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How do Banks Fare after Merger and Acquisition? Evidence from Indonesia[1]

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This study examines the effect of merger and acquisition action on bank's performance, cost efficiency, and intermediary capabilities using data from all banks in Indonesia from 2004 – 2019 with different in different techniques. Our analysis shows that bank merger and acquisition events have significant positive impact on performance, but no significant impact on its cost efficiency and intermediary capabilities. Further analysis shows that regulatory-driven actions result significant impact on better performance and cost efficiency but worsen in intermediary capabilities. Moreover, foreign bank entry brings their market as a new customer to new merged or acquired banks may attributed to improvement in intermediary capabilities.

Keywords: Merger and Acquisition, Banks, Profitability, Efficiency, Performance, Indonesia

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1. Introduction

Banking consolidation is generally policy option taken by policymaker with main purposes to stabilize financial system during the crisis. Post Asian Financial Crisis 1998-1999, banking system across countries tends to be more consolidated (Hadad et al., 2013; Montgomery et al., 2014; Montes, 2018). In Indonesia, number of banks declined from the total of 237 banks in 1997 to 151 banks in 2000, the number of commercial banks has then continued to dwindle into 110 per September 2020[2]. However, this 2020 number is far higher compare to the other peer countries such as Malaysia, Thailand, and India, which respectively only have 26 banks; 30 banks; and 34 banks[3]. Furthermore, in term of composition, the existing players in Indonesia banking industry are dominated by mid to small-scale banks[4] (banks with core capital less than IDR 5 trillion) with 75 banks in total or 68 percent of the total banks, while only 7 largest banks (bank with core capital more than IDR 30 trillion) or 6 percent of the total banks. Regarding of the market share, 4 largest banks in Indonesia control 50 percent of market share, while 106 banks shared the rest, reflecting the enormous disparity in market power between large and small banks, which will eventually impair competitiveness of the banking industry (Mulyaningsih and Daly, 2011; Osuagwu and Nwokoa, 2017).

Merger and acquisition activities in the banking industry are often viewed as one of the strategies to induce better bank performance through the potential benefit of having a larger market share, greater market power, better earning stability, and economies of scale (Peristiani, 1996; Du and Sim, 2016; Coccorese and Feri, 2020). In Indonesia, financial services authorities have encouraged consolidation through merger and acquisition by issuing Single Presence Policy and Minimum Capital Requirement regulation, which later lead to a series of merger and acquisition occurrence in Indonesia banking industry. Considering most of banks in Indonesia is mid-to-small-scale banks, the further improvement of market share distribution and banking capacity through merger and acquisition could be a way to enhanced banking competitiveness, stability, and overall banking performance in the long run (Mulyaningsih and Daly, 2011; Shin and Kim, 2013; Kiefer, 2014; Abbas et al., 2014).

Although several studies asserted the beneficial impact of merger and acquisition in the industry, the finding regarding the relation between banking merger and acquisition on banking performance are still being a relevant debate. Studies related to the impact of banking

[2] Indonesia Banking Statistics, 2020, available from www.ojk.go.id
[3] Data from each countries' central bank authorities, 2020
[4] Indonesia Banking Statistics, 2020, available from www.ojk.go.id

consolidation through merger and acquisition are inconclusive, due to different impact of the consolidation policy across economies (Uhde and Heimeshoff; 2009; Sufian et al., 2012; Kai and Sim, 2016). The mixed finding about existing literatures regarding merger and acquisition in the banking industry across countries thus become interesting to be analyzed further on how merger and acquisition in banking firms affected the players in the industry.

In this paper we focus on event of merger and acquisition on banking industry in Indonesia with observation period 2004 – 2019. This study examines the net impact of banks' merger and acquisition by empirically investigating the event's implication on each bank performance, efficiency, and intermediation capabilities after the event of merger and acquisition. To the best of our knowledge, there are no existing literatures in Indonesia that went on detail analyzing how government-driven and market driven merger and acquisition impacting banking performance. Considering the recent regulation on bank consolidation by the authority, one of our main interests in this study would be about how merger and acquisition will affect banking firms' performance in Indonesia, in which in specific we also consider into account whether regulatory-driven merger and acquisition – a practice of merger and acquisition by the Indonesia banking firms to comply with the regulations - will induce performance on the banking firms.

We employ difference in difference (DiD) panel data estimation strategy to empirically evaluates the impact of merger and acquisition on performance, efficiency, and intermediation. We used quarterly financial reports data of all banks in Indonesia from 2004 to 2019, in which consisted of 30 groups of banks with merger and acquisition within the period of observation as treatment group and the rest of 92 banks as control group.

We find evidence that merger and acquisition actions, particularly regulatory-driven, lead to better performance and cost efficiency of the banks, but weaker on intermediary capabilities. Our deeper analysis reveals that foreign bank entry help acquired banks to be stronger in intermediary capabilities. This improvement in intermediary capabilities indicate that existence market brings by foreign bank become new market for acquired bank.

The rest of this paper is structured as follows. Section 2 presents theoretical background and an overview of banking industry in Indonesia, followed by data, variables, and methodology in Section 3. We present the empirical results and robustness checks in Section 4. Section 5 concludes our presentation with some implications to policy makers.

2. Theoretical Frameworks

a. Merger and Acquisitions: Efficiency and Profitability

The views on how banks' performance is determined in the existing literatures could be explained from the efficiency framework and Structure-Conduct-Performance hypotheses (Peristiani, 1996; Khan, 2018; Rao-Nicholson, 2016). Several studies found that firms' behavior is driven by efficiency, in which firms seek to undertake production at more efficient scale point, more optimal product mix, and further improve their performance by having enhanced managerial (Demsetz, 1973).

In terms of merger and acquisition, Trautwein (1990) and Sufian (2011) asserted that efficiency motive is carried out by the firms to create operational synergies and managerial synergies. It can be achieved as better-performing bank integrates with inadequately managed banks, in which more adept bank absorb bank with relatively lower capital ratio and lower profitability by combining operations of separate units, knowledge transfers, and also conducting superior planning and monitoring abilities by the acquirer that could benefit the target's performance in order to become more scale efficient (Trautwein, 1990; Peristiani, 1996; Coccorese dan Ferri, 2020).

Furthermore, by creating synergies through merger and acquisition implementation, the banks are expected to gain potential advantages of lowering production cost and enable to accomplished maximum production of various financial products/services mix that eventually lead to economies of scale in the long run (Demsetz, 1974; English et al., 1993; Leepsa and Mishra, 2014).

Although there are several studies concluded that economies of scale in the banking industry were found in rather small-scale banks (Peristiani, 1996; Hughes and Mester, 2013), other existing literatures stated that the cost of producing an additional unit of output (for example, a loan or other products/services innovation) among the big banking firms fall as the quantity production of the firms increase (Hughes and Mester, 2013; Kovner et al., 2014; Wheelock and Wilson, 2017), implying evidence of scale economies in bigger size banking firms. If merger and acquisition induce economies of scale, it is safe to assumed that post-merger profits would grow relative to pre-merger profits and the profits of other peers in the industry.

Another rationale of merger and acquisition strategy in term of banking firms' performance are the advantage of gaining more market power (Trautwein, 1990; Perisitani, 1996). In more concentrated banking industry structure, the surviving banks could implement specific conduct (for example, creating innovation and/or new financial products, investing on more varied

delivery channel, price taking, advertising, gathering information) (Akhavein et al., 1997; Fang, 2019). The banking conduct thus in turn will increasing revenue, generate cost savings (both in terms of marketing, sales and product distribution, and human resources), market expansion, and eventually will lead to obtaining profit gain (Du and Sim, 2015; Coccorese and Ferri, 2020).

b. Overview of Banking Industry Regulation in Indonesia

Indonesia's authority has been encouraging consolidation through merger and acquisition by enacted series of regulations. Minimum Capital Adequacy Requirement for commercial banks was first introduced in 2005[5] - which banks are restricted on doing their business activities if they are not able meet the minimum capital gradually by IDR 80 billion in 2007 and IDR 100 billion in 2010; and later enacted in 2020[6], to which banks are enforced to comply with the minimum capital adequacy gradually by IDR 1 trillion in 2020, IDR 2 trillion in 2021, and IDR 3 trillion in 2022. Another policy - Single Presence Policy - was introduced in 2006[7]. This policy seeks to regulate the ownership structure in a banking firm, to which the main shareholder in more than one bank are re-arranged to merely be allowed to become controlling shareholder in one bank only by transferring part or all their shares ownership into single bank.

The efforts to banking industry reinforcement through merger and acquisition regulation by the authority has then continued in 2019, which specifically contain requirements and procedures on doing merger, consolidation, acquisition, and integration[8]. It is also asserted that Financial Services Authority (Otoritas Jasa Keuanggan/OJK) can directly enforce the conduct of merger and acquisition between banks based on supervisory basis.

c. Literature Review

Many studies have conducted on merger and acquisition in banking industry performance. Shin and Kim (2013) concluded that there was an increase in bank competitiveness in South Korea after merger and acquisition, in line with the increasing market concentration in the banking industry. Khan et al. (2018) who examined banks in ASEAN also stated that mergers and acquisitions were able to provide relatively higher profitability in a concentrated banking industry than in a less concentrated banking industry. Lastly, other studies by Sufian and Majid (2007), and Al-Khasawnah et al. (2020) who conducted the study in Singapore and the United States respectively concluded that there was an increase in term of bank efficiency after the mergers were implemented.

On the other hand, studies with contradictory conclusion are stated by Kai and Sim (2016) who conducted studies in China, India, Indonesia, Malaysia, Russia, and Thailand and found that

[5] Bank Indonesia Regulation No. 7/15/2005
[6] Financial Services Authority Regulation No. 12/POJK.03/2020
[7] Bank Indonesia Regulation No. 8/16/2006
[8] Financial Services Authority Regulation 41/POJK.03/2019

the effect of merger and acquisition is generally weak on bank efficiency. Uhde and Heimeshoff (2009), who conducted a study on mergers and acquisitions in European Union (EU) countries, even concluded that the concentration of the bank market from the results of mergers and acquisitions in EU countries had a negative impact on the health of financial markets in the said region. Sufian et al. (2012) in Malaysia analyzed how post-forced mega merger in Malaysia banking sector impacting their revenue efficiency, to which later concluded that the revenue efficiency of the Malaysia banking sector has not significantly improved compared to the pre-merger period.

Another study by Montgomery et al. (2014) who concluded that the results of merger in Japan tend to reduce cost efficiency but did not have significant impact on profit efficiency. In addition, Shirasu (2018), who examines the actions of mergers and acquisitions in Asia Pacific countries, concludes that mergers and acquisitions contribute to increasing new loans and strengthening capital. However, banks failed to obtain profitability because this increase was accompanied by an increase in the number of bad loans.

In Indonesia, studies on mergers and acquisitions in the banking industry has so far also resulting on complex conclusions. Hadad et al. (2013), who analyzed the hypothetical merger between banks in the industry found that the merger (as a consolidation step) in Indonesia would be beneficial for state-owned banks and non-foreign exchange banks as the groups show scale inefficiencies above industry average. Yusgiantoro, et. al (2018) concludes that consolidation, which is proxied by market power, will have a positive impact on financial stability in general, but in detailed analysis asserted that the action could be detrimental for state-owned banks and small private-owned-banks. Yuanita (2019) examined competition in the banking industry and its impact on financial stability. It is concluded that the more competitive banking industry, the banks will gain from economies of scale that later will induce them to offer lower price of products and/or services. The study also stated that higher concentration of banking industry is associated with higher profitability, in which recommend on implementing of banking consolidation to be carried out in the industry.

3. Methodology

a. Data and Correlation Matrix

This research used quarterly financial reports data of 102 banking firms in Indonesia from 2004 to 2019 provided by OJK. Our sample consisted of 30 groups of banks that were done implementing merger and acquisition within the period of observation and another 92 banks as

control group. We decided to measure the impact of merger and acquisition on banks' performance by using return on asset (ROA) and net interest margin (NIM) as proxies for banks' profitability, cost to income ratio (CIR) as proxy for efficiency, and loan to deposit ratio (LDR) to measure bank performance on intermediation capability. Furthermore, as it is assumed that macroeconomic indicators would also likely affect bank activities in the industry (Pana et al., 2010; Shirasu, 2018), we also collect Gross Domestic Product (GDP) growth and Consumer Price Index (CPI) data from Indonesia Central Bureau of Statistics (Badan Pusat Statistik/BPS) website. The Descriptive Statistics are presented in Table 1.

Table 1. Descriptive Statistics of Variables

	Definition	Obs	Mean	Std. Dev.	Min	Max
ROA	Return on asset	6,423	2.2453	2.0210	-8.9640	14.380
NIM	Net interest margin	6,406	5.5037	2.9501	-9.5868	19.850
CIR	Cost to income ratio	6,453	82.145	15.430	31.060	188.71
LDR	Loan to deposit ratio	6,332	85.214	30.802	20.120	273.43
MnA	A dummy variable for treated banks. 1 = banks which have implemented merger and acquisition	6,528	0.2941	0.4556	0	1
post	A dummy variable for treatment effect. 1 for time after implementing merger and acquisition	6,527	0.7407	0.4382	0	1
nplratio	The ratio of non-performing loan gross to total credit	6,069	3.1218	3.0363	0.0520	34.715
lntotalasset	Natural logarithm of total asset	6,417	15.538	1.7492	9.486	20.483
Ownership	A dummy variable for ownership. 1 = for local banks	6,527	0.7390	0.4391	0	1
CPI	Costumer price index	6,527	130.70	13.074	110.08	160.81
gdpgrowth	Gdp growth rate quarterly	6,119	8.4032	2.7851	4.1357	14.978

Table 3. Correlation Matrix

	ROA	NIM	CIR	LDR	post	MnA	nplratio	ownership	lntotalasset	CPI	gdpgrowth
ROA	1										
NIM	0.5329	1									
CIR	-0.8589	-0.4179	1								
LDR	-0.0146	-0.1981	-0.0561	1							
post	-0.0975	-0.2628	0.0543	0.1448	1						
MnA	-0.273	-0.2389	0.2552	0.1169	-0.0444	1					
nplratio	-0.171	-0.0549	0.2373	-0.0264	-0.1664	0.0216	1				
ownership	0.0198	0.2351	-0.0119	-0.3062	0.0455	-0.2182	-0.0034	1			
lntotalasset	0.0417	-0.2378	-0.1	0.0982	0.3179	-0.0211	-0.0091	-0.1364	1		
CPI	-0.051	-0.0058	0.0246	-0.0264	-0.2958	0.0034	0.018	-0.0054	0.0265	1	
gdpgrowth	-0.0277	-0.1667	-0.0115	0.0626	0.4691	-0.0002	-0.1544	0.0036	0.1759	-0.0219	1

b. Research Model

Our research adopted difference-in-difference regression model, in which also been utilized in prior studies regarding impact evaluation of merger and acquisition (Hosken et al, 2017; Shirasu, 2018). The difference-in-difference method applied the combination of cross-sectional treatment-control comparisons and before-after dummy to obtain a more robust estimation (Renneboog and Vansteenkiste, 2019).

In order to analyze the various estimation of merger and acquisition, we create different treated group and control group on each estimation that the model we modified from Trinugroho et al. (2020).

1. All merger and acquisitions

$$Y_{i,t} = \alpha + + \beta_1 \mathcal{M}nA_i + \beta_2 Post_t + \beta_3 Post_t * \mathcal{M}nA_i + \beta_4 Control_{i,t} + \varepsilon_{i,t}$$

$Y_{i,t}$ is the dependent variables represent banks' performance proxied by financial ratios of ROA, NIM, BOPO, and LDR. Both ROA and NIM are often used in the existing studies to measure banks' profitability (Badreldin and Kalhoefer, 2009; Shin and Kim, 2013; Shirasu, 2018; Trinugroho et al., 2020). On represent banks' performance, the higher number of ROA and NIM would represent the higher profitability that obtained by the treated banks post-merger and acquisition period.

We use the ratio of CIR to measure the level of efficiency performance in banking firms' business operations (Du Toit and Cuba, 2017; Aly et al., 2018; Trinugroho et al., 2020), in which the higher number of costs to income represent the higher level of inefficiency in banks' performance. Lastly, LDR variable was used to analyze the capability of banks as the intermediation role on channeling their credit to the public after merger and acquisition conduct (Ikpefan and Kazeem, 2013; Trinugroho et al., 2020).

$\mathcal{M}nA_i$ is a dummy treated variable equals to one (1) for the banks that have implemented the practice of merger and acquisition, and zero (0) otherwise. $Post_t$ is a dummy variable equals to one (1) after banks implemented the merger and acquisition. $Control_t$ are sets of control variables that include macroeconomic variables (GDP Growth and CPI); bank size proxied by ln (total asset); bank ownership dummy (ownership), which is one (1) for local bank ownership and (0) otherwise. In this estimation, our variable of interest is interaction variable of $Post_t*$ $\mathcal{M}nA$, indicating the direct impact of merger and acquisition in post-merger and acquisition period on the dependent variables.

We then investigate in further how the regulatory-driven merger and acquisition would impact on banks' performance by employed the series of estimation as follows:

2. Regulatory merger and acquisitions

$$Y_{i,t} = \alpha + +\beta_1 \mathit{MnA_Regulatory}_i + \beta_2 Post_t + \beta_3 Post_t * \mathit{MnA_Regulatory}_i + \beta_4 Control_{i,t} + \varepsilon_{i,t}$$

3. Voluntary merger and acquisitions

$$Y_{i,t} = \alpha + +\beta_1 \mathit{MnA_Voluntary}_i + \beta_2 Post_t + \beta_3 Post_t * \mathit{MnA_Voluntary}_i + \beta_4 Control_{i,t} + \varepsilon_{i,t}$$

On estimation 2 (two) and 3 (three), we assessed the impact of regulatory merger and acquisition and voluntary merger and acquisition by using dummy variables of $\mathit{MnA_Regulatory}_i$ and $\mathit{MnA_Voluntary}_i$ respectively on each estimation. $\mathit{MnA_Regulatory}_i$ represent one (1) for the banks that have implemented merger and acquisition due to regulatory factor, and zero (0) otherwise. $\mathit{MnA_Voluntary}_i$ represent one

(1) for the banks that have implemented market-driven merger and acquisition, and zero (0) otherwise. The variables of interest in each estimation are $Post_t * \mathit{MnA_Regulatory}_i$ and $Post_t * \mathit{MnA_Voluntary}_i$ indicating each of the direct impact of regulatory and voluntarily merger and acquisition on the dependent variables in post-merger and acquisition period on the dependent variables.

Furthermore, by referring to Trinugroho et al. (2010), we also went for a deeper investigation by examine the effect of bank ownership on the relationship between merger and acquisition implementation and banking performance, in which we employed a triple interaction variable for $Post_t * \mathit{MnA}_i * \mathit{Ownership}$.

4. Triple interaction M&A regression based on bank ownership

$$Y_{i,t} = \alpha + +\beta_1 \mathit{MnA}_i + \beta_2 Post_t + \beta_3 Post_t * \mathit{MnA}_i + \beta_4 Post_t * \mathit{MnA}_i * \mathit{Ownership} + \beta_5 Control_{i,t} + \varepsilon_{i,t}$$

4. Empirical Results and Discussion

We examined the impact of merger and acquisition on banks' performance in Indonesia within 2004 – 2019 period of time. The banks' performance is represented by ROA, NIM, CIR, and LDR as proxies for profitability, efficiency, and intermediary function of the banks. All the estimations were tested over 102 sample of banks, in which we later divided into treatment

group and control group of observation on each estimation using difference-in-difference regression model.

Table 3. showing the results of our baseline regression. The variable of interest on the estimation, $Post * MnA$, presented a positive and significant outcome on both ROA and NIM. However, this result displayed an insignificant impact of merger an acquisition in term of CIR and LDR. This implied that the treated banks in post-merger and acquisition implementation period have higher profitability compare to the banks who have not implemented the activity. In the contrary, the merger and acquisition practice does not have any significant impact on banks' performance in term of bank efficiency and intermediary function. We argue that the increasing market power on banks after merger and acquisition conduct will generate higher revenue through the expansion of banks' operational activities and higher power to set interest rate, which also resulting at the higher operational cost of the bank. Thus, post the merger and acquisition, banks show an increase in profit but failed to improve their cost efficiency (Montgomery et al., 2014).

Furthermore, in order to specifically examine how the merger and acquisition conduct impacting banks' performance based on regulatory-driven and voluntary-driven, we generate interaction between the dummy variable of regulatory-driven merger and acquisition with the treatment effect variables ($Post * MnA_Regulatory$) on the second estimation; and another interaction between the dummy variable of voluntary-driven merger and acquisition with the treatment effect variables ($Post * MnA_Voluntary$) on the third estimation. As presented in the Table 4., it is showed that the variable of interest in each estimation for regulatory-driven merger and acquisition displayed significant results on some dependent variables. Both the estimation results of the interaction variable on ROA and NIM showed positive results; at the other hand, it showed a negative and significant impact on the dependent variable CIR. This indicate that the regulatory merger and acquisition for the treated banks yielding on better profit gain and better efficiency gain in post-regulatory merger and acquisition period compare to the banks who had not. Lastly, as represented by dependent variable LDR that showed a negative and significant estimation result, it appeared that the treated banks have lower intermediary function compared to the bank who did not implement regulatory merger and acquisition in post-merger period.

It can be implied that the higher profitability of the banks after implementing government-coordinated merger and acquisition compare to control groups due to the higher efficiency gain

by the treated banks. This is indicated a higher level of economies of scale reached by the treated banks. Thus, government-coordinated merger and acquisition are beneficial for small-scale banks to strengthen their performance. In addition, we assumed the lower intermediary function on the treated banks compare to the banks which belong to the control group indicates that after regulatory-driven merger and acquisition, banks failed to seize the market from the bigger existing-players in the industry. Hence, we also assumed that it is best for the mid-scale level of banks that have implemented regulatory merger and acquisition to maximized efficiency gain by sticking in their level segment of playing field (Yusgiantoro et al., 2019).

In the Table 5., the variable of interest in each estimation for voluntary-driven merger and acquisition displayed contradictory result. The estimation results of the interaction variable on profitability proxy NIM showed negative and significant outcome, meanwhile at the same time it showed insignificant impact on ROA; for dependent variable CIR, the result showed a positive and significant estimation outcome, implying that the cost to income ratio is higher for the treated banks in post voluntary-driven merger and acquisition period. This indicate that the banks have lower efficiency in post voluntary merger and acquisition period compare to the control group. The dependent variable LDR showed a positive and significant estimation result, it appeared that the treated banks have higher intermediary function compared to the bank who belong in the control group in post-merger period.

Voluntary merger and acquisition estimation results in general showed lower performance in term of profitability and efficiency compare to the banks in the control group. Nevertheless, positive and significant outcome in the LDR variable indicating that the banks still benefiting from the higher market power, reflecting from the higher intermediary capabilities compare to the banks who belong in the control group.

We also assessed how bank ownership affect the performance of the banks who did merger and acquisition activities. As displayed in the Table 6., the variable of interest only showed a negative and significant outcome on dependent variable LDR. Ownership is a banking dummy variable that equals to 1 (one) for local bank and 0 (zero) otherwise. This implied that local banks that have implemented merger and acquisitions have overall insignificant effect on banks' profitability and efficiency in post-merger and acquisition period compare to the local banks. We can also find in further that the local bank has lower intermediary function in post-merger period compare to the local banks that also implementing merger and acquisition. The finding on banks' performance is in line with the study by Yildirim et al. (2007) who concluded

that banks' ownership indicator is resulting on positive outcome in the favor of foreign bank participation in the industry.

Robustness Checks

We added a test for robustness checking by referring to Trinugroho et al. (2020) who also applied incremental regression approach. The results are presented in the Appendix, in which with regards to our variables of interest, the results remain the same.

5. Conclusion and Policy Implications

We empirically investigate the effect of the merger and acquisition on Bank performance, efficiency, and risk. We use data from all banks in Indonesia from 2014 to 2019, in which consisted of 30 groups of banks with merger and acquisition within the period of observation as treatment group and the rest of 92 banks as control group. Our results reveal that the at the bottom line, the treated banks' performance are better than the control groups. While from efficiency and intermediation capabilities, there is no significant impact from the events on banks who merger and acquisitions.

We also find that different impact between regulatory-driven and voluntary-driven merger and acquisitions. Our deeper analysis reveals that regulatory-driven merger and acquisition banks experience better profit and cost efficiencies, although weaker in intermediary capabilities. In addition, we find that foreign bank entry is associated with better intermediary capabilities. There is indication that foreign bank entry carries their own customer and become new market for merged and acquired banks.

These findings carry several policy implications. We find strong evidence that the merger and acquisition action, more specifically regulatory-driven, does lead to better performance and efficiency but less in intermediary capabilities. Therefore, regulators should either seek complementary policies to mitigate the negative effects of the consolidation action in intermediary capabilities. The more specific regulation that focus on segmented and heterogeneous characteristics of banking industry in Indonesia, to ensure the treated bank will be able to compete in the appropriate playing field.

Table 3. Baseline Regression Results

VARIABLES	(1) ROA	(2) NIM	(3) CIR	(4) LDR
post	-1.122***	-1.776***	6.701***	12.46***
	(0.0951)	(0.141)	(0.672)	(1.394)
MnA	-1.373***	-1.589***	8.349***	4.298**
	(0.112)	(0.164)	(0.865)	(2.156)
post*MnA	0.284**	0.472***	0.553	-0.464
	(0.125)	(0.182)	(0.967)	(2.303)
ownership	-0.0997*	1.203***	1.947***	-21.15***
	(0.0568)	(0.0653)	(0.473)	(1.279)
nplratio	-0.136***	-0.0884***	1.282***	-0.0556
	(0.0138)	(0.0125)	(0.109)	(0.165)
lntotasset	0.103***	-0.223***	-1.267***	0.0940
	(0.0162)	(0.0205)	(0.121)	(0.258)
CPI	-0.0168***	-0.0159***	0.0898***	0.0500
	(0.00211)	(0.00279)	(0.0157)	(0.0317)
gdpgrowth	0.0227**	-0.0424***	-0.197***	-0.172
	(0.00974)	(0.0133)	(0.0759)	(0.149)
Constant	4.334***	12.55***	78.58***	85.05***
	(0.365)	(0.510)	(2.704)	(5.427)
Observations	5,601	5,594	5,620	5,536
R-squared	0.140	0.198	0.155	0.119

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4. Regulatory Merger and Acquisitions Regression Results

VARIABLES	(1) ROA	(2) NIM	(3) BOPO	(4) LDR
post	-1.058***	-1.757***	7.234***	13.29***
	(0.0825)	(0.117)	(0.607)	(1.221)
MnA_Regulatory	-1.199***	-1.464***	9.500***	5.806***
	(0.0596)	(0.0791)	(0.433)	(1.000)
post*MnA_Regulatory	0.235**	1.143***	-3.445***	-8.958***
	(0.0984)	(0.151)	(0.820)	(1.548)
ownership	-0.0690	1.334***	1.588***	-22.20***
	(0.0578)	(0.0688)	(0.486)	(1.353)
nplratio	-0.136***	-0.0867***	1.279***	-0.0712
	(0.0139)	(0.0124)	(0.110)	(0.166)
lntotalasset	0.108***	-0.207***	-1.294***	0.0116
	(0.0162)	(0.0201)	(0.120)	(0.254)
CPI	-0.0168***	-0.0162***	0.0910***	0.0534*
	(0.00212)	(0.00277)	(0.0157)	(0.0318)
gdpgrowth	0.0225**	-0.0437***	-0.191**	-0.159
	(0.00973)	(0.0131)	(0.0758)	(0.148)
Constant	4.182***	12.21***	78.67***	86.03***
	(0.359)	(0.490)	(2.684)	(5.347)
Observations	5,601	5,594	5,620	5,536
R-squared	0.140	0.205	0.158	0.124

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. Voluntary Merger and Acquisitions Regression Results

VARIABLES	(1) ROA	(2) NIM	(3) BOPO	(4) LDR
post	-1.028***	-1.505***	6.254***	10.93***
	(0.0849)	(0.124)	(0.627)	(1.233)
MnA_Voluntary	-1.136***	-0.860***	7.053***	0.0511
	(0.0722)	(0.112)	(0.587)	(1.288)
post*MnA_Voluntary	-0.0234	-0.632***	3.004***	6.754***
	(0.0947)	(0.134)	(0.727)	(1.624)
ownership	-0.0916	1.290***	1.580***	-22.08***
	(0.0584)	(0.0683)	(0.487)	(1.369)
nplratio	-0.136***	-0.0863***	1.274***	-0.0746
	(0.0138)	(0.0123)	(0.111)	(0.166)
lntotalasset	0.106***	-0.206***	-1.315***	-0.0216
	(0.0164)	(0.0203)	(0.121)	(0.253)
CPI	-0.0167***	-0.0157***	0.0898***	0.0501
	(0.00212)	(0.00278)	(0.0157)	(0.0318)
gdpgrowth	0.0229**	-0.0427***	-0.194**	-0.165
	(0.00974)	(0.0132)	(0.0757)	(0.148)
Constant	4.189***	11.97***	80.00***	88.84***
	(0.365)	(0.501)	(2.703)	(5.372)
Observations	5,601	5,594	5,620	5,536
R-squared	0.140	0.200	0.158	0.122

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Triple Interaction on Banks' Ownership Regression Result

VARIABLES	(1) ROA	(2) NIM	(3) BOPO	(4) LDR
post	-1.133***	-1.690***	6.813***	11.08***
	(0.0954)	(0.144)	(0.675)	(1.469)
MnA	-1.346***	-1.909***	7.851***	9.880***
	(0.110)	(0.163)	(0.863)	(2.133)
post*MnA	0.205	0.611***	0.0190	7.109**
	(0.136)	(0.178)	(1.142)	(2.901)
post*MnA*lokal	0.108	-0.0557	1.076	-14.35***
	(0.0978)	(0.112)	(0.823)	(2.008)
nplratio	-0.136***	-0.0897***	1.285***	-0.111
	(0.0138)	(0.0129)	(0.110)	(0.170)
lntotalasset	0.110***	-0.279***	-1.343***	0.851***
	(0.0159)	(0.0206)	(0.121)	(0.270)
CPI	-0.0169***	-0.0148***	0.0911***	0.0343
	(0.00211)	(0.00286)	(0.0157)	(0.0328)
gdpgrowth	0.0232**	-0.0452***	-0.197***	-0.164
	(0.00974)	(0.0136)	(0.0758)	(0.154)
Constant	4.168***	14.25***	81.11***	58.84***
	(0.355)	(0.521)	(2.662)	(5.563)
Observations	5,601	5,594	5,620	5,536
R-squared	0.140	0.165	0.153	0.050

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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Appendix. Robustness Check Tables

Table A.1.

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA
post*MnA	0.528***	0.539***	0.454***	0.413***	0.424***	0.284**
	(0.130)	(0.130)	(0.117)	(0.119)	(0.118)	(0.125)
ownership		-0.252***	-0.191***	-0.136**	-0.124**	-0.0997*
		(0.0556)	(0.0551)	(0.0557)	(0.0555)	(0.0568)
nplratio			-0.132***	-0.134***	-0.137***	-0.136***
			(0.0136)	(0.0138)	(0.0136)	(0.0138)
lntotalasset				0.0806***	0.103***	0.103***
				(0.0157)	(0.0159)	(0.0162)
CPI					-0.0190***	-0.0168***
					(0.00195)	(0.00211)
gdpgrowth						0.0227**
						(0.00974)
Constant	3.168***	3.366***	3.932***	2.712***	4.915***	4.334***
	(0.0689)	(0.0834)	(0.0930)	(0.251)	(0.333)	(0.365)
Observations	6,423	6,423	6,012	5,950	5,950	5,601
R-squared	0.092	0.095	0.140	0.143	0.158	0.140

Table A.2.

VARIABLES	(1) NIM	(2) NIM	(3) NIM	(4) NIM	(5) NIM	(6) NIM
post*MnA	0.636***	0.574***	0.447**	0.608***	0.605***	0.472***
	(0.182)	(0.181)	(0.176)	(0.173)	(0.172)	(0.182)
ownership		1.619***	1.384***	1.257***	1.272***	1.203***
		(0.0676)	(0.0689)	(0.0649)	(0.0651)	(0.0653)
nplratio			-0.106***	-0.101***	-0.105***	-0.0884***
			(0.0126)	(0.0121)	(0.0122)	(0.0125)
lntotalasset				-0.260***	-0.234***	-0.223***
				(0.0205)	(0.0204)	(0.0205)
CPI					-0.0220***	-0.0159***
					(0.00263)	(0.00279)
gdpgrowth						-0.0424***
						(0.0133)
Constant	7.615***	6.340***	6.977***	10.94***	13.50***	12.55***
	(0.108)	(0.117)	(0.135)	(0.332)	(0.478)	(0.510)
Observations	6,406	6,406	5,985	5,916	5,916	5,594
R-squared	0.140	0.197	0.198	0.223	0.233	0.198

Table A.3.

VARIABLES	(1) BOPO	(2) BOPO	(3) BOPO	(4) BOPO	(5) BOPO	(6) BOPO
post*MnA	-2.082**	-2.211**	-1.312	-0.645	-0.688	0.553
	(1.036)	(1.028)	(0.901)	(0.910)	(0.909)	(0.967)
ownership		2.771***	3.035***	2.328***	2.259***	1.947***
		(0.450)	(0.463)	(0.465)	(0.464)	(0.473)
nplratio			1.193***	1.212***	1.234***	1.282***
			(0.105)	(0.106)	(0.105)	(0.109)
lntotalasset				-1.133***	-1.248***	-1.267***
				(0.117)	(0.118)	(0.121)
CPI					0.0955***	0.0898***
					(0.0144)	(0.0157)
gdpgrowth						-0.197***
						(0.0759)
Constant	77.32***	75.13***	69.48***	86.68***	75.59***	78.58***
	(0.454)	(0.584)	(0.705)	(1.835)	(2.507)	(2.704)
Observations	6,453	6,453	6,049	5,974	5,974	5,620
R-squared	0.072	0.078	0.140	0.152	0.159	0.155

Table A.4.

VARIABLES	(1) LDR	(2) LDR	(3) LDR	(4) LDR	(5) LDR	(6) LDR
post*MnA	-0.192	1.037	2.580	2.695	2.666	-0.464
	(1.956)	(1.939)	(1.997)	(2.013)	(2.008)	(2.303)
ownership		-18.85***	-19.68***	-20.15***	-20.22***	-21.15***
		(1.176)	(1.252)	(1.231)	(1.230)	(1.279)
nplratio			0.0483	0.0239	0.0416	-0.0556
			(0.153)	(0.155)	(0.155)	(0.165)
lntotalasset				-0.0257	-0.126	0.0940
				(0.242)	(0.247)	(0.258)
CPI					0.0853***	0.0500
					(0.0291)	(0.0317)
gdpgrowth						-0.172
						(0.149)
Constant	73.88***	89.14***	90.64***	91.14***	81.24***	85.05***
	(1.024)	(1.508)	(1.609)	(3.693)	(4.752)	(5.427)
Observations	6,332	6,332	5,962	5,888	5,888	5,536
R-squared	0.039	0.108	0.115	0.118	0.120	0.119