Financial Performance of Palestinian Commercial Banks

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Abstract

The purpose of this study is to empirically examine the financial performance of five Palestinian commercial banks listed on Palestine securities exchange (PEX). In this paper, Financial performance has been measured by using three indicators; Internal–based performance measured by Return on Assets, Market-based performance measured by Tobin's Q model (Price / Book value of Equity) and Economic–based performance measured by Economic Value add. The study employed the correlation and multiple regression analysis of annual time series data from 2005-2010 to capture the impact of bank size, credit risk, operational efficiency and asset management on financial performance measured by the three indicators, and to create a good-fit regression model to predict the future financial performance of these banks. The study rejected the hypothesis claiming that "there exist statistically insignificant impact of bank size, credit risk, operational efficiency and asset management on financial performance of Palestinian commercial banks".

Key words: Financial Performance, Tobin's Q ratio, Economic Value add, Operational Efficiency, Asset management, Credit Risk.

1. Introduction

The banking sector is considered to be an important source of financing for most businesses. The common assumption, which underpins much of the financial performance research and discussion, is that increasing financial performance will lead to improved functions and activities of the organizations. The subject of financial performance and research into its measurement is well advanced within finance and management fields. It can be argued that there are some principal factors to improve financial performance for financial institutions: the bank's size, its assets management, leverage ratio, operational efficiency ratio, its portfolio composition, and credit risk. The motivation of conducting this research stems from that few studies have examined this issue or tried to better explain the performance of Palestinian commercial banks, those studies tend to use traditional financial ratio analysis and benchmarking to measure banks' performance, therefore a comprehensive performance analysis framework that entails profitability and risk needs to be developed to go beyond the traditional ratio analysis.

2. Related Literature

2.1 Measuring banking Financial Performance

As it known in accounting literature, there are limitations associated with the use of financial ratios, in that ratio analysis is retrospective not prospective examination and it based on accounting rather than economic data. However, in this paper, ROA along with price to book value (Tobin's Q model) and economic value add are used as performance proxy measures. Bank's size, Asset management, operational efficiency and credit risk are used as independent variables to capture their impact on the financial performance of Palestinian commercial banks.

"Beyond ROE, how to measure bank performance,2010" is a study conducted by the European Central bank in September to analyze performance in terms of banks' capacity to generate sustainable profitability . The study favored using the ROA, market –based performance such as P/B ratio, and Economic-based performance rather than using ROE; as ROE give limited insight about the bank profitability and performance.

The study concluded that a comprehensive performance analysis should go beyond traditional measures and should employ more forward-looking proxies while taking into account risk and profitability. (Spathis, and Doumpos, 2002) investigated the effectiveness of Greek banks based on their assets size. They used in their study a multi criteria methodology to classify Greek banks according to the return and operation factors. (Chien Ho, and Song Zhu, 2004) showed in their study that most previous studies concerning company performance evaluation focus merely on operational efficiency evaluation and operational effectiveness which directly influence the survival of a company. By using an innovative two-stage data envelopment analysis model in their study, the empirical result of this study is that a company with better efficiency doesn't always mean that it has better effectiveness. A paper in the title of efficiency, customer service and financial performance among Australian financial institutions (Elizabith Duncan, and Elliott, 2004) showed that all financial performance measures as interest margins, return on assets, and capital adequacy are positively correlated with customer service quality scores.

Many researchers have been too much focus on asset and liability management in the banking sector, (Arzu Tektas, and Gunay, 2005) discussed the asset and liability management in financial crisis. They argued that an efficient asset-liability management requires maximizing bank's profit as well as controlling and lowering various risk, and their study showed how shifts in market perceptions can create trouble during crisis. (Medhat Tarawaneh, 2006) used multiple regression analysis and correlations to test the financial performance of Omani Commercial banks. He used the ROA and the interest income as performance proxies (dependent variables), and the bank size, the asset management and the operational efficiency as independent variables. He found positive strong correlation between financial performance and operational efficiency and a moderate correlation between ROA and bank size, in the meanwhile, in his ANVOVA analysis, he found that there exist an impact of those independent variables on the financial performance as the F-stat is significant and below the 5%.

(Al-Obaidan, 2008) suggests that large banks are more efficient than small banks in the Gulf region. (Tarawneh, 2006) found that the bank with higher total capital, deposits, credits, or total assets does not always mean that has better profitability performance. Financial performance of the banks was strongly and positively influenced by the operational efficiency and asset management, in addition to the bank size.

(Ahmad Almazari, 2011), studied the financial performance of seven Jordanian commercial banks. He used the ROA as a measure of banks' performance and the bank size, asset management and operational efficiency as three independent variables affecting ROA. The results of his analysis revealed a strong negative correlation between ROA and banks' size, a strong positive correlation between ROA and asset management ratio, and a negative weak correlation between ROA and operational efficiency.
(Khizer Ali, Muhammad Akhtar and Hafiz Ahmed, 2011**)** conducted a comprehensive study about banks' profitability in Pakistan, where they found significant relation between asset management ratio, capital and economic growth and with ROA. While they found that operating efficiency, asset management and economic growth are significant with the ROE.

(Muhammad Sidqui and Adnan Shoaib, 2011) found in their study "Measuring performance through capital structure in Pakistan "that size of the bank played a significant role in determining the profitability of the bank measured by ROE. They used also the Tobin's Q model as a proxy of determining banks performance while they found that Tobin's Q is affected by the size of the bank, the leverage ratio and Investments carried out by the bank.

2.2 Banking Sector in Palestine

Eighteen banks operated in Palestine at the end of 2010 with a total of 212 branches and offices, 170 in the West Bank and 42 in the Gaza Strip. Eight banks are locally owned (seven of which are listed on the Palestine Exchange, five are commercial banks, the other two are Islamic banks.) and operate 110 branches and offices. Ten foreign banks maintain 102 branches. The banking sector employed 4,679 staff, 2,331 in local banks and 2,348 in foreign banks. (PEX companies guide, 2010).

Summary of Aggregated budgetary items of banks operating in Palestine, 2010
Figures in million Dollars*

Item	All banks	Foreign banks	National banks
Net Assets	8,608	5,369	3,238
Paid-in Capital	809	448	361
Equity	1,096	651	445
Net income	142	104	38
Total Deposits	7,235	4,557	2,677
Net Direct facilities	2,825	1,641	1,184
Investments	923	461	461

* Source: Palestine securities exchange (PEX) companies guide, 2010.

Based on the above literature, we can conclude that almost no prior studies examined the effect of bank size, credit risk, asset management and operational efficiency on financial performance of Palestinian commercial banks. Most of the previous studies were statistically descriptive and using comparative ratio analysis. Other kind of commercial banks studies in Palestine were targeted at describing the quality of the banking services.

2.3 Hypothesis Development

In developing the hypothesis, our main goal is to find whether there exist significant impact between each independent variable and the dependent variable, and to assess the significance impact of the independent variables used together on the dependent variable(s), the null and alternative hypothesis are:

1- **H0**: there exist an insignificant impact of size, credit risk, asset management and operational efficiency on financial performance of Palestinian commercial banks.
2- **H1:** there exist a significant impact of size, credit risk, asset management and operational efficiency on financial performance of Palestinian commercial banks.

3. Methodology and Research Design

3.1 Sample of the study

The sample of the study consists of the five Palestinian commercial banks listed on Palestine securities exchange. Annual Time series data for independent- dependent variables were extracted from banks' annual audited financial statements from the period 2005-2010. While other key relevant data were obtained from the Guide of listed Palestinian companies. "See Appendix 1".

List of the commercial banks listed in PEX with key figures in 2010
Figures in Million dollars*

Bank name	Total assets	Total Liabilities	Credit Facilities	Total Deposits	Market CAP	Net Profit
Bank of Palestine (BOP)	**1,545**	**1,381**	**545**	**1,251**	**340**	**30**
Quds bank	**265**	**214**	**198**	**190**	**59**	**4**
Palestine Commercial bank	**171**	**143**	**42**	**137**	**21**	**2**
Palestine Investment bank	**426**	**363**	**95**	**366**	**50**	**1**
Al-Rafah Micro-finance bank	**158**	**129**	**42**	**118**	**20**	**0.2**

*source: Annual – Audit financial statements of the banks

3.2 Regression models

To assess the financial performance of the Palestinian commercial banks, we developed three models; each consists of one dependent variable and four identical independent variables. In designing the models with the help of SPSS 17, we used the ROA as an internal financial performance indicator, the Tobin's Q model (Price / Book) as a market financial performance indicator and finally the Economic value add as an economic financial performance indicator.

The table below shows the variables:

Dependent Variables	Description	Independent Variables	Description
ROA	Net Income / Total Assets	**Bank Size**	LOG (Total Assets)
Tobin's Q	Market value of bank / Book Value of equity	**Credit Risk (CR)**	Reserves for doubtful loans / Credit facilities
Economic Value add	Net Operating Profit After Taxes (NOPAT) - (Capital * Cost of Capital).	**Operational Efficiency (OE)**	Total operating expense / net interest income
		Asset management (AM)	Operating income / total assets

The motive for choosing these variables is that they have been widely used in most recent studies; such as the report of the European central bank and other studies discussed in the above-literature review.

4. Data Analysis and Results

4.1 Correlation and regression Results for model I

Referring to the correlation matrix (see Appendix) table 2, we find

- A strong positive correlation between the dependent variable ROA and the independent variable banks' size measured by the Logarithm of total assets of about (+ **0.624).**
- A negative correlation was found between ROA and Credit Risk (**-0.339**).
- Operational efficiency found to be negatively-weak correlated with ROA of about (- **0.266**).
- A positive correlation with Asset management of (+ **0.494**).
- In table 5, the values of VIF (colliniarity statistics) are less than 5, implying that the problem of multicolliniarity doesn't exist among the independent variables.

Referring to table 3, we find the adjusted R-square to be 65%, so we can conclude that 65% of the variation in the dependent variable (ROA) is explained by the independent variables. This implies somehow strong explanatory power for the whole regression. As long as the F-stat (table 4) equals 14.9 and is significant (less than 5%), we reject the null Hypothesis claiming that there exist an insignificant impact of Asset size, Credit risk, operational Efficiency and Asset management on internal financial performance of commercial banks measured by ROA.
Thus, we can predict the average ROA with about 65% explanatory power by the following model:

ROA = - 11 + 1.3SIZE + -0.17 CR + - 0.006 OE + 0.57AM + e

To assess the significance of each independent variable on the dependent variable ROA, we consulted table 5 which contains the t-test with the significance factors. Asset size, operational efficiency and asset management found to be significant and affect ROA as their t-sig are less than 5%. Credit risk has insignificant effect on ROA as its t-sig equals 0.432 (>%5).

4.2 Correlation and Regression Results for model II

Analyzing the second model, and scanning Table 6, we find the following correlations of the Independent variables with the market performance of banks measured by Tobin's Q as the following:

- A strong positive correlation with the bank size (**+ 0.841**) ,
- A weak negative correlation with credit risk **(-0.279**).
- A very weak negative correlation with operational efficiency **(- 0.011**).
- A weak positive correlation with asset management ratio (+ **0.408**).
- In table 9, the values of VIF (colliniarity statistics) are less than 5, implying that the problem of multicolliniarity doesn't exist among the independent variables.

Looking at regression analysis and Analysis of Variance in table 7 and table 8, respectively, we find that the explanatory power of the whole second regression model is about 69%, where at the same time, the F-stat is 16.8 and is less than 5%, which is significant . As a result, we accept the alternative hypothesis claiming that " there exist an impact of Asset size, credit risk, operational Efficiency and Asset management on market financial performance of commercial banks measured by Tobin's' Q model".

Thus, we can predict the average Tobin's Q (market-based performance indicator) with about 69% explanatory power by the following model:

Tobin's Q = -6.8 + 0.922BSIZE + 0.001CR + 0.0 OE + 0.048AM + e

We referred to table 9 To assess the significance of each independent variable on the dependent variable Tobin's Q. Asset size is the only variable that found to be significant the other variables , operational efficiency , asset management and credit risk are found to be insignificant and doesn't individually affect Tobin's Q as their t-sig are more than 5%.

4.3. Correlation and Regression Results for model III

Analyzing the third model, and scanning Table 10, we find the following correlations of the Independent variables with the Economic performance of banks measured by EVA as the following:

- A strong positive correlation with the bank size (+ **0.841**).
- A strong positive correlation with credit risk **(+0.790**).
- A very weak negative correlation with operational efficiency **(- 0.234**).
- A weak positive correlation with asset management ratio (+ **0.342**).
- In table 13, the values of VIF are less than 5, implying that the problem of multicolliniarity doesn't exist among the independent variables.

Looking at regression analysis and Analysis of Variance in table 11 and table 12, respectively, we find that the explanatory power of the whole third regression model is about 75% as evidenced by the adjusted R-square, where at the same time, the F-stat is 22.8 and is less than 5%, which is significant. This implies the acceptance of the alternative hypothesis claiming that "there exist an impact of Asset size, credit risk, operational efficiency and asset management on economic financial performance of commercial banks measured by EVA".
Thus, we can predict the average EVA with about 75% precision by the following model

EVA = -135 + 16BSIZE + - 0.002CR + - .018OE + 1.6AM + e

To pinpoint the significance of each independent variable on the dependent variable EVA, table 14 has been reviewed which contains the t-test with the significance factors. Asset size, operational efficiency and asset management found to be significant and affect EVA as their t-sig are less than 5%. Credit risk has insignificant effect on EVA as t-sig equals 0.968 (>%5).

5. Conclusion

In trying to determine the commercial banks performance in Palestine at the three levels; Internal, market and Economic performance, the following conclusions can be drawn:

- The expected contributions to this study to the management field is to help decision makers pay more attention to the relevant activities that exert potential and strong impact on their banking performance.
- The expected contribution of this study to the academic filed is to provide a comprehensive three models for evaluating banking performance and to fill an important gap in literature; i.e. results of this study will serve as a starting point for further future studies.
- The strongest model is that strong-fit and has strong R-square is the third model with the EVA as dependent variable, which can explain 78% in the variation of the dependent variable by the independents variables.
- Operational efficiency and asset management individually have significant impact on ROA, when they used along with bank size and credit risk, they add significant effect on Tobin's Q and EVA.

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Appendix 1

Raw data for regression models

Bank	Year	ROA	P/B ratio	EVA (M)	LOG (Assets)	OE	AM	CR
BOP	**2005**	2.4%	1.44	15.7	8.85	72%	4.32%	1%
QUDS	**2005**	-0.4%	0.992	-1.275	8.29	166%	3.92%	20%
PIB	**2005**	1.8%	0.915	2.4	8.36	30%	4.95%	2%
PCB	**2005**	-0.2%	0.737	-0.45	7.93	126%	5.82%	38%
RMF	**2005**	0.3%	0.76	-0.2	7.80	107%	6.08%	1%
BOP	**2006**	2.30%	1.34	12.7	8.78	67%	5.77%	2%
QUDS	**2006**	-1.20%	0.98	-2.6	8.17	219%	5.41%	28%
PIB	**2006**	1.80%	0.78	2.2	8.32	34%	5.70%	3%
PCB	**2006**	-0.40%	0.73	-0.6	7.90	122%	5.03%	46%
RMF	**2006**	-0.30%	0.78	-0.8	7.63	125%	5.12%	0%
BOP	**2007**	2.40%	1.54	18.7	8.93	77%	2.86%	3%
QUDS	**2007**	0.40%	1.004	0.05	8.40	113%	2.43%	22%
PIB	**2007**	1.70%	1.05	2.6	8.40	26%	4.19%	3%
PCB	**2007**	0.10%	0.744	-0.3	7.95	130%	6.61%	58%
RMF	**2007**	0.80%	0.74	0.4	7.96	90%	7.04%	0%
BOP	**2008**	2.30%	1.851	21.1	9.02	79%	4.39%	2%
QUDS	**2008**	-2.30%	1.024	-6.8	8.33	219%	3.19%	7%
PIB	**2008**	1.40%	1.259	1.4	8.41	64%	4.14%	1%
PCB	**2008**	0.20%	0.986	-0.4	8.02	159%	3.13%	7%
RMF	**2008**	-3.30%	0.759	-0.9	8.00	103%	2.85%	1%
BOP	**2009**	2.10%	2.486	23.9	9.11	79%	4.81%	2%
QUDS	**2009**	0.80%	1.294	1.7	8.39	463%	4.58%	7%
PIB	**2009**	1.20%	0.786	1.5	8.52	75%	5.26%	1%
PCB	**2009**	1.50%	0.915	1.3	8.12	117%	4.95%	5%
RMF	**2009**	1.10%	0.761	1.1	8.21	93%	4.24%	1%
BOP	**2010**	1.90%	2.075	26.8	9.19	89%	3.60%	1%
QUDS	**2010**	1.00%	1.18	3.3	8.42	503%	3.31%	1%
PIB	**2010**	0.60%	0.799	0.05	8.63	108%	0.20%	3%
PCB	**2010**	1.00%	0.754	1.1	8.23	113%	3.61%	2%
RMF	**2010**	0.10%	0.741	-0.5	8.20	126%	3.45%	2%

Table 2: Correlation Matrix, first model

Correlations

		ROA	Ass	CR	OE	AM
ROA	Pearson Correlation	1	.624**	-.339-	-.266-	.494**
	Sig. (2-tailed)		.000	.067	.155	.005
	N	30	30	30	30	30
Ass	Pearson Correlation	.624**	1	-.356-	-.123-	.213
	Sig. (2-tailed)	.000		.054	.516	.259
	N	30	30	30	30	30
CR	Pearson Correlation	-.339-	-.356-	1	.087	.031
	Sig. (2-tailed)	.067	.054		.647	.869
	N	30	30	30	30	30
OE	Pearson Correlation	-.266-	-.123-	.087	1	.389*
	Sig. (2-tailed)	.155	.516	.647		.034
	N	30	30	30	30	30
AM	Pearson Correlation	.494**	.213	.031	.389*	1
	Sig. (2-tailed)	.005	.259	.869	.034	
	N	30	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3: Model summary, first model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.839[a]	.705	.657	.79551%

a. Predictors: (Constant), CR, AM, OE, Ass

Table 4: Analysis of Variance, first model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.732	4	9.433	14.906	.000[a]
	Residual	15.821	25	.633		
	Total	53.553	29			

a. Predictors: (Constant), CR, AM, OE, Ass

b. Dependent Variable: ROA

Table 5: Coefficients, first model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-11.842-	3.481		-3.402-	.002		
	Ass	1.309	.422	.380	3.098	.005	.785	1.274
	OE	-.006-	.002	-.431-	-3.558-	.002	.804	1.243
	AM	.570	.120	.587	4.739	.000	.771	1.297
	CR	-.017-	.011	-.185-	-1.578-	.127	.861	1.161

a. Dependent Variable: ROA

Table 6 : Correlation matrix , second model

Correlations

		Tobin's Q	Ass	CR	OE	AM
Tobin's Q	Pearson Correlation	1	.841**	-.279-	-.011-	.408*
	Sig. (2-tailed)		.000	.143	.954	.028
	N	29	29	29	29	29
Ass	Pearson Correlation	.841**	1	-.356-	-.123-	.213
	Sig. (2-tailed)	.000		.054	.516	.259
	N	29	30	30	30	30
CR	Pearson Correlation	-.279-	-.356-	1	.087	.031
	Sig. (2-tailed)	.143	.054		.647	.869
	N	29	30	30	30	30
OE	Pearson Correlation	-.011-	-.123-	.087	1	.389*
	Sig. (2-tailed)	.954	.516	.647		.034
	N	29	30	30	30	30
AM	Pearson Correlation	.408*	.213	.031	.389*	1
	Sig. (2-tailed)	.028	.259	.869	.034	
	N	29	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7: Model Summary, second model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.859[a]	.738	.694	.24272

a. Predictors: (Constant), CR, AM, OE, Ass

Table 8: ANOVA, second model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.974	4	.994	16.866	.000[a]
	Residual	1.414	24	.059		
	Total	5.388	28			

a. Predictors: (Constant), CR, AM, OE, Ass

b. Dependent Variable: VAR00006

Table 9: Coefficients, second model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-6.872-	1.172		-5.861-	.000		
	Ass	.922	.144	.815	6.409	.000	.676	1.478
	OE	.000	.000	.036	.302	.765	.755	1.324
	AM	.048	.040	.153	1.206	.239	.678	1.475
	CR	.001	.003	.034	.291	.773	.804	1.244

a. Dependent Variable: VAR00006

Table 10: Correlation Matrix, third model

Correlations

		EVA	Ass	CR	OE	AM
EVA	Pearson Correlation	1	.841**	-.284-	-.234-	.342
	Sig. (2-tailed)		.000	.129	.214	.064
	N	30	30	30	30	30
Ass	Pearson Correlation	.841**	1	-.356-	-.123-	.213
	Sig. (2-tailed)	.000		.054	.516	.259
	N	30	30	30	30	30
CR	Pearson Correlation	-.284-	-.356-	1	.087	.031
	Sig. (2-tailed)	.129	.054		.647	.869
	N	30	30	30	30	30
OE	Pearson Correlation	-.234-	-.123-	.087	1	.389*
	Sig. (2-tailed)	.214	.516	.647		.034
	N	30	30	30	30	30
AM	Pearson Correlation	.342	.213	.031	.389*	1
	Sig. (2-tailed)	.064	.259	.869	.034	
	N	30	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 11 : Model Summary, third Model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.886[a]	.785	.751	4.22858

a. Predictors: (Constant), CR, AM, OE, Ass

Table 12 : ANOVA, third Model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1636.174	4	409.044	22.876	.000[a]
	Residual	447.023	25	17.881		
	Total	2083.197	29			

a. Predictors: (Constant), CR, AM, OE, Ass

b. Dependent Variable: EVA

Table 13: Coefficients, third model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-135.003-	18.501		-7.297-	.000		
	Ass	16.087	2.246	.749	7.164	.000	.785	1.274
	OE	-.020-	.008	-.250-	-2.420-	.023	.804	1.243
	AM	1.698	.639	.280	2.657	.014	.771	1.297
	CR	-.002-	.057	-.004-	-.041-	.968	.861	1.161

a. Dependent Variable: EVA