Liquidity and Equity Rations to Predict the Banking Sector Index Empirical Study in Amman Stock Exchange (ASE) for the Period 2005-2015

Charaf Aggoun
University Center – Mila

Abdelhak Lefilef
University – Ouargla

الملخّص:

هدفت الدراسة إلى اختبار قدرة النسب المالية المتمثلة في نسبة السيولة ونسبة الملكية على التنبؤ بمؤشر القطاع المصرفي في بورصة عمّان للأوراق المالية باستخدام بيانات سنوية للفترة 2005– 2015. اعتمدت الدراسة على ثلاث متغيرات كمية: مؤشر قطاع البنوك كمتغير تابع ، بينما نسبة السيولة ونسبة الملكية كمتغيرات مستقلة . استخدمت الدراسة منهج بيانات البانلمنهجبيانات البانل Panel Data Approach، ومن خلال تطبيق نموذجالمربعات الصغرىOrdinary Least square، أظهرت نتائج التحليل تأثيرا ايجابيا لنسبة السيولة على مؤشر القطاع المصرفي، وبالمقابل أظهرت النتائج عدم وجود أي علاقة ذات دلالة احصائية بين نسبة الملكية ومؤشر القطاع المصرفي في بورصة عمان خلال فترة الدراسة . انطلاقا من هذه النتائج أوصت الدراسة الباحثين اجراء دراسات أخرى باستخدام نسب أخرى تكون ذات ارتباط أقوى مع هذا المؤشر وتفسّر بنسة اكبر التغيرات التي تطرأ على مؤشر القطاع المصرفي في بورصة عمان للأوراق المالية.

الكلمات الدالة:نسبة السيولة، نسبة الملكية، النسب المالية، بورصة عمان، بيانات البانل.

Abstract :

The study aimed to investigate the ability of Liquidity Ratio (LR) and Equity Ratio (ER) to predict the Banking Sector in Amman Stock Exchange (ASE), by employing yearly data during the period between 2005 and 2015. It used three variables; Banking Sector Index (BI) as a dependent variable, Liquidity Ratio (LR) and Equity Ratio (ER)as independent variables. Panel Data Analysis Method is used through the application of Ordinary Least square (OLS)Model. At last, the two variables against the banking sector index have been tested. The findings dictate that Liquidity Ratio (LR), statistically, has positive influence on the Banking Sector Index (BI). Yet, Equity Ratio (ER) did not have any statistical significant effect on the banking index (BI). Finally, the study recommended to the next researchers, that take new ratios identify theeffects that are directly associated withthis index.

Key words: liquidity ratio, equity ratio banking sector, panel data, index.

1. Introduction

Beneficiaries of financial statements use financial ratios to a large extent in order to comment on the current financial situation and to make estimation on the future financial position of firms. Those who benefit from the financial statements can be basically classified into four categories which are company managers, creditors, shareholders (investors) and the government. Moreover, financial analysis through financial ratios is an important indicator on which most enterprises, especially large ones, are based. It helps to know the course of the ratio of a specific component of the financial statements over a given period of time, and to make appropriate decisions when evaluating management performance, predictability and governance. On the policies and actions used by the administration and their effectiveness and suitability with the financial market. Therefore, it is important to know the relationship between Liquidity, Equity Ratios, and other indicators, in order to measure their ability to predict the general market index or the index of the different sectors, which is reflected later on the development of future financial plans and policies adopted by the enterprises, to take the right track in achieving the objectives targeted , besides, the satisfaction of investors with the administrations, which is reflected in the end to the economic life of countries in general.

Studies on the performance of companies listed in the financial market (financial indexes) are redundancy. Results of these studies powerfullyput forward that the performance and value of firms' determinants differ across countries and also among regions of the world (e.g. Aras and Yilmaz, 2008). Kheradyar *et al*., (2011) and Karami and Talaeei (2013) and Emamgholopour *et al*., (2013) find that the financial ratios significantly affect stock market indexes performance. Significant research has been conducted on financial ratio and banking sector index across the world. Hence, the results have proved to be fruitful for investors in the developed market.

There was a need to conduct empirical studies in emerging markets mainly in the Arab world. Indeed, this shortage motivated the researcher to examine the impact of liquidity and equity ratios on the banking sector index in Amman Stock Exchange.

2. Literature Review

While making investment choices, financial analysis of a firm by using the ratio manner would facilitate us to make reasonable assessments about the potential performance of the company's stock prices. At the same time, in case of the firm's worsening financial structure, using financial ratios to analyze the financial situation acts as an early warning signal (Ohlson James, 1980).

There are many studies that have examined the impact of liquidity ratio and equity ratio on the banking sector index while several studies surveyed the

relationship between the financial ratios and stock return in various stock markets.

Basu (1983) investigated the relationship between earnings yield, market value and returns for NYSE common stock, the study concluded that the common stocks high E/P firms get on average higher risk-adjusted returns. However, the common stocks low E/P firms acquire low risk-adjusted returns. On the other hand, the size effect moved out when returns are controlled for difference in risk and E/P ratios.

Peavy and David (1985) examined the reasons for poor stock market performance during the period 1965-1981 in the S&P 400 market index. The study concluded that a contraction in P/E ratios was mainly responsible for this poor stock market performance as the stock market rally that start in August 1982 resulted primarily because of a extensive expansion in P/E ratios. The model that is developed shows three major factors, namely inflation, corporate debt ratios, and corporate profit margins influence P/E ratios.

(Hull 1999) tested the influence of debt-to-equity ratio on stock value of 338 firms from several industriesduring the period 1970-1988 in United States. The studyexamined whether stock value is affected by how a firm change its leverage ratio in associationto its industry leverage ratio norm. The study concluded that announcement-period stock returns for firms moving away from industry debt-to-equity norms are significantly more negative than returns for firms moving closer to these norms.

Lam (2002) investigated the relationship between stock returns and β, size (ME), leverage, book-to-market, equity ratio, and earning-price ratio (E/P) in Hong Kong stock market for the period 1984-1997, employing Fama and French (FF) approach. The study ended to several results similar to previous studies in Hong Kong and US market. Where the study found that β is unable to explain the average monthly returns on stocks frequently listed in Hong Kong stock market.

Griffin and Lemmon (2002) examined the relationship between book-to-market equity, distress risk, and stock returns. The study concluded that the difference in returns between high and low book-to-market securities is more than twice as large as in other firms. Moreover, this big differential cannot be explained by the three-factor model or by difference in economic fundamentals.

Lewellen (2004) the paper studied whether financial ratios such as dividends yield can forecastaggregate stock returns during the period 1946-2000. The study found that dividends yield predicts market returns during the mentioned period of time, likewise in several subsamples. However,

book-to-market and the earning-price ratio forecast returns during the shorter periods.

Bekaert and Harvey (2007) investigated the relationship between liquidity ratio and the expected returns in various emerging markets, using daily data, the study found a statistically significant relationship between liquidity ratio and the expected returns. Furthermore, it suggests that local market liquidity is an important driver of expected returns in emerging markets, and that the liberalization process has not fully eliminated its impact.

Aras and Yilmaz (2008) tested whether there is a relationship between price-earnings ratio, dividends yield, market-to-book ratio and stock returns in various emerging market, covering the period 1997-2003. The study employed multi-regression model to reach results. It found that the predictability of stock returns in the emerging markets was variant. On the other hand, these evidences support the individual predictive power of some, but not all financial variables in the stock market.

Keradyar and Lzani (2011) examined the function of financial ratios as empirical predictors of stock return in separate and combined sets for the period 2000-2009 in Bursa Malaysia. The study take up the market based financial ratios as D/Y, B/M and E/P with reference to Lewellen (2004). According to the empirical results, similar to the findings of previous study in the developed market, Lewellen's financial ratios were able to forecast future stock return in Bursa Malaysia as an emerging market. However, the predictive power of B/M is higher than other financial ratios. Consequently, the combination of the financial ratios enhances stock return predictability.

Suadiye (2013) tried to find out the relationship between stock returns and the annual earnings. The study used financial reporting data of 212 firms from BIST, covering the period 2005-2009. It found a positive association between returns and annual earnings during the mentioned period.

Islamoglu (2015) tested whether changes in the stock market index can be explained by the variation in financial ratios. Using quarterly data of 13 banks (representing the most important banking sector in Turkey), for the period 2002-2013. The study found a negative relationship between debt-to-equity ratio and banking sector index, on the other hand, a positive relationship between total asset ratio and the growth of the index has also detected. In addition, shareholders equity to total assets ratio had a causal association with BIST XBANK Index.

3. Data and Methodology

The study counts on various sources of data, but it mainly obtained from secondary sources such as annual reports issued by Jordanian banks, reports and trading data declared by Amman Stock Exchange. In general, the population of the current study consists of all the Jordanian companies listed at ASE and accessible during the period 2005-2015. Whereas the sample used in this study is only the banking sector (14 banks listed at ASE). The purpose of this paper is to find out whether there is a relationship between liquidity ratios, equity ratios from one hand and the banking sector index on the other hand. In order to achieve this goal three variables have intuitively been chosen where:

3.1. Dependent Variable (IB)

ASE indices are used to portray the pattern of stock price movement, and to measure the performance of the ASE in terms of return. Back in 1980, the Amman Financial Market (AFM) constructed an Unweighted Price Index supplemented by sub-indices for the four sectors: Banking and Finance Companies, Insurance, Services and Industrial. At that time 38 stocks were covered and a base value of 100 was stipulated on the opening session of January 1st 1980 for the Unweighted Price Index. The base was changed to 1000 as of January 1st 2004. Recently, as a result of the global development in the domain of the indices calculation, beside aiming to raise the capability of these indices to reflect market performance, the ASE constructed a new index that is based on free float shares, which provides a better representation of the shares' prices movement in the market without bias to large cap companies, thus limiting their impact on the index. The index is calculated using the market value of the free float shares of the companies and not the total number of listed shares of each company. This method is notably used by many international institutions that calculate the indices for most of world countries and that are considered leading international companies in the area of indices-related services, such as S&P's, FTSE Group, Dow Jones and STOXX. The Banking Sector Index for each bank was obtained from the annual trading bulletins published on the website of Amman Stock Exchange (See: www.ase.jo).

3.2. Independent variables

Financial ratios are an important aspect of the financial analysis process, where published numbers are used financial statements and measuring their relationship with reference numbers, to determine the performance of the entity by interpreting the relationship, and clarify them to become an indicator in one of the investment decision areas, or to evaluate an aspect of an activity in a certain period so that the analyst can make comparisons that include actual data with years data or compare

existing data with standard indicators, or compare facility-related data with the data of competing enterprises. In order to arrive at a meaningful financial analysis, the financial ratios were classified into various groups, most notably: Liquidity Ratios, Activity Ratios, Profitability Ratios, Debt Ratios, and Market Rates. The researchers have been selected two Independent variables for Banking Sector, to measure their contribution to predict the Banking Index.These variables were calculated depend on the financial statements for the companies as follow:

3.2.1. Liquidity Ratio

measure a company's ability to pay debt obligations and its margin of safety through the calculation of metrics including the current ratio, quick ratio and operating cash flow ratio. Current liabilities are analyzed in relation to liquid assets to evaluate the coverage of short-term debts in an emergency. Bankruptcy analysts and mortgage originators use liquidity ratios to evaluate going concern issues, as liquidity measurement ratios indicate cash flow positioning. Liquidity Ratio is calculated as follows:

Liquidity Ratio = Current Assets / Current liabilities * 100%

3.2.2. Equity Ratio

The shareholder equity ratio determines how much shareholders would receive in the event of a company-wide liquidation. The ratio, expressed as a percentage, is calculated by dividing total shareholders' equity by total assets of the firm, and it represents the amount of assets on which shareholders have a residual claim. The figures used to calculate the ratio are taken from the company balance sheet. Equity Ratio is calculated as follows:

Equity Ratio= Shareholders' equity /Total Assets * 100%

3.3. Mathematical Model of The study

The researchers put the variables of study in a mathematical model to analyze the relationship between dependent & independent variable using the regression:

$BI= + \beta_1 LR + \beta_2 ER + \varepsilon_r$

Where,

BI: Banking Index

LR: Liquidity Ration

ER: Equity Ratio

3.4. Hypotheses of the study

The followings hypotheses are formulated:

3.4.1. There is a significant relationship between theliquidity ratio and banking sector Index in Amman Stock Exchange (ASE).

3.4.2. There is a significant relationship between the equity ratio and banking sector Index in Amman Stock Exchange (ASE).

3.5. Data Analysis

In order to attain the study objectives, the researchers employed Panel Data Analysis Method, through the application of Ordinary Least square (OLS). Furthermore, Descriptive statistics, Multicoliniarity Test, Pearson Correlation between the explanatory variables, and heteroskedasticity test are also presented.

3.5.1. Descriptive Statistics

The results presented in table (5.1) shows the descriptive statistics for all the variables during the period 2000-2014, such as the mean, the standard deviation, the min, and the max. The results are illustrated as follows:

A deviation is observed in the mean, the standard deviation, the min, and the max where the BI has the highest value (4231.73, 802.48, 3407.64, and 6171.34) respectively. Furthermore, the researchers note that there is a large rise in the banking index due to the variation in the development of this sector, where it is also considered one of the most important sectors in the ASE and plays a major role in maximizing the index. Additionally, the observations of ER show a deviation as well; it has a min value amounted to (1.2) and a max value with (182.39), this difference between the two value is interpreted by the nature of their dependence on owners' funds and other reserves. Finally, LR also dictates a deviation in the observations where it has (1.2) and (0.63) as min and max value respectively. This deviation in values might be explained by the difference the bank's ability to pay debt obligations and its margin of safety which is normal.

Table (3.1): Descriptive Statistics of the Variables of the Study

Variables	Mean	Std. Deviation	Min	Max
BI	4231.73	802.48	3407.64	6171.34
ER	14.96	14.77	1.2	182.39
LR	0.39	0.10	0.17	0.63

Note: BI: Banking Index, ER: Equity Ratio, Liquidity Ratio

3.5.2. Multicoliniarity Test

The variance inflation factors (VIF) and Tolerance (1/VIF) are usually employed to examine and assess the Multicoliniarity problems. The VIF provides the degree to which each independent variable is explained by other independent variables (Gujarati, 2004). The results of the test in the following Table (3-2) show that the VIF for all variables is less than 10,

whereas 1/VIF for all variables is more than 0.1. The findings indicate that the model does not suffer from Multicoliniarity problem.

Table (3.2): Variance Inflation Factor (VIF) and Tolerance (1/VIF) for the Independent Variables

Variables	VIF	1/VIF
ER	1.02	0.97
LR	1.02	0.97
Mean VIF	1.02	

3.5.3. Pearson Correlation between the Explanatory Variables

The following Table (3-3) describes in details the correlation between all the explanatory variables that are employed in this study. Commonly, the independent variables should not be correlated between each other, or at least the correlation between the independent variables should be low. Hence, the correlation coefficient between all factors is low. The results show that all the explanatory variables are positively and significantly correlated between each other. Furthermore, it is noticed that the correlation between all the independent variables is low (0.15) as it should be.

Table (3.3): Pearson Correlation between the explanatory variables

Variables	ER	LR
ER	1***	0.97
LR	0.15*	1***

*** Correlation is significant from zero at the 1% level. ** Correlation is significant from zero at the 5% level.

* Correlation is significant from zero at the 10% level

3.5.4. Pooled Model (Estimated by Ordinary Least Square OLS)

According to the findings reported in Table (3-4),Liquidity Ratio (LR)has a statistically significant positive impact on the banking index at (α=1%) in Amman Stock Exchange for the period 2000-2014.However, the results show that theEquity Ratio (ER) in the current study, does not have any statistical significant effect on the banking index at (α=1). Moreover,Dependingon the results provided in Table (3-4) below, Breuch-Pagen test has been employed to uncover Heteroskedasticity problem. This test relies on the employment of Ordinary Least square (OLS) residuals regression under the null hypothesis. Unlike the alternative hypothesis, the null hypothesis indicates that the variance of the residuals is not homogeneous or constant. At last, the test's results indicate that Heteroskedasticity problem does not exist for the chosen sample as the Chi-square distributed amounted to 15.49, with 0.49 P-value. In view of that, it is

not significant and the null hypothesis is rejected. Thus, the variance of residuals is homogeneous.

Table (3.4): The Pooled Estimation Results

$BI = + \beta_1 LR + \beta_2 ER + \varepsilon_r$				
Variables	Coefficients	Std.Error	t-Statistic	Probability
ER	4.20	3.79	1.11	0.26
LR	42.73	5.21	8.20	0.00
R-squared	0.3469			
Adjusted-R^2	0.3374			
F-Ratio	Value		Probability	
	36.39		0.00	
B/P Test	Chi2 Statistics		Prob>Chi2	
	15.57		0.49	

*** Correlation is significant from zero at the 1% level. ** Correlation is significant from zero at the 5% level. * Correlation is significant from zero at the 10% level.

4. Findings and implications

In this paper it is investigated whether the Liquidity Ratio (LR) and Equity Ratio (ER) can be used to predict the Banking Sector in Amman Stock Exchange (ASE), during the period 2005-2015, using Panel Data Method. According to the Table (3.4) which presents the pooled estimation results, the findings indicate that Liquidity Ratio (LR) is positively and significantly affect the banking sector, with a coefficient 42.73%, that is, each increase in the Liquidity ratio by 100% leads to an increase in the sector banking index by 42.73%. However, the Equity Ratio (ER) does not have any statistical significant influence on the banking index. Furthermore, the R-squared is amounted to 34.69%, that is, 34.69% of the variation in the dependent variable (Banking Sector Index) can be explained by the variation in the significant dependent variables in Amman Stock Exchange, during the period 2000-2015, conversely, 65.31% of the variation in the dependent variable can be interpreted by other variables. Finally, the above examination is clear to the researchers that there is direct ratios affect in predicting the banking sector index, so they recommended to the next researchers that take new ratios identify theeffects that are directly associated this index.

References

Al-Eitan, G. N., & Al Oleemat, N. H. (2015). The Causality Relationship between Financial Market Indexes and Financial Ratios: Evidence from Amman Stock Exchange. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol.5,No.2,PP.23-31.

Aras, G., & Yilmaz, M. K. (2008). Price-Earnings Ratio, Dividend Yield, And Market-To-Book Ratio To Predict Return On Stock Market: Evidence From The Emerging Markets. *Journal of Global Business and Technology*, vol.4, No.1,p.18.

Basu, S. (1983). The relationship between earnings' yield, market value and return for NYSE common stocks: Further evidence. *Journal of financial economics*, Vol.12.No.1,PP.129-156.

Bekaert, G., Harvey, C. R., &Lundblad, C. (2007). Liquidity and expected returns: Lessons from emerging markets. ***Review of Financial studies***,Vol.20,No.6,PP. 1783-1831.

Griffin, J. M., & Lemmon, M. L. (2002). Book–to–market equity, distress risk, and stock returns. ***The Journal of Finance***,Vol. 57,No.5,PP.2317-2336.

Gujarati, D.N., (2004). *Basic Econometric*, 4th Edition.Irwin/McGraw-Hill: NewYork.

Hull, R. M. (1999). Leverage ratios, industry norms, and stock price reaction: An empirical investigation of stock-for-debt transactions. *Financial Management*,PP.32-45.

Islamoglu, M. (2015). Predictive Power of Financial Ratios With Regard To the Turkish Banking Industry: An Empirical Study on the Stock Market Index. *Asian Economic and Financial Review*,Vol.5,No.2,PP.249-263.

Karami, G. R., & Talaeei, L. (2013). Predictability of stock returns using financial ratios in the companies listed in Tehran Stock Exchange. *International Research Journal of Applied and Basic Sciences*,Vol.5,No.3,PP.360-372.

Kheradyar, S., Ibrahim, I., &Nor, F. M. (2011). Stock return predictability with financial ratios. *International Journal of Trade, Economics and Finance*,Vol.2,No.5,P.391.

Lam, K. S. (2002). The relationship between size, book-to-market equity ratio, earnings–price ratio, and return for the Hong Kong stock market. *Global Finance Journal*,Vol.13No.2,PP.163-179.

Lewellen, J. (2004). Predicting returns with financial ratios. *Journal of Financial Economics*,Vol.74,No2,PP.209-235.

Ohlson, J. A. (1980). Financial ratios and the probabilistic prediction of bankruptcy. *Journal of accounting research*,PP.109-131.

SUADİYE, G. (2013). İSTANBUL MENKUL KIYMETLER BORSASI'NDA KAZANÇ VE HİSSE SENEDİ GETİRİSİ ARASINDAKİ İLİŞKİNİN TEST EDİLMESİ. *Uluslararasıİktisadiveİdariİncelemeler Dergisi*,Vol.10.