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Comparative Analysis of Financial Performance of Foreign and Domestic Banks in Georgia

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Abstract The liberalization and globalization of the financial system has also affected Georgia which conquered independence after the collapse of Soviet Union in 1991. Today, banking system in Georgia is consistent with modern banking rules and free market conditions. Since foreign participation in the banking sector contributes to the rivalry for innovations and introductions of new bank products in the market, it seems to be worthy in many emerging markets and transition economies like Georgia where commercial banks are a core of the financial system. The aim of this study is to compare the financial performance of foreign and domestic banks in Georgia between 2009 and 2013 and their performance before and after January 1st 2012. We used profitability ratios along the following dimensions; Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin(NIM) and Profit Expense Margin(PEM). For this purpose, data of nine foreign and six domestic-partnership commercial banks were used. There were no significant differences of profitability between foreign and domestic banks in terms of ROA, ROE, NIM and PEM, but there were significant differences of profitability among the banks studied in terms of ROA, ROE and NIM, but not in terms of PEM. Pre and post January 1st 2012 profitability performances were found to be significantly different in terms of ROA and NIM, but not in terms of ROE and PEM when the all banks were included in the analysis.

Keywords Domestic banks, Foreign banks, Financial performance, Profitability ratios

1. Introduction

Foreign-capital banks have become increasingly more important in developing countries after the liberalization policies of the 1990s. Free market system and globalization led new actors to enter into financial system. Mobility in international banking sector has risen up through these developments. The share of foreign banks in total assets has been relatively high in Central and Eastern Europe, Asian and Latin America countries.

The entry of foreign banks may have impact on domestic banking system. There are different views about the possible effects of foreign entry. According to one view [1], the permission of foreign bank entry may stimulate domestic banks to lessen costs and improve the quality of financial services through competition. In addition, presence of foreign banks may encourage domestic banks to develop more advanced banking operations and techniques. The other view is that foreign banks may facilitate access to foreign capital for domestic projects [2]. Also, it is noted that foreign banks which apply corporate governance principles and are more experienced in regard to risk management can affect domestic banks positively.

On the other hand, there are several criticisms stating that foreign banks cut their business during financial crises and run by cherry picking high quality customers, and being reluctant to extend credits to small and medium enterprises [3]. It is also claimed that [4] larger foreign ownership share of banks indeed reduces the profitability, non-interest income and the overall expenses of domestically owned banks. Foreign bank entry may also cause a rise of the potential costs to domestic banks, local entrepreneurs, and governments [5]. Domestic banks may incur new costs since they have to compete with large international banks with better reputation; local entrepreneurs may receive less access to financial services since foreign banks generally concentrate on multinational firms; and governments may find their control of the economy diminished since foreign banks tend to be less sensitive to their wishes [4].

Banking reform in Georgia started in the late 1980s when the country was still a part of the Soviet Union, but substantial changes occurred only after the country gained independence. Russian-Georgian war in 2008 and global financial crisis in 2008/2009 forced economic growth down and even turned into economic shrinkage. These events were impediments for foreign investment entries to Georgia and banking sector was negatively influenced from this tension. Georgia succeeded to minimize the losses of financial crisis and the war against Russia by reducing the

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number of commercial banks, returning public banks to private banks, improving bank services, applying auditing policies and procedures consistent with international standards into practice, rising quality standards, establishing reliable competitive environment [6]. So, none of the commercial banks in Georgia were in state of insolvency. At the same time, the entries of foreign banks were simplified by decreasing barriers to entry and fostering public and foreign banking sector dialogue. Foreign bank investors who try to find a new market to transform their revenues to reinvest chose Georgia as an advantageous market, such as its 'qualified public service, talented people, geographic location, strong competition, attracting investment opportunities and continuing reforms.

Commercial banks in Georgia have undergone enormous regulations, technological innovation and privatization since Russian-Georgian war in 2008. Although these regulations, technological and financial innovations, high quality standards and entry of foreign banks have brought about severe competition and high cost to the Georgian banking sector, they have made contribution to the performances of commercial banks in Georgia. In parallel with these improvements, it can be said that the banking system overcame adverse effects of the 2008 economic shock and the war against Russia, and the subsequent 2009 recession. This fact is verified by the improvement in such indicators, like banks' growing profits and declined rate of non-performing loans in 2010 and 2011. It is notable that significant modifications were introduced to the banking system's business model due to the revealed deficiencies to ensure higher resilience to future shocks. In 2012, the demand for bank credit started to decline which was caused by a natural degree of uncertainty during pre-election periods. Even after the Georgian parliamentary elections, the demand for credit still remained low. The uncertainty mentioned above had an adverse effect on the performance of banking system. Therefore, The National Bank of Georgia worked on a new capital adequacy framework in 2012 based on the Basel II and Basel III regulations, and new operational risk management framework based on Basel III was completed in order to revise bank-specific risk profiles. In 2013, updated regulations on capital adequacy, which were based on Basel II and Basel II documents, were enforced.

The aim of this study is to evaluate the financial performance of commercial banks from 2009 to 2013 by making comparisons between foreign and domestic banks using profitability ratios in terms of "Return on Asset", "Return on Equity", Net Interest Margin" and "Profit Expense Margin". The study also aims to compare the pre and post January 1st 2012 profits which are chosen as a breakpoint due to the uncertainties and reforms implemented at the end of 2012 as mentioned above. The last objective is to fill an important gap in literature by comparing financial performances of foreign and domestic commercial banks in Georgia which is one of the transition countries. Best to our knowledge, there are no studies that compare foreign vs domestic. banks' profitability in Georgia.

2. Literature Review

Claessens et al [4] examined how net interest margins, overhead, taxes paid, and profitability differ between foreign and domestic banks by using 7900 bank observations from 80 countries for the period of 1988-1995. They found that foreign banks have higher profits than domestic banks in developing countries, but the opposite is the case for developed countries. Their estimation results suggested that an increased presence of foreign banks is associated with a reduction in profitability and margins for domestic banks.

Aktaş and Kargın [7] compared foreign and domestic banks in Turkish banking sector using varying financial ratios. According to the results of their study, foreign banks had higher "capital adequacy" and "liquidity" ratios. They also revealed that there are statistically significant differences about the ratios related with "revenue-cost structure between foreign and domestic commercial banks activated in Turkish Banking Sector.

Johan and Hui [8] compared the financial performance of different ownership structured commercial banks in Nepal based on their financial characteristics by taking CAMEL model into consideration. They analyzed eighteen commercial banks for the 2005-2010 periods. The results have shown that public sector banks are significantly less efficient than their counterparts. This study also revealed that return on assets is significantly influenced by capital adequacy ratio, interest expenses to total loan and net interest margin while capital adequacy ratio has considerable effect on return on equity.

San et al [9] analyzed the performance of domestic and foreign banks operated in Malaysia using Data Envelopment Analysis. For this purpose, they used data of 9 domestic and 12 foreign banks. Their results revealed that the domestic banks are more efficient and competitive than foreign banks.

Ansari and Rehman [10] compared the financial performance of Islamic banks and conventional banks in Pakistan for the period of 2006-2009 by the method of independent sample t-test and and ANOVA to determine the significance of mean differences of financial ratios between Islamic banks and conventional banks, and among banks. Researchers used eighteen financial ratios to measure their performance in terms of profitability, liquidity, risk and solvency, capital adequacy deployment and operational efficiency. The study concluded that Islamic banks are more liquid, less risky and operationally efficient than conventional banks.

Ally [11] analyzed the financial performance of commercial banking sector in Tanzania for the period of 2006 to 2012 by using analysis of variance (ANOVA) to test the significant mean differences of profitability among peer bank groups. This study shows that there are

significant differences among bank groups in terms of ROE and NIM, but not in terms of ROA.

Doğan [12] evaluated financial performance of foreign and domestic banks operated in Turkish Banking Sector. For this purpose, data of 10 domestic banks and 10 foreign banks which operated between the years 2005-2011 were used by author. He concluded that asset quality, return on equities, total assets and management effectiveness of domestic banks are higher than foreign banks. On the other hand, domestic banks were determined to have a lesser capital adequacy ratio than foreign banks.

3. Methodology

3.1. Data Sources and Research Sample

Nowadays the Georgian banking system consists of 21 commercial banks (in the year of 2010/2012 it had been 19). 7 of them were founded under the share of domestic financial institutions. The study includes 6 domestic and 9 foreign commercial banks. The selection of banks was based on the data mainly obtained from the audited financial statements of commercial banks published by National Bank of Georgia and yearly economic survey (www.nbg.gov.ge). The ratios were calculated using these data by author.

3.2. Profitability Performance

Profitability is the ultimate test of managements operating effectiveness and success of a company [13]. Generally, accounting profits are the difference between revenue and costs. These ratios are used to assess the ability of the business to generate earnings in comparison with its all expenses and other relevant costs during a specific time period [14]. They are evaluated to compare how well one bank is doing relative to another in terms of profit. Profitability in this study has been judged by the following criteria; Return on asset (ROA), Return on equity (ROE), Net interest margin (NIM) and Profit expense margin (PEM). These ratios are defined as follows:

A) Return on Assets (ROA)

The return on assets provides information on how efficiently a bank is being run, because it indicates how much profits are generated by each dollar of assets [15]. In other words, it shows how a bank can convert its assets into net earnings [14]. The higher ratio indicates higher ability, and is an indicator of better performance [16].

B) Return on Equity (ROE)

From an investor point of view, ROE is the best measure of performance. The shareholders of a bank are interested in the rate of return on their investment, capital stock, not on the ROA. The ROE is estimated as profits divided by equity capital. The higher the ROE is, the better the performance of a bank is [17].

C) Net Interest Margin (NIM)

The interest paid to depositor and the interest received from borrower creates a spread called interest margin on banks, because they pay lower interest to the depositors and receive higher interest from borrowers as usual. In this sense, net interest margin is the difference between interest earned and interest expended by a bank divided by its total assets [18]. Net interest margin is determined by some variables such as special or general public financial sector policies, financial liberalization and innovation, taxation (direct/ indirect), non-price mechanisms, the weight of public sector in financial system, the conditions for free entry to financial market and free exit from financial market [19].

D) Profit Expense Margin (PEM)

Profit expense ratio is calculated by dividing profit before tax to operating expense. It is a coverage ratio that measures the proportionate amount of profit used to cover operating expenses in the future. It is stated in numbers as opposed to a percentage. The ratio indicates how many times a bank could pay the operating expenses with own profit before tax, so the larger ratios are considered more favorable than smaller ratios. Additionally, it determines how effectively a bank is operating and how well it controls operating expense.

4. Research Method

The audited financial statements of commercial banks published by National Bank of Georgia and yearly economic survey (www.nbg.gov.ge) for 2009-2013 were examined. The four profitability ratios from 2009 to 2013 were calculated using their formula to assess the financial performance of the banks included in the study. If any bank has involved one hundred percent foreign capital ownership, we have accepted it as a foreign bank. Otherwise, it has been accepted as a domestic bank in the study. With respect to this approach, we determined six domestic and nine foreign commercial banks. The independent t-test was used to check the significance of mean differences between foreign and domestic banks, analysis of variance (ANOVA) was used to check the significance of mean differences among banks, and paired t-test was used to compare pre and post January 1st 2012 for all banks included in the study.

Firstly, independent sample t-test was used to check whether there is any significant difference with regard to ROA, ROE, NIM and PEM between domestic and foreign banks operating in Georgian banking sector within the period of 2009-2013 or not. This was tested under the following null hypotheses.

- Ho_1: There is no significant difference of ROA between foreign and domestic banks
- Ho_2: There is no significant difference of ROE between foreign and domestic banks
- Ho_3: There is no significant difference of NIM between foreign and domestic banks
- Ho_4: There is no significant difference of PEM between foreign and domestic banks

Secondly, ANOVA was used to check whether there is any

significant difference related to the same profitability ratios among commercial banks included in this study or not. This was tested under the following null hypotheses.

Ho_1: There is no significant difference of ROA among commercial banks
Ho_2: There is no significant difference on ROE among commercial banks
Ho_3: There is no significant difference on NIM among commercial banks
Ho_4: There is no significant difference on PEM among commercial banks

Thirdly, pre and post January 1st 2012 profitability ratios were compared by including all banks with paired t-test. This was tested under the following null hypotheses:

Ho_1: Pre and Post Jan 1st 2012 ROAs were not significantly different among commercial banks
Ho_2: Pre and Post Jan 1st 2012 ROEs were not significantly different among commercial banks
Ho_3: Pre and Post Jan 1st 2012 NIMs were not significantly different among commercial banks
Ho_4: Pre and Post Jan 1st 2012 PEMs were not significantly different among commercial banks

In this study, the decision criterion is p-value. If p-value is greater than 0.05 (significance level), we cannot reject null hypothesis, rather we accept null hypothesis.

5. Results and Discussion

According to the criteria we applied, the following banks were considered to be foreign: TBC, Bank of Georgia, BTA, Cartu, Constanta and Capital Bank, and the following were considered to be domestic: VTB, KorStandard, Procredit, Republic, Privat, Halyk, Progress, Basis and International Bank of Azerbaijan

As can be seen table 1a, both bank groups remained profitable only in 2012 and recorded negative return on assets in 2009 due to the 2008 global financial crisis and the war against Russia. The values of ratio are very changeable from year to year. The profitability increase in 2010 was caused by a decline in credit cost and a rise in the operating profit of the banking sector (www.nbg.gov.ge, annual report 2010). There was sharp increase on ROA for foreign banks in 2011 due to improvement in asset quality such as expanded credit portfolio and positive change in structure of liquid assets. While the return on asset in 2013 shown increase for foreign banks, it declined compared to the previous year for domestic banks in 2013.

Table 1a. Return on assets (ROA) with respect to their ownership structure

	Years				
Banks	2009	2010	2011	2012	2013
DB	-0.078	0.023	-0.026	0.021	-0.016
FB	-0.030	-0.010	0.002	0.001	0.021

Source: calculated by researcher

T-test on table 1b shows that mean difference in profitability performances of two bank groups is not significant at 5% level of significance. Hence, the null hypothesis is accepted and the alternative hypothesis is rejected. Therefore, there isn't statistically significant difference on ROA between domestic and foreign commercial banks.

Table 1b. T-test of ROA with respect to their ownership structure

Banks	Mean	Confidence interval	p-value	Hypothesis
DB	-0.012	(-0,045 /0,022)	0,48	Accepted
FB	-0.003			

The ANOVA Table 1c reveals that p-value is 0.032 which is less than 0.05, level of significance. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. Therefore, there are statistically significant differences on ROA among banks. Post-hoc test was used to investigate which of the banks are significantly different from one another. It indicated that Capital Bank that has domestic capital differed significantly from TBC, Georgia, Cartu and Constanta Bank that have domestic capital, and it is also statistically different from Pro-credit, Basis and Azerbaijan Bank that have foreign capital.

Table 1c. ANOVA of ROA

ANOVA					
SS	**Df**	**MS**	**F**	**P-value**	**Hypothesis**
0.12	14	0.009	2.015	.032**	Rejected
0.255	60	0.004			
0.374	74				

(**Significant at 5%)

Table 1d. Post-hoc test results for ROA

Bank Couples	Mean Differen	P-Value
Capital Bank-Tbc	-0,162	0.016
Capital Bank-Geo	-0,157	0.023
Capital Bank-Cartu	-0,156	0.026
Capital Bank-Consta	-0,162	0.016
Capital Bank-Procredit	-0,163	0.015
Capital Bank-Basis	-0,154	0.028
Capital Bank-Azeri	-0,156	0.025

Paired t-test given at Table 1e shows that difference is not significant in profitability performances of banks between pre and post January 1st 2012. Hence, the null hypothesis is accepted and the alternative hypothesis is rejected. There isn't statistically significant difference on ROA between pre and post January 1st 2012 among banks.

Table 1e. Paired samples t-test of ROA

The profitabilities across the break point				
Pairs	Mean	Conf. Interval	p-value	Hypothesis
Pre_2012	-0,051	(-1,235/0,031)	0,222	Accepted
post_2012	-0,005			

The ROE positions of domestic and foreign bank groups indicate an increase from 2009 to 2010 after incurred losses in 2008 and 2009, and a moderate downturn for domestic banks and a slight increase for foreign banks in 2011. While the increase in return on equity remained in 2012 and 2013 for foreign banks, it declined from the year of 2012 to 2013 for domestic banks. The fluctuations of profitability in 2012 and 2013 were caused such factors scale effect, existence of a market niche and other competitive advantages, assessment of projected credit losses (www.nbg.gov.ge, annual report 2013).

Table 2a. ROE with respect to their ownership structure

	Years				
Banks	2009	2010	2011	2012	2013
DB	-0.115	0.097	0.002	0.088	-0.012
FB	-0.085	-0.037	0.015	0.006	0.111

Source: calculated by researcher

Table 2b. T-test of ROE with respect to their ownership structure

Banks	Mean	Confidence interval	p-value	Hypothesis
DB	0.012	(-0,081/0,101)	0,204	Accepted
FB	0.002			

T-test on table 2b shows that p-value is greater than 5% level of significance. So, the null hypothesis is accepted and the alternative hypothesis is rejected. This means that there is no significant difference on ROE between domestic and foreign commercial banks. However, ANOVA supports significant differences among banks at 5% level of significance. Table 2d shows that banks are significantly different from one another. It can be seen that Capital Bank that has domestic capital differs significantly from TBC (domestic partnership) and Pro-credit (foreign ownership), Private Bank that has domestic capital differs significantly from Pro-credit (foreign ownership) and Constanta (domestic partnership).

Table 2c. ANOVA of ROE

ANOVA					
SS	**Df**	**MS**	**F**	**P-value**	**Hypothesis**
0.845	14	0.06	1.936	.04**	Rejected
1.872	60	0.031			
2.717	74				

(**Significant at 5%)

Table 2d. Post -hoc test results for ROE

Bank Couples	Mean Difference	P-value
Tbc-Capital	0,367	0.046
Pro-credit-Capital	-0,393	0.043
Pro-credit-Private	-0,307	0.038
Constanta-Privat	-0,282	0.031

The paired t-test on Table 2e reveals that p-value is 0.039 which is less than 5% level of significance. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. There is statistically significant difference on ROE between pre and post January 1st 2012 among banks.

Table 2e. Paired samples t-test of ROE

The profitabilities across the break point				
Pairs	Mean	Conf. Interval	p-value	Hypothesis
Pre_2012	-0,023	(-0,144/-0,044)	0,039	Rejected
post_2012	0,051			

Table 3a. NIM with respect to their ownership structure

	Years				
Banks	2009	2010	2011	2012	2013
DB	-0.115	0.097	0.002	0.088	-0.012
FB	-0.085	-0.037	0.015	0.006	0.111

Table 3b. T-test of NIM with respect to their ownership structure

Banks	Mean	Confidence interval	p-value	Hypothesis
DB	0.083	(-0,005/0,029)	0,119	Accepted
FB	0.071			

The general performance indicates that both groups are profitable in terms of net interest margin under the period of study; no bank groups recorded the negative net interest margin. Domestic banks are more profitable than foreign banks except for 2012. However, the results on NIM trends show that both groups have faced downward trends although a slight increase was recorded for domestic banks in 2013 and foreign banks in 2012 because of interest rate spread increases, which were caused by a decrease in the cost of funds. It can be said that there is no significant difference between domestic banks and foreign banks at 5% level of significance. So, the null hypothesis is accepted and the alternative hypothesis is rejected. This means that the financial performance of both bank groups regarding this ratio is not different. As p-value is 0.000 which is less than 5% as seen on ANOVA table 3c, the null hypothesis is rejected and the alternative hypothesis is accepted. Hence there are significant differences on NIM among banks. Significant differences among banks were found as well using post-hoc test as seen on Table 3d.

Paired t-test given at Table 3e shows that the difference between pre and post January 1st 2012 is not significant at 5% level of significance. Hence, the null hypothesis is accepted and the alternative hypothesis is rejected. There

isn't statistically significant difference on NIM between pre and post January 1st 2012 among banks.

Table 3c. ANOVA on NIM

ANOVA						
NIM	**SS**	**Df**	**MS**	**F**	**P-value**	**Hypothesis**
Between Groups	0.074	14	0.005	11.459	0,000**	Rejected
Within Groups	0.028	60	0.000			
Total	0.101	74				

(**Significant at 5%)

Table 3d. Post- hoc test results for NIM

	Banks	Mean Difference	P-value
Tbc	Consta	-0,09	0.00
	Progress	-0,61	0.00
	Consta	-0,10	0.00
Geo	Privat	-0,06	0.01
	Progress	-0,08	0.00
Bta	Consta	-0,10	0.00
	Privat	-0,05	0.02
	Progress	-0,08	0.00
Cartu	Constanta	-0,07	0.00
	Progress	-0,05	0.04
Constanta	Capital	0,07	0.00
	Vtb	0,09	0.00
	Kor	0,09	0.00
	Procredit	0,08	0.00
	Republic	0,10	0.00
	Basis	0,11	0.00
	Azeri	0,11	0.00
	Halyk	0,11	0.00
Progress	Capital	0,05	0.04
	Vtb	0,07	0.00
	Kor	0,07	0.00
	Procredit	-0,05	0.02
	Republic	0,07	0.00
	Basis	0,08	0.00
	Halyk	-0,09	0.00
	Azeri	0,09	0.00
Private	Republic	-0,05	0.04
	Basis	0,06	0.00
	Azeri	0,07	0.00
	Halyk	0,06	0.00

It is clearly demonstrated from Table 4a, there is upward trend on PEM under the period of study for foreign banks. While PEM ratio of domestic bank group went up from the year of 2009 to 2010, there was sharp fall in 2011 and there were increases in 2012 and 2013. The improvement of this profitability ratio was positively affected by the severely shrinking of non-interest expense.

The independent sample t-test supports that there is no significant difference on PEM between domestic banks and foreign banks at 5% level of significance, because p-value (0.511) is greater than 0.05. Similarly, p-value (0.651) is greater than 5% level of significance for ANOVA test. Therefore, there is no significant mean difference on PEM among banks.

The paired t-test 4-d reveals that p-value is 0.008 which is less than 0.05, level of significance. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. There is statistically significant difference on PEM between pre and post January 1st 2012 among banks.

Table 3e. Paired Samples T-Test of NIM

The profitabilities across the break point				
Pairs	Mean	Conf. Interval	p-value	Hypothesis
Pre_2012	0,080	(-0,01/0,070)	0,071	Accepted
post_2012	0,070			

Table 4a. Profit Expense Margin (PEM) with respect to their ownership structure

	Years				
Banks	2009	2010	2011	2012	2013
DB	-0.108	0.591	-0.469	0.416	0.722
FB	-0.243	-0.017	0.096	0.184	0.485

Source: calculated by researcher

Table 4b. T-test of PEM with respect to their ownership structure

Banks	**Mean**	**Confidence interval**	**p-value**	**Hypothesis**
DB	0,230	(-0,261 /0,520)	0,511	Accepted
FB	0,101			

Table 4c. ANOVA on PEM

ANOVA						
PEM	**SS**	**Df**	**MS**	**F**	**P-value**	**Hypothesis**
Between Groups	8.103	14	0.579	0.814	0.651	Accepted
Within Groups	42.64	60	0.711			
Total	50.75	74				

Table 4d. Paired Samples T-Test on PEM

The profitabilities across the break point				
Pairs	Mean	Conf. Interval	p-value	Hypothesis
Pre_2012	-0,059	(-0827/-0,148)	0,008	Reejected
post_2012	0,428			

6. Conclusions

The study was carried out a comparison of financial performance of domestic and foreign banks which operated in Georgia banking system between the years 2009-2013. Differences of domestic and foreign banks in terms of profitability were measured with ROA, ROE, NIM and PEM. The findings of the study are as follows:

- The values of return on asset ratio are very changeable from year to year for both bank groups. Both remained profitable only in 2012 simultaneously
- The independent sample t-test shows that there is no statistically significant difference on ROA between domestic and foreign banks.
- The ANOVA test reveals that there are significant differences on ROA among banks.
- The paired sample t-test shows that there is no statistically significant difference on ROA between pre and post January 1st 2012 among banks
- The values of return on equity ratio are very changeable for both foreign and domestic banks under the period of study. ROE shows an increase from year 2009 to 2010 for both, a moderate downturn for domestic banks and a slight increase for foreign banks from year 2011 to 2013
- There is no significant difference between domestic and foreign commercial banks in terms of ROE.
- ANOVA supports significant differences among banks with regard to ROE at 5% level of significance.
- There is statistically significant difference on ROE between pre and post January 1st 2012 among banks.
- Both groups face downward trends in terms of "net interest margin" although a slight increase was recorded for domestic banks in 2013 and foreign banks in 2012.
- It is observed that there is no significant difference between domestic and foreign banks, but there are significant differences among banks included in the study in terms of NIM.
- Foreign banks have upward trends while domestic banks have fluctuations on PEM ratio under the period of study.
- The independent sample t-test and ANOVA test show that there is no significant difference on PEM between domestic banks and foreign banks, and among banks at 5% significance level.
- The paired t-test shows there is significant difference on PEM between pre and post January 1st 2012 among banks

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