Funding**	**Net Loans / Total Deposit & Borrowing**	**Deposits & Short term funding Growth**	**Liquid Assets Growth**
Acquiring										
Acquiring	-1.114***	-2.004***	2.546**	32.417***	-22.638	28.009***	37.215***	34.444***	-45.682*	-38.632
	(0.182)	*(0.270)*	*(1.132)*	*(3.595)*	*(23.064)*	*(3.184)*	*(5.959)*	*(4.992)*	*(26.630)*	*(40.394)*
Acquiring Year 1	-0.797	0.093	-1.874**	-13.438***	37.377	-30.987***	-40.285***	-33.634***		
	(1.328)	*(0.771)*	*(0.816)*	*(3.010)*	*(50.585)*	*(3.602)*	*(6.617)*	*(7.265)*		
Acquiring Year 2	0.332**	0.788***	-2.063***	-11.122**	-23.721	-28.161***	-36.304***	-29.970***	-1.487	-24.323
	(0.155)	*(0.272)*	*(0.769)*	*(5.130)*	*(24.046)*	*(1.897)*	*(4.150)*	*(3.112)*	*(14.889)*	*(19.036)*
Acquiring Year 3	0.144	0.672***	-1.401***	-12.641***	-23.833*	-23.675***	-29.267***	-25.365***	-21.347	-64.823**
	(0.107)	*(0.215)*	*(0.540)*	*(3.625)*	*(13.358)*	*(1.710)*	*(3.139)*	*(2.402)*	*(20.030)*	*(29.738)*
Acquiring Year 4	-0.005	0.509*	-1.015**	-9.179***	-12.629	-20.982***	-26.425***	-22.416***	-19.846	-84.885***
	(0.126)	*(0.273)*	*(0.472)*	*(3.227)*	*(10.993)*	*(2.455)*	*(3.685)*	*(2.937)*	*(21.583)*	*(32.063)*
Acquiring Year 5	0.022	0.533	-0.914**	-10.035**	-32.000***	-13.842***	-16.313***	-13.291***	-44.240*	-111.237***
	(0.233)	*(0.377)*	*(0.408)*	*(3.957)*	*(12.026)*	*(2.959)*	*(3.108)*	*(2.365)*	*(22.999)*	*(33.183)*
Acquiring Year 6	-0.051	0.376	-0.816***	-8.042	-13.443*	-9.956**	-9.167*	-9.039**	-47.767	-34.875
	(0.121)	*(0.270)*	*(0.273)*	*(7.329)*	*(7.281)*	*(4.266)*	*(4.995)*	*(3.742)*	*(35.391)*	*(73.970)*
Control variables										
Bank size	0.152*	0.147	-0.798**	-3.321**	-9.496	-2.054*	-8.863***	-7.827***	15.175	24.797
	(0.087)	*(0.094)*	*(0.389)*	*(1.308)*	*(8.912)*	*(1.057)*	*(2.181)*	*(1.951)*	*(24.797)*	*(26.362)*
GDP growth rate	0.198**	0.203**	-0.785**	-6.106***	-12.078	0.020	-3.567*	-1.843	29.036***	71.457***
	(0.083)	*(0.083)*	*(0.394)*	*(1.023)*	*(10.133)*	*(1.036)*	*(2.071)*	*(1.503)*	*(10.876)*	*(23.938)*
Constant	-2.657	-1.821	19.869**	141.889***	355.832*	82.889***	226.944***	196.911***	-371.861	-749.479*
	(1.875)	*(1.922)*	*(8.560)*	*(25.285)*	*(189.142)*	*(19.747)*	*(45.851)*	*(37.056)*	*(387.409)*	*(452.472)*
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000
N	576	576	576	571	530	578	578	471	527	530
R-squared	0.0444	0.0557	0.1502	0.1191	0.1247	0.1151	0.1761	0.1687	0.0112	0.0074

Notes: Variables are defined in Table 1.
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

At the same time, cost-related ratios are also inferior in acquiring banks, with Non-Interest Expense / Average Assets showing 2.5 points higher at 5% significance level and Cost to Income Ratio indicating 32.4 points higher at 1% significance level. On the cost side, acquiring banks display a better improvement in the years following the acquisition, with high significance level at 1% and some at 5%. Nevertheless, the counter-effect is still way below the negative post-merger impact on cost efficiency: the best recovery on Non-Interest Expense / Average Assets is -2.1 points in the second year post-acquisition and that on Cost to Income Ratio is -13.4 points in the first year post-acquisition. The recovery outcomes drop as time goes on, reach -0.82 for Non-Interest Expense / Average Assets in the sixth year and -10 points for Cost to Income Ratio in the fifth year, compared to respectively 2.5 points and 32.4 points higher in these cost ratios that acquiring banks suffer. We can see that acquiring banks struggle in their reorganization post-merger in order to cut costs; nevertheless, this is not as easy as expected. This phenomenon is similar to significantly lower cost efficiency after merger events that Montgomery et al. (2014) observe in Japan banking consolidation after its own banking crisis in the late 1990s. However, unlike their Japanese counterparts, merged banks in Vietnam are unable to maintain their “bottom line”, presumably due to the absence of increased market power. To sum up, acquiring banks seem to perform more poorly, bearing both less satisfactory profitability and more inefficient cost management.

The random effects regression results indicate in general below par Liquidity indicators for acquiring banks, with high significance on Net Loans ratios, and a slightly significant result on Deposits & Short-term funding Growth, yet no significance is found for Interbank Ratio and Liquid Assets Growth. Specifically, Net Loans / Total Assets ratio indicates that the percentage of the assets tied up in loans is 28% higher in acquiring banks, implying that these banks are less liquid. Similarly, acquirers also have higher Net Loans / Deposit & Short-term Funding (37%) and higher

Net Loans / Total Deposit & Borrowing (34%), confirming their inferior liquidity compared to their counterparts. Indeed, these negative effects on liquidity were mostly offset or even better off in the first year post-merger (-31%, -40.1% and -33.6% for Net Loans / Total Assets, Net Loans / Deposit & Short-term Funding and Net Loans / Total Deposit & Borrowing, respectively); however, they were worsened afterward, reaching -10%, 9.2%, and 9% respectively, far below the negative effects associated with acquiring banks mentioned above. In addition, Interbank Ratio is associated with negative coefficients in all acquiring dummies, except for the first year post-merger, and especially attains -32% at 1% significance level in the fifth year after the acquisition. Finally, we find that acquirers are also associated with poorer growth in Deposits & Short-term funding or Liquid Assets. Deposits & Short-term funding Growth manifests a 45.7% lower in acquiring banks in general, and 44.2% lower in the fifth year post-merger in these banks, though this effect is not highly significant (10% significance level). On the other hand, Liquid Assets Growth is significantly lower in acquiring banks in the third, fourth and fifth year post-merger, respectively 64.8%, 84.9% and 11.2% lower than their counterparts. Generally, it seems that acquiring banks are not only less performing but also face lower liquidity, which entitles higher risk and may, in turn, translate into future worse performance.

Besides the main investigation of acquiring status and bank performance or liquidity, we investigate the impact of bank ownership on bank performance and liquidity. Bank ownership, in general, has no significant impacts on either profitability or cost efficiency, except for state ownership. We find that state-owned banks are significantly associated with lower ROAA and higher Non-Interest Expense / Average Assets, conforming to the usual perception that state ownership entailed worse performance. Regarding the liquidity, wholly foreign-owned banks maintain highly significant superior Interbank Ratio compared to private local banks (155.8%

higher), the same positive relationship can be observed in joint-venture banks though the coefficient is smaller (85.7%) and less significant, whereas no significant impact can be found for state-owned banks. Besides, wholly foreign-owned banks are associated with a better Net Loans / Total Assets ratio, 10% lower than private local banks, regardless of a low significance level. On the other hand, state ownership is significantly associated with more assets or deposits tied-up in loans and state-owned banks are thus less liquid. They also suffer a much lower Liquid Assets Growth (-142.7%) compared to their private local counterparts, though this impact is only slightly significant.

Other controls in our regressions include bank size or GDP growth rate. Bank size has a positive impact on performance, with a low significance on ROAA and a medium significance on cost ratios (Non-Interest Expense / Average Assets and Cost to Income Ratio), though no significant impact is found for Recurring Earning Power. This means that bigger banks manage costs more efficiently or enjoy the economy of scale, which contributes to their better ROAA. They also maintain lower Net Loans ratios compared to Total Assets, Deposit & Short-term Funding and Total Deposit & Borrowing, thus ensure better liquidity. However, no significant relationship is revealed between Bank size and Interbank Ratio, Deposits & Short-term funding Growth or Liquid Assets Growth. Lastly, the GDP growth rate control variable displays significant association with operation/ profitability indicators and the two liquidity growth ratios, but not with other liquidity indicators. Better GDP growth rates are positively correlated with ROAA and Recurring Earning Power, and interestingly they are negatively correlated with the cost ratios (Non-Interest Expense / Average Assets and Cost to Income Ratio). Positive macroeconomic index reveals auspicious conditions for banks in both boosting their profitability and managing costs more efficiently. It is equally favorable time to improve liquidity growth, in particular, Deposits & Short-term funding Growth and Liquid Assets Growth.

The impact on stock prices is less obvious as most of the acquiring banks are not listed and informal information regarding the merger often leaked out in form of rumors well before the official announcement day. In addition, news about possible mergers which finally did not occur further contributes to the noise in prices on the stock market.

6. Robustness check

We carry out 'Fixed-Effect' estimations with entity (bank) fixed effects in our robustness regressions using the same variables as in the main regressions. Entity fixed effects method helps diminish the concern that our results are generated by a selection bias by allowing us to control for time-invariant characteristics, such as the general quality of the individual banks. Table 4 presents the results of our fixed-effect robustness tests.

Consistent with the baseline results, acquiring status is strongly associated with lower profitability (ROAA, Recurring Earning Power) and higher cost ratios (Non-Interest Expense / Average Assets, Cost to Income Ratio) at a high significance level. As in the main regressions, the recovery effects in the following years diminish over time and remain much below the negative effects linked with acquirers. Similarly, the Net Loans ratios display strongly significant higher coefficients in acquiring banks; furthermore, the recovery effects are also declining, both of which reflect acquiring banks' inferior liquidity. Finally, other liquidity indicators, including Interbank Ratio, Deposits & Short-term funding Growth and Liquid Assets Growth all demonstrate below par liquidity of acquirers, though not highly significant, either correlated with their acquiring status or the years following the mergers.

Table 4: Robustness test - Fixed-effects Least Squares Model

	Robust Fixed-effects Least Squares Model									
	Operation/ Profitability				*Liquidity*					
	Return on Average Assets (ROAA)	**Recurring Earning Power**	**Non-Interest Expense / Average Assets**	**Cost to Income Ratio**	**Interbank Ratio**	**Net Loans / Total Assets**	**Net Loans / Deposit & Short-term Funding**	**Net Loans / Total Deposit & Borrowing**	**Deposits & Short term funding Growth**	**Liquid Assets Growth**
Acquiring										
Acquiring	-2.833***	-2.629***	2.822***	35.108***	39.698	32.223***	44.696***	41.812***	-109.950*	-68.934
	(0.801)	*(0.758)*	*(0.670)*	*(4.626)*	*(35.679)*	*(3.262)*	*(4.817)*	*(3.838)*	*(64.241)*	*(63.746)*
Acquiring Year 1	1.307	0.942	-2.174***	-15.290***	-12.414	-33.671***	-44.748***	-38.374***		
	(0.983)	*(0.840)*	*(0.636)*	*(4.429)*	*(45.255)*	*(3.302)*	*(4.853)*	*(4.948)*		
Acquiring Year 2	1.628**	1.300**	-2.203***	-14.378**	-65.506	-30.875***	-41.773***	-34.604***	4.200	-15.975
	(0.652)	*(0.636)*	*(0.485)*	*(5.944)*	*(40.026)*	*(2.685)*	*(4.088)*	*(3.106)*	*(26.223)*	*(37.710)*
Acquiring Year 3	1.351**	1.176*	-1.503***	-16.080***	-54.666*	-26.210***	-34.721***	-30.287***	-47.248	-88.020*
	(0.670)	*(0.656)*	*(0.459)*	*(4.116)*	*(31.386)*	*(2.425)*	*(3.443)*	*(2.791)*	*(38.529)*	*(49.564)*
Acquiring Year 4	1.082	0.994	-1.039**	-13.083**	-26.439	-22.726***	-30.497***	-26.045***	-69.344	-122.206**
	(0.671)	*(0.698)*	*(0.421)*	*(5.227)*	*(29.293)*	*(3.116)*	*(4.023)*	*(3.282)*	*(56.729)*	*(60.631)*
Acquiring Year 5	1.047	0.946	-0.990**	-11.643*	-39.558	-16.281***	-21.243***	-17.737***	-107.244*	-168.841**
	(0.779)	*(0.765)*	*(0.404)*	*(6.214)*	*(28.531)*	*(4.160)*	*(4.805)*	*(3.841)*	*(63.502)*	*(68.268)*
Acquiring Year 6	0.862	0.747	-0.863***	-9.341	-8.486	-12.087**	-13.446**	-13.090**	-128.443	-107.318
	(0.586)	*(0.573)*	*(0.324)*	*(7.164)*	*(23.781)*	*(5.334)*	*(6.030)*	*(5.101)*	*(80.534)*	*(106.295)*
Control variables										
Bank size	0.147**	0.121*	-0.839***	-3.185***	-34.478***	-2.398**	-9.281***	-8.194***	63.854	78.484
	(0.061)	*(0.068)*	*(0.213)*	*(1.042)*	*(9.783)*	*(1.056)*	*(1.495)*	*(1.273)*	*(62.199)*	*(56.584)*
GDP growth rate	0.209***	0.188**	-0.806***	-5.985***	-24.214**	-0.248	-3.827***	-1.959	57.256**	111.334***
	(0.076)	*(0.073)*	*(0.203)*	*(0.939)*	*(9.773)*	*(0.810)*	*(1.415)*	*(1.297)*	*(23.449)*	*(39.702)*
Prob > F	0.0001	0.0002	0.0048	0.0000	0.0291	0.0000	0.0000	0.0000	0.2439	0.0524
N	576	576	576	571	530	578	578	471	527	530
R-squared	0.326	0.389	0.407	0.417	0.336	0.531	0.436	0.494	0.168	0.180

Notes: Variables are defined in Table 1.

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In our robustness test setting, bank ownership cannot be included because this characteristic does not change over time. Otherwise, bank size and GDP growth rate control variables confirm their significant positive impacts on bank performance, associated with higher profitability and lower cost ratios. In addition, bank size is negatively associated with Interbank Ratio and Net Loans ratios at high significance levels, which mean that they have inferior interbank liquidity, but in other respects, they manage better their loans related liquidity. Another interpretation is that bigger banks do not rely too much on interbank funding since they have the advantage of scale and can better manage their liquidity accordingly. In the same manner, GDP growth rate, a macroeconomic index, is associated with lower Interbank Ratio but higher Deposits & Short-term funding Growth as well as Liquid Assets Growth, and better managed (lower) Net Loans ratios. A possible explanation is that favorable economic conditions allow banks to enhance liquidity growth quickly and to rely less on loans or interbank funding, the latter is considered an expensive way of improving liquidity.

It is worth noting that besides the dependent variables used in the main regressions and the robustness regressions, we have run many regressions using multiple Asset Quality, Capital Quality, Operation/ Profitability and Liquidity ratios, none of which is significant (see Appendix – not destined for publication). We can, therefore, say that no positive outcome can be found to make up for the negative consequences of merger-acquisition on banking performance that we have discovered in our analysis.

7. Conclusion

Our paper inspects the impact of mergers and acquisition on banking performance in Vietnam banks to complement existing literature on banking M&A efficiency in emerging markets. In particular, we observe financial constraints post-merger in acquiring banks, which challenge the government's strategy of using takeovers as a method of implicit bailouts. Additionally, we include

years following the acquisition as dummy variables to measure the impacts over time and remark prolonged negative financial consequences for acquirers.

We find a significant association between acquiring banks and lower profitability (ROAA, Recurring Earning Power) as well as higher cost ratios (Non-Interest Expense / Average Assets, Cost to Income Ratio). These undesirable repercussions on performance may be partly offset in the years following the mergers; however, even in case of high significance, the recovery impacts remain much lower than the initial negative consequences. The similar situation is also true for liquidity ratios, including Interbank Ratio, Net Loans / Total Assets, Net Loans / Deposit & Short-term Funding, Net Loans / Total Deposit & Borrowing, Deposits & Short-term funding Growth and Liquid Assets Growth. From the analyses, it can be derived that acquiring banks did not achieve their objectives which they may otherwise attain by organic growth; on the contrary, they suffer from the detrimental influence of the weak acquired banks. This has called into question the real utility of mergers and acquisition to banks in particular and to the financial system in general.

In terms of policy conclusions, our findings suggest that acquiring banks did not perform well post-mergers; the experience of mergers and acquisitions did not provide potential benefits to the banking sector because acquirers bore poorer profitability. Moreover, the higher cost ratios in acquiring banks imply that the internal management has not succeeded in transmitting efficient decisions through the mergers and acquisitions process. The study infers that banks would also focus on alternatives to M&A, which include but not limited to getting talented human resources, technological advancement, increase in market share and products variety. This M&A program during the period 2011-2015 coincided with the burst out of bad debts in the banking system and the disentangling phase of its aftermaths, which remains relevant for the time being, therefore it is required to have a proper legal framework on recovering non-performing loans as well as debts sales

and purchases. In particular, the authority should facilitate and support banks in the execution of the court's decisions on the handling of collateral assets. In addition, the securitization of debts and better legal transparency would allow effective debts related transactions on the securities market; thereby increase their liquidity and help accelerate the process of dealing with bad debt. The government may also design comprehensive policies about technology upgrading and further promote the application of Basel II in Vietnamese banks in order to have a minimum capital requirement and risk management in conformity with higher international standards.

Finally, we propose thorough consideration for a measure involving foreign banks as acquirers of weak local banks – even though this has already been mentioned the project of restructuring the credit institutions system for the period 2011 – 2015 and repeated in the same project for the period 2016-2020 but has never been implemented. In our previous research on the impact of foreign presence on boards on Vietnamese banks' performance (Phung and Troege, 2018), foreign minority ownership seems to be inefficient in improving local banks' profitability due to conflicts of interests; meanwhile wholly foreign-owned banks appear to be healthier in all the aspects studied. Letting foreign banks buy the most troubled local banks while entitling them full control over the acquired entities might, therefore, be an advisable strategy to restructure these banks, especially after various unsuccessful efforts of the government and given the limited capacity of other possible local acquirers. Policymakers should, however, take into account the acquirer shareholders' concern regarding information asymmetries in cross-borders Mergers that Asimakopoulos and Athanasoglou (2013) emphasize. Specifically, foreign bidders should be supported with more transparency in cultural differences and adaptation, legal or accounting factors in order to facilitate the success of growth potential and cost reduction expected from a cross-border deal. Additionally, according to Gulamhussen et al. (2016), the size of the acquiring country, the

depth of its the financial market and presence of customers from acquiring countries in target countries positively impact both the probability and value of cross-border M&As; at the same time the geographic, psychic, and time zone distances between acquirer and target countries have negative impacts. All these elements should be carefully studied while designing a consolidation program involving foreign bidders.

References

Acharya, V. V., & Yorulmazer, T. (2007). Cash-in-the-market pricing and optimal resolution of bank failures. *The Review of Financial Studies*, *21*(6), 2705-2742.

Al-Khasawneh, J. A., & Essaddam, N. (2012). Market reaction to the merger announcements of US banks: A non-parametric X-efficiency framework. *Global Finance Journal*, *23*(3), 167-183.

Asimakopoulos, I., & Athanasoglou, P. P. (2013). Revisiting the merger and acquisition performance of European banks. *International review of financial analysis*, *29*, 237-249.

Becher, D. A. (2009). Bidder returns and merger anticipation: evidence from banking deregulation. *Journal of Corporate Finance*, *15*(1), 85-98.

Behr, A., & Heid, F. (2011). The success of bank mergers revisited. An assessment based on a matching strategy. *Journal of Empirical Finance*, *18*(1), 117-135.

Beltratti, A., & Paladino, G. (2013). Is M&A different during a crisis? Evidence from the European banking sector. *Journal of Banking & Finance*, *37*(12), 5394-5405.

Caiazza, S., Clare, A., & Pozzolo, A. F. (2012). What do bank acquirers want? Evidence from worldwide bank M&A targets. *Journal of Banking & Finance*, *36*(9), 2641-2659.

Caiazza, S., & Pozzolo, A. F. (2016). The determinants of failed takeovers in the banking sector: Deal or country characteristics?. *Journal of Banking & Finance*, *72*, S92-S103.

Chuang, K. S. (2014). Financial advisors, financial crisis, and shareholder wealth in bank mergers. *Global Finance Journal*, *25*(3), 229-245.

DeYoung, R., Evanoff, D. D., & Molyneux, P. (2009). Mergers and acquisitions of financial institutions: a review of the post-2000 literature. *Journal of Financial services research*, *36*(2-3), 87-110.

Du, K., & Sim, N. (2016). Mergers, acquisitions, and bank efficiency: Cross-country evidence from emerging markets. *Research in International Business and Finance*, *36*, 499-510.

Dunn, J. K., Intintoli, V. J., & McNutt, J. J. (2015). An examination of non-government-assisted US commercial bank mergers during the financial crisis. *Journal of Economics and Business*, *77*, 16-41.

Egger, P., & Hahn, F. R. (2010). Endogenous bank mergers and their impact on banking performance: Some evidence from Austria. *International Journal of Industrial Organization*, *28*(2), 155-166.

Erel, I. (2011). The effect of bank mergers on loan prices: Evidence from the United States. *The Review of Financial Studies*, *24*(4), 1068-1101.

Ferris, S. P., Jayaraman, N., & Sabherwal, S. (2013). CEO overconfidence and international merger and acquisition activity. *Journal of Financial and Quantitative Analysis*, *48*(1), 137-164.

Goddard, J., Molyneux, P., & Zhou, T. (2012). Bank mergers and acquisitions in emerging markets: evidence from Asia and Latin America. *The European Journal of Finance*, *18*(5), 419-438.

Gómez, F. (2015). Failed bank takeovers and financial stability. *Journal of Financial Stability*, *16*, 45-58.

Gulamhussen, M. A., Hennart, J. F., & Pinheiro, C. M. (2016). What drives cross-border M&As in commercial banking?. *Journal of Banking & Finance*, *72*, S6-S18.

Hernando, I., Nieto, M. J., & Wall, L. D. (2009). Determinants of domestic and cross-border bank acquisitions in the European Union. *Journal of Banking & Finance*, *33*(6), 1022-1032.

Hankir, Y., Rauch, C., & Umber, M. P. (2011). Bank M&A: A market power story?. *Journal of Banking & Finance*, *35*(9), 2341-2354.

Karolyi, G. A., & Taboada, A. G. (2015). Regulatory arbitrage and cross-border bank acquisitions. *The Journal of Finance*, *70*(6), 2395-2450.

Montes, C. P. (2014). The effect on competition of banking sector consolidation following the financial crisis of 2008. *Journal of Banking & Finance*, *43*, 124-136.

Montgomery, H., Harimaya, K., & Takahashi, Y. (2014). Too big to succeed? Banking sector consolidation and efficiency. Journal of International Financial Markets, Institutions and Money, 32, 86-106.

Mulherin, J. H., Netter, J. M., & Poulsen, A. B. (2017). The evidence on mergers and acquisitions: A historical and modern report. In *The Handbook of the Economics of Corporate Governance.* North Holland.

Perotti, E. C., & Suarez, J. (2002). Last bank standing: What do I gain if you fail?. *European economic review*, *46*(9), 1599-1622.

Rahman, Z., Ali, A., & Jebran, K. (2018). The effects of mergers and acquisitions on stock price behavior in banking sector of Pakistan. *The Journal of Finance and Data Science*, *4*(1), 44-54.

Shirasu, Y. (2018). Long-term strategic effects of mergers and acquisitions in Asia-Pacific banks. *Finance Research Letters 24 (2018)* 73–80.

Srivastav, A., Armitage, S., Hagendorff, J., & King, T. (2018). Better safe than sorry? CEO inside debt and risk-taking in bank acquisitions. *Journal of Financial Stability*, *36*, 208-224.

Steigner, T., & Sutton, N. K. (2011). How Does National Culture Impact Internalization Benefits in Cross-Border Mergers and Acquisitions?. *Financial Review*, *46*(1), 103-125.

Vallascas, F., & Hagendorff, J. (2011). The impact of European bank mergers on bidder default risk. *Journal of Banking & Finance*, *35*(4), 902-915.

Wanke Wanke, P., Maredza, A., & Gupta, R. (2017). Merger and acquisitions in South African banking: A network DEA model. *Research in International Business and Finance*, *41*, 362-376.

Weiß, G. N., Neumann, S., & Bostandzic, D. (2014). Systemic risk and bank consolidation: International evidence. *Journal of Banking & Finance*, *40*, 165-181.

Annex: List of banking M&A deals in Vietnam

No.	Merged date	Acquirer	Target	Merged name
1	29/07/2011	LienViet Commercial Joint Stock Bank	Vietnam Postal Savings Service Company (VPSC)	Lien Viet Post Joint Stock Commercial Bank
2	26/12/2011	Saigon Joint Stock Commercial Bank (SCB)	First Joint Stock Commercial Bank (Ficombank) VietNam Tin Nghia Commercial Joint Stock Bank (TinNghiaBank)	Saigon Joint Stock Commercial Bank (SCB)
3	28/08/2012	Saigon – Hanoi Commercial Joint Stock Bank (SHB)	Hanoi Building Commercial Bank (Habubank)	Saigon – Hanoi Commercial Joint Stock Bank (SHB)
4	30/09/2013	PetroVietnam Finance Corporation (PVFC)	Western Commercial Joint Stock Bank	Vietnam Public Joint Stock Commercial Bank (PVcomBank)
5	20/12/2013	Ho Chi Minh City Development Joint Stock Commercial Bank (HD Bank)	Dai A Commercial Joint Stock Bank	Ho Chi Minh City Development Joint Stock Commercial Bank (HD Bank)
6	01/04/2015	Vietnam Maritime Commercial Stock Bank (MSB)	MDB (Mekong Development Bank)	Vietnam Maritime Commercial Stock Bank (MSB)
7	02/02/2015	The State Bank of Vietnam	Vietnam Construction Bank (VNCB) *	Vietnam Construction Bank (VNCB), One Member Limited Liability Bank
8	25/04/2015	The State Bank of Vietnam	Ocean Commercial Joint Stock Bank *	Ocean Commercial One Member Limited Liability Bank (Ocean Bank)
9	25/05/2015	Joint Stock Commercial Bank for Investment and Development of Vietnam (BIDV)	Mekong Housing Bank (MHB)	Joint Stock Commercial Bank for Investment and Development of Vietnam (BIDV)
10	07/07/2015	The State Bank of Vietnam	Global Petro Commercial Joint Stock Bank (GP Bank) *	Global Petro Sole Member Limited Commercial Bank (GP Bank)
11	01/10/2015	Saigon Thuong Tin Commercial Joint-Stock Bank (Sacombank)	Phuong Nam Commercial Joint Stock Bank (Southern Bank)	Saigon Thuong Tin Commercial Joint-Stock Bank (Sacombank)

** These banks were bought by the State Bank of Vietnam at 0 VND, i.e. all the shareholders lost their rights in the banks, and then changed from commercial banks to one-member limited liability banks.*

Appendices (not destined for publication)

The appendices show the regressions where the influence of acquiring related variables is not statistically significant.

Robust Fixed-effects Least Squares Model									
	Assets Quality					*Capital Ratios*			
	Loan Loss Reserves / Gross Loans	**Loan Loss Provision / Net Interest Revenue**	**Loan Loss Reserve / Impaired Loans**	**Impaired Loans / Gross Loans**	**Impaired Loans / Equity**	**Equity / Total Assets**	**Equity / Net Loans**	**Equity / Customers & Short Term Funding**	**Equity / Liabilities**
Acquiring									
Acquiring	2.595**	29.431***	-41.671	0.425	9.230	-1.001	-22.716	19.790	18.398
	(1.036)	*(10.080)*	*(27.244)*	*(0.758)*	*(6.828)*	*(4.470)*	*(22.783)*	*(18.537)*	*(18.216)*
Acquiring Year 1	2.667	-27.122**	-6.707	2.000**	6.854	-4.965	-15.470	-13.505	-12.318
	(3.066)	*(10.610)*	*(25.560)*	*(0.979)*	*(9.828)*	*(7.473)*	*(38.096)*	*(13.251)*	*(12.927)*
Acquiring Year 2	-1.303**	-21.266***	2.934	0.601	2.017	2.905	24.224	-7.057	-5.987
	(0.643)	*(7.740)*	*(23.608)*	*(0.933)*	*(9.137)*	*(3.586)*	*(15.214)*	*(11.368)*	*(11.081)*
Acquiring Year 3	-1.134*	-8.215	11.297	-0.354	-5.329	3.344	23.954*	-2.418	-1.645
	(0.615)	*(5.952)*	*(22.496)*	*(0.852)*	*(7.627)*	*(3.574)*	*(14.050)*	*(9.708)*	*(9.382)*
Acquiring Year 4	-0.910*	-5.415	42.841	-0.995	-7.990	2.661	19.885	-0.823	-0.046
	(0.489)	*(5.950)*	*(32.056)*	*(0.612)*	*(5.843)*	*(3.332)*	*(12.926)*	*(8.148)*	*(7.883)*
Acquiring Year 5	-0.604	-8.548*	29.808	-0.871	-5.949	3.772	20.991	3.210	3.652
	(0.472)	*(4.498)*	*(18.187)*	*(0.588)*	*(4.554)*	*(3.379)*	*(13.296)*	*(7.376)*	*(7.185)*
Acquiring Year 6	-0.354	6.762	40.544	-1.011	-5.763	2.971	17.441	4.324	4.308
	(0.420)	*(9.908)*	*(24.815)*	*(0.669)*	*(6.448)*	*(3.409)*	*(13.596)*	*(7.424)*	*(7.113)*
Control variables									
Bank size	-0.535***	-10.877***	14.354***	-0.188	-1.795	-5.256***	-13.109*	-16.895**	-15.918**
	(0.191)	*(3.654)*	*(5.294)*	*(0.168)*	*(1.612)*	*(0.858)*	*(6.991)*	*(6.858)*	*(6.790)*
GDP growth rate	-0.447***	-3.517	21.379**	-0.482***	2.661	-2.641***	-6.261**	-7.882***	-7.362**
	(0.134)	*(2.731)*	*(8.514)*	*(0.176)*	*(3.375)*	*(0.485)*	*(3.140)*	*(2.945)*	*(2.896)*
Prob > F	0.0266	0.0519	0.0001	0.0045	0.2763	0.0000	0.0119	0.0468	0.0701
N	538	539	367	372	374	581	577	577	577
R-squared	0.345	0.178	0.280	0.245	0.315	0.682	0.493	0.464	0.462

Notes: Variables are defined in Table 1.

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Robust Random-effects Least Squares Model									
	Assets Quality					*Capital Ratios*			
	Loan Loss Reserves / Gross Loans	**Loan Loss Provision / Net Interest Revenue**	**Loan Loss Reserve / Impaired Loans**	**Impaired Loans / Gross Loans**	**Impaired Loans / Equity**	**Equity / Total Assets**	**Equity / Net Loans**	**Equity / Customers & Short Term Funding**	**Equity / Liabilities**
Acquiring									
Acquiring	1.094**	-4.671	-21.520	0.012	-3.317	0.159	-16.054	20.572	19.215
	(0.476)	*(5.593)*	*(19.124)*	*(0.491)*	*(3.451)*	*(4.053)*	*(18.671)*	*(16.253)*	*(15.812)*
Acquiring Year 1	4.813	-2.434	-22.951	2.537***	16.663*	-6.712	-23.524	-15.278	-14.056
	(4.879)	*(13.171)*	*(15.733)*	*(0.943)*	*(9.961)*	*(8.714)*	*(44.440)*	*(12.199)*	*(11.828)*
Acquiring Year 2	-0.451*	5.537	-13.050	1.121	11.765	2.129	20.016**	-7.630	-6.626
	(0.255)	*(6.549)*	*(15.470)*	*(0.827)*	*(8.182)*	*(1.994)*	*(9.324)*	*(8.025)*	*(7.856)*
Acquiring Year 3	-0.402**	12.874	-2.597	0.218	4.133	2.743	20.356***	-2.778	-2.099
	(0.192)	*(8.363)*	*(13.572)*	*(0.677)*	*(6.318)*	*(1.677)*	*(7.337)*	*(5.850)*	*(5.678)*
Acquiring Year 4	-0.333***	12.114	31.187	-0.393	0.887	2.158	17.102***	-1.395	-0.712
	(0.097)	*(7.612)*	*(24.670)*	*(0.260)*	*(3.331)*	*(1.456)*	*(6.178)*	*(4.458)*	*(4.343)*
Acquiring Year 5	-0.188***	9.948	18.842*	-0.247	2.489	3.251**	17.771***	2.836	3.221
	(0.062)	*(6.235)*	*(10.927)*	*(0.283)*	*(3.727)*	*(1.611)*	*(6.452)*	*(3.454)*	*(3.462)*
Acquiring Year 6	0.002	21.269**	31.708*	-0.262	3.635	2.635	15.067*	4.374	4.316
	(0.169)	*(9.978)*	*(18.021)*	*(0.334)*	*(4.277)*	*(2.016)*	*(8.304)*	*(4.647)*	*(4.461)*
Control variables									
Bank size	-0.404	-2.856	9.793*	-0.276	0.864	-5.451***	-13.720*	-17.106**	-16.126**
	(0.249)	*(3.229)*	*(5.365)*	*(0.218)*	*(1.281)*	*(1.667)*	*(7.040)*	*(7.203)*	*(6.969)*
GDP growth rate	-0.368***	1.318	20.680**	-0.599**	3.494	-2.824***	-6.895**	-8.186***	-7.633***
	(0.113)	*(2.546)*	*(9.050)*	*(0.235)*	*(3.514)*	*(0.504)*	*(2.957)*	*(2.540)*	*(2.525)*
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N	538	539	367	372	374	581	577	577	577
R-squared	0.0985	0.0409	0.0706	0.0945	0.1768	0.4419	0.2163	0.2652	0.2627

Notes: Variables are defined in Table 1.

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

	Robust Random-effects Least Squares Model						
	Operation/ Profitability					*Liquidity*	
	Net Interest Margin	**Net Interest Revenue / Average Assets**	**Other Operating Income / Average Assets**	**Non Operating Items & Taxes / Average Assets**	**Return On Average Equity (ROAE)**	**Liquid Assets / Deposits & Short-term Funding**	**Liquid Assets / Total Deposits & Borrowings**
Acquiring							
Acquiring	-0.090	-0.204	0.447	0.117	-1.551	-3.746	-7.946**
	(0.620)	*(0.477)*	*(0.842)*	*(0.077)*	*(2.068)*	*(9.646)*	*(3.673)*
Acquiring Year 1	-0.877	-0.779	-0.612	0.034	-2.406	2.178	1.459
	(0.820)	*(0.665)*	*(0.646)*	*(0.075)*	*(3.742)*	*(6.810)*	*(3.462)*
Acquiring Year 2	-0.735*	-0.628*	-0.215	-0.071	-6.953***	3.840	3.712
	(0.425)	*(0.347)*	*(0.582)*	*(0.134)*	*(2.211)*	*(5.366)*	*(3.770)*
Acquiring Year 3	-0.353	-0.333	-0.212	0.054	-8.989***	3.844	3.025
	(0.347)	*(0.303)*	*(0.375)*	*(0.041)*	*(2.144)*	*(3.172)*	*(2.033)*
Acquiring Year 4	0.052	0.018	-0.403	0.082***	-8.302***	2.197	0.849
	(0.455)	*(0.416)*	*(0.273)*	*(0.028)*	*(2.020)*	*(3.161)*	*(1.776)*
Acquiring Year 5	0.010	0.079	-0.239	-0.059	-7.088***	2.088	-0.340
	(0.525)	*(0.494)*	*(0.211)*	*(0.043)*	*(2.637)*	*(4.532)*	*(3.388)*
Acquiring Year 6	-0.356	-0.293	0.006	0.035	-6.909*	5.273	1.463
	(0.328)	*(0.285)*	*(0.225)*	*(0.085)*	*(4.051)*	*(3.216)*	*(3.340)*
Ownership							
100% foreign-owned	0.459	0.721**	0.517	-0.238	-0.021	26.156***	13.277***
	(0.374)	*(0.333)*	*(0.378)*	*(0.146)*	*(1.838)*	*(8.383)*	*(4.557)*
Joint-venture	-0.408	-0.097	1.005	-0.080	-0.918	11.129	22.804*
	(0.488)	*(0.366)*	*(0.814)*	*(0.086)*	*(1.686)*	*(9.290)*	*(12.952)*
State-owned	0.948	0.832*	0.779	0.133	13.527	18.505	7.760
	(0.661)	*(0.504)*	*(0.774)*	*(0.086)*	*(15.594)*	*(11.936)*	*(6.428)*
Control variables							
Bank size	-0.426	-0.319*	-0.358	0.014	2.455***	-11.227***	-5.843***
	(0.259)	*(0.190)*	*(0.296)*	*(0.028)*	*(0.775)*	*(4.283)*	*(1.369)*
GDP growth rate	-0.336**	-0.265**	-0.258	-0.064***	4.008***	2.678	3.465***
	(0.133)	*(0.121)*	*(0.271)*	*(0.020)*	*(1.357)*	*(2.249)*	*(1.295)*
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N	576	576	574	494	576	577	471
R-squared	0.1203	0.1256	0.0698	0.1137	0.0349	0.2755	0.2727

Notes: Variables are defined in Table 1.
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

	Robust Fixed-effects Least Squares Model						
	Operation/ Profitability					*Liquidity*	
	Net Interest Margin	**Net Interest Revenue / Average Assets**	**Other Operating Income / Average Assets**	**Non Operating Items & Taxes / Average Assets**	**Return On Average Equity (ROAE)**	**Liquid Assets / Deposits & Short-term Funding**	**Liquid Assets / Total Deposits & Borrowings**
Acquiring							
Acquiring	-0.500	-0.557	0.538	0.107	-3.611	-3.194	-7.268
	(0.740)	*(0.629)*	*(0.540)*	*(0.077)*	*(2.910)*	*(12.999)*	*(4.617)*
Acquiring Year 1	-0.286	-0.275	-0.685	0.039	0.904	2.067	1.155
	(0.769)	*(0.658)*	*(0.480)*	*(0.081)*	*(3.909)*	*(9.714)*	*(5.320)*
Acquiring Year 2	-0.231	-0.193	-0.368	-0.066	-2.001	3.964	3.196
	(0.578)	*(0.504)*	*(0.469)*	*(0.129)*	*(3.759)*	*(8.270)*	*(5.654)*
Acquiring Year 3	0.150	0.100	-0.352	0.058	-3.158	4.681	2.926
	(0.626)	*(0.572)*	*(0.390)*	*(0.054)*	*(2.476)*	*(6.382)*	*(4.071)*
Acquiring Year 4	0.610	0.494	-0.548*	0.083*	-3.800	3.381	0.851
	(0.780)	*(0.698)*	*(0.318)*	*(0.050)*	*(2.569)*	*(6.595)*	*(3.932)*
Acquiring Year 5	0.363	0.381	-0.288	-0.058	-2.950	3.314	-0.273
	(0.748)	*(0.687)*	*(0.323)*	*(0.053)*	*(3.781)*	*(7.962)*	*(5.384)*
Acquiring Year 6	-0.024	-0.008	-0.035	0.034	-2.483	6.271	1.532
	(0.516)	*(0.457)*	*(0.337)*	*(0.108)*	*(2.163)*	*(6.119)*	*(4.730)*
Control variables							
Bank size	-0.433**	-0.318**	-0.402***	0.013	0.106	-12.288**	-6.123***
	(0.186)	*(0.140)*	*(0.140)*	*(0.019)*	*(0.634)*	*(4.763)*	*(1.027)*
GDP growth rate	-0.328***	-0.253***	-0.284**	-0.065***	2.916	2.213	3.300***
	(0.114)	*(0.096)*	*(0.132)*	*(0.017)*	*(2.328)*	*(2.198)*	*(1.208)*
Prob > F	0.0011	0.0009	0.0086	0.0000	0.0000	0.0000	0.0000
N	576	576	574	494	576	577	471
R-squared	0.436	0.438	0.388	0.399	0.144	0.434	0.586

Notes: Variables are defined in Table 1.
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1