The performance effects of bank M&As:
The foreign institutional investors matter in Asian and EU

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Abstract

We empirically investigate the performance effects of M&As on acquirer banks focusing on their ownership structure. We use a comprehensive sample of banks' M&As in Asia and EU countries from 2000 to 2014. We find that when foreign financial institutional investors hold large stakes in the acquirer banks, then it makes the probability of completion of M&As higher in EU countries, whereas the opposite results are found in Asian countries. The higher fraction held by Fund financial foreign investors prevents acquire banks from completing the M&A deals. Then, we investigate the performance improvement differences by the type of foreign institutional investors from the view of their M&A strategies; first, the strategies for coping with accumulated nonperforming loans are found across all the types of investors, especially it is stronger effects for the fund investors with top10 largest shareholders, in EU. Finally, the higher ROA is accomplished by the investment investors in Asia, but by the fund investors in EU, in spite of fail of traditional investors in Asia. In addition, the higher fraction held by fund investors prevents acquirer banks from expanding unnecessary loan-business associated with nonperforming loans in EU, and thereby leads to the higher ROA in the long run perspective. It is same as the high fraction held by investment investors in Asia.

Keywords: Mergers and Acquisitions, Foreign institutional investors, Acquirer banks

JEL Classification: G01; G21; G34

1. Introduction

Mergers and Acquisitions (M&As) is one of the important parts of firm investments worldwide. Many research studies have focused on financial conglomerates. At the same time, the importance of institutional financial investors is extensively grown for the last two decades and they are considered as sophisticated investors (Bartov et al, 2000). Further, foreign institutional investors have a significant influence on the firms' decision to engage especially in cross-border M&As (Ferreira, et al., 2010, Andriosopoulos and Yang, 2015,). This trend has become prominent especially in the financial sector in U.S. and Europe. However, there is little known about the effects of foreign institutional investors through the process of the M&As on the banking sectors in Asian-Pacific and EU countries. Banking is classified as the most active sector of M&A activities in term of the volume. Actually, banking sector occupies about 16% of the world's M&A activities (Slama et al, 2012). This research addresses several important questions on the M&A activities by comparing acquire banks in Asian-Pacific countries with those in EU countries, where the bank-oriented financial market countries are dominant, in the last two decades years.

We empirically investigate the performance effects of foreign financial institutional investors through the M&A transactions on acquirer banks. We use a comprehensive sample of the bank M&As in Asian-Pacific 16 countries and EU 31 countries from 2000 to 2014. We use the individual deal level data of M&As to investigate how the fraction held by foreign financial institutional investors affects the acquirer bank performances after the M&As. The success and acquiring good performance is in fact conditioned by the adequacy between acquirer bank and targets, then the resulting success of good performance depends on how extent reducing the asymmetric information by fulfilling the gap between an acquirer and its target. As Merton (1987)

argue that investors need to aware of a firm information before purchasing the stock. Then the monitoring activity of foreign financial institutional investors before M&A can reduce the asymmetric information. In addition, the impacts of foreign financial institutional investors might be different depending on the type of their characteristics. With this respect, we investigate the difference of performances among foreign financial institutional investors' types such as traditional, investment, and fund type investors. As more detailed investigation, we do the additional study on the monitoring benefit by foreign institutional investors when they are large shareholdings or the have long-term relationships.

We find that when foreign financial institutional investors hold large stakes in the acquirer banks, then it makes the probability of completion of M&As higher in EU countries, whereas the opposite results are found in Asian countries. The higher fraction held by Fund financial foreign investors prevents acquire banks from completing the M&A deals. Then, we investigate the performance improvement differences by the type of foreign institutional investors from the view of their M&A strategies; first, the strategies for coping with accumulated nonperforming loans are found across all the types of investors, especially it is stronger effects for the fund investors with top10 largest shareholders, in EU. Second, the strategies for achieving lower-costs are endorsed from the fund investors in the Asia, whereas the traditional investors unexpectedly foster high-costs in EU. Finally, the high ROA is accomplished by the investment investors in Asia, but by the fund investors in EU, in spite of fail of traditional investors in Asia. The higher fraction held by fund investors prevents acquirer banks from expanding unnecessary loan-business associated with nonperforming loans in EU, and thereby leads to the higher ROA in the long run perspective. It is same as the high fraction held by investment investors in Asia.

The most related papers of M&As studies are Ferreira et al. (2010), Chen et al. (2007), Gulamhusse et al. (2016), and Lin et al. (2013), and Shirasu (2017). Ferreira et al. (2010) find that the institutional ownership is positively associated with the intensity of cross-border M&A activity in worldwide, and the interpret the result that the institutional financial investors build a bridge between firms and reduce the information asymmetry between bidder and target. In the United Kingdom samples, Andriosopoulos and Yang (2015) show that institutional investors increase the likelihood of M&A to be large and cross-border. In this vein, our paper also focuses on the ownership by foreign intuitional investors but analyzes the performance effects of bank M&As from both short (one-year after M&A) and long (three-years after M&A) perspective. With this respect, the types of shareholders generally have different effects on firm strategy and performance. For example, Chen et al. (2007) find that independent institutions with long-term investors specialize in monitoring and influencing efforts and they are related to post-merger performance. And Huang and Shiu (2009) investigate Taiwan firms and find that the firms with high foreign institutional ownership outperform than low foreign institutional ownership. In contrast, we focus on the performance effects of M&As in banking. There is a little literature on the M&As focusing on effects of the type and characteristics of foreign institutional investors on acquirer banks' performances. For example, Gulamhussen et al. (2016) find the bank's important role for the non-corporate customers and psychic distance in the cross-border expansion of commercial banks through M&As. Lin et al. (2013) reveal the bank M&A activities in Asia; a more concentrated banking sector, and lower privatization in the banking sector are more likely to become foreign acquirers and relying more on moderate capital regulations and official supervisions are a more attractive target to foreign acquirers.

Furthermore, Baele et al. (2007) insist on the connection between diversification and bank returns is the contrary of that in Europe compared to the U.S. But there is little research comparing M&A effects in banking between Asia and EU countries. One exception is Shirasu (2017), and this is the first paper to examine the impacts of banks' M&As by using the deal level data in Asian-Pacific countries in the long run respective. By focusing regulation and legal system, Shirasu (2017) finds that strong legal systems and stringent regulations could enable Asian-Pacific banks to operate effectively by undertaking bank M&As between countries with different economic systems.

The remainder of the paper proceeds as follows. Section 2 develops our hypotheses. Section 3 describes our sample and presents our empirical methods, Section 4 discusses the empirical results, and Section 5 provides a summary of observations and directions for further research.

2. Hypotheses

There are several arguments on the role of foreign institutional investors in M&As. Foreign institutional investors bridge between firms internationally and thus facilitates the cross-border M&As (Facilitation hypothesis: Ferreira et al., 2010). Foreign investors are able to exert greater influence and becomes involved in monitoring firms' activity. This is because they can reduce the asymmetric information by fulfilling the gap between acquirers and their targets by presenting in the target country. In addition, foreign investors have fewer business ties to local companies and thus can act as facilitators for the M&As. These arguments generally suggest the positive impacts of foreign institutional investors on the acquirer sides. And the probability completion of the M&A transactions is becoming higher and the resulting long-term performance of acquirers is expected to improve after the M&A transactions.

We conjecture that these predictions might be also true for banks in both Asia and EU countries, where bank-oriented financial markets are dominant. In fact, banks have recently promoted their strategic alliances through the international M&As to expand their businesses internationally (Shirasu, 2017). The presence of high foreign financial institutional investors might alleviate the bargaining and transaction costs associated with asymmetric information between acquirer banks and their targets, and the resulting performances are expected to improve through the M&As. However, Gulamahussen et al. (2016) evidence suggest that Asian-Pacific financial institutions just follow their own global client firms where client firms expand their business places. In this case, Asian-Pacific banks do not have enough strategic perspective and the resulting effects might not be value enhancing. And Baele et at. (2007) shows the difference of bank M&A effects between Europe and U.S.

We support the former arguments and thus our first hypothesis is constructed as follows.

H1: *The presence of foreign financial institutional investors of acquirer banks increases the probability to complete the M&A transactions.*

H2: *The presence of foreign institutional investors of acquirer banks improves their bank performance by taking advantage of the M&A transactions.*

Given the second hypothesis, the impacts of foreign financial institutional investors might be different depending on the type of their characteristics. Although we have already discussed that foreign financial institutional investors are expected to be more sophisticated in collecting the information on the targets, their impacts are presumably more pronounced for traditional financial institutions due to their higher skills in collecting the information of targets. Chen et al. (2007)

find that such as investment advisor and private/public/pension fund with large shareholdings and long-term orientation benefit from their monitoring and make superior post-merger performances, as suggested by Maug (1998). In EU, such as investment investors and fund have strong power, however, in Asia, traditional investors, such as banks and insurance companies have the strong relationship between banks and entities (including not only firms but also financial institutions). In Asia, there is the bank-oriented financial market historically, then such a strong relationship makes easy to store all information about the target- entities and make easy to helps each other when they were dropped into bad conditions. The high skills in collecting the information of targets are presumably more pronounced in evaluating the targets' business conditions. The power of every type of foreign financial institutional investors is different between EU and Asia.

***H3(a)**: A high fraction held by Traditional type foreign financial investors of acquirer banks improves the subsequent performance after the M&A.*

***H3(b)**: A high fraction held by Investment type foreign financial investors of acquirer banks improves the subsequent performance improves after the M&A.*

***H3(c)**: A high fraction held by financial Fund type foreign investors of acquirer banks improves the subsequent performance after the M&A.*

Foreign financial investors have greater influence because of reducing the asymmetric information by fulfilling the gap between acquirers and their targets s (Facilitation hypothesis: Ferreira et al., 2010). Especially at the same investors, between acquirers and targets, are able to bridge the monitoring or negotiation, and mitigate the information asymmetry. This foreign financial investor's power should become stronger with the holding large stakes of targets. The large shakes of targets made acquirer's owners improve the M&A performance better. These arguments suggest the positive impacts of foreign institutional investors on the acquirer sides.

H4*: Same foreign financial investor between acquirer banks and targets improves the subsequent performance after the M&A.*

The time has passed, the outcomes of performance changed (Shirasu 2017). It is an empirical question to assess the difference in the time performance effects between after one year of bank M&As and after three years.

H5*: The longer the time passes after the M&A deal, the subsequent performance improves more substantially.*

3. Empirical Analyses

3.1. Data and Methodologies

We cover all the transactions of the bank M&As announced in Asian-Pacific Pacific and EU countries. Data on the capital alliance and M&A announcements were drawn from Thomson ONE Investment Banking and cover the period between 2000 and 2014[1]. We collect all the available transaction data of Asian-Pacific/ EU banks and require at least one of the firms to be a listed bank as bidder sides, while their targets could be a company in any industry. These investigations are carried out based on the data from all the Asia-Pacific[2] and EU countries (see Appendix 1 and 2). All our sample transactions have a dollar value with the completed information.

[1] We can acquire M&A transaction data from 2000 to 2016, however, there are no GDP data (Penn World Trade Database) in 2015 and 2016. If we can acquire recent GDP data in near future, we should expand data analysis terms.

[2] We exclude New Zealand from acquirers because all its major banks are subsidiaries of Australian.

Accounting data are from Datastream. The data for calculating the geographical and industrial diversification measures are based on the Standard Industrial Classifications (SIC) codes and its geographic segment information. All the ownership data, Financial institutional foreign investors, are obtained from the Thomson Investment Bank Ownership Data. We consider three measures of holding by foreign financial institutions, all measured as of year-end prior to the deal completed; ownership controlled by TOP10 largest investors (Top) and controlled by more than one-year holding investors (LONG). We future categorized them four sub-groups. Following Chen et al.(2007), we group the Traditional Financial Institutions (Bank and Trust, Research Company, and Insurance Company), Investment Financial Institutions (financial Investment Advisor investors), and Financial Fund Institutions (Pension Fund, Advisor for hedge fund, Private Equity, Sovereign Wealth, Government Agency, Foundation, and Venture Capital).

The Asian-Pacific acquirer bank has a regular common stock listed on Asian-Pacific-Pacific stock markets, the EU acquirer bank has a stock listed on EU stock markets. And they must have accounting data based on dollar values. In this process, we obtain the detailed and completed -transaction data on bank M&As. The level of economic activities is included as a potential determinant of individual bank acquisition. The macroeconomic environment is likely to affect bank activities and investment decisions (Pana et al. 2010). It is measured as an annual growth rate of a gross domestic product, acquired from Penn World Trade Database.

We employ binomial logit model for empirical investigating of Hypothessis1, the Propensity Score Matching (PSM) method for Hypothesis 2, Propensity Score Regression Adjusted (PSM-AR) method for Hypotheses 3 and 5, Heckman Two-step regression (Heckman) for Hypotheses 4.

3.2. Data selection

To determine the sample numbers for using the regression analyses, we constructed our sample by following procedures: (1) selected observations that the acquirer industry is banks or financial holding companies; (2) deleted observations with financial and ownership variables greater / lower than 99th/ 1st percentile[3]; (3) selected observations of having total asset data. All the observations do not necessarily have all kinds of financial and ownership data used in the analyses, there are many missing data.

3.3. Average Treatment Effect from Propensity Score Matching

For testing Hypotheses 2, we compute the averaged treatment effects (ATE) using PSM method. From our knowledge, propensity score matching is now popular method in econometric research and we know that the method has been used in M&A studies (Behr and Heid, 2011).

In this paper, we focus on the acquirer bank's outcomes (Y) as some strategic variables. Let Z denote the indication variable, that it is 1 if it is acquisitions data, and 0 if otherwise. We observe Y1|z=1 but not Y0|z=0, which is a counterfactual outcome. The prima facie acquisition effects to observable variables by comparing the outcomes of authentically acquired data and factually non-acquisition data are

$$\Delta_i(ATE_i) = E\left(Y_{1i} \mid z=1, x\right) - E\left(Y_{0i} \mid z=0, x\right).$$

However, it is generally a biased estimator of Δ unless the assignment to the actuation group (z=1) or the non- actuation group (z=0) is independent of the outcome variable. A possible solution is to derive an unbiased estimator through conditioning on covariates. Rosenbaum and

[3] In Thomson Reuter Data Base, there are some strange financial data.

Rubin (1983) have shown that it is a sufficient to condition on the Propensity Score. The propensity score is given by the probability to acquire by logit regression with set of the covariates. The basic matching approach is that, for each factual treatment acquirer data, a pair of non-acquisitions control data is selected from the pool of factually non-acquisitions data. For all Asian-Pacific banks in the sample, we estimate the propensity with year dummy variables, acquirer country dummy, and target country dummy. Our employed matching algorithm method is Greedy Matching[4].

After PSM, we checked the balanced box charts between treatment group and control group and tested balance test comparing with raw data and matched data using standardized difference and variance ratio. For long-term analysis, we compute the ATE using PSM method. In our knowledge, propensity score matching in relatively new to the econometric papers and one paper has been used in M&A studies (Behr and Heid, 2011).

For testing Hypotheses 3 and 5, another general way to obtain ATEs is PCM-RA, which can handle such nonlinearities is with the method of recycled predictions where is the predicted mean of from the GLM, and is set to not only 1 and 0 for the whole sample, but also 1,2,3, 4… and 0 for multi-categorized dates. Parameters can be estimated via maximum likelihood. A general way to obtain ATEs, which can handle such nonlinearities is with the method of recycled predictions (Basu and Rathouz 2005),

$$ATE_{i,reg} = \frac{1}{n}\left\{\hat{\mu}_i\left(x_i, t_i = 1\right) - \hat{\mu}_i\left(x_i, t_i = 0\right)\right\}$$

where $\hat{\mu}_i(.)$ is the predicted mean of Y_i from the GLM, x_i and t_i is set to 1 and 0 for the whole sample. And we expand this method to multi-categorized dates. In our paper, we include treatment

[4] "Perhaps the most common matching algorithm is the so-called greedy matching. It includes Mahalanobis metric matching, Mahalanobis metric matching with propensity scores, nearest neighbor matching, caliper matching, nearest neighbor matching within a caliper, and nearest available Mahalanobis metric matching within a caliper defined by the propensity score. All methods are called greedy matching." (Guo 2015)

dummy variables, treatment banks are classified into 1 or 2, otherwise 0. If the owner ship ratio of treatment banks with more than median takes 2 (median is calculated without zero), the less than median takes 1, otherwise zero.

3.4. Sample Description

Table 1 presents the basic descriptive statistics data, Asia data is in Panel A, and EU data is in Panel B.

【Insert Table 1 around here】

Table 2 presents the number of the Asian-Pacific M&A deals by acquiring county and year. Many completed acquisition deals occurred in Australia (140/712), Japan (132/712), and Thailand (132/712). We can see the target country in Panel B of Table 2. Table 3 presents the number of the EU county and year. Many completed acquisition deals occurred in Italy (222/1489), Spain (191/1489), and Germany (188/1489). The target country in Panel B of Table 3.

【Insert Table 2 around here】

【Insert Table 3 around here】

4. Empirical Results

4.1. The probability of M&A completion in Asia

We estimate the logit model for investigating the determinant of the probability to complete to the M&A transactions. The dependent variable is a dummy variable that takes one if the M&A

deal was completed, otherwise zero. We focus on the effects of foreign institutional investors, and include as independent variables of the other operational income ratio, non-performing ratio (NPL ratio), loan ratio, total capital ratio, ROA, bank size, Q ratio and GDP growth.

Table 4 presents the Asian-Pacific countries' results when we use several variables that are related with the ownership of foreign financial investors. We find a negative impact of foreign institutional investors on the probability of the completion of bank M&A deals. Columns 2 to 5 show the detailed type of the foreign institutional investors. We find that the coefficient of Financial Fund ratio is negative but only statistically significant, and the qualitative results are still the same even if we restrict our samples to the top 10 owners or to the long-term holding shareholders. The results indicate that foreign institutional investors especially with the type of Financial Fund investors do not promote their client banks to use the M&A transactions. This result is in line of with the finding of prior research to general firm not banks (Brav et al. 2016). Thus, we cannot find evidence to support Hypothesis 1 for Asian-Pacific countries.

Regarding other control variables, many of them are statistically significant. The results indicate that healthy banks in high economic growth countries, with high capital ratio, high loan ratio, those banks tend to use the M&A strategy.

【Insert Table 4 around here】

4.2. The probability of M&A completion in EU

Table 5 presents the EU countries' results when we use the same logit model as Asian-Pacific countries. We do see the positive evidence between foreign institutional investors and the probability to complete the bank M&A deals and foreign institutional investor ratio, especially for

both traditional financial investors such as banks and Investment advisors. Interestingly, only the coefficient of Financial Fund ratio is negative, indicating that Financial Fund investors do not promote their client banks to use the M&A transactions as in Asian-Pacific countries.

Overall, the results of Table 5 confirm Hypothesis 1 holds for the type of investors such as traditional financial investors and Investment advisors, but not for fund investors in EU countries.

【Insert Table 5 around here】

4.3. The subsequent performance changes of acquire banks after the M&A deals

Before examining the effects of ownership type's difference, we consider the effects of M&As to compute the ATE using the PSM method between acquire-banks (treatment group) and non-acquire banks (control groups). Table 6 shows the results of the ATE from PSM for both Asia and EU countries.

【Insert Table 6 around here】

Panel A of Table 6 presents the results for acquire banks in Asian-Pacific countries. Regarding with a one-year changes after the bank M&A deals, The ATE shows an increase in loan ratio, capital ratio, and ROA. Th ATE still show an increase in loan ratio and a decrease NPLs in the next three years after the M&A. Unfortunately, the ATE shows insignificant result for an increase in ROA in the three years.

Panel B of Table 6 shows the results of EU countries. The ATE shows an increase in the other operational ratio and NPLs one-year after the M&A deals. The ATE shows an increase in

the other operational ratio but and decrease in Q ratio. The results of EU banks effects are expanding diversification but do not contribute to improve their performance at least for a period of three years.

Overall, the results of Table 6 confirm Hypothesis 2 holds for the foreign institutional investors only in case of growing loans with reducing NPL loan in Asia country, but not for fund investors in EU countries in the long run perspective.

4.4. The ownership structure and acquire bank performance changes

We investigate the difference of the power of foreign institutional investors types, traditional investors, investment investors, and fund investors. Panels A and B of Table 7 and 8 presents the detailed ownership structure by investor types of acquirer banks in Asia countries and EU countries, separately. As we explained before, we calculated the PSM-RA model by every performance outcomes as dependent variables. We can examine whether there are some significant differences of some performance outcomes between the treatment banks (i.e., acquirer banks) with high friction of ownership (more than median), the treatment banks with low friction of ownership (less than median), and the control banks (i.e., banks without M&A experience) from t=0 to t+1 (short-term views), and from t=0 to t+3 (long-term views). We use the other operational income ratio as diversification measure[5], NPL ratio as bank health measure, the loan ratio as a growth of bank business measure[6], the total cost ratio as an efficiency measure[7], capital ratio as bank

[5] Baele et al. (2007) shows that stock market reflects positively to bank income diversification, however relying on too much on noninterest type of revenue may make banks less safe. And Acharya (2006) shows that relatively poorer quality loan portfolio at the time when a risky bank expands into additional sectors and industries.

[6] Berger et al. (1999) shows that after M&A, banks tend to shift their asset portfolio from securities to loans and to become holding more diversified loan portfolio, however they said this benefit were still present but were weaker for the recent bank acquisitions.

[7] Berger et al. (1999) shows "efficiency may also be improved by M&A if greater diversification improves the risk-expected return trade off."

soundness measure, ROA as profitability measure, and Q ratio as quality, respectively. As Berger et al. (1999) pointed out, we add some independent variables of size, diversification, and efficiency as control for ROA, and size and diversification as control for cost.

4.4.1 One-year change

Columns 1 to 3 of Table 7 shows the results of the one-year change of The Other Operational Income Ratio of acquire banks after the M&A deals. The coefficients of higher ownership of traditional investor in column 1 is positive and statistically significant.

Columns 4 to 6 of Table 7 shows the results of the one-year change of nonperforming loans. Columns 5 and 6 shows that the coefficients above the median of both investment and financial fund type foreign investors are negative and statistically significant. The results imply that investment investor and financial fund investor promotes reducing the acquirer bank's non-performing loans after the M&A. Columns 7 to 9 presents the results for the changes of loan ratio in one-years. All the coefficient more than median are positive and statistically significant. Columns 10 to 12 presents the results for changes of total costs in one years. We do not find consistent results across the types. Columns 13 to 15 presents the results for changes of ROA in one years. The coefficients above the median of both investment investor and financial fund investor are positive significantly.

After one-year results simply show that foreign institutional investors promote to acquire the loans with reducing NPL loans, and temporally increase ROA in Asia countries.

Now we move on to see the results in EU countries in Panel B of Table 7. We do not find consistent results across the types except ROA of fund investors. Only after one-year, banks ins EU countries do not change.

【Insert Table 7 around here】

4.4.2 Three-year change

Columns 1 to 3 of Table 8 shows the results of the three-year change of The Other Operational Income Ratio of acquire banks after the M&A deals. The coefficients of higher ownership of foreign investor ratio across all types of investors are positively significant. The results are consistent with Hypothesis 3, indicating that foreign institutional investors promote bank diversification in Asian-Pacific countries.

Columns 4 to 6 of Table 8 shows the results of the three-year change of nonperforming loans. The results quite differ depending on the type and the share of foreign institutional investors. Column 4 shows that the coefficient above the median of traditional investors are positive and statistical significant, indicating that the type of traditional investors did not reduce, but rather, increase the banks' non-performing loans. In contrast, columns 5 and 6 shows that the coefficients above the median of both investment and financial fund type foreign investors are negative and statistically significant. The results imply that investment advisors and financial fund promotes reducing the acquirer bank's non-performing loans after the M&A. Note that the coefficients below the median are opposite and thereby having higher stakes in the banks seems important to be effective for reducing their bad loans.

Columns 7 to 9 presents the results for the changes of loan ratio in three years. All the coefficient below the median are positive and statistically significant, but those above the median is insignificant. Couple with the results of bank diversification in columns 1 to 3, the results seem to be consistent with the interpretation that lower friction foreign investors promote nontraditional

banking businesses; non-interest-rate businesses, ex. insurance and securities which are main business of insurance investors and investment investors, in Asian-Pacific banks.

Columns 10 to 12 presents the results for changes of total costs in three years. We do not find consistent results across the types. The coefficient above the median of fund type investor is negative and statistically significant, indicating that financial fund contributes to reduce the bank's total costs.

Columns 13 to 15 presents the results for changes of ROA in three years. Depending on the type and the ownership concentration the results are quite different. The coefficient of investment investor above the median in column 14 is positive and statistically significant. In contrast, the coefficient above the median for traditional type of foreign institutional investors is negative and statistically significant. The results imply that the performance improvements are different depending on who holds significant share of acquire banks.

Overall, in Asia countries, the high fraction held by investment advisor and fund foreign institutional investors reduce the NPL loan successfully, the high fraction held by investment foreign institutional investors leads the higher ROA, in contrast, fail as high fraction held by traditional foreign institutional investors.

Now we move on to see the results in EU countries. The difference of performance and ownership structure in EU.

Panel B of Table 8 shows the detailed ownership structure of acquirer banks in EU countries, and then calculate the PSM-RA model by every performance outcomes.

Columns 1 to 3 of Panel B in Table 8 shows the results of the three-year change of The Other operational income ratio of acquire banks after the M&A deals. The coefficients are

statistically weak, but the coefficients are generally positive. In this sense, the results are consistent with Hypothesis 3, indicating that foreign institutional investors promote bank diversification in EU countries as well as in Asia.

Columns 4 to 6 of Panel B in Table 8 shows the results of the three-year change of nonperforming loans. The results are generally consistent across the type of foreign institutional investors. For example, column 4 shows that the coefficient above the median of traditional investors are negative and statistical significant, indicating that the type of traditional investors contribute to reduce the banks' non-performing loans as well as columns 5 and 6. The results imply that regardless of the type of financial institutional investors, the substantial equity holding held by foreign institutional investors promotes to reduce the acquirer bank's non-performing loans after the M&A in EU countries.

Regarding the changes of acquirer banks' loan ratio in three, we find insignificant results, except the coefficient below the median for financial fund type. The coefficients for total costs, more than median for traditional investors are positively significant.

Finally, Columns 13 to 15 presents the results for changes of ROA in three years. The coefficient of financial fund investors above the median in column 14 is positive and statistically significant, this result is similar to Wu and Chung (2017)[8]. However, both coefficients above the median for the other traditional type and investment type of foreign institutional investors are insignificant. The results indicate that the substantial stakes held by fund type of foreign institutional investors contribute to improve the acquirer banks in three years in EU countries.

[8] Wu and Chung (2017) find for general corporation not bank that hedge fund activism leads to lower M&A activities, and better operating performance.

Overall, in EU countries, first, the high fraction held by the all type of foreign institutional investors reduce the NPL loan, the high fraction held by the traditional foreign institutional investors fail to the cost efficiency, and high fraction held by fund foreign institutional investors can conclude being profitable. In EU countries, there is a possibility that the power of high fraction fund investors prevents acquirer banks from promoting unnecessary loan with NPL loans and leads the high profitability.

【Insert Table 8 around here】

And more the results of Table 8 confirm Hypothesis 5, the longer time is needed for improvement of performance after the M&A deal, the subsequent performance improves more substantially.

4.4.3 The ownership with top10 largest and long-term holding

We discuss about the owners with top10 largest (TOP10) and long-term holding (Long) and move on to see the results. Panels A and B of Table9 presents the detailed Top10 and Long ownership structure by investor types of acquirer banks. We calculated the regression model by every performance outcomes as dependent variables. Here, we focus on some important outcomes, NPL loan ratio, Total cost ratio, and ROA. As shown by Berger et al. (1999), we add some independent variables, size, diversification, and efficiency as control for ROA, and size and diversification as control for cost.

【Insert Table 9 around here】

First, we see the Panel A of Table 9, results of Asian countries. Columns 1 to 3 of Table 9 shows the results NPL loan ratio. The coefficients of cross-term; D-M&A*D-of-Foreign-Investor-ratio of Top10 and LONG traditional investors, at columns 1 and 4, are negatively significant, indicating that the type of Top10 and LONG traditional investors contribute to reduce the banks' non-performing loans aggressively. Considering combined with the results of Table8, the traditional investor with Top10 largest shares and LONG holding can reduce non-performing loan significant as Panel A of Table 9, in spite of the traditional investor without Top10 and LONG is not significant as Panel A of Table 8. In short, when we consider the detailed ownership with top10 largest and long-term holding, in Asia countries, the NPL loan strategies success for high fraction held by the all the types of foreign institutional investors.

Next, we see the Panel B, results of EU countries. Interestingly, and the coefficients of cross-term; D-M&A*D-of-Foreign-Investor-ratio of Top10 and LONG traditional investors are not significant but in contract the Top10 financial fund investors are negatively significant, as it causes the opposite results of Asian countries.

The results of Table 8 and 9 shows the power of every type of foreign financial institutional investors is different between EU and Asia countries, and the performance improvements are depending on the acquirers' banks' strategies and who holds significant share of acquire banks.

4.5. The existence of same investor and acquire bank performance changes

We investigate the effects of the same investor's existence between acquirer and targets and we can examine whether some performance outcomes should be better, if there are same investors between acquirer banks and targets. We calculated the Heckman model by every

performance outcomes. Table 10 presents the basic descriptive statistics data. Table 11 presents the second-step regression results and mills ratio of acquirer banks in Asia countries[9] . In the first step logit regression, dependent variables are digit values, resentencing same foreign owners between acquirer bank and targets are 1, the other acquirer banks 0. In the second step regression, dependent variables are some performance outcomes of the difference between three-year acquirer's values, and independent variables are the friction held of target by same foreign institutional investors, Dummy of investors types, the Mills ratio calculated from fist-step logit regression, and control variables[10].

Low p[chi2], the p-value of mills ratio calculated from first-step logit regression, are all significant. In spite of statistical weak, the mills ratio in columns 5 to 12 of Table 8 are negative significantly, indicating the existence of same investors effects increasing NPL loan and loan ratio, and mills ratio in columns 17 to 20 shows negative significantly, indicating the existence of same investors effects decreasing ROA. The other coefficients are not significant. These are regrettable results and the results of Table 12 confirm Hypothesis 4 do not holds in Asia country.

5. Conclusion

We investigated whether investigate the performance effects of M&As on acquirer banks comparing with Asian country and EU country. Our findings are summarized as follows:

First, we found that when foreign financial institutional investors hold large stakes except fund foreign investors in acquirer banks make higher the probability of completion of M&A

[9] First-step empirical results except mills were omitted reported

[10] As Berger et al. (1999) pointed out, we add some independent variables of size, diversification, and efficiency as control for ROA, and size and diversification as control for cost.

transactions in EU countries. However, in Asian-Pacific countries, we get opposite results. Both in Asian-Pacific and EU countries, the higher friction of Fund financial foreign investors prevents from completion of banks' M&A.

Next, the effects by type of foreign financial institutional investors is different between Asia countries and EU countries, and the performance improvements are depending on the M&A strategies of acquirer's banks; first, the strategies for coping with accumulated nonperforming loans are found across all the types of investors, especially it is stronger effects for the fund investors with top10 largest shareholders, in EU. Second, the strategies for achieving lower-costs are endorsed from the fund investors in the Asia, whereas the traditional investors unexpectedly foster high-costs in EU. Finally, the high ROA is accomplished by the investment investors in Asia, but by the fund investors in EU, in spite of fail of traditional investors in Asia. The higher fraction held by fund investors prevents acquirer banks from expanding unnecessary loan-business associated with nonperforming loans in EU, and thereby leads to the higher ROA in the long run perspective. It is same as the high fraction held by investment investors in Asia.

In this paper, we exclusively focused on the acquirer banks. However, we also need to consider the ownership structure of the target entities to evaluate the M&A in detailed. In addition, we have to consider the effects by financial regulations. These works will be the next steps for our future research.

Appendix

1. Scope of Asia-Pacific countries

Australia, Bangladesh, Bhutan, Brunei, Cambodia, China, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Hong Kong, India, Indonesia, Kiribati, Laos, Macau, Malaysia, Maldives, Marshall Islands, Mongolia, Myanmar, N. Mariana Islands, Japan, Nauru, Nepal, New Caledonia, Norfolk Islands, North Korea, Pakistan, Palau, Papua New Guinea, Philippines, Singapore, Solomon Islands, Samoa (US), South Korea, Sri Lanka, Taiwan, Timor-Leste, Thailand, Tokelau, Tonga, Tuvalu, Vanuatu, Vietnam, Western Samoa

2. Scope of EU countries

Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Faroe Islands, Finland, France, Germany, Greece, Greenland, Guernsey, Hungary, Iceland, Isle of Man, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Ireland, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom

3. Variable Descriptions

Variable	Description
d_the other operational ratio	The change of the other operational ratios of acquirer banks for one (three) year(s) after the M&As. The other operating income ratio is defined as the ratio of other operating revenue to total assets, as a measure of diversifications
d_NPL loan ratio	The change of non-performing loan ratio for one (three) year(s) of acquirer banks after the M&A transaction. A non-performing loan is defined by the ratio of the non-performing loans over total loans, as a measure of bad health.
d_total loan ratio	The change of acquirer bank's loans ratio for one (three) year(s) after the M&As.
d_total cost ratio	The change of variables for one year of acquirer's ratio between one year after the acquisition and before the acquisition. Total cost ratio is total costs over operating incomes.
d_total capital ratio	The change of capital ratios of acquirer banks for one (three) year(s) after the M&As. The capital ratio is defined as the ratio of total capital to total assets as a measure of health.
d_ROA	The change of ROAs of acquirer bank for one (three) year(s) after the M&A transaction. ROA is defined as net income over total assets, as a measure of profitability.
d_Q	The change of Q ratio (i.e., Simple_Q) for one (three) year(s) after the M&A transaction. The Q ratio is the market value of capital plus book value of debt over book value of capital, as a measure of quality.
Size	The acquirer bank size. Size is defined as log of the acquirer bank total assets.
d_GDP growth(a)	The change of acquirer's GDP growth rate for one (three) year(s) after the M&A transaction.
Country dummy	Country dummy is a dummy variable of acquirer's country.
Foreign institutional investor ratio	Foreign institutional investor ratio is the ratio of acquirer bank's number of shares held by foreign institutional investors such as financial institutions (i.e., Bank and Trust, Hedge Fund, Investment Advisor, Insurance

	Company, Investment Advisor for a hedge fund, Pension Fund, and Private Equity) to the acquirer bank's total number of outstanding stocks.
TOP10 investor ratio	TOP 10 investor ratio is the ratio of the top ten investors in our data.
LONG investor ratio	LONG investor ratio is the ratio held by block holders that hold the same stocks at least more than one year, in our data.
Traditional financial investor ratio	Traditional financial investors ratio is the ratio of acquirer bank's number of shares held by foreign financial traditional institutional investors (Bank and Trust, Research Company, and Insurance Company) to acquirer bank's total number of outstanding stocks.
Investment advisor holding ratio	Investment advisor holding ratio is the ratio of acquirer bank's number of shares held by foreign Investment Advisors to the acquirer bank's total number of outstanding stocks.
Financial Fund ratio	Foreign Fund ratio is the ratio of acquirer bank's number of shares held by financial funds (Pension Fund, Advisor for a hedge fund, Private Equity, Sovereign Wealth, Government Agency, Foundation, and Venture Capital) over acquirer bank's total number of outstanding stocks.

Table 1 Descriptive Statistics of the acquirer bank M&As

Panel A: Asia

PanleA: 1year

	Treatmen Banks			Control Banks		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
d1_the other operational ratio	702	0.0003	0.0039	3,138	-0.0001	0.0047
d1_NPL loan ratio	644	-0.0058	0.0194	2,690	-0.0032	0.0166
d1_loanratio	703	0.0002	0.0373	3,090	-0.0018	0.0429
d1_total cost ratio	711	0.1621	12.8348	3,031	-0.1045	13.0731
d1_total capital ratio	714	0.0008	0.0328	3,758	-0.0001	0.0301
d1_ROA	714	0.0015	0.0095	3,757	0.0000	0.0113
d1_Size	714	0.1327	0.1507	3,763	0.0926	0.1461
d1_Q	689	-0.0040	0.0628	3,351	-0.0033	0.0832

PanleB: 3year

	Treatmen Banks			Control Banks		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
d3_the other operational ratio	652	0.0005	0.0068	2,941	-0.0002	0.0096
d3_NPL loan ratio	601	-0.0105	0.0358	2,504	-0.0087	0.0303
d3_loanratio	655	-0.0014	0.0634	2,893	-0.0049	0.0709
d3_total cost ratio	666	-0.4966	13.3197	2,841	-1.0213	12.8675
d3_total capital ratio	667	0.0037	0.0514	3,625	0.0023	0.0483
d3_ROA	667	0.0007	0.0116	3,626	-0.0003	0.0155
d3_Size	667	0.3811	0.2804	3,631	0.2784	0.3064
d3_Q	650	-0.0057	0.0815	3,240	-0.0086	0.1222

PanleC: Common variables

	Treatmen Banks			Control Banks		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
GDP grwoth(a)	714	3.8866	4.0463	3,763	3.6415	4.1889
Foreign institutional investor ratio	653	5.4277	8.0718	3,434	3.5646	7.7731
Traditional financial investor ratio	653	0.4367	1.6753	3,434	0.2928	3.3318
Investment advisor holding ratio	653	3.9970	5.5683	3,434	2.5914	4.9228
Financial Fund ratio	653	0.9940	4.2976	3,434	0.6803	4.0200
Top10Foreign institutional investor ratio	653	3.8336	6.7954	3,434	2.7147	7.0018
Top10Traditional financial investor ratio	653	0.4228	1.6834	3,434	0.2700	3.3186
Top10Investment advisor holding ratio	653	2.6604	4.4700	3,434	1.8858	4.0417
Top10Financial Fund ratio	653	0.7504	3.7600	3,434	0.5589	3.9809
LONG Foreign institutional investor ratio	653	3.8118	6.3844	3,434	2.6852	6.8120
LONG Traditional financial investor ratio	653	0.3074	1.5332	3,434	0.1813	2.6721
LONG Investment advisor holding ratio	653	2.7540	4.2279	3,434	1.9450	4.1189
LONG Financial Fund ratio	653	0.7504	3.7600	3,434	0.5589	3.9809

*Effective based data

Panel B: EU

PanleA: 1year

	Treatmen Banks			Control Banks		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
d1_the other operational ratio	1468	0.0001	0.0052	2,590	-0.0006	0.0066
d1_NPL loan ratio	1163	0.0038	0.0161	1,632	0.0022	0.0173
d1_loanratio	1461	-0.0002	0.0473	2,531	0.0008	0.0467
d1_total cost ratio	1500	-0.1406	19.3030	2,338	-0.0161	16.0913
d1_total capital ratio	1533	0.0010	0.0479	3,385	0.0014	0.0555
d1_ROA	1533	-0.0010	0.0091	3,392	-0.0005	0.0125
d1_Size	1533	0.1362	0.1935	3,393	0.0885	0.1682
d1_Q	1460	-0.0135	0.0757	2,961	-0.0092	0.0832

PanleB: 3year

	Treatmen Banks			Control Banks		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
d3_the other operational ratio	1323	-0.0002	0.0078	2065	-0.0015	0.0114
d3_NPL loan ratio	1037	0.0096	0.0343	1240	0.0089	0.0380
d3_loanratio	1313	-0.0027	0.0812	1999	0.0031	0.0764
d3_total cost ratio	1355	-1.4910	20.4861	1868	-0.2055	17.3067
d3_total capital ratio	1389	0.0030	0.0704	2738	0.0037	0.0925
d3_ROA	1389	-0.0026	0.0129	2741	-0.0020	0.0165
d3_Size	1389	0.3221	0.3678	2743	0.2835	0.3492
d3_Q	1335	-0.0305	0.1136	2400	-0.0212	0.1268

PanleC: Common variables

	Treatmen Banks			Control Banks		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
GDP grwoth(a)	1483	2.1307	3.3561	2855	2.5818	3.6976
GDP grwoth(t)	1481	3.3728	6.4787	2855	2.5818	3.6976
Foreign institutional investor ratio	1240	8.5484	11.3947	3131	4.4136	12.0747
Traditional financial investor ratio	1240	0.6630	4.9496	3131	0.3574	4.4382
Investment advisor holding ratio	1240	6.8722	8.9517	3131	3.0491	8.3495
Financial Fund ratio	1240	1.0132	3.1716	3131	1.0072	5.9671
Top10Foreign institutional investor ratio	1240	4.8563	8.4357	3131	3.2765	10.0617
Top10Traditional financial investor ratio	1240	0.5092	4.9418	3131	0.3341	4.4355
Top10Investment advisor holding ratio	1240	3.6366	5.7340	3131	2.0385	6.0676
Top10Financial Fund ratio	1240	0.7105	3.0362	3131	0.9040	5.9424
LONG Foreign institutional investor ratio	1240	6.9576	10.3408	3131	3.4796	10.4918
LONG Traditional financial investor ratio	1240	0.5617	4.8705	3131	0.2667	3.9181
LONG Investment advisor holding ratio	1240	5.6854	8.1264	3131	2.3089	6.8768
LONG Financial Fund ratio	1240	0.7105	3.0362	3131	0.9040	5.9424

*Effective based data

Table 2. Distribution of bank M&As in Asian-Pacific-Pacific Countries

Panel A: Acquirer banks

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AUS	19	12	10	9	6	11	13	13	13	17	7	5	1	3	1	140
JPN	13	2	9	10	12	6	19	15	13	10	2	5	8	2	6	132
THA		11	15	15	16	18	9	5	5	12	5	6	1	2	2	122
IND	2		1	6	9	10	7	6	6	8	9	4		5	3	76
MYS	6	3	4	1		3	1	2	9	2	2	1	11	1		46
CHN						1	3	7	5	3	4	7	2	2	4	38
KOR	1	4	1	3	2	2	2	3	4	1	2	2	1	4	2	34
PHL	2	1	2	3	1	5	3	4		2	1	1	2	3	1	31
IDN					1			2	6	3	4	2		3	1	22
HKG	2	2	1	3	2	1	5	1	2	1					1	21
TWN	2	1	5	3	1	1				5					1	19
SGP	2	2				1	2	2	1	2				1		13
PAK			1				1		1	2	2				1	8
VNM											1		1		3	5
LKA	1	2													2	5
Total	2050	2041	2051	2056	2054	2064	2071	2067	2073	2077	2049	2044	2039	2039	2042	712

Panel B: Targets

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
JPN	13	2	9	10	12	5	18	14	12	10	1	5	7	2	6	126
THA		11	15	15	16	17	9	6	5	12	6	5		2	2	121
AUS	12	7	8	8	3	7	8	8	12	10	4	5	3	3	1	99
IND	2		1	6	9	6	6	6	6	7	9	4		4	3	69
CHN			2	3	5	5	2	2	5	3	2	4	2		1	36
IDN	2				1	3	3	2	9	4	5	1		5	1	36
MYS	5	3	4	1		3	3	1	1	2	2	1	8	1		35
PHL	5	1	2	3	1	5	3	4		1	1	1	2	3	1	33
KOR	1	4		2	2		2	2	4	1	2	2	1	4	2	29
HKG	5	2		2		1	4	2	3	3	1	1			2	26
TWN		1	5	3	1	2	1			6			1		1	21
VNM						1	1	2	3		3		1		3	14
USA		1						7	1		1	1	2			13
NZL	2		1			1				4						8
PAK			1				1		3	2	2				1	10
SGP	1	2					2	1		1		1				8
LKA	1	2													2	5
GBR			1				1								1	3
ASM	1	1														2
CAN										1		1				2
FJI		1					1									2
MAC								2								2
TON		1							1							2
TUR														1	1	2
The otl	0	1	0	0	0	3	0	1	0	1	0	1	0	1	0	8
Total	50	40	49	53	50	59	65	60	65	68	39	33	27	26	28	712

Table 3. Distribution of bank M&As in EU Countries

Panel A: Acquirer banks

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
ITA	36	26	23	17	7	24	13	18	17	9	10	11	4	2	5	222
ESP	22	17	14	12	5	8	16	10	19	6	8	8	17	16	13	191
DEU	13	4	13	22	11	21	15	27	33	7	5	5	4	5	3	188
CHE	5	3	3	5	8	9	13	15	13	9	10	9	3	7	8	120
FRA	9	14	13	10	13	10	11	2	2		3	2	2	4	1	96
GRC	10	10	7	7	3	16	13	6	2	1	7		1		3	86
GBR	4	3	2	7	8	7	7	7	12	4	5	5	4	2	2	79
SWE	6	3	4	4	6	8	3	9	7	6	9	5	2	4	1	77
POL	5	14	7	4	2		1	2		6	3	4	1	7	4	60
AUT	2	2	7	2	8	7	11	8	1	1	1	1		1		52
DNK	4	5	4	1	4	3	3	1	4	2	3	4	3	6	5	52
NOR		3	1	2	3	3	2	8	2	12	2	6		1	1	46
NLD	8	1	3	4	2	6	4	3	2	1					1	35
PRT	5	2	2	3	1		2	2		6	3	2	2	2	1	33
TUR		1	1			1	1	1		1	3	3	3	4	3	22
HUN	1	2	3		2	2	6	3	1		2		1			23
BEL		1	4	1	10	6										22
ISL				2	3	3	3	8								19
LTU							1	1	1	3	3					9
CYP						1	2	6		1						10
IRL	1		1			3	2	3								10
Others	4	7	0	1	1	3	3	3	3	0	3	3	3	1	2	37
	135	118	112	104	97	141	132	143	119	75	80	68	50	62	53	1489

Panel B: Targets

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
ITA	30	24	27	16	8	21	19	17	17	9	11	12	4	2	5	222
ESP	16	9	9	8	2	3	4	8	15	5	3	8	17	14	11	132
DEU	7	3	3	8	9	13	2	11	9	5	2	1		3	1	77
GBR	2	4	3	8	8	10	7	6	11	1	3	2	3	2	2	72
POL	10	16	7	3	3	4		1	1	6	6	3	1	7	4	72
USA	6	6	1	3	6	5	12	12	6	2	4	3	1	3	1	71
DNK	2	6	5	2	3	3	3	2	7	3	6	4	3	6	3	58
GRC	6	10	6	5	4	7	5	4	1	1	4		2		2	57
NOR		3	1	4	7	6	2	5	3	13	4	5	2	1	1	57
FRA	7	3	11	7	7	4	3	2	1	2		1		3		51
RUS				1	3	5	9	7	11		5	1	3	1	3	49
CHE	3	3	2	7	2	1	1	4	4	7	2	1	1	2	3	43
SWE	1		2	2	5	2	1	10	2	3	1	6	1	4	2	42
PRT	2	3	5	5	6	2	3			3	3	2	3	2	1	40
TUR	2	1	1	1		5	8	3		2	4	3	3	3	4	40
AUS	1	1	1	6		3		1	2	1	1	3		1		21
UKR						2	7	7	2		1	1				20
NLD		1	2	1	3	1	1	2	4		1	1			2	19
AUT	2	1	2		1	1	1	4	2		1	1		2		18
HUN	1	1	4	2		2	2	1	2		2		1			18
FIN	1		1		2	3	2	4			1			1	1	16
BRA	2	1				2	2	1	2	1	1	1			2	15
CZE	3	4	1		3		2					2				15
ISO				1		11	3									15
IRL	1		1	1	1	1	2	2	3	1					1	14
BGR	1		1	1		1	1	4			1	1	2			13
CHN			2		2	2	3	1	1	1				1		13
MEX	3	2	1	1	1	1	2				1			1		13
ROM	1		1	1	3		3		1	1		1				12
Others	23	16	12	10	8	20	22	24	12	8	12	5	3	2	4	181
Total	133	118	112	104	97	141	132	143	119	75	80	68	50	61	53	1486

Table 4. Logit results for the determinants of M&As in Asian-Pacific countries

This table present the result of logit regressions for estimating the probability to complete the acquire bank's M&A transactions in Asian-Pacific countries. Heteroscedasticity-corrected P value is in parentheses. The symbols ***, **, and * denote statistical significant at the 1%, 5%, and 10% level, respectively. The dependent variable is dummy variables that takes one when an M&A deal was completed, otherwise zero. The independent variables include the ownership of financial institutional investors as well as several detailed types of those investors such as traditional financial institutions, investment advisors, and financial funds. The other control variables include bank performance measures such as other operating income, nonperforming loans ratio, loan ratio, total costs, total capital ratio, ROA, Q ratio, and bank size as well as economic growth.

	Foreign Financial Iinstitution					Top10 Owner				Long time Holding Owner			
	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(12)	(13)	(14)	(15)
Foreign institutional investor ratio	-0.0140**												
	(-2.107)												
Traditional financial investor ratio		0.0111			0.0114	0.0117			0.0117	0.0154			0.0156
		(1.216)			(1.205)	(1.266)			(1.234)	(1.518)			(1.495)
Investoment advisor holding ratio			-0.0169		-0.0136		-0.0142		-0.0111		-0.0449***		-0.0414***
			(-1.638)		(-1.301)		(-1.174)		(-0.900)		(-3.218)		(-3.038)
Financial Fund ratio				-0.0288*	-0.0260*			-0.0251*	-0.0235*			-0.0251*	-0.0196
				(-1.870)	(-1.773)			(-1.817)	(-1.726)			(-1.817)	(-1.510)
	11.47	11.24	11.54	11.24	11.71	11.28	11.12	11.21	11.39	11.18	12.57	11.21	12.58
The other operational income ratio	(1.247)	(1.223)	(1.252)	(1.231)	(1.285)	(1.228)	(1.196)	(1.226)	(1.240)	(1.215)	(1.363)	(1.226)	(1.375)
NPL ratio	8.410***	8.556***	8.448***	8.394***	8.290***	8.551***	8.511***	8.435***	8.371***	8.554***	8.181***	8.435***	8.085***
	(7.045)	(7.167)	(7.079)	(7.051)	(6.977)	(7.164)	(7.133)	(7.082)	(7.044)	(7.164)	(6.845)	(7.082)	(6.776)
loanratio	3.447***	3.441***	3.425***	3.489***	3.478***	3.441***	3.435***	3.482***	3.480***	3.435***	3.400***	3.482***	3.434***
	(5.901)	(5.850)	(5.830)	(5.969)	(5.930)	(5.849)	(5.845)	(5.954)	(5.932)	(5.842)	(5.771)	(5.954)	(5.838)
total cost ratio	0.0100**	0.0103**	0.0103**	0.0101**	0.0102**	0.0103**	0.0103**	0.0101**	0.0102**	0.0105**	0.0103**	0.0101**	0.0104**
	(2.167)	(2.256)	(2.234)	(2.194)	(2.226)	(2.259)	(2.233)	(2.203)	(2.234)	(2.293)	(2.228)	(2.203)	(2.270)
Total capital ratio	12.26***	11.70***	12.07***	12.09***	12.23***	11.69***	11.92***	12.05***	12.07***	11.72***	12.38***	12.05***	12.51***
	(11.91)	(12.12)	(12.06)	(12.16)	(11.87)	(12.12)	(12.15)	(12.17)	(11.96)	(12.19)	(12.15)	(12.17)	(11.98)
roa	-4.898	-4.560	-4.321	-5.110	-4.188	-4.553	-4.433	-5.137	-4.315	-4.722	-3.744	-5.137	-3.800
	(-0.683)	(-0.636)	(-0.601)	(-0.713)	(-0.577)	(-0.635)	(-0.617)	(-0.718)	(-0.595)	(-0.659)	(-0.517)	(-0.718)	(-0.522)
Qratio	4.010***	3.871***	3.937***	4.008***	3.979***	3.869***	3.894***	3.991***	3.930***	3.898***	4.000***	3.991***	4.044***
	(5.620)	(5.469)	(5.557)	(5.634)	(5.561)	(5.467)	(5.504)	(5.619)	(5.505)	(5.521)	(5.594)	(5.619)	(5.624)
lnsize	7.021***	6.953***	7.041***	6.947***	7.057***	6.955***	6.964***	6.931***	6.980***	6.951***	7.175***	6.931***	7.178***
	(14.75)	(14.69)	(14.78)	(14.76)	(14.75)	(14.69)	(14.77)	(14.74)	(14.75)	(14.73)	(14.93)	(14.74)	(14.92)
	0.0335**	0.0339**	0.0331**	0.0348**	0.0343**	0.0339**	0.0337**	0.0349***	0.0350***	0.0338**	0.0314**	0.0349***	0.0326**
GDP growth of acquire country	(2.476)	(2.496)	(2.431)	(2.576)	(2.540)	(2.494)	(2.481)	(2.592)	(2.596)	(2.489)	(2.295)	(2.592)	(2.399)
N	3,031	3,031	3,031	3,031	3,031	3,031	3,031	3,031	3,031	3,031	3,031	3,031	3,031
Cons	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 5. Logit results for the determinants of M&As in EU countries

This table present the result of logit regressions for estimating the probability to complete the acquire bank's M&A transactions in EU countries. Heteroscedasticity-corrected P value is in parentheses. The symbols ***, **, and * denote statistical significant at the 1%, 5%, and 10% level, respectively. The dependent variable is dummy variables that takes one when an M&A deal was completed, otherwise zero. The independent variables include the ownership of financial institutional investors as well as several detailed types of those investors such as traditional financial institutions, investment advisors, and financial funds. The other control variables include bank performance measures such as other operating income, nonperforming loans ratio, loan ratio, total costs, total capital ratio,ROA, Q ratio, and bank size as well as economic growth.

	Foreign Financial Iinstitution					Top10 Owner					Long time Holding Owner				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Foreign institutional investor ratio	0.0185***					0.0205***					0.0191***				
	(3.070)					(3.016)					(2.839)				
Traditional finacial investor ratio		0.0201**			0.0197**		0.0196**			0.0195**		0.0209**			0.0211**
		(2.199)			(2.130)		(2.160)			(2.098)		(2.145)			(2.131)
Investment advisor holding ratio			0.0276***		0.0297***			0.0370***		0.0377***			0.0287***		0.0297***
			(3.248)		(3.485)			(3.519)		(3.591)			(2.912)		(2.988)
Financial Fund ratio				-0.0373**	-0.0460***				-0.0420**	-0.0439**				-0.0420**	-0.0445**
				(-2.051)	(-2.643)				(-2.341)	(-2.509)				(-2.341)	(-2.521)
	-19.22**	-19.37***	-19.30**	-19.85***	-19.24**	-18.95**	-19.43***	-18.69**	-19.92***	-18.75**	-19.23**	-19.34***	-19.36**	-19.92***	-19.33**
The other operational income ratio	(-2.539)	(-2.591)	(-2.539)	(-2.639)	(-2.508)	(-2.526)	(-2.597)	(-2.486)	(-2.642)	(-2.468)	(-2.545)	(-2.590)	(-2.548)	(-2.642)	(-2.522)
NPL ratio	4.362***	4.352***	4.735***	4.835***	4.498***	4.205***	4.359***	4.557***	4.892***	4.357***	4.361***	4.371***	4.736***	4.892***	4.553***
	(3.322)	(3.201)	(3.572)	(3.441)	(3.400)	(3.186)	(3.205)	(3.420)	(3.479)	(3.276)	(3.309)	-3.21	(3.566)	(3.479)	(3.430)
loanratio	-1.142***	-1.329***	-1.112***	-1.424***	-1.174***	-1.189***	-1.337***	-1.135***	-1.427***	-1.204***	-1.172***	-1.339***	-1.137***	-1.427***	-1.206***
	(-2.800)	(-3.275)	(-2.707)	(-3.514)	(-2.824)	(-2.911)	(-3.295)	(-2.746)	(-3.515)	(-2.887)	(-2.876)	(-3.300)	(-2.765)	(-3.515)	(-2.901)
total cost ratio	0.0111***	0.0113***	0.0113***	0.0116***	0.0107***	0.0111***	0.0113***	0.0113***	0.0116***	0.0108**	0.0112***	0.0112***	0.0114***	0.0116***	0.0108***
	(2.640)	(2.666)	(2.736)	(2.792)	(2.589)	(2.607)	(2.668)	(2.687)	(2.802)	(2.558)	(2.655)	(2.666)	(2.764)	(2.802)	(2.628)
Total capital ratio	1.714*	1.731*	1.614	1.616	1.746*	1.781*	1.726*	1.716*	1.610	1.836*	1.719*	1.736*	1.609	1.610	1.738*
	(1.709)	(1.685)	(1.602)	(1.538)	(1.679)	(1.755)	(1.680)	(1.674)	(1.529)	(1.741)	(1.713)	(1.690)	(1.594)	(1.529)	(1.673)
roa	3.739	4.994	3.614	5.373	2.475	4.371	5.017	4.406	5.234	3.337	3.984	5.121	3.738	5.234	2.714
	(0.365)	(0.475)	(0.354)	(0.504)	(0.243)	(0.419)	(0.477)	(0.421)	(0.492)	(0.320)	(0.387)	(0.487)	(0.365)	(0.492)	(0.266)
Qratio	0.908	0.955	0.880	0.956	0.967	0.940	0.953	0.924	0.955	1.003	0.906	0.952	0.876	0.955	0.953
	(1.164)	(1.174)	(1.122)	(1.133)	(1.187)	(1.182)	(1.171)	(1.148)	(1.129)	(1.206)	(1.158)	(1.171)	(1.114)	(1.129)	(1.172)
lnsize	7.147***	7.387***	7.055***	7.448***	7.233***	7.337***	7.391***	7.292***	7.419***	7.445***	7.166***	7.379***	7.063***	7.419***	7.195***
	(15.95)	(16.44)	(15.73)	(16.26)	(15.58)	(16.25)	(16.44)	(16.10)	(16.33)	(15.98)	(15.99)	(16.44)	(15.70)	(16.33)	(15.60)
	-0.0551**	-0.0526**	-0.0536**	-0.0500**	-0.0590**	-0.0540**	-0.0524**	-0.0523**	-0.0506**	-0.0576**	-0.0552**	-0.0533**	-0.0530**	-0.0506**	-0.0594**
GDP growth of acquire country	(-2.179)	(-2.093)	(-2.113)	(-1.995)	(-2.318)	(-2.138)	(-2.087)	(-2.060)	(-2.015)	(-2.260)	(-2.184)	(-2.118)	(-2.095)	(-2.015)	(-2.335)
N	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211	2,211
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cons	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 6. ATE calculated using PSM for acquirers

The results depict one- and three-year ATE calculated using PSM for acquirers. P-values are in parentheses. The symbols ∗∗∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% level, respectively. The independent variables are some performance outcomes of the difference between after one-year or three- year acquirer's values and pre-effective year (t=0) values of financial variables. In dependent variables, there are treatment dummy variables, treatment banks are 1, otherwise 0.

Panel A: Acquire banks in Asian-Pacific countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	ΔThe other operational income ratio	ΔNPL loans ratio	Δloan ratio	Δcost ratio	Δcapital ratio	Δroa	ΔQratio
ATE from PSM: after one year	-0.000194	0.000665	0.00813***	0.0672	0.00542***	0.00143**	-0.000512
	(-0.512)	(0.340)	(2.904)	(0.0345)	(3.252)	(2.165)	(-0.176)
Observations	3,021	2,980	3,022	3,024	3,031	3,031	3,031
ATE from PSM: after three years	-0.000148	-0.00622***	0.00972**	-2.689	0.000183	-0.00016	0.00709
	(-0.362)	(-2.828)	-2.036	(-1.309)	-0.0666	(-0.349)	-1.531
Observations	2,782	2,782	2,782	2,782	2,782	2,782	2,782

Panel B: Acquire banks in EU countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	ΔThe other operational income ratio	ΔNPL loans ratio	Δloan ratio	Δcost ratio	Δcapital ratio	Δroa	ΔQratio
ATE from PSM: after one year	0.000519*	0.00223**	0.0035	1.007	-0.00149	-0.000132	-0.00257
	-1.69	-1.966	-1.012	-0.793	(-0.293)	(-0.222)	(-0.407)
Observations	2,185	2,126	2,188	2,187	2,210	2,211	2,205
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ATE from PSM: after three years	0.00113**	0.00267	0.00248	-0.748	0.00524	-0.00101	-0.0180**
	(2.442)	(1.032)	(0.328)	(-0.608)	(0.772)	(-1.125)	(-2.074)
Observations	2,073	1,953	2,066	2,063	2,106	2,107	2,103

Table 7. Results for the ATE from PCM-RA model through the M&A transactions effects in one -year

The results depict and one-year ATE calculated using RA acquirers. P-values are in parentheses. The symbols ∗∗∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% level, respectively. The independent variables are some performance outcomes of the difference between after one-year (t=1) acquirer's values and pre-effective year (t=0) values of financial variables. The treatment banks are determined as acquired banks and the control banks are all Asian-Pacific or EU banks without acquisitions. Independent variables, there are three dummy variables, i.e., the below the median dummy takes 1 if the ownership ratio of treatment banks is greater than the median, and the above the median dummy takes 2 if the ownership ratio of treatment banks is smaller than the median, otherwise zero.

Panel A: Acquire banks in Asian-Pacific countries

	The other operational income ratio			NPL loans ratio			Loans ratio		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Type of Foreign Institutional Investors	Traditional	Investment	Fund	Traditional	Investment	Fund	Traditional	Investment	Fund
less than median and zero	0.000334	0.00114***	0.000310	-0.00153	0.00830***	-0.00146	0.00692***	0.0118**	0.00859***
	(1.395)	(2.848)	(1.442)	(-1.367)	(3.515)	(-1.219)	(2.719)	(2.523)	(3.124)
more than median	0.00124**	9.60e-05	0.000905*	0.00285	-0.00272**	-0.00649***	0.0165***	0.0116***	0.0130***
	(2.465)	(0.343)	(1.921)	(1.145)	(-2.344)	(-3.830)	(3.151)	(3.607)	(2.729)
N	3,021	3,021	3,021	2,980	2,980	2,980	3,022	3,022	3,022

	Total cost ratio			ROA		
	(10)	(11)	(12)	(13)	(14)	(15)
Type of Foreign Institutional Investors	Traditional	Investment	Fund	Traditional	Investment	Fund
less than median and zero	-0.433	0.435	0.420	0.00142***	0.000455	0.00119***
	(-0.487)	(0.271)	(0.391)	(3.441)	(0.421)	(2.961)
more than median	1.124	1.078	1.389	0.00150**	0.00203***	0.000276
	(1.239)	(1.634)	(1.495)	(2.386)	(5.613)	(0.749)
N	3,019	3,019	3,019	3,019	3,019	3,019

Panel B: Acquire banks in EU countries

	The other operational income ratio			NPL loans ratio			Loans ratio		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Type of Foreign Institutional Investors	Traditional	Investment	Fund	Traditional	Investment	Fund	Traditional	Investment	Fund
less than median and zero	0.000186	-0.00152	0.000536	0.00272**	0.00292	0.00666***	-0.00146	0.00299	0.0264***
	(0.589)	(-0.964)	(1.317)	(2.115)	(0.360)	(4.585)	(-0.316)	(0.112)	(3.393)
more than median	-3.16e-05	0.000677	0.000325	-0.00264	0.000320	0.00294	0.00835	0.00602	-0.00585
	(-0.0676)	(1.509)	(0.700)	(-1.550)	(0.172)	(1.180)	(1.093)	(0.954)	(-0.711)
N	2,185	2,185	2,185	2,126	2,126	2,126	2,066	2,066	2,066

	Total cost ratio			ROA		
	(10)	(11)	(12)	(13)	(14)	(15)
Type of Foreign Institutional Investors	Traditional	Investment	Fund	Traditional	Investment	Fund
less than median and zero	1.207	-1.385	-0.193	-0.000606	0.00352	-0.00173**
	(1.600)	(-0.281)	(-0.184)	(-0.979)	(1.108)	(-2.176)
more than median	0.910	-1.690	-0.785	-0.000471	-0.000541	0.00187***
	(0.605)	(-0.791)	(-0.492)	(-0.782)	(-0.863)	(2.644)
N	2,184	2,301	2,301	2,184	2,184	2,184

Table 8. Results for the ATE from PCM-RA model through the M&A transactions effects in three- year

The results depict and three-year ATE calculated using RA acquirers. P-values are in parentheses. The symbols ∗∗∗, ∗∗, and ∗ denote statistical significance at the 1%, 5%, and 10% level, respectively. The independent variables are some performance outcomes of the difference between after three (t=3) acquirer's values and pre-effective year (t=0) values of financial variables. The treatment banks are determined as acquired banks and the control banks are all Asian-Pacific or EU banks without acquisitions. Independent variables, there are three dummy variables, i.e., the below the median dummy takes 1 if the ownership ratio of treatment banks is greater than the median, and the above the median dummy takes 2 if the ownership ratio of treatment banks is smaller than the median, otherwise zero.

Panel A: Acquire banks in Asian-Pacific countries

	The other operational income ratio			NPL loans ratio			Loans ratio		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Type of Foreign institutional investors	Traditional	Investment	Fund	Traditional	Investment	Fund	Traditional	Investment	Fund
below the median	-0.000590	-0.00192***	-0.000317	0.000504	0.00849**	0.00613***	0.0135***	0.0192**	0.00869*
	(-1.556)	(-3.065)	(-0.609)	(0.309)	(2.097)	(3.024)	(3.002)	(2.431)	(1.739)
above the median	0.00238**	0.00167*	0.00204***	0.0135***	-0.00396**	-0.0118***	0.0166	0.00981	-0.00715
	(2.445)	(1.804)	(2.792)	(3.343)	(-2.299)	(-5.133)	(1.614)	(1.533)	(-0.865)
N	2,863	2,863	2,863	2,787	2,787	2,787	2,858	2,858	2,858

	Total cost ratio			ROA		
	(10)	(11)	(12)	(13)	(14)	(15)
Type of Foreign institutional investors	Traditional	Investment	Fund	Traditional	Investment	Fund
below the median	0.302	-2.758**	0.406	0.000232	-0.00566**	-0.00219***
	(0.449)	(-2.142)	(0.497)	(0.521)	(-2.050)	(-2.621)
above the median	-1.360	0.500	-1.480**	-0.00542**	0.00130***	8.15e-05
	(-1.331)	(0.647)	(-2.404)	(-2.304)	(2.707)	(0.130)
N	2,857	2,857	2,857	2,935	2,935	2,935

Panel B: Acquire banks in EU countries

	The other operational income ratio			NPL loans ratio			Loans ratio		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Type of Foreign instituional investors	Traditional	Investment	Fund	Traditional	Investment	Fund	Traditional	Investment	Fund
below the median	0.00131**	0.000852	0.000815*	-0.000295	-0.00216	0.00731***	-0.00146	0.00299	0.0264***
	(2.566)	(0.431)	(1.690)	(-0.120)	(-0.152)	(2.925)	(-0.316)	(0.112)	(3.393)
above the median	0.00113*	-0.000275	0.00172*	-0.00940**	-0.0173***	-0.00882*	0.00835	0.00602	-0.00585
	(1.806)	(-0.627)	(1.891)	(-2.148)	(-4.273)	(-1.699)	(1.093)	(0.954)	(-0.711)
N	2,073	2,073	2,073	2,044	2,044	2,044	2,066	2,066	2,066

	Total cost ratio			ROA		
	(10)	(11)	(12)	(13)	(14)	(15)
Type of Foreign instituional investors	Traditional	Investment	Fund	Traditional	Investment	Fund
less than median and zero	1.102	8.223*	0.778	-0.00116	0.00995**	-0.00393***
	(1.367)	(1.851)	(0.508)	(-1.374)	(2.502)	(-3.172)
more than median	3.998**	-2.711*	1.556	0.000103	-0.000189	0.00246***
	(2.231)	(-1.694)	(1.296)	(0.132)	(-0.168)	(2.663)
N	2,061	2,157	2,157	2,061	2,061	2,061

Table 9. The results of ownership with top10 largest and long-term holding

The regression results of three year's effects of top10 owners and long holding owners. P-values are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively. The dependent variables are the change of performance outcomes the difference between after three acquirer's values and pre-effective year values of financial variables.

Panel A: Acquire banks in Asian-Pacific countries

	NPL loans ratio					Total cost ratio					ROA				
	Top10 Owner			Long Holding Owner		Top10 Owner			Long Holding Owner		Top10 Owner			Long Holding Owner	
Concentration of Foeigin Institutional Investors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Type of Foreign Institutional Investors	Traditional	Investment	Fund	Traditional	Investment	Traditional	Investment	Fund	Traditional	Investment	Traditional	Investment	Fund	Traditional	Investment
Dummy of M&A	-0.00235	-0.00127	-0.00138	0.000560	-0.00239	-0.474	0.918	0.148	-0.404	0.974	-0.000790	-0.000325	-0.000430	-0.000719	-0.000317
	(-0.960)	(-0.626)	(-0.586)	(0.300)	(-0.983)	(-0.697)	(0.983)	(0.191)	(-0.584)	(1.071)	(-1.467)	(-0.509)	(-0.786)	(-1.342)	(-0.471)
D M&A * D of Foreign Institutional Investors Type	-0.00394**	0.000411	0.000363**	-0.00513**	0.000441	1.160	-0.296	-0.0536	1.585	-0.285*	0.000655*	-3.29e-05	1.69e-05	0.000640*	-3.54e-05
	(-2.175)	(0.986)	(2.492)	(-2.536)	(1.292)	(1.058)	(-1.504)	(-1.273)	(1.201)	(-1.909)	(1.831)	(-0.413)	(0.236)	(1.694)	(-0.473)
Observations	2,855	2,855	2,855	2,855	2,855	3,137	3,137	3,137	3,137	3,137	3,136	3,136	3,136	3,136	3,136
R-squared	0.045	0.049	0.038	0.059	0.046	0.022	0.018	0.017	0.023	0.018	0.100	0.092	0.093	0.099	0.093
Control (Δsize, GDP, cross border Dummy)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Δcost ratio						YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ΔThe other operational income ratio											YES	YES	YES	YES	YES

Panel B: Acquire banks in EU countries

	NPL loans ratio					Total cost ratio					ROA				
	Top10 Owner			Long Holding Owner		Top10 Owner			Long Holding Owner		Top10 Owner			Long Holding Owner	
Concentration of Foeigin Institutional Invest	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Type of Foreign Institutional Investors	Traditional	Investment	Fund	Traditional	Investment	Traditional	Investment	Fund	Traditional	Investment	Traditional	Investment	Fund	Traditional	Investment
Dummy of M&A	-0.000737	0.00127	0.000452	-0.000864	0.00134	0.570	1.203	0.759	-0.00119*	-0.00107	-0.00119*	-0.00107	-0.00134**	-0.00121*	-0.00111
	(-0.328)	(0.529)	(0.203)	(-0.383)	(0.534)	(0.589)	(1.135)	(0.765)	(-1.853)	(-1.482)	(-1.853)	(-1.482)	(-2.038)	(-1.875)	(-1.495)
D M&A * D of Foreign Institutional Investor	0.000108	-0.000420	-0.00138**	0.000445	-0.000257	0.219*	-0.182	-0.0267	-7.52e-05	-9.35e-05	-7.52e-05	-9.35e-05	0.000136	-6.59e-05	-5.64e-05
	(0.224)	(-1.489)	(-2.112)	(1.127)	(-1.137)	(1.679)	(-1.434)	(-0.0705)	(-1.088)	(-1.407)	(-1.088)	(-1.407)	(1.444)	(-0.960)	(-0.926)
Observations	2,047	2,047	2,047	2,047	2,047	2,777	2,777	2,777	2,777	2,777	2,777	2,777	2,777	2,777	2,777
R-squared	0.185	0.188	0.187	0.185	0.190	0.023	0.023	0.022	0.092	0.093	0.092	0.093	0.092	0.092	0.093
Control (Δsize, GDP, cross border Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Δcost ratio						YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
ΔThe other operational income ratio											YES	YES	YES	YES	YES

Table 10. Descriptive key statistics of the acquirer bank with same foreign owners between acquires and targets in Asia coutries

3year

	Holding same owner's Banks			The others's bank		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
d3_the other operational ratio	63	-0.0011	0.0063	589	0.0006	0.0069
d3_NPL ratio	55	0.0032	0.0362	546	-0.0118	0.0356
d3_loanratio	63	-0.0010	0.0587	592	-0.0014	0.0639
d3_total cost ratio	64	-1.8436	17.0982	604	-0.3596	12.8418
d3_roa	64	-0.0007	0.0079	605	0.0008	0.0119

Table 11. The Results of the two step Heckman regression through M&A transactions with same foreign owners in Asia countries

The results of three year the two step Heckman regression of acquirer banks with same foreign owners between acquirers and targets. Heteroscedasticity-corrected P value are in parentheses. The symbols ***, **, and * denote statistical significant at the 1%, 5%, and 10% level, respectively. In the first step logit regression, dependent variables are digit values, holding same foreign owners between acquirer bank and targets are 1, the other acquirer banks 0. In the second step regression, dependent variables are some performance outcomes of the difference between three-year (t=3) acquirer's values and pre-effective year (t=0) values of financial variables.

	The other operational income ratio				NPL loans ratio				Loans ratio			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
The share of Targets	5.39e-05	4.09e-05	3.41e-05	5.67e-05	0.000235	0.000125	3.38e-07	0.000224	-0.000802	-0.000612	-0.000597	-0.000709
	(0.423)	(0.341)	(0.283)	(0.443)	(0.485)	(0.254)	(0.000610)	(0.411)	(-0.363)	(-0.302)	(-0.314)	(-0.324)
DummyTraditional	-0.000667			-0.000517	-0.00489			-0.00519	0.00292			0.00730
	(-0.465)			(-0.331)	(-1.040)			(-0.964)	(0.138)			(0.328)
Dummy Investment		-0.00116		-0.000922		-0.00864		-0.00570		-0.0105		-0.0145
		(-0.464)		(-0.354)		(-0.847)		(-0.535)		(-0.250)		(-0.336)
Dummy Fund			-0.000164	-3.05e-05			0.00509	0.00600			-0.00717	-0.00956
			(-0.109)	(-0.0194)			(0.930)	(1.189)			(-0.368)	(-0.443)
Mills	7.50e-05	0.000721	0.000356	0.000300	0.0236*	0.0286**	0.0323*	0.0289*	0.119*	0.118**	0.111*	0.117*
	(0.0214)	(0.212)	(0.0956)	(0.0789)	(1.772)	(2.009)	(1.930)	(1.887)	(1.917)	(1.982)	(1.917)	(1.862)
p[chi2]	0	0	0	0	0	0	0	0	0.000207	0.000164	2.00e-05	0.000376
Observations	608	608	608	608	607	607	607	607	608	608	608	608
Control variavles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Total cost ratio				ROA			
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
The share of Targets	0.0852	0.117	0.172	0.0802	-0.000244	-0.000241	-0.000178	-0.000253
	(0.377)	(0.830)	(1.012)	(0.509)	(-1.403)	(-1.447)	(-1.059)	(-1.382)
DummyTraditional	2.096			1.744	0.00154			0.000814
	(0.938)			(1.037)	(0.922)			(0.451)
Dummy Investment		5.547*		4.656		0.00620*		0.00590
		(1.838)		(1.452)		(1.709)		(1.526)
Dummy Fund			-0.758	-1.274			-0.000845	-0.00133
			(-0.472)	(-0.897)			(-0.454)	(-0.703)
Mills	12.18	7.931	10.00	8.457	-0.00828*	-0.00966*	-0.00987*	-0.00984*
	(1.341)	(1.272)	(1.339)	(1.271)	(-1.684)	(-1.932)	(-1.907)	(-1.880)
p[chi2]	0	0	0	0	6.47e-08	1.12e-07	5.53e-07	1.15e-06
Observations	608	608	608	608	609	609	609	609
Control variavles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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