Does Liquidity and Solvency Affect Banks Profitability? Evidence from Listed Banks in Jordan

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Abstract
This paper examines the impact of liquidity and solvency on banks profitability. All banks listed in Amman exchange were selected (15 banks) for the period 2012- 2014. To measure the liquidity the quick ratio was calculated, Debt ratio was calculated to measure the solvency, whereas return on assets ratio was calculated to measure the profitability. Simple regression was used to examine the relations; the results showed that the liquidity has a negative (inverse) significant impact on profitability, whereas the solvency has a no impact on profitability.

Key words   Liquidity, Solvency, profitability, Return on Assets, Quick Ratio, Debt ratio

1.   Introduction

Liquidity and solvency are two important aspects of overall banks management, liquidity refers to the balance between assets in the form of cash or readily convertible into cash (current assets) and current liabilities, whereas solvency states the relationship between borrowed funds and owner's funds in the capital structure of a bank. It includes debt, common equity that are used to finance the bank's total assets, operations and financial growth (Goel *et al*., 2015). Liquidity is essential in all banks to meet customer withdrawals, and provide funds for growth, so Banks must maintain sufficient levels of cash, liquid assets, and prospective borrowing lines to meet expected and contingent liquidity demands. Liquidity can be defined as the ability to provide cash to meet day-to-day needs as they arise (Walsh, 2008). Therefore, organization must be able to generate enough money to cover short-term obligations to become liquid organization. Liquidity ratios are a set of ratios that are used to calculate the liquidity position of an entity. These ratios help to determine whether an entity will be able to meet its financial obligations in the short-term, whereas solvency indicates the ability to meet long term financial obligation, Solvency is traditionally viewed as arising from financing activities: firms borrow to raise cash for operations.

Solvency ratios are used to measure the ability of a company to meet its long term debts. Moreover, the solvency ratios provide an assessment of the likelihood of a company to continue congregating its debt obligations. The quick ratio will be calculated as a measure of liquidity, quick ratio also known as the acid-test ratio, which is more refined and more stringent than the current ratio. Instead of using current assets in the numerator, the quick ratio uses a figure that focuses on the most liquid assets. So it is more conservative than the current ratio and focuses on cash, short-term investments and accounts receivable. The formula is as follows:

Quick Ratio = (Cash & Equivalents + Short-term Investments + Accounts Receivable) ÷ Current Liabilities (Gibson, 2009)   (1)

Debt ratio will be calculated as a measure of solvency through measuring debt level of a business as a percentage of its total assets. It is calculated by dividing total debt of a business by its total assets, if the percentage is too high, it might indicate that it difficult for the business to pay off its debts and continue operations (Walsh, 2008). Return on Assets (ROA) will be calculated to measure the profitability, which indicates the net income produced by total assets during a period by comparing net income to the average total assets (Gibson, 2009).

2. Literature review

Most of the empirical evidences on the relationship between the liquidity and profitability on one hand, and between the solvency and profitability on the other hand come from studies of the determinants of corporate liquidity ratios (to measure liquidity) and debt ratios (to measure solvency) and profitability ratios (to measure profitability).

2.1. Relationship between liquidity and profitability

Study of (Bordeleau and Graham, 2010) analyzed the impact of liquid assets holding on bank profitability for a sample of large U.S. and Canadian banks, the result suggested that profitability is improved for banks that hold some liquid assets, whereas the study (Lamberg and Valming, 2009) evaluated and compared the use and extent of the liquid practices and measured if the changing of liquidity strategy is related to the profitability measured by return on assets (ROA), Statistical analysis was conducted by using regression analysis, the finding suggested that the adaptation of liquidity strategy don't have a significant impact on ROA. Only increased use of liquidity forecasting and short term financing during financial crisis had a positive impact on ROA.

Study of (Zygmunt, 2013) which is applied in polish listed IT companies, and used linear regression to conclude the existence of liquidity impact on profitability in polish listed IT companies, the results explained the existence of liquidity impact on profitability. Study of (Olarewaju and Adeyemi 2015) which also aimed to examine the existence and direction of causality between liquidity and profitability of deposit banks in Nigeria, the results showed a different direction of the previous study, that there is no causal relationship between liquidity and profitability. Whereas the Study of (Agbada and Osuji 2013) examined the effect of efficient liquidity management on banking performance in Nigeria, the efficiency of liquid management measured by analyzing a distributed questionnaire whereas banking performance measured by profitability and return on capital employed (ROCE). The results indicated that there is a significant relationship between efficient liquidity management and banking performance.

Study (Kurawa and Abubaker, 2014) was also applied on Nigerian banks, it studied the relationship between liquidity and profitability, linear regression were used in the analysis and the results revealed that there is a positive relationship between return on assets (ROA) and cash and bank balances to total liabilities (CBTOTL), a positive relationship also between return on equity (ROE) and (CBTOTL), but negative relationship between (ROE) and Loans and advances to total assets (LATOTA), the main finding suggested that there is no significant impact between liquidity and profitability among the listed banking firms in Nigeria. Study (Nimer *et al*., 2015) aimed to find if the liquidity that defined by one ratio (Quick ratio) has significant impact on profitability that defined by one ratio (ROA). The study that applied on Jordanian banks concluded that there is significant impact of quick ratio on ROA. (Lartey *et al*., 2013) also tried to find in their study which applied on listed banks in Ghana, if there is a relationship between the liquidity and the profitability, the study found that there is a very weak positive relationship between the liquidity and profitability of the listed banks in Ghana.

Study of (Khidmat and Rehman, 2014) which applied on chemical companies in Pakistan, find that liquidity has a positive significant impact on profitability that measured by ROA.

2.2. Relationship between solvency and profitability

Study (Nawaz *et al*., 2015) which applied on Cement sector operating in Pakistan examined the relationship between Financial leverage that measured by total debt to total assets ratio and Profitability which measured by ROA, Ordinary Least Square model is applied on the data to establish a causal relationship between the variables. The study found that financial leverage has a statistically significant inverse impact on profitability, Also the Study of (Khidmat and Rehman, 2014) finds that solvency which defined by debt to equity ratio, has a negative significant impact on the (ROA) and (ROE), whereas the Study of (Kang, 2011) applied on lodging firms, From the results of this study, there was a positive relationship between debt ratio and ratio of property, plant and equipment to total assets (PP&E) and revenue per available room (RevPAR). The lodging firms with high long-term debt ratio and also with high PP&E ratio would have higher room rates, and this could result in higher (RevPAR). However, from the results of this study, RevPAR and revenue had a significant negative relationship. According to the results of

this study, long-term debt ratio was negatively related to profitability (ROA). Most lodging firms showed a decrease in total revenue during the period.

Study (Shamaileh and Khanfar, 2014) aimed to identify the effect of financial leverage on profitability in tourism companies which operating in Jordan. The study finds the existence of a statistically significant impact for the independent variables (financial leverage and ROI) of the Tourism companies on the Profitability. Study (Bandt et al., 2014) studies the effect of banks' capitalization on banks' Return on Equity (ROE). It found that an increase in capital leads to a significant increase in ROE; study (Taani, 2013) examined the impact of capital structure on performance of Jordanian banks. Multiple regressions was applied on performance indicators such as Net Profit (NP), Return on Capital Employed (ROCE), Return on Equity (ROE) and Net Interest Margin (NIM) as well as Total Debt to Total Funds (TDTF) and Total Debt to Total Equity (TDTE) as capital structure variables. The results showed that bank performance, which is measured by net profit, return on capital employed and net interest margin is to be significantly and positively associated with total debt; while total debt is found to be insignificant in determining return on equity in the banking industry of Jordan.

3. Methodology of research

3.1. Sample of study

The population for this study consists of all listed banks in Amman stock exchange (Jordan), the sample represents (100%) of the population, table 1 represent the listed banks in Amman Stock Exchange.

Table 1. Listed banks in Amman Stock Exchange

	Reuters Code	Bank Name
1	ARBK	Arab Bank
2	ABCO	Arab Banking Corporation (Jordan)
3	AJIB	Arab Jordan Investment Bank
4	UBSI	Union Bank
5	BOJX	Bank of Jordan
6	CABK	Cairo Amman Bank
7	EXFB	Capital Bank of Jordan
8	INVB	Invest Bank
9	AHLI	Jordan Ahli Bank
10	JCBK	Jordan Commercial Bank
11	JDIB	Jordan Dubai Islamic Bank
12	JOIB	Jordan Islamic Bank
13	JOKB	Jordan Kuwait Bank
14	SGBJ	Societe Generale de Banque
15	THBK	The Housing Bank For Trading & Finance

Source: Jordan Securities Depository Center

This study is descriptive, explanatory and analytical study, the main source of gathering data is the financial statements of the listed banks in Amman stock exchange for the years 2012, 2013, 2014, literature review will be conducted.

3.2. Variables of study

3.2.1. Dependent variables

The dependent variables of the study are Return on Assets (ROA) which is used l to measure the rate of return on total assets after interest expense and taxes. The high Return on Assets (ROA) indicates that the bank is able to generate profits by using its assets.

3.2.2. Independent variables

The independent variables are Quick ratio and debt ratio (total debts to total Assets). These ratios covers two types of ratios, liquidity ratios and solvency ratios, solvency ratios are used to indicate the ability of the bank to cover the long term obligation, whereas liquidity ratios refers to the ability to cover short term (current) obligation.

The results are concluded by using correlation and regression through MS Excel and Statistical Package for Social Science (SPSS).
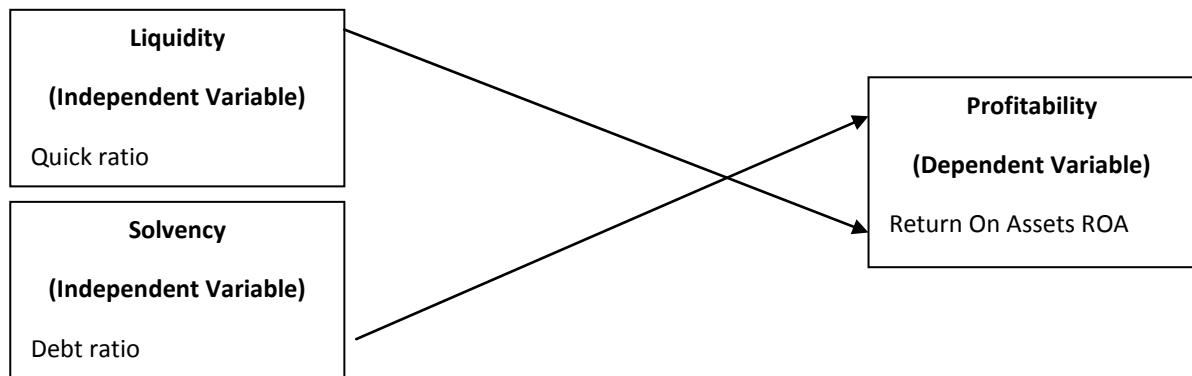
3.3. Hypotheses of study

H01: There is no significant impact of liquidity on profitability.
H02: There is no significant impact of solvency on profitability.

3.4. Research model

The shape below represents the research model:

Figure 1. Research model

4. Results and Discussion

4.1. The impact of liquidity on profitability

To examine the impact of quick ratio on ROA, the simple regression test was used, table 2 below show the result of statistical analysis:

Table 2. ANOVA (test result of statistical analysis)

ANOVAᵇ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.001	1	2.001	10.320	.002ᵃ
	Residual	8.336	43	.194		
	Total	10.337	44			

a. Predictors: (Constant), QUICK
b. Dependent Variable: ROA

The value of (f) is highly significant at α=5%, hence the null hypothesis is rejected, which means that the liquidity of listed banks through the quick ratio has an important influence on the profitability of these bank which is measured by ROA, table 3 shows that predictor variable (Quick Ratio) makes contribution to the prediction of ROA with a B-coefficient of (-0.440) also the T statistics and sig-values indicates that quick ratio generate significant negative impact on ROA.

Table 3. Predictor variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.515	.099		15.263	.000
	QUICK	-.006	.002	-.440	-3.213	.002

a. Dependent Variable: ROA

4.2. The impact of Solvency on profitability

To examine the impact of solvency on ROA, the simple regression test was used, table 4 below show the result of statistical analysis:

Table 4. The result of statistical analysis

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.029	1	.029	.120	.731[a]
	Residual	10.309	43	.240		
	Total	10.337	44			

a. Predictors: (Constant), F.L.1

b. Dependent Variable: ROA

The value of (f) is insignificant at α=5%, (sig value is more than 5%), hence the null hypothesis is accepted, which means that the solvency of listed banks through the debt ratio has no influence on the profitability of these bank which is measured by ROA.

5. Conclusions

The study has investigated the impact of liquidity and solvency on the profitability of listed banks of Amman stock exchange, based on the findings presented above, the study concludes that liquidity has a negative significant impact on profitability, it means that if the liquidity of the banks that measured by quick ratio increased, the profitability of the banks that measured by ROA will decrease, this may be justified by researcher that either inadequate liquidity or excess liquidity may be injurious to the operations smoothing, also if the liquidity is too high, then the bank may not be efficiently using its current assets.

Although, this result is not consistent with the previous studies that referred to the absence of a relationships between liquidity and profitability (Olarewaju and Adeyemi, 2015) or with the studies of (Khidmat and Rehman 2014, Lartey et al 2013) that indicated a positive relationships between liquidity and profitability, it is however consistent with many studies that indicate the existence of a relationship between liquidity and profitability (Zygmunt, 2013; Nimer *et al.*, 2015).

Furthermore, the study concludes that there is no significant impact of solvency measured by debt ratio on the profitability of banks; this result is not consistent with the previous studies that indicated a significant relationship between solvency and profitability (Nawaz *et al.*, 2015; Khidmat and Rehman 2014; Kang, 2011; Shamaileh and Khanfar, 2014).

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