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Impact of Different Elements on ROE of Banks

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Abstract

This report focus on the analysis of financial reports of several banks to evaluate Return on Equity (ROE) and other ratios like the Tax ratio, Asset turnover, Asset/Equity ratio and also to find out the impact of different elements on the Return on Equity (ROE). We had chosen this topic named '*Impact of different factors on ROE of banks*' to get the proper understanding that how ROE is related to other factors of financial statements. We have collected relevant secondary data, theoretical literature and also some other valuable information before developing this research paper on '*Impact of different factors on ROE of banks*'. The core objective of this paper is to find out the effects of different elements of financial statements of a bank on the Return on Equity (ROE). There are some elements to evaluate a bank's performance, but all of these the Return on Equity is the most essential elements to evaluate a bank's performance properly. The Return on equity (ROE) reveals that how much profit a bank can earn in comparison to the shareholder's total amount of equity found on the balance sheet. High return on equity reveals that A bank is more capable of generating more cash internally, when it has a high Return on Equity. In most cases, a bank's with the higher return on equity which is compared to the industry average, is the better. For that reason, a bank puts more emphasis on the Return on Equity (ROE). Besides, management works hard to show the better ROE on the financial statements since it is very crucial to the potential investors. Other elements/indicators of the financial statement/performance might have some effect on ROE. Increasing in some elements might lead to increase in ROE and vice-versa. Some elements might not have any effect on ROE. In this research, we have evaluated the effects of those elements on ROE and how much they affect. The core objective of this paper is to examine the different factors (assets, PAT/PBT, Interest Margin etc.) impact on a bank's Return on Equity (ROE).

Keywords: Bank; Domestic private commercial bank; ROE; Different ratios

Introduction

Banking system plays a very important role in the economic life of the nation. The health of the economy is closely related to the soundness of its banking system. In developing countries like Bangladesh the banking system as a whole play a vital role in the progress of the economic development. Loan facility which is provided by banks works as an incentive to the producer to increase the production. Return on Equity (ROE) is one of most effective measurements to know the banks' performance in different sectors. The Return on equity serves as a good measure of a bank's profitability when compared against previous periods for the same bank or other banks' in the same industry. So, the investors are more concerned to the Return on Equity which expresses income generated from shareholders' equity. It is needed to know the impact of different factors i.e. bank size, tax ratio, asset turnover,non interests margin, interest margin on the Return on Equity (ROE) of banks.

Literature Review

Return on equity (ROE) measures the rate of return on the ownership interest (shareholders' equity) of the common stock owners. It measures a firm's efficiency at generating profits from every unit of shareholders' equity (also known as net assets or assets minus liabilities). ROE shows how well a company uses investment funds to generate earnings growth. ROEs between 15% and 20% are generally considered good [1]. *ROE* is more than a measure of profit; it's a measure of efficiency. A rising ROE suggests that a company is increasing its ability to generate profit without needing as much capital. It also indicates how well a company's management is deploying the shareholders' capital. In other words, the higher the ROE the better. Falling ROE is usually a problem. However, it is important to note that if the value of the shareholders' equity goes down, ROE goes up. Thus, write-downs and share buybacks can artificially boost ROE. Likewise, a high level of debt can artificially boost ROE; after all, the more debt a company has, the less shareholders' equity it has (as a percentage of total assets), and the higher its ROE is (Investing Answers). Riskier banks have more profit efficiency as the return on equity is adjusted to the risk associated with the bank [2]. Profitability ratio, especially return on equity (ROE) signals the earning capability of the organization. They also suggest that higher return on equity (ROE) ratio is appreciable as it is the primary indicator of bank's profitability and functional efficiency [3]. Banks with a more traditional banking model, however, suffered large losses as well. In particular, banks with high rates of loan growth reported a significant drop in their performance during the crisis, while the return-on-equity (ROE) of banks with the highest average rate of loan growth decreased, the ROE of banks with the lowest loan growth rates declined less steeply. Interestingly, while the profitability of banks dropped further, the ROE of banks with the lowest rates of loan growth increased [4]. Banks with higher non-interest income also have to rethink their business model, since non-interest income is highly volatile and led to large losses during the crisis. This may particularly concern large banks with substantial trading activities [5]. Banks with higher non-interest income are more risky [4].

Methodology

As our study is about finding the effect of different elements of financial statement on return on equity (ROE), we have collected the annual reports for the last year of domestic private commercial banks

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from their individual websites as secondary data. We have calculated the different factors (i.e. Assets, PAT/PBT, PBT/Income, interest margin etc.) by analyzing financial statements (i.e. Balance sheet, Profit and loss accounts) of these banks. A statistical technique 'Correlation Coefficient' is used to find out the effect of different factors on ROE. We have used some variable called x and y to identify two properties (i.e. Assets vs. ROE) and 'r' for the value of correlation coefficient. Another important source of data is through the reference to the library and analysis of different previous studies, articles, paper etc.

Theoretical Aspects of the Study

Profit margin

Profit margin, net margin, net profit margin or net profit ratio all refer to a measure of profitability. It is calculated by finding the net profit as a percentage of the revenue.

$$\text{Net profit margin} = \frac{\text{Net Profit}}{\text{Revenue}}$$

Where, Net Profit=Revenue – Cost

Profit percentage is calculated with cost price taken as basis. Profit Margin is calculated with selling price (or revenue) taken as basis. Profit Margin is the percentage of selling price that turned into profit, where as the profit percentage is the percentage of cost price that one gets as profit on top of cost price. So while selling something one should know what percentage of profit will he get on a particular investment so companies calculate profit percentage to check what is ratio of profit on the basis of cost. The profit margin is mostly used for internal comparison. It is difficult to accurately compare the net profit ratio for different entities. Individual businesses operating and financing arrangements vary so much that different entities are bound to have different levels of expenditure, so that comparison of one with another can have little meaning. A low profit margin indicates a low margin of safety: higher risk that a decline in sales will erase profits and result in a net loss, or a negative margin.

Profit Margin is an indicator of a company's pricing strategies and how well it controls costs. Differences in competitive strategy and product mix cause the profit margin to vary among different companies. Profit Margin is frequently confused with markup. It's not uncommon for entrepreneurs to erroneously claim profit margins over 100%. Most likely these entrepreneurs are referring to the markup on a product as a percentage of production cost.

Asset turnover

Asset turnover is a financial ratio that measures the efficiency of a company's use of its assets in generating sales revenue or sales income to the company. Companies with low profit margins tend to have high asset turnover, while those with high profit margins have low asset turnover. Companies in the retail industry tend to have a very high turnover ratio due mainly to cutthroat and competitive pricing.

$$\text{Asset Turnover} = \frac{\text{Net Sales Revenue}}{\text{Average Total Assets}}$$

- "Sales" is the value of "Net Sales" or "Sales" from the company's income statement
- "Average Total Assets" is the average of the values of "Total assets" from the company's balance sheet in the beginning and the end of the fiscal period. It is calculated by adding up the assets at the beginning of the period and the assets at the end of the period, then dividing that number by two.

Return on equity (ROE)

Return on equity (ROE) measures the rate of return on the ownership interest (shareholders' equity) of the common stock owners. It measures a firm's efficiency at generating profits from every unit of shareholders' equity (also known as net assets or assets minus liabilities). ROE shows how well a company uses investment funds to generate earnings growth [6]. ROEs between15% and 20% are generally considered good. ROE is sometimes called "return on net worth."

$$ROE = \frac{NI(AT)}{\text{Shareholder Equity}}$$

Net interest margin (NIM)

Net interest margin is the ratio of net interest income to invested assets. It is a measure of the difference between the interest income generated by banks or other financial institutions and the amount of interest paid out to their lenders (for example, deposits), relative to the amount of their (interest-earning) assets. It is similar to the gross margin of non-financial companies.

It is usually expressed as a percentage of what the financial institution earns on loans in a time period and other assets minus the interest paid on borrowed funds divided by the average amount of the assets on which it earned income in that time period (the average earning assets) [7,8]. Net interest margin is also known as "net yield on interest-earning assets."

The formula for net interest margin is:

Net Interest Margin=(Interest Received - Interest Paid)/Average Invested Assets

A positive net interest margin means the investment strategy pays more interest than it costs. Conversely, if net interest margin is negative, it means the investment strategy costs more than it makes. Banks are keenly interested in their net interest margins because they lend at one rate and pay depositors at another. However, comparisons between net interest margins of different banks are not always useful because the nature of each bank's lending and deposit activities varies.Net interest margin is a measure of an investing strategy's success, especially when investors are arattempting to "arbitrage" the market by borrowing at a rate that they believe is below what their potential returns will be.

Analysis of Financial Reports of Domestic Private Commercial Banks in Bangladesh

The above Table 1 shows that average Common Stocks of the banks are 13,056,962,908 and average total asset is 143,605,517,175. The amount of Gross Interest Income is more than the amount of Gross Non interest Income. So we can say that banks can earn more money from interest. From the above table the amount of profit has been decreased around 50% because of tax. The average Return on Equity of the banks is 9.55% [9-11].

In this Table 2 relationship between asset turnover and ROE is 26.95%. But this is a minimum relationship. It reflects that percentage change in asset turnover has a less impact on return on equity.

$$r(X,Y) = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^2 \sum(y-\bar{y})^2}}$$

There is a no relationship between asset and ROE, because the value of **r** do not indicate any significant effect. (Table 3).

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Name of Banks	Common Stocks	Total Assets	Revenue	G Int Inc	G N Int Inc	G Int Exp	G N Int Exp	PBT	PAT	PBT/ PAT	ROE (Y)
Mercantile bank limited	10,92,45,49,884	1,54,04,01,83,191	6,11,07,58,679	12,54,53,37,913	4,12,22,13,936	10,55,67,93,170	2,75,99,76,482	2,38,14,51,043	1,38,14,51,043	58%	12.65%
Mutual Trust Bank	4,86,31,04,870	92,80,26,85,449	3,23,18,76,161	7,62,25,25,755	2,61,44,15,757	7,00,50,65,351	2,03,42,50,810	72,72,68,214	33,86,37,975	47%	6.96%
National Bank limited	22,37,42,66,048	2,05,20,73,28,764	12,04,19,80,996	19,10,31,79,268	6,61,84,62,879	13,67,96,61,151	8,31,67,84,866	3,27,51,96,130	1,48,79,12,931	45%	6.65%
NCC Bank	12,13,58,17,151	1,25,84,15,02,821	6,17,95,87,783	11,66,87,53,555	3,93,80,48,199	9,42,72,13,971	2,15,27,67,271	2,74,27,46,033	1,43,37,61,000	52%	11.81%
One Bank Limited	7,42,35,98,376	84,58,58,83,816	4,61,96,06,818	8,55,15,18,645	1,86,67,52,482	5,79,86,64,309	2,28,42,19,252	2,06,04,28,672	1,05,54,28,672	51%	14.22%
Prime Bank Limited	20,78,70,38,905	2,36,83,30,05,579	13,49,19, 48,068	22,82,15,00,674	8,08,07,33,516	17,41,02,86,124	4,94,11,15,915	5,33,50,92,305	2,69,89,92,305	51%	12.98%
Pubali Bank Limited	18,80,47,00,020	1,92,94,79,25,396	11,51,05,38,548	16,71,87,86,874	4,05,95,80,313	12,64,79,82,518	5,37,47,37,847	4,31,70,76,044	1,76,19,18,044	41%	9.37%
Eastern Bank Limited	17,10,93,39,472	1,47,14,83,34,316	8,84,43,87,640	13,69,82,22,818	4,03,02,65,462	8,88,41,00,640	3,26,30,72,914	4,21,96,14,091	2,27,51,00,710	54%	13.30%
Jamuna Bank Limited	8,33,48,28,914	1,09,67,85,08,742	5,28,51,19,972	9,62,66,77,157	3,44,59,24,970	7,78,74,83,156	2,07,82,20,449	2,08,05,20,961	1,04,20,52,580	50%	12.50%
South East Bank Limited	19,80,32,11,889	1,89,78,75,08,240	7,70,55,16,401	17,36,89,28,608	5,63,91,39,878	15,30,25,52,085	2,27,16,43,377	3,58,40,88,389	1,66,00,77,004	46%	8.38%
The City Bank Limited	17,96,14,26,871	1,30,18,56,31,812	8,56,01,22,527	12,44,29,64,209	3,79,00,45,612	7,67,28,87,094	3,99,28,65,850	1,76,27,35,156	76,27,35,156	43%	4.25%
Exim Bank Limited	16,64,18,56,132	1,67,05,66,26,119	8,08,56,95,679	17,26,93,24,953	3,08,81,60,230	12,27,17,89,204	2,75,13,49,850	3,68,84,49,279	2,15,76,31,285	58%	12.97%
The Premier Bank Limited	7,16,14,29,806	81,73,62,46,380	3,77,44,17,562	8,29,31,82,522	2,08,48,20,002	6,60,35,84,962	2,95,13,06,180	91,98,15,981	60,83,24,697	66%	8.49%
Standard Bank Limited	8,22,44,00,013	93,89,59,73,233	4,26,27,92,897	9,49,49,49,262	1,97,74,89,314	7,20,96,45,679	1,41,70,35,519	2,47,28,90,796	1,21,63,95,211	49%	14.79%
Trust Bank Limited	6,51,28,90,952	95,26,07,78,173	3,00,08,41,723	8,34,37,84,809	1,71,07,78,941	7,05,37,22,027	1,84,34,09,678	69,38,25,134	18,26,99,290	26%	2.81%
AB Bank Limited	16,03,38,05,870	1,73,84,24,27,785	8,43,49,44,888	15,71,40,06,609	5,31,24,38,455	12,59,15,00,175	4,07,19,16,777	3,19,02,85,969	1,43,85,37,814	45%	8.97%
Bank Asia Limited	13,04,51,70,346	1,40,36,13,74,568	7,82,06,75,848	13,29,60,56,631	4,14,09,68,550	9,61,63,49,333	2,76,88,70,672	2,72,29,96,995	90,79,96,995	33%	6.96%
Brac Bank Limited	10,15,45,48,552	1,73,67,67,92,029	10,89,48,01,767	16,71,35,68,904	4,37,66,33,935	10,19,54,01,072	5,74,96,05,760	1,98,79,29,120	54,03,81,091	27%	5.32%
Dhaka Bank limited	9,78,63,11,177	1,33,61,61,09,915	5,61,43,59,565	13,36,88,63,531	2,84,39,38,959	10,59,84,42,925	2,17,91,24,169	1,59,40,89,683	78,86,29,626	49%	8.06%
Average	13,05,69,62,908	1,43,60,55,17,175	7,34,05,24,922	13,40,32,70,142	3,88,10,95,336	10,12,17,43,418	3,32,64,35,455	2,61,87,63,158	1,24,94,03,338	47.04%	9.55%

Table 1: Financial Reports of Banks in Bangladesh.

SL	Revenue	Total Assets	Rev/TA (X)	ROE (Y)	X-X'	Y-Y'	(X- X')(Y-Y')	(X- X')^2	(Y-Y')^2
1	6,11,07,58,679	1,54,04,01,83,191	3.97%	12.65%	-1.03%	3.10%	-0.03%	0.01%	0.10%
2	3,23,18,76,161	92,80,26,85,449	3.48%	6.96%	-1.51%	-2.59%	0.04%	0.02%	0.07%
3	12,04,19,80,996	2,05,20,73,28,764	5.87%	6.65%	0.88%	-2.90%	-0.03%	0.01%	0.08%
4	6,17,95,87,783	1,25,84,15,02,821	4.91%	11.81%	-0.08%	2.26%	0.00%	0.00%	0.05%
5	4,61,96,06,818	84,58,58,83,816	5.46%	14.22%	0.47%	4.67%	0.02%	0.00%	0.22%
6	13,49,19,48,068	2,36,83,30,05,579	5.70%	12.98%	0.70%	3.43%	0.02%	0.00%	0.12%
7	11,51,05,38,548	1,92,94,79,25,396	5.97%	9.37%	0.97%	-0.18%	0.00%	0.01%	0.00%
8	8,84,43,87,640	1,47,14,83,34,316	6.01%	13.30%	1.02%	3.75%	0.04%	0.01%	0.14%
9	5,28,51,19,972	1,09,67,85,08,742	4.82%	12.50%	-0.17%	2.95%	-0.01%	0.00%	0.09%
10	7,70,55,16,401	1,89,78,75,08,240	4.06%	8.38%	-0.93%	-1.17%	0.01%	0.01%	0.01%
11	8,56,01,22,527	1,30,18,56,31,812	6.58%	4.25%	1.58%	-5.30%	-0.08%	0.03%	0.28%
12	8,08,56,95,679	1,67,05,66,26,119	4.84%	12.97%	-0.15%	3.42%	-0.01%	0.00%	0.12%
13	3,77,44,17,562	81,73,62,46,380	4.62%	8.49%	-0.38%	-1.06%	0.00%	0.00%	0.01%
14	4,26,27,92,897	93,89,59,73,233	4.54%	14.79%	-0.45%	5.24%	-0.02%	0.00%	0.27%
15	3,00,08,41,723	95,26,07,78,173	3.15%	2.81%	-1.84%	-6.74%	0.12%	0.03%	0.45%
16	8,43,49,44,888	1,73,84,24,27,785	4.85%	8.97%	-0.14%	-0.58%	0.00%	0.00%	0.00%
17	7,82,06,75,848	1,40,36,13,74,568	5.57%	6.96%	0.58%	-2.59%	-0.01%	0.00%	0.07%
18	10,89,48,01,767	1,73,67,67,92,029	6.27%	5.32%	1.28%	-4.23%	-0.05%	0.02%	0.18%
19	5,61,43,59,565	1,33,61,61,09,915	4.20%	8.06%	-0.79%	-1.49%	0.01%	0.01%	0.02%
			Σ	Σ					
			94.86%	181.44%					
			X'	Y'			Σ	Σ	Σ
			4.99%	9.55%			0.03%	0.17%	2.29%
								r=26.95%	

Table 2: Impact of asset turnover on ROE.

SL	Total Assets (X)	ROE (Y)	X-X'	Y-Y'	(X-X')(Y-Y')	(X-X')^2	(Y-Y')^2
1	1,54,04,01,83,191	12.65%	10,43,46,66,015.84	3.10%	32,35,29,565.79	10,88,82,25,48,62,17,00,00,000	0.10%
2	92,80,26,85,449	6.96%	-50,80,28,31,726.16	-2.59%	1,31,55,25,958.38	2,58,09,27,71,13,96,32,00,00,000	0.07%
3	2,05,20,73,28,764	6.65%	61,60,18,11,588.84	-2.90%	-1,78,61,28,316.02	3,79,47,83,19,10,27,20,00,00,000	0.08%
4	1,25,84,15,02,821	11.81%	-17,76,40,14,354.16	2.26%	-40,15,60,219.22	31,55,60,20,59,74,72,80,00,000	0.05%
5	84,58,58,83,816	14.22%	-59,01,96,33,359.16	4.67%	-2,75,65,27,507.52	3,48,33,17,12,18,49,42,00,00,000	0.22%
6	2,36,83,30,05,579	12.98%	93,22,74,88,403.84	3.43%	3,19,81,93,523.24	8,69,13,64,59,40,88,51,00,00,000	0.12%
7	1,92,94,79,25,396	9.37%	49,34,24,08,220.84	-0.18%	-8,85,56,637.91	2,43,46,73,24,90,32,23,00,00,000	0.00%
8	1,47,14,83,34,316	13.30%	3,54,28,17,140.84	3.75%	13,28,74,289.19	1,25,51,55,32,93,44,46,00,000	0.14%
9	1,09,67,85,08,742	12.50%	-33,92,70,08,433.16	2.95%	-1,00,10,25,311.98	1,15,10,41,90,12,23,57,00,00,000	0.09%
10	1,89,78,75,08,240	8.38%	46,18,19,91,064.84	-1.17%	-54,00,86,232.35	2,13,27,76,29,87,13,16,00,00,000	0.01%
11	1,30,18,56,31,812	4.25%	-13,41,98,85,363.16	-5.30%	71,11,83,293.27	18,00,93,32,31,60,30,00,00,000	0.28%
12	1,67,05,66,26,119	12.97%	23,45,11,08,943.84	3.42%	80,21,51,352.77	54,99,54,51,06,95,95,10,00,000	0.12%
13	81,73,62,46,380	8.49%	-61,86,92,70,795.16	-1.06%	65,54,88,642.69	3,82,78,06,66,87,24,58,00,00,000	0.01%
14	93,89,59,73,233	14.79%	-49,70,95,43,942.16	5.24%	-2,60,50,41,731.75	2,47,10,38,75,89,37,33,00,00,000	0.27%
15	95,26,07,78,173	2.81%	-48,34,47,39,002.16	-6.74%	3,25,81,80,962.75	2,33,72,13,78,91,86,77,00,00,000	0.45%
16	1,73,84,24,27,785	8.97%	30,23,69,10,609.84	-0.58%	-17,52,14,939.90	91,42,70,76,32,27,58,20,00,000	0.00%
17	1,40,36,13,74,568	6.96%	-3,24,41,42,607.16	-2.59%	8,40,06,219.09	1,05,24,46,12,55,57,72,00,000	0.07%
18	1,73,67,67,92,029	5.32%	30,07,12,74,853.84	-4.23%	-1,27,18,56,656.45	90,42,81,57,13,35,31,60,00,000	0.18%
19	1,33,61,61,09,915	8.06%	-9,98,94,07,260.16	-1.49%	14,87,89,592.35	9,97,88,25,74,09,29,53,00,000	0.18%
	Σ	Σ					
	27,28,50,48,26,328	181.44%					
	X'	Y'			Σ	Σ	Σ
	1,43,60,55,17,175	9.55%			39,25,846.42	36,00,08,50,18,53,93,40,00,00,000	2.29%
						r =	0.01%

Table 3: Impact of Asset on ROE.

SL	Name of Banks	Asset/Equity (X)	ROE (Y)	X-X'	Y-Y'	(X-X')(Y-Y')	square of (X-X')	square of (Y-Y')
1	Mercantile bank limited	14.1	12%	217.20%	1.90%	4.12%	471.76%	0.04%
2	Mutual Trust Bank	19.08	6.96%	715.20%	-3.14%	-22.49%	5115.11%	0.10%
3	National Bank Limited	9.17	6.65%	-275.80%	-3.45%	9.53%	760.66%	0.12%
4	NCC Bank	10.37	11.81%	-155.80%	1.71%	-2.66%	242.74%	0.03%
5	ONE Bank Limited	11.39	14.22%	-53.80%	4.12%	-2.21%	28.94%	0.17%
6	Prime Bank Limited	11.39	12.98%	-53.80%	2.88%	-1.55%	28.94%	0.08%
7	Pubali Bank Limited	10.26	9.37%	-166.80%	-0.73%	1.23%	278.22%	0.01%
8	Eastern Bank Limited	8.6	13.30%	-332.80%	3.20%	-10.63%	1107.56%	0.10%
9	Jamuna Bank Limited	13.16	12.50%	123.20%	2.40%	2.95%	151.78%	0.06%
10	Southeast Bank Limited	9.58	8.38%	-234.80%	-1.72%	4.05%	551.31%	0.03%
11	The City Bank Limited	7.25	4.25%	-467.80%	-5.85%	27.39%	2188.37%	0.34%
12	EXIM Bank Limited	10.04	12.97%	-188.80%	2.87%	-5.41%	356.45%	0.08%
13	The Premier Bank Limited	11.41	8.49%	-51.80%	-1.61%	0.84%	26.83%	0.03%
14	Standard Bank Limited	11.42	14.79%	-50.80%	4.69%	-2.38%	25.81%	0.22%
15	TRUST BANK LIMITED	14.63	2.81%	270.20%	-7.29%	-19.71%	730.08%	0.53%
16	AB Bank Limited	10.84	8.97%	-108.80%	-1.13%	1.23%	118.37%	0.01%
17	Bank Asia Limited	10.76	6.96%	-116.80%	-3.14%	3.67%	136.42%	0.10%
18	BRAC Bank Limited	17.1	5.32%	517.20%	-4.78%	-24.75%	2674.96%	0.23%
19	Dutch-Bangla Bank Limited	14.36	21.30%	243.20%	11.20%	27.23%	591.46%	1.25%
20	Dhaka Bank Limited	13.65	8.06%	172.20%	-2.04%	-3.52%	296.53%	0.04%
		X'	Y'			SUM of (X-X')(Y-Y')	SUM of (X-X')square	SUM of (Y-Y')square
		11.93	10.10%			-13.08%	15882.31%	3.57%
							r=-5.49%	

Table 4: Impact of Asset/Equity on ROE.

In the above Table 4 shows that there is no relationship between (asset/equity)and return on equity because there is a negative value.It means that these two properties are different [12].

$$r(X,Y) = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^2 \sum(y-\bar{y})^2}}$$

In the above Table 5, we have figured out the interest margin by deducting gross interest expense from gross interest income and divided net interest income by total asset. We can see that there is a less relationship between the ratio of interest margin and ROE.

$$r(X,Y) = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^2 \sum(y-\bar{y})^2}}$$

In the above Table 6, we have figured out the non-interest margin

Sl no.	Name of Banks	Interest Margin (X)	ROE (Y)	X-X'	Y-Y'	(X-X')(Y-Y')	square of (X-X')	square of (Y-Y')
1	Mercantile bank limited	1.29%	12%	-1.04%	1.90%	-0.02%	0.01%	0.04%
2	Mutual Trust Bank	0.67%	6.96%	-1.66%	-3.14%	0.05%	0.03%	0.10%
3	National Bank Limited	2.64%	6.65%	0.31%	-3.45%	-0.01%	0.00%	0.12%
4	NCC Bank	1.78%	11.81%	-0.55%	1.71%	-0.01%	0.00%	0.03%
5	ONE Bank Limited	3.25%	14.22%	0.92%	4.12%	0.04%	0.01%	0.17%
6	Prime Bank Limited	2.28%	12.98%	-0.05%	2.88%	0.00%	0.00%	0.08%
7	Pubali Bank Limited	2.11%	9.37%	-0.22%	-0.73%	0.00%	0.00%	0.01%
8	Eastern Bank Limited	3.27%	13.30%	0.94%	3.20%	0.03%	0.01%	0.10%
9	Jamuna Bank Limited	1.68%	12.50%	-0.65%	2.40%	-0.02%	0.00%	0.06%
10	Southeast Bank Limited	1.09%	8.38%	-1.24%	-1.72%	0.02%	0.02%	0.03%
11	The City Bank Limited	3.66%	4.25%	1.33%	-5.85%	-0.08%	0.02%	0.34%
12	EXIM Bank Limited	2.99%	12.97%	0.66%	2.87%	0.02%	0.00%	0.08%
13	The Premier Bank Limited	2.07%	8.49%	-0.26%	-1.61%	0.00%	0.00%	0.03%
14	Standard Bank Limited	2.43%	14.79%	0.10%	4.69%	0.00%	0.00%	0.22%
15	TRUST BANK LIMITED	1.35%	2.81%	-0.98%	-7.29%	0.07%	0.01%	0.53%
16	AB Bank Limited	1.80%	8.97%	-0.53%	-1.13%	0.01%	0.00%	0.01%
17	Bank Asia Limited	2.62%	6.96%	0.29%	-3.14%	-0.01%	0.00%	0.10%
18	BRAC Bank Limited	3.75%	5.32%	1.42%	-4.78%	-0.07%	0.02%	0.23%
19	Dutch-Bangla Bank Limited	4.49%	21.30%	2.16%	11.20%	0.24%	0.05%	1.25%
20	Dhaka Bank Limited	1.39%	8.06%	-0.94%	-2.04%	0.02%	0.01%	0.04%
		X'	Y'			SUM of (X-X')(Y-Y'	SUM of (X-X')square	SUM of (Y-Y')square
		2.33%	0.10%			0.30%	0.19%	3.57%
							r=36.01%	

Table 5: Impact of Interest Margin on ROE.

Sl no.	Name of Banks	Non Interest Margin (X)	ROE (Y)	X-X'	Y-Y'	(X-X')(Y-Y')	square of (X-X')	
1	Mercantile bank limited	0.88%	12%	0.61%	1.90%	0.01%	0.00%	0.04%
2	Mutual Trust Bank	0.63%	6.96%	0.36%	-3.14%	-0.01%	0.00%	0.10%
3	National Bank Limited	-0.83%	6.65%	-1.10%	-3.45%	0.04%	0.01%	0.12%
4	NCC Bank	1.42%	11.81%	1.15%	1.71%	0.02%	0.01%	0.03%
5	ONE Bank Limited	-0.49%	14.22%	-0.76%	4.12%	-0.03%	0.01%	0.17%
6	Prime Bank Limited	1.33%	12.98%	1.06%	2.88%	0.03%	0.01%	0.08%
7	Pubali Bank Limited	-0.68%	9.37%	-0.95%	-0.73%	0.01%	0.01%	0.01%
8	Eastern Bank Limited	0.52%	13.30%	0.25%	3.20%	0.01%	0.00%	0.10%
9	Jamuna Bank Limited	1.25%	12.50%	0.98%	2.40%	0.02%	0.01%	0.06%
10	Southeast Bank Limited	1.77%	8.38%	1.50%	-1.72%	-0.03%	0.02%	0.03%
11	The City Bank Limited	-0.16%	4.25%	-0.43%	-5.85%	0.02%	0.00%	0.34%
12	EXIM Bank Limited	0.20%	12.97%	-0.07%	2.87%	0.00%	0.00%	0.08%
13	The Premier Bank Limited	-1.06%	8.49%	-1.33%	-1.61%	0.02%	0.02%	0.03%
14	Standard Bank Limited	0.60%	14.79%	0.33%	4.69%	0.02%	0.00%	0.22%
15	TRUST BANK LIMITED	-0.14%	2.81%	-0.41%	-7.29%	0.03%	0.00%	0.53%
15	AB Bank Limited	0.71%	8.97%	0.44%	-1.13%	-0.01%	0.00%	0.01%
16	Bank Asia Limited	0.98%	6.96%	0.71%	-3.14%	-0.02%	0.01%	0.10%
17	BRAC Bank Limited	-0.79%	5.32%	-1.06%	-4.78%	0.05%	0.01%	0.23%
18	Dutch-Bangla Bank Limited	-1.15%	21.30%	-1.42%	11.20%	-0.16%	0.02%	1.25%
19	Dhaka Bank Limited	0.33%	8.06%	0.06%	-2.04%	0.00%	0.00%	0.04%
		X'	Y'			SUM of (X-X')(Y-Y')	SUM of (X-X')square	SUM of (Y-Y')square
		0.27%	10.10%			0.02%	0.15%	3.57%
							r=3.12%	

Table 6: Impact of non interest margin on ROE.

Citation: Faisal FE, Khan SA, Miah J (2018) Impact of Different Elements on ROE of Banks. J Hotel Bus Manage 7: 182. doi: 10.4172/2169-0286.1000182

by deducting gross non-interest expense from gross non-interest income and divided net non-interest income by total asset. We can see that there is a less relationship between the ratio of non-interest margin and ROE [13].

$$r(X,Y)=\frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^2\sum(y-\bar{y})^2}}$$

The above Table 7 indicates that there is a large impact of PBT/income on ROE. So, when PBT/Revenue ratio changes, as a result return on equity also changes more positively. There is a more positive or strong relationship between these two properties.

$$r(X,Y)=\frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^2\sum(y-\bar{y})^2}}$$

From this Table 8 we can conclude that the relationship between

Sl no.	Name of Banks	PBT/Revenue (X)	ROE (Y)	X-X'	Y-Y'	(X-X')(Y-Y')	square of (X-X')	square of (Y-Y')
1	Mercantile bank limited	38.97%	12%	2.87%	1.90%	0.05%	0.08%	0.04%
2	Mutual Trust Bank	22.50%	6.96%	-13.60%	-3.14%	0.43%	1.85%	0.10%
3	National Bank Limited	27.20%	6.65%	-8.90%	-3.45%	0.31%	0.79%	0.12%
4	NCC Bank	44.38%	11.81%	8.28%	1.71%	0.14%	0.69%	0.03%
5	ONE Bank Limited	44.60%	14.22%	8.50%	4.12%	0.35%	0.72%	0.03%
6	Prime Bank Limited	39.54%	12.98%	3.44%	2.88%	0.10%	0.02%	0.08%
7	Pubali Bank Limited	37.51%	9.37%	1.41%	-0.73%	-0.01%	0.02%	0.01%
8	Eastern Bank Limited	47.71%	13.30%	11.61%	3.20%	0.37%	1.35%	0.10%
9	Jamuna Bank Limited	39.37%	12.50%	3.27%	2.40%	0.08%	0.11%	0.06%
10	Southeast Bank Limited	46.51%	8.38%	10.41%	-1.72%	-0.18%	1.08%	0.03%
11	The City Bank Limited	20.59%	4.25%	-15.51%	-5.85%	0.91%	2.40%	0.34%
12	EXIM Bank Limited	45.62%	12.97%	9.52%	2.87%	0.27%	0.91%	0.08%
13	The Premier Bank Limited	24.37%	8.49%	-11.73%	-1.61%	0.19%	1.38%	0.03%
14	Standard Bank Limited	58.01%	14.79%	21.91%	4.69%	1.03%	4.80%	0.22%
15	TRUST BANK LIMITED	23.12%	2.81%	-12.98%	-7.29%	0.95%	0.03%	0.53%
16	AB Bank Limited	37.82%	8.97%	1.72%	-1.13%	-0.02%	0.03%	0.01%
17	Bank Asia Limited	34.82%	6.96%	-1.28%	-3.14%	0.04%	0.02%	0.10%
18	BRAC Bank Limited	18.25%	5.32%	-17.85%	-4.78%	0.85%	3.19%	0.23%
19	Dutch-Bangla Bank Limited	42.67%	21.30%	6.57%	11.20%	0.74%	0.43%	1.25%
20	Dhaka Bank Limited	28.39%	8.06%	-7.71%	-2.04%	0.16%	0.59%	1.25%
		X'	Y'			SUM of (X-X')(Y-Y')	SUM of (X-X')square	SUM of (Y-Y')square
		36.10%	10.10%			6.75%	22.24%	3.57%
							r =	75.78%

Table 7: Impact of PBT/Revenue ration ROE.

Sl no.	Name of Banks	PAT/PBT	ROE (Y)	X-X'	Y-Y'	(X-X')(Y-Y')	square of (X-X')	square of (Y-Y')
1	Mercantile bank limited	58.00%	12%	11.05%	1.90%	0.21%	1.22%	0.04%
2	Mutual Trust Bank	47.00%	6.96%	0.05%	-3.14%	0.00%	0.00%	0.10%
3	National Bank Limited	45.00%	6.65%	-1.95%	-3.45%	0.07%	0.04%	0.12%
4	NCC Bank	52.00%	11.81%	5.05%	1.71%	0.09%	0.26%	0.03%
5	ONE Bank Limited	51.00%	14.22%	4.05%	4.12%	0.17%	0.16%	0.17%
6	Prime Bank Limited	51.00%	12.98%	4.05%	2.88%	0.12%	0.16%	0.08%
7	Pubali Bank Limited	41.00%	9.37%	-5.95%	-0.73%	0.04%	0.35%	0.01%
8	Eastern Bank Limited	54.00%	13.30%	7.05%	3.20%	0.23%	0.50%	0.10%
9	Jamuna Bank Limited	50.00%	12.50%	3.05%	2.40%	0.07%	0.09%	0.06%
10	Southeast Bank Limited	46.00%	8.38%	-0.95%	-1.72%	0.02%	0.01%	0.03%
11	The City Bank Limited	43.00%	4.25%	-3.95%	-5.85%	0.23%	0.16%	0.34%
12	EXIM Bank Limited	58.00%	12.97%	11.05%	2.87%	0.32%	1.22%	0.08%
13	The Premier Bank Limited	66.00%	8.49%	19.05%	-1.61%	-0.31%	3.63%	0.03%
14	Standard Bank Limited	49.00%	14.79%	2.05%	4.69%	0.10%	0.04%	0.22%
15	TRUST BANK LIMITED	26.00%	2.81%	-20.95%	-7.29%	1.53%	4.39%	0.53%
16	AB Bank Limited	45.00%	8.97%	-1.95%	-1.13%	0.02%	0.04%	0.01%
17	Bank Asia Limited	33.00%	6.96%	-13.95%	-3.14%	0.44%	1.95%	0.10%
18	BRAC Bank Limited	27.00%	5.32%	-19.95%	-4.78%	0.95%	3.98%	0.23%
19	Dutch-Bangla Bank Limited	48.00%	21.30%	1.05%	11.20%	0.12%	0.01%	1.25%
20	Dhaka Bank Limited	49.00%	8.06%	2.05%	-2.04%	-0.04%	0.04%	0.04%
		X'	Y'			SUM of (X-X')(Y-Y')	SUM of (X-X')square	SUM of (Y-Y')square
		46.95%	10.10%			4.36%	18.25%	3.57%
							r =	54.01%

Table 8: Impact of Tax ratio on ROE.

Sl no.	Name of Banks	Non Interest Income	Non Interest Expense	Operating income	Ratio of Net Non Interest Income
1	Mercantile bank limited	4,12,22,13,936	2,75,99,76,482	6,11,07,58,679	22.29%
2	Mutual Trust Bank	2,61,44,15,757	2,03,42,50,810	3,23,18,76,161	17.95%
3	National Bank Limited	6,61,84,62,879	8,31,67,84,866	12,04,19,80,996	-14.10%
4	NCC Bank	3,93,80,48,199	2,15,27,67,271	6,17,95,87,783	28.89%
5	ONE Bank Limited	1,86,67,52,482	2,28,42,19,252	4,61,96,06,818	-9.04%
6	Prime Bank Limited	8,08,07,33,516	4,94,11,15,915	13,49,19,48,068	23.27%
7	Pubali Bank Limited	4,05,95,80,313	5,37,47,37,847	11,51,05,38,548	-11.43%
8	Eastern Bank Limited	4,03,02,65,462	3,26,30,72,914	8,84,43,87,640	8.67%
9	Jamuna Bank Limited	3,44,59,24,970	2,07,82,20,449	5,28,51,19,972	25.88%
10	Southeast Bank Limited	5,63,91,39,878	2,27,16,43,377	7,70,55,16,401	43.70%
11	The City Bank Limited	3,79,00,45,612	3,99,28,65,850	8,56,01,22,527	-2.37%
12	EXIM Bank Limited	3,08,81,60,230	2,75,13,49,850	8,08,56,95,679	4.17%
13	The Premier Bank Limited	2,08,48,20,002	2,95,13,06,180	3,77,44,17,562	-22.96%
14	Standard Bank Limited	1,97,74,89,314	1,41,70,35,519	4,26,27,92,897	13.15%
15	TRUST BANK LIMITED	1,71,07,78,941	1,84,34,09,678	3,00,08,41,723	-4.42%
16	AB Bank Limited	5,31,24,38,455	4,07,19,16,777	8,43,49,44,888	14.71%
17	Bank Asia Limited	4,14,09,68,550	2,76,88,70,672	7,82,06,75,848	17.54%
18	BRAC Bank Limited	4,37,66,33,935	5,74,96,05,760	10,89,48,01,767	-12.60%
19	Dutch-Bangla Bank Limited	4,28,83,56,845	6,08,36,14,335	11,28,84,49,239	-15.90%
20	Dhaka Bank Limited	2,84,39,38,959	2,17,91,24,169	5,61,43,59,565	11.84%

Table 9: Impact of Net Non-Interest Income on ROE.

tax ratio and return on equity (ROE) is positive. Because the ratio of correlation is about 54%, it has a good effect in the ROE (Table 9).

$$r(X,Y)=\frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^2\sum(y-\bar{y})^2}}$$

Findings and Conclusion

After the data analyses we came to know some valuable information about the impact of different factors of financial statement on ROE. In our study, we have found that the average ROE of domestic private commercial banks is 10.10%. Most of the elements of financial statements, we have taken into consideration have a positive effect on ROE. But some of the elements have negative effects on ROE. Among the elements we have examined the PBT/Revenue ratio showed maximum positive effect on ROE where the correlation coefficient is 75.78%. So we can say that this is the most important factor to get a higher ROE. Tax ratio also showed significant effects on the ROE as the correlation coefficient is 54.01%. It means that efficiency in tax ratio leads to efficiency in ROE. The bank, which is subject to less tax shows better ROE. Asset turnover and interest margin showed positive effect which is less in percentage (32.73% and 36.65% respectively). So these factors have minimum effect on ROE. Asset, Asset/Equity ratio and Non interest margin have no significant effect on ROE.

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