Research on Banks Profitability in North East Asia

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ABSTRACT:- *We examine the factors that the movement of assets by analyzing the performance factors of globalization of banks' overseas expansion. In this case, banks below branch are excluded from the analysis. We examine the performance factors of direct capital movements for corporate banks that are capable of independent accounting as much as possible. Banks in North East Asia are almost advanced, banks intending to North East Asia have to consider these characteristic for reducing deficit. foreign banks acting in North East Asia be basically at the disadvantage to get earning in market as long as GDP growth doesn't slow down.*

KEYWORDS:--*Foreign Banks, FDI, North East Asia, Profitability and Factors, Corporation*

I.   INTRODUCTION

1.1. Research Background

Financial industry in the world economy is becoming the most influential service industry in the world. Already, international trade and financial transactions have been soaring, and the international banking activities have expanded greatly. In this process, overseas banks have entered overseas markets through mergers and acquisitions of offices, branches, subsidiaries, and local corporations. In the past, if the proportion of offices, branches and subsidiaries is high, there is an increase in the number of overseas affiliates due to mergers and acquisitions since 2010.

Banks in home countries need to be more active in global markets as the global financial market becomes more expansion due to the phenomenon of marginality due to the saturation of rival banks in the country. Therefore, the North East Asia region which have advanced financial market is being important because it's more stable and in trust.

In particular, although the research on the sector of the bank's overseas expansion has been done already, no research has been conducted on the type of corporations that have entered the North East Asia region. In the case of foreign banks, the effect of the study on the banking industry in the entry country is affected by the banking industry of the country of entry (Terrel, 1986; McFadden, 1994; Denizer, 1999; Barajasetal.2000; Claessensetal., 2001; Uniteand Sullivan, 2003; Martinez PeriaandMody., 2004, etc.) were mainly studied.
Recently, as the social and economic importance of North East Asia region has increased, many researches on financial advancement in North East Asia region had begun already.

The growing interest in North East Asia research began in 1997 when the financial crisis broke out and discussions on East Asian financial cooperation began. In this process, the Chiang Mai Initiative (CMI) was initiated and the importance of East Asia emerged. After the financial crisis in 2008, the focus on the role of South Korea, Japan and China increased interest. This interest increased as the social and economic role of North East Asia became more relevant to global economy.

In this situation, research on corporate banks operating in North East Asia is not easy to find. The bank's overseas entry and exit itself did not receive much attention, and it was not until 2000 that full-scale overseas entry and exit were made. In addition, existing related studies were analyzed including branches and offices. However, it is necessary to analyze the performance factors of overseas banks that have entered the North East Asia region, focusing on the operating of corporations into the bank.

1.2. Purpose of the Study

The North East Asia region has high proportion of capital in world economy, and its society and economy relationship with the major counties is getting closer. In the global economy, there is growing interest in the role of North East Asia, and asset advancement is increasing. The factors affecting the performance factors of corporate banks in North East Asia, which are relatively advanced country, are of great interest. It is necessary to analyze only corporate banks in terms of considering the movement of capital in North East Asia.

There are various types of bank operating, such as branches, subsidiaries, branches, representative offices, and offices. Here, banks below the branch are excluded from the analysis and are targeted to banks in the form of corporations where the costs and benefits are present along with the financing and economy of the

entry country. Therefore, we will focus on the capital that has moved to the North East Asia region as it examines the performance factors of direct capital movements for corporate banks that are capable of independent financial accounting. From the viewpoint of capital mobility, the operating of corporate banks is the same as that of foreign direct investment (FDI), which analyzes the performance of foreign banks by examining the flow of direct investment considering the entry of North East Asia into direct investment.

We will examine the outcomes of 2013 and 2017 for corporate banks operating in North East Asia, and analyze the causes of these issues through quantitative analysis. The results of this study are analyzed to examine the factors affecting the performance of banks North East Asia that are advanced countries. In addition, the effect on the performance factors of foreign banks and domestic banks may be different.

The main factors affecting the performance of corporate banks in the North East Asia region are reviewed and a roadmap for entry into foreign banks is presented. These roadmaps can be a sort of countermeasure in the global financial market where the economic crisis is on the rise and allow banks to invest more effectively in their overseas expansion, so that when considering the impact of banks on the financial industry, and can be a cornerstone for enabling sustainable growth.

II.   THEORY AND EXISTING RESEARCH
2.1. The Bank's Overseas Entry Theory

The studies discussed about the bank's overseas expansion are explained by incorporating foreign investment theory. The theory of foreign investment refers to the fact that the banks of the home country directly enter into the advanced country and provide the production and services without selecting the method of export or the like in the transaction with the advanced country. Aliber (1984) discussed the role of banks in determining the international expansion of multinational banks (MNB) in international finance and capital flows. Among these, the determinants of multinational banks' entry into overseas markets are related to the theory of overseas entry. The bank's theory of oversea entry is largely divided into internalization and eclectic theory, which is a more standard view (Williams, 1997). The internalization theory is based on the Coasian theory and can be used to internalize the transaction costs incurred when the external market is utilized under the incomplete market through the MNB. In other words, the theory emphasizes that MNB has the advantage of reducing the transaction cost by carrying out transactions inside the company like MNE.

The theories of compromise by Dunning (1977), the theory that foreign direct investment decisions are made when three factors, first, internalization, second, location, and ownership are secured, of the world economy. In other words, the theory adds location factor and ownership factor to the internalization theory.

Position Advantage MNE (Multinational Enterprise), this means that there is room for entry into the region if the particular region to which it intends to enter has a dominant advantage factor, including tariffs, tax rates, market environment characterization, and so on. The market environment of the target country will have the greatest effect on the choice of location as a factor to maximize the profitability of the advancement institution. Ownership factor is also called ownership-specific advantage. It can be said that there is a factor of ownership when the enterpriser has professional experience and technical ability. Entrepreneurs may transfer their management capabilities to their target countries in the form of franchising or licensing to enhance their profitability and competitiveness.

This is a way to make it relatively cost-effective and efficient. However, there is a disadvantage that it can weaken monopolistic factors by exposing the professional experience and technology of the company to the outside. In other words, the existence of the ownership factor refers to the possession of assets that can compete effectively with companies in the target country, including product differentiation, reputation, management know-how and economies of scale. If there is an internalization advantage factor in the above two factors, the company will enter the country or market in direct investment form while protecting the specialized ability of the enterprise.

If foreign direct investment is more advantageous than exports, if the combination of the factors of production after the entry is more effective than the cost of combining the factors of production in Korea, the company will make overseas production in the form of foreign direct investment. When these three foreign direct investment requirements are met, the aggregate condition of OLI Ownership-specific advantages, Location-specific advances, and Internalization incentive advantages in the case of a banking institution that is called a paradigm, the form of a branch or office is in the form of a franchise or a licensing, but it can be classified as a form of foreign direct investment if the institution enters into the form of a corporation.

2.2. Precedent research
2.2.1. Study on the effect of bank's overseas advancement

F. Schroath, M. Hu, and H. Chen measured the impact of the country of origin on their activities in 1990 in China. He argued in this paper that the effects of origin are influencing the activities of the firm and the ways in which the effects are different for each industry. They argue that the effect of the origin effect, which is

one of the factors of firms' foreign direct investment, is influencing the foreign direct investment of the companies. The results of the analysis show that the effect of origin is affecting not only the activities of companies already in China but also the industries.

L. G. Goldberg, 24, studied foreign banks who entered the United States in 1991 to see how their effects of origin influence their activities. In this paper, the foreign bank's activities in the United States include the country risk of the country, the geographical distance to the US, the financial market size of the country, the type of trade with the United States, assuming that various factors are influencing, we tried to find out the factors affecting the activity through empirical analysis. Most of the variables used in the study have a significant effect, and the financial market size of the country has the biggest influence. On the other hand, the difference in the return difference between the Korean and US capital markets is not significant. He pointed out that most of the studies that attempted to explain firms' FDI since 1950 point out that this is the case, and for that reason most corporate FDIs are not made for high returns,

III. MATERIALS AND RESEARCH METHODS

3.1. Research Methodology

In order to understand the current status of bank corporations entering the North East Asia region, we have classified all the banks in the Bank Focus in the North East Asia region. The North East region targeted South Korea. Japan, China (include Taiwan, Hong Kong).

As a factor affecting the profitability of the bank and the NIM and ROA as the factor of the bank, we use the ND (loan to deposit ratio), which is the basic profit of the bank, to determine the performance of the bank institution and to use the total loan- To identify the asset-related status. In addition, the size of the bank was formed by the total asset (TAS) and the equity variable (EQU) was used as the direct capital of the foreign bank as foreign direct investment (FDI). In the case of overseas banks, it is used only to form a corporation form to grasp the flow of foreign direct investment (FDI). In order to determine the effect of bank profitability and the bank's soundness, a loan loss provision ratio (LRGL) and total equity to total assets ratio (TETA), Finally, we use GDP and inflation (INF) as the growth size of the countries that have entered into international finance.

The Bank classified all the banks in the Bank of the world that have entered the country, and classified the banks except the offices and branches as manuals. In other words, companies that have mergers and acquisitions exist and companies that are not affiliated companies in North East Asia prior to M&A are targeted.

This study is aimed at all the banks in the world who have operated in North East Asia region but there are some banks which are not included in the data and the main method of data classification is manual classification and there may be a limit on data classification. In addition, banks in North East Asia have a limited time to collect sufficient time-series data because they are short-lived in disclosing bank performance data. Therefore, we analyzed the current status of banking institutions in North East Asia region between 2013 and 2017 and analyzed the factors of profitability.

It compares between foreign and domestic bank model in both NIM and ROA procedure and check the circumstance of financial market of North East Asia area.

3.2. Data

Most of the data used for this study were obtained from Bank Focus, which is the data on the performance of banks in the world. The data have gathered mainly on the countries of the world's banks, assets, net interest income (NIM), and major business sectors in North East Asia region in the years 2013 and 2017. Since the data collected are based on domestic banks and overseas banks, we have separately categorized cases in which foreign banks entered the North East Asia region.

In order to examine the direct asset movements of financial institutions, this study focuses only on the case of foreign corporations in the form of corporations in order to examine the cases of foreign direct investment, excluding the indirect entry of branches and offices. Therefore, in order to select only the corporate type of foreign banks in North East Asia, first, there are cases of the merger and acquisition, second, it is not the head office and third, all foreign banks those are not subsidiary and office are selected. In addition, since there are many banks that do not agree to provide bank information to Bank Focus, they have a limitation in data that they are composed only of the banks in the database. In addition, macroeconomic variables such as economic growth size (GDP), inflation index (INF), and so on, were based on the IMF Data Base.

Total Asset variable was used as a benchmark for the size of the bank. ROA (return on asset) and NIM (net interest margin) were used as the main performance variable. The main operating segments of the bank refer to the introduction and operating reports of the banking activities of each bank's website.

Table 1:Data Description and Source

Division	Item	Variable Name	Variable Description	Period	Source
Dependent Variable	**Profitability**	NIM	Net Interest Margin	2013 ~2017	Bank Focus
		ROA	Return on Assets	2013 ~2017	Bank Focus
Independent Variable	Efficiency Variable	ND	Rate of loan to deposit	2013 ~2017	Bank Focus
	Macro Environment Variable	INF	Inflation index	2013 ~2017	Bank Focus
		GDP	GDP size	2013 ~2017	IMF, World outlook database, Real GDP
	Equity	EQU	Total Equity	2013 ~2017	Bank Focus
	Asset	NTTA	Total Loans to Total Assets)	2013 ~2017	Bank Focus
		TAS	Bank Size	2013 ~2017	Bank Focus
	Soundness	LRGL	Loan Loss Reserve to Gross Loan	2013 ~2017	Bank Focus
		TETA	Total Equity to Total Asset	2013 ~2017	Bank Focus

3.3. Analysis method

Based on the above discussion, we can set up the estimation equation as shown in Equation (3.1) below to examine the effect of financial development on economic growth.

$$Y_{i,t} = \alpha_i + \beta_1 BV_{i,t} + \beta_2 MV_{i,t} + e_{i,t} \quad (3.1)$$

In the equation (3.1), the dependent variable, Y, represents the bank's profitability and NIM, ROA, BV is the bank performance variable, BV=[ND, EQU, NTTA, TAS, LRGL, TETA], MV=[INF, GDP]. In this study, we proceed in order based on three methodologies. First, we use the pooled least square method (pooled LS) of Eq. (4.1). At this time, the t-value is calculated using a modified variance-covariance matrix using White's method to consider the heteroscedasticity. Second, we use the fixed effects model (FEM) and the random effects model (REM) to analyze the unique characteristics of individual countries. Adding the effect of the area and the year, which is not observed in the basic model of equation (3.1), is as shown in the following equation (3.2). At this time, Hausman test is performed to confirm the conformity of the model.

$$Y_{i,t} = \alpha_i + \beta_1 BV_{i,t} + \beta_2 MV_{i,t} + \gamma_i + \delta_t + e_{i,t} \quad (3.2)$$

Third, in this study, we use the system GMM model to estimate the dynamic effects of financial development among dynamic panel analysis methods proposed by Arellano and Bover(1995) and Blundell and Bond(1998). The dynamic panel model uses the past values of dependent variables as explanatory variables, and the linear regression model of a general panel is shown in the following equation (3.3).

$$Y_{i,t} = \alpha_i + \beta_1 Y_{i,t-1} + \beta_2 MV_{i,t} + u_{i,t} \quad (3.3)$$
$$u_{i,t} = v_i + e_{i,t}$$
($u_{i,t}$: error term, u_i: Individual country effect, $e_{i,t}$: Probabilistic disturbance)

In general, in the case of the fixed effect model and the random effect model used in the panel analysis, the lagged variable of the dependent variable is used as the explanatory variable. Therefore, as taking the inconsistent estimator for this reason, a dynamic panel analysis method should be used to obtain a consistent estimate. The first differential dynamic GMM of Arellano and Bond(1991) is the differential GMM using the first-order differential model as shown in Eq. (4.3) The method of estimating the coincident estimator is used as an instrumental variable of the endogenous explanatory variable of the differential model.

$$\Delta Y_{i,t} = \beta_1 \Delta Y_{i,t-1} + \beta_2 \Delta X_{i,t} + \Delta e_{i,t} \quad (4.4)$$

Arellano and Bover (1995) and Blundell and Bond (1998) have further developed the dynamic panel model using GMM, and proposed a System GMM that uses the level variable and the differential paradigm as dependent variables. System GMM is an estimation form that combines the level equation and the differential equation of equation (4.4) as in Eq. (4.3). In the first-order differential equation, the level lag parameter of the explanatory variable is used. It is used as a tool variable. Therefore, the System GMM using additional tool parameters has an advantage that it can obtain a more efficient match estimate than the existing difference GMM. On the other hand, the use of lagged variables in the use of instrumental variables requires the autocorrelation of error terms to be tested, since the condition that no autocorrelation should be satisfied in the error term is required. In this study, Sargan test is conducted to test the suitability of model setting and tool parameter use. In addition, if the number of instrument variables is larger than the number of endogenous explanatory variables, over estimation can be done. The null hypothesis of the over identification test is that all selected instrument variables are not correlated with the error term, indicating that there is a problem with the fit of the over-identified model if the null hypothesis is rejected. However, the Sargan test is only valid when the error term is iid (independent and identically distributed), and the null hypothesis can be rejected in Sargan test results because of the problem of heterogeneity. For this reason, if there is heterogeneity, we can confirm the suitability of model and instrument variables using Hansen test method. Therefore, in this study, the system GMM Daesan General Dynamic GMM will be used because there are limitations in the research that can't pass the Hansen test in most cases according to the small sample.

IV. EMPIRICAL ANALYSIS

4.1. Analysis of profitability factors of banking in North East Asia

First, we use Pooled Least Squares, a joint regression analysis model, for general analysis of profit factors. The regression analysis using the panel data is used to analyze the fixed effects that affect the bank's activities, and then to compare with the whole region in North East region. Finally, we examine the robustness of the factors affecting the profitability of banking institutions through the Generalized Method of Moments (GMM), which takes into account the dynamic effects of bank profitability.

4.1.1. North East Asia Regional Bank Performance Factor Basic Statistics

Table 2: Basic Statistics (North East Asia Regional Bank - NIM)

Variable	NIM	ND	LRGL	NLTA	INF	GDP	EQU	TAS	TETA
Average	1.6	57.5	2.1	41.4	4612.3	5930000000000	4327068	60220477	6.2
Median	1.3	52.8	1.6	44.0	5037.9	6000000000000	748619	6489271	5.6
Maximum	34.3	809.6	31.9	93.2	7522.1	10200000000000	329000000	4010000000	88.1
Minimum	-4.9	0.5	-1.7	0.1	211.6	251000000000	15794	5	0.0
Standard Deviation	1.8	39.3	2.1	20.4	1737.5	2730000000000	18160890	269000000	6.1
Skewness	8.2	8.8	5.5	-0.6	-1.6	-1	10	8	7.0
Kurtosis	102.2	116.6	55.9	2.8	4.7	3	118	86	76.7
Obs	3035	3035	3035	3035	3035	3035	3035	3035	3035

Table 3: Correlation (North East Asia NIM model)

Variable	NIM	ND	LRGL	NLTA	INF	GDP	EQU	TAS	TETA
NIM	1								
ND	0.076	1							
LRGL	0.302	0.087	1						
NLTA	0.070	0.405	-0.237	1					
INF	-0.055	-0.257	0.147	0.378	1				
GDP	0.133	-0.187	0.046	0.397	0.286	1			
EQU	0.030	0.030	0.020	-0.023	-0.178	-0.071	1		
TAS	-0.030	-0.006	-0.031	-0.010	0.166	0.136	0.961	1	
TETA	0.089	0.183	0.178	-0.118	0.049	0.265	0.030	-0.050	1

Table 4:Basic statistics (North East Asia Regional Bank - ROA)

Variable	ROA	ND	LRGL	NLTA	INF	GDP	EQU	TAS	TETA
Average	0.5	57.8	2.0	40.5	4429.8	5,900,000,000,000	4,900,959	67,162,712	5.8
Median	0.3	53.6	1.5	43.4	5037.9	6,050,000,000,000	932,526	8,104,293	5.6
Maximum	23.0	620.3	31.9	93.2	7522.1	10,200,000,000,000	329,000,000	4,010,000,000	58.8
Minimum	-82.3	0.5	-1.7	0.1	211.6	251,000,000,000	21,862	5	0.0
Standard Deviation	2.3	35.8	2.0	21.3	1796.5	2,950,000,000,000	19,567,468	287,000,000	4.5
Skewness	-17.8	7.0	5.8	-0.6	-1.5	-1	9	8	3.4
Kurtosis	765.9	76.7	68.4	2.5	4.0	3	106	77	28.5
Obs	2415	2415	2415	2415	2415	2415	2415	2415	2415

Table 5: Correlation (North East Asia ROA model)

Variable	NIM	ND	LRGL	NLTA	INF	GDP	EQU	TAS	TETA
NIM	1								
ND	0.009	1							
LRGL	-0.038	0.230	1						
NLTA	-0.016	0.451	-0.278	1					
INF	-0.010	-0.287	0.145	0.407	1				
GDP	0.020	-0.223	0.155	0.428	0.232	1			
EQU	-0.009	0.030	0.037	-0.010	-0.183	-0.080	1		
TAS	0.007	0.000	-0.055	-0.027	0.174	0.150	0.958	1	
TETA	-0.016	0.103	0.128	-0.032	0.037	0.332	0.054	-0.075	1

4.2. Profitability and Factors of foreign Banking Institutions in North East Asia

4.2.1.Analysis of Factors about Profitability of foreign bank in North East Asia Region

The following table shows the factors affecting the profitability of foreign bank in North East Asia. The effect of NIM on net interest margin (NIM) of foreign banks that went into North East Asia in the first place shows that NIM's performance, which represents the profit of major banking activities of banking corporations, is significant in few variables.

Table 7: Profitability and Factor Analysis of North East Asia Banking Institutions

	North East Asia (Foreign)					
Variable			Dependent Variable			
	Pooled		Paneled		GMM	
	NIM	ROA	NIM	ROA	NIM	ROA
			Random	Fixed	Random	FIXED
ND	**0.004*****	**0.001*****	-0.000	-0.001	-0.000=	-0.000
	(0.000)	**(0.000)**	(0.001)	(0.001)	(0.002)	(0.003)
NLTA	**-0.010*****	**-0.004*****	-0.006	-0.001	-0.007	-0.008
	(0.002)	**(0.000)**	(0.004)	(0.007)	(0.005)	(0.009)
LRGL	**-0.037*****	**-0.146*****	**-0.140*****	-0.190	**-0.131****	**-0.276****
	(0.012)	**(0.020)**	**(0.033)**	(0.104)	**(0.054)**	**(0.121)**
INF	**-0.005*****	**-0.001*****	0.001	**-0.007*****	0.000	-0.001
	(0.000)	**(0.000)**	(0.001)	**(0.002)**	(0.001)	(0.003)
GDP	**-0.022*****	-0.001	**-0.015*****	0.001	**-0.017*****	-0.005
	(0.005)	(0.002)	**(0.004)**	(0.007)	**(0.005)**	(0.011)
EQU	**0.007*****	**0.004*****	0.010	-0.339	0.010	0.079
	(0.001)	**(0.007)**	(0.009)	(0.359)	(0.009)	(0.096)
TAS	**-0.002*****	**0.000*****	-0.000	-0.339	-0.000	-0.912
	(0.002)	**(0.000)**	(0.000)	(0.359)	(0.001)	(0.540)
TETA	**-1.663*****	**2.639*****	0.712	1.340	0.690	-1.103
	(0.561)	**(0.246)**	(0.900)	(1.194)	(1.316)	(3.387)

C	64.540*** (14.041)	3.290*** (6.071)	42.958*** (13.103)	8.321 (15.186)	50.590*** (13.104)	32.713 (36.563)
obs	370	390	370	390	336	352
Num. of Banks	85	85	85	85	85	85
R2	0.038	0.331	0.103	0.669	0.091	0.626
Hauseman			15.361 [0.052]	19.673 [0.011]		
Sargan					0.000	0.000
Hansen					1.030	1.004

Note: () means standard errors, ***, ** means 1%, 5% significance level, respectively.

Loan loss reserves to gross loan (LRGL), which are banks' soundnessvariables, show a negative (-) effect and a coefficient of -0.131 of GMM in NIM model. These results in the GMM are similar to those of the Pooled and Paneled model but result of ROA is some different that it is not significant in paneled model. Then we know that LRGL is more effective to NIM, increase of loan loss reserve reduces the bank's operating performance and the increase in net loans also reduces NIM inversely.

The macroeconomic variables, inflation(INF) and GDP, indicate that inflation has a negative impact on both NIM and ROA in Pooled model. The increase in inflation by -0.005 indicates a 1% reduction of NIM in financial income. These significant are also in ROA of Paneled model. It is only expressed -0.007 coefficient on ROA model but be not in GMM. The macroeconomic environment variable, GDP, is also statistically significant, with a coefficient of -0.022, -0.015, -0.017 in each model. This result in GMM shows that the profitability of foreign banking corporations, which have entered the market when the economic growth of the target countries is decreased, will be effective.

When we look at the asset-related variables, the capital-related variables (EQU) related to foreign direct investment only show a positive (+) relationship with 0.007 in pooled model. It can't find a significant in other model. In other words, the absolute increase in the size of the asset of foreign banks has a positive effect in financial income but it doesn't affect significantly with 0.00. Finally, the TETA, which is a representative prudential variable, is strongly statistically significant, indicating that the ratio of equity to assets of North East Asia Banking Corporation has effect on financial profitability in polled model. And it doesn't find in both paneled and GMM model.

4.2.2. Effects to Factors on Profitability of foreign Banks
The chart below shows the results of analysis of various impact on the profitability of foreign banks in North East Asia.

Rate of loan loss reserve to gross loan(LRGL) can be seen that operativeness and the variable of efficiency, which are variables, mainly have a negative (-) effect in polled model. It also shows significance in NIM in both paneled and GMM model.
The net loan to total asset(NLTA) variable shows a negative effect (-) for the North East Asia region in polled model. But it can't be expressed in both paneled and GMM model. And net loan to deposit(ND) only shows positive effect in pooled model.

Table 8: Analysis of Impacts on foreign Bank Performance in North East Asia Region

Variable	North East Asia					
	Pooled		Paneled		GMM	
	NIM	ROA	NIM	ROA	NIM	ROA
ND	(+)	(+)			^	
NLTA	(-)	(-)				
LRGL	(-)	(-)	(-)		(-)	(-)
INF	(-)	(-)		(-)		
GDP	(-)		(-)		(-)	
EQU	(+)	(+)				
TAS	(-)	(+)				
TETA	(-)	(+)				

The inflation rate only shows negative effect in polled model in both NIM and ROA. And It does not be expressed significant result in both paneled and GMM model.

And the GDP size show consistent results and the GDP of the countries in which the banks are active have a negative effect to NIM. Compared with the results of the various analysis, GDP size of the countries that have entered the market or the countries that have business activities shows the most positive effect to NIM in North East Asia.

In terms of assets, the soundness variable, which represents the ratio of equity to assets, positively only affects the profitability of the bank in pooled model. However, it does not affect most foreign banks that have entered North East Asia. In addition, variables related asset have no effect on North East Asia banks, and affect only in pooled model. Therefore, banks operating in the North East Asia region can see that the GDP growth affects negative profitability of foreign banks.

The decrease in the GDP appears to increase the profitability of the foreign banking business of North East Asia. In particular, the effect of North East Asia's foreign banks is in NIM. The Equity to Asset (TETA), which is the soundness of the banking institutions, has no effect on foreign banks in both paneled and GMM model.

4.3. Profitability and Factors of domestic Banking Institutions in North East Asia
4.3.1. Analysis of Factors about Profitability of domestic bank in North East Asia Region

The following table shows the factors affecting the profitability of domestic bank in North East Asia. The effect of net interest margin (NIM) of domestic banks that went into North East Asia in the first place shows that NIM's performance, which represents the profit of major banking activities of banking corporations, is significant in various variables.

Table 9: Profitability and Factor Analysis of North East Asia Banking Institutions

North East Asia (Domestic)						
Variable			Dependent Variable			
	Pooled		Paneled		GMM	
	NIM	ROA	NIM	ROA	NIM	ROA
			Fixed	Fixed	Fixed	Fixed
ND	**0.005*** (0.000)**	**0.003*** (0.000)**	0.005 (0.002)	0.003 (0.001)	0.004 (0.002)	**0.003** (0.001)**
NLTA	0.000 (0.002)	**-0.008* (0.000)**	0.000 (0.006)	**-0.008*** (0.002)**	**-0.001** (0.006)**	**- 0.008*** (0.002)**
LRGL	**0.294*** (0.014)**	-0.008 (0.008)	**0.294*** (0.043)**	-0.008 (0.024)	**0.284*** (0.044)**	-0.016 (0.025)
INF	**-0.002*** (0.000)**	**-0.001*** (0.000)**	**-0.002*** (0.000)**	**-0.001*** (0.000)**	**- 0.002*** (0.000)**	**- 0.018*** (0.000)**
GDP	**-0.000** (0.000)**	**0.000*** (0.000)**	-0.000 (0.002)	0.000 (0.000)	-0.000 (0.001)	0.000 (0.000)
EQU	**-0.005*** (0.000)**	**-0.000*** (0.000)**	**-0.005*** (0.002)**	0.000 (0.000)	**-0.004** (0.002)**	0.000 (0.000)
TAS	**0.001*** (0.000)**	**0.008*** (0.000)**	**0.001*** (0.000)**	**0.085*** (0.008)**	**0.000*** (0.000)**	**0.076*** (0.009)**
TETA	**0.019*** (0.005)**	**0.059*** (0.003)**	0.018 (0.016)	**0.058*** (0.011)**	0.014 (0.016)	**0.059*** (0.012)**
C	1.599** (0.773)	-0.515** (0.239)	1.401 (2.282)	-0.521 (0.709)	1.349 (2.255)	-0.211 (0.717)
Obs	2665	2522	2665	2522	2532	2378
Num. of Banks	569	565	569	565	569	564
R2	0.038	0.331	0.162	0.440	0.163	0.453
Hauseman			154.197 [0.000]	130.749 [0.000]		
Sargan					0.000	0.000
Hansen					1.078	1.023

Note: () means standard errors, ***, **, * means 1%, 5% significance level, respectively.

Loan loss reserves to gross loan (LRGL), which are banks' soundness variables, show a positive (+) effect and a coefficient of 0.284 in GMM procedure. These results in the GMM are similar to those of the Pooled and Paneled model but result of ROA is different that it is not significant in all model. Then we know that LRGL is only effective to NIM, Increase of loan loss provision increase the bank's operating performance.

The macroeconomic variables, inflation(INF) and GDP, indicate that inflation has a negative impact on both NIM and ROA in all model. The increase in inflation indicates a reduction of NIM in financial profitability. These significant is also in ROA of Paneled model. The macroeconomic environment variable, GDP, is not also statistically significant which is only significant in pooled model and has negative effect which almost has little impact.

When we look at the asset-related variables, the capital-related variables (EQU) only show a negative (-) relationship with 0.000 in all model. Then, the absolute increase in the size of the equity of domestic banks has a negative effect in financial income but it doesn't affect significantly with 0.00. And the TETA, which is a representative soundness variable, is strongly statistically significant in all of ROA model, indicating that the ratio of equity to assets of North East Asia Banking Corporation. Finally, TAS (Total Asset), which means size of Banks effect both NIM and ROA model in all model. Therefore, it notes that size of banks is significant sector for domestic banks in North East Asia.

4.3.2. Effects to Factors on Profitability of Domestic Banks

The chart below shows the results of analysis of various impact on the profitability of operating domestic banks in North East Asia.

NLTA, Net loan to Total Asset of soundness variable effect negative effect in all model of ROA and LTGL, rate of loan loss reserve to gross loan can be seen that operativeness and the variable of efficiency, which are variables, have positive (+) effect in all model of NIM. Increasing of Net loan to Total asset in banks of North East Asia has effectiveness in ROA. This means that although increasing net loan in banks in North East Asia have no effect to NIM, it is related with bank management fee. Also, in LRGL, this is only positive (+) effectiveness in NIM. Increasing of loan reserve rate raise profitability of NIM which is income related with operating on financial capital. Net loan to deposit (ND) has effect in both pooled and GMM of ROA. Increasing Rate of loan has some effect ROA of bank and raise profit on operating bank.

Table 9: Analysis of Impacts on Bank Performance in North East Asia Region

Variable	North East Asia					
	Pooled		Paneled		GMM	
	NIM	ROA	NIM	ROA	NIM	ROA
ND	(+)	(+)				(+)
NLTA		(-)		(-)	(-)	(-)
LRGL	(+)	(-)	(+)		(+)	
INF	(-)	(-)	(-)	(-)	(-)	(-)
GDP	(-)	(+)				
EQU	(-)	(-)	(-)		(-)	
TAS	(+)	(+)	(+)	(+)	(+)	(+)
TETA	(+)	(+)		(+)		(+)

The inflation rate shows strongly negative effect in all model in both NIM and ROA. In other words, rising inflation reduces the profitability of North East Asia banks. And the GDP size only show effect in pooled model and it can't find significant result in other model in both NIM, ROA. GDP gross rate don't effect profit of North East Asia domestic bank. Then domestic bank is concern with GDP size of each country.

In terms of assets, which represents the ratio of equity to assets, EQU has negative (-) effect in all model of NIM. These means that increasing equity of domestic banks of North East Asia reduce profit of banks is concern with usage of financial capital.

TAS (Total Asset) effect positive impact in all model in both NIM and ROA. Banks in North East Asia conduct activities of banking in advanced financial market. Then, almost counties are advanced country in North East Asia, high size of asset is important sector for domestic banks in North East Asia. Large scale banks in North East Asia are more effective to raise profit.

TETA is effective in all model of NIM. Soundness variable, increasing TETA conduct equity rate to asset increase and this would concern with raising profit of financial capital effectiveness in domestic banks.

4.3.3. Effect on profitability of banks in North East Asia
The effects on the profitability of foreign banking corporations are summarized as follows.
The effects of ND have positive effect in both NIM, ROA, but these are weakness effect in profitability. NLTA is also same effect but it has a negative (-) effect of weakness.

Loan Loss Reserve to Gross Loan(LRGL) and GDP are Both performance variables have the greatest impact on the profitability of North East Asia foreign banks in only NIM model. However, since the coefficient of LRGL is higher than the coefficient of GDP size, it can be seen that LRGL variable has the strongest negative (-) effect of increasing the NIM of foreign banks entering North East Asia countries. It can note that increasing of GDP size don't support the NIM of North East Asia foreign banks. Increasing of loan reserve in foreign banks reduce NIM that is related with operating financial assets. Increasing of loan reserve fund reduce operating fund to conduct profit activity for bank. Therefore, foreign bank can't raise income of financial asset. This is because almost bank in North East Asia have a stable trust deal each other, it is low probability to fail in transaction in financial market.

Table 10: Impact on profitability of foreign banking corporations

Effect on profitability		
	NIM	ROA
Variable		
ND	Weakness(+)	Weakness(+)
NLTA	Weakness(-)	Weakness(-)
LRGL	**Strongness(-)***	Medium(-)
INF	Medium(-)	Weakness(-)
GDP	**Strongness(-)**	
EQU	Weakness(+)	Weakness(+)
TAS	Weakness(-)	Weakness(+)
TETA	Weakness(-)	Weakness(+)

* All models, two and one model, when statistically significant, are expressed as Strongness, Medium, Weakness.
* Indicate the variable factor that has the strongest effect among variables in ***.

Inflation(INF) have a negative (-) relationship with NIM in only two model. The inflation rate effect the NIM in North East Asia foreign banks but is not strong. Foreign banks in North East Asia would be few effected by increasing inflation because it effect increasing financial product which reduce the income that is related with interest rate of financial product.

We see the table about domestic banks in North East Asia. Firstly, LRGL is some different effect with foreign bank model. LRGL have the positive (+) effect in NIM. Banks of domestic is effected by increasing of loan reserve rate that reduce a financial deficit during conducting financial activities.

EQU is negative (-) effect in only NIM but coefficient variable is closed to 0. Then statistic significant is high but real influence to profitability in NIM and it is no effect in ROA. Therefore, size of EQU is related with income of domestic bank but is no influence. Mount of Equity of domestic banks have the negative (-) influence, then managing financial fund and operating institution is more important than securing equity for banks.

TAS, Total asset is positive effect in both NIM and ROA. And it is most important effect among the significant variable in ROA. Increasing size of bank have helped that raise financial profit for domestic banks in North East Asia. Specially, this is helped by operating various financial product, make the income through a stable domestic transaction route.

Finally, TETA is only significantly in ROA, representative soundness variable, it is positive (+) effect to conduct activity that is related with profit of bank' ROA. This seem to be because ROA have to concern with asset of bank, and act bank's activity in domestic market, big size' bank have it over to get the profitability.

Table 11: Impact on profitability of domestic banking corporations

	Effect on profitability	
	NIM	ROA
Variable		
ND	Weakness(+)	medium(+)
NLTA	Weakness(-)	**Strongness(-)**
LRGL	**Strongness(+)***	
INF	Weakness(-)	Weakness(-)
GDP	Weakness(-)	Weakness(-)
EQU	**Strongness(-)**	Weakness(-)
TAS	**Strongness(+)**	**Strongness(+)***
TETA	Weakness(+)	**Strongness(+)**

* All models, two and one model, when statistically significant, are expressed as Strongness, Medium, Weakness.

* Indicate the variable factor that has the strongest effect among variables in ***.

V. CONCLUSION

Due to the global economy, the interconnections between countries and regions are increasing. As globalization accelerates, so does the relationship to society, culture, politics as well as the economic sector.

World economies have changed to various way and North East Asia' role is more being importantly. Possibility of world economy crisis has accelerated more and more, then financial market in world economy need to find more stable financial market in world and they can conduct usage and stabilize financial profit in processing get earning. And it is most consisted with advanced country in North East Asia. Then foreign bank in world various area would want to enter the financial market of the North East Asia which enormous financial fund flow in.

We need to search circumstance of foreign and domestic banks in North East Asia.

Then, it can make a rule that foreign bank enters the North East Asia and establish clearly criteria of financial market of North East Asia.

In order to examine clearly the factors affecting the financial profitability of foreign banks in North East Asia, quantitative analysis was carried out on factors affecting the financial profit index of banks from 2013 to 2017. As a result, NIM (Net Interest Margin), which is a representative financial institution's return variable, is affected by ND (Net Loan to Deposit) and NLTA (Net Loan to Total Asset). But These have a weakness effectiveness.

LRGL (Loan Reserve to Gross Loan) effect the strong negative (-) to NIM. It can be showed in all model that is statistically significant. It is stronger effect than GDP size, these mean that LRGL of operating variable is more important than GDP size of each country.

In macroeconomic variables, the economic growth rate has strong effect in all model. But It has not stronger effect than LRGL.

On the other hand, ROA, which represents the ratio of return to total assets, has an effect on LRGL (rate of loan reserve to gross loan). And It has weakness effect in other variables.

Most of the variables related to banking are not significant for NIM except for LRGL, INF and GDP size. On the other hand, if we look at the variables affecting ROA, it is not significant except for LRGL.

North East Asia's foreign banks are not significantly affected by the size of their banks and their capital adequacy ratio, as the economic characteristics of North East Asia is more influenced by the operating sector of Management. Also, as the GDP size of the target countries increases, the profitability and NIM of foreign banks show a consistent decrease.

Recently, banks in the form of corporations in North East Asia which can be regarded as advanced country has many interesting in important role. As the profitability of North East Asia's foreign banks is not affected by the size of assets or equity capital, it is desirable the operating sector of management. In addition, it is the GDP size of the country that has also the important effect, so it is necessary to take into account the GDP size individually by identifying the countries that have entered.

On the other hand, it's some different situation on banks about profitability of domestic bank. LRGL, EQU and TAS explain difference and compare result about operating banks between foreign and domestic bank. Foreign banks in North East Asia have negative (-) effect in LRGL in NIM instead of positive (+) effect in domestic side and domestic side also have negative (-) effect of NLTA, net loan to total asset in ROA. These means that foreign banks need more aggressive management strategies in North East Asia which is consisted with advanced countries that get a high grade financial market. Then they can get earning about finance. Instead

of, banks of domestic can get effectiveness of management activities and size of asset in bank operations because bank of domestic have enough network of finance that is institution user take conveniently.

GDP has only negative (-) effectiveness to foreign bank in North East Asia and bank of domestic have no effect by GDP variable. These mean banks intend advance to North East Asia area have to consider GDP size before entering North East Asia. Instead of, bank of domestic don't be effected by GDP size, then it just need to consider operating bank and size of bank.

Banks in North East Asia are almost advanced and enormous banks, then banks intending to North East Asia have to consider these characteristic for reducing deficit. Therefore, foreign banks acting in North East Asia be basically at the disadvantage to get earning in financial market as long as economy deficit doesn't slow down.

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