



CAN MARKET RATIOS PREDICT STOCK PRICES: EMPIRICAL STUDY OF MANUFACTURING COMPANIES IN JORDAN

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Abstract

The purpose of this paper is to examine the ability of market ratios to predict stock prices of Jordanian manufacturing companies. While stock prices tend to be a strong indicator of healthy economy, scholars identified financial ratios among the factors that can explain movements of stock prices. Although financial ratios depend on financial statements, market ratios in particular, have additional information related to market, therefore, this study rely on market ratios: dividend per share (DPS), earning per share (EPS), book value per share (BV), market/book ratio (M/B), and price/earnings ratio (P/E); to predict stock prices. The data has been collected from Amman Stock Exchange (ASE), financial statements of 27 Jordanian manufacturing companies were analyzed for ten years during the period (2009-2018), multi regression methods applied to test its hypotheses. The study revealed that market ratios can significantly predict stock prices by their own, and have the ability (as combined) to explain stock prices movements in the Jordanian manufacturing companies.

Keywords: Stock price, Book value, EPS, DPS, P/E, Jordan

INTRODUCTION

Stock prices tend to be a strong indicator of healthy economy, the continuous decrease of the prices can lead to recession, while the increase suggests economic growth. For that reason many scholars attempt to identify the determinants of stock price, they classified them into two categories; internal or microeconomic and external or macroeconomic factors.

Macroeconomic factors include financial and monetary policy, inflation, interest rate, exchange rate foreign trade policy and others, while microeconomic factors depend on financial ratios generated from the accounting data of the firm itself.

Financial ratios consider as classic, simple and effective tools in evaluating the financial position and performance of firms, while market ratios, have additional information related to market beyond the scope of financial statements, and that explain why investors prefer them for evaluating stock prices and making their investment decisions.

Therefore, this study aims to examine the changes in stock price depending on market ratios in the Jordanian manufacturing firms listed in (ASE).

LITERATURE REVIEW

Over the past few decades, several studies have been conducted to examine the influence of financial and market ratios on stock prices or stock returns; however, it should be noticed that market ratios in particular showed significant impact on stock prices rather than other ratios. Ligocká and Stavárek (2019) examined the relationship between selected financial ratios and the stock prices listed on selected European stock exchanges during the period of 2005-2015. The results showed different results among these ratios (Liquidity, profitability, working capital, and leverage) and stock prices. The results also argued that despite those markets have been unified; there still remain important differences across them. Goyal and Gupta (2019) attempted to identify the financial determinants of stock prices. The study considered the companies listed in Bombay Stock Exchange (BSE), their results indicated that firms' earning per share, net margin and net income are having a significant impact on firm's stock price. Awwad and Salem (2019) tried to investigate which of the financial ratios had more influential impact on stock prices. They conducted a test study survey to analyze the published data of Jordanian industrial joint stock companies for the period (2010-2017), the results showed that ratios could be arranged according to the strength of their effect on stock price: (profitability ratios, market ratios, liquidity ratios, debt ratios, and activity ratios).

Hung et.al (2018) studied the impact of accounting information on the stock price of energy enterprises listed on Vietnam's stock market; they found that ROA, size, current ratio, and accounts receivable turnover are positively correlated with the stock price. Arkan (2016) investigated the importance of financial ratios to predict stock price trends in Kuwait market, he derived financial ratios of three different sectors, and concluded that it could rely on a set of financial ratios for each sector to predict stock price. Issah and Ngmenipuo (2015) investigated empirically whether ROA, ROE, and ROI explain together variations in the market prices of publicly traded banking financial institutions in Ghana for the period 2009-2013, their findings

showed significant relationship between them. Kabajeh et.al (2012) also examined the relationship of profitability ratios (ROA, ROE, and ROI), with stock prices of Jordanian insurance companies for the period 2002-2007, results revealed weak relationship. Shamki and Abdul Rahman (2012) examined the value relevance of earnings and book value of equity, relative to price and return models, for Jordanian industrial companies for the period 1992-2002, they found that earnings are more important in explaining the variance in share price than book value.

The results of these studies could be as evidence that not all accounting information is associated with stock price.

On the other hand, market ratios could be more associated with stock price, Al-Oshaibat and Al-Manaseer (2018) examined the ability of a group of financial ratios (EPS, DPS, BV, and net income), to predict the prices of the market price of Jordanian commercial banks for the period 2010-2015, results showed that the effects of market ratios as a single package on predicting the stock market prices were very strong. Warrad (2017) also tested the effect of market valuation measures on stock price of Jordanian banks for the period 2008-2014, the study concluded that some variables (EPS, P/E, M/B, and stock turnover ratio) had no significant effect on banks' stock price, and others (DPS, BV, and dividend yield) had significant effect on banks' stock price, and market valuation measures had significant effect on banks' stock price.

Al-Qudah et. Al (2013) tested the ability of three ratios (EPS, MB, and P/E ratio) to predict the stock price for the period 2002-2008, their results showed that MB and P/E ratio had the ability to predict stock price. Ademola et. al (2016) investigated only the market ratios of quoted manufacturing companies in Nigeria, results showed that earnings per share, book value per share, dividend per share showed significant impact on stock price, whereas only price-earnings ratio had no significant impact on stock price.

Asif et. Al (2016) tested the relationship of market ratios with stock price of 30 companies in Pakistan's capital market, and showed that market ratios namely; (EPS, BV, and operating cash flow per share) had relationship with stock prices.

It should be noticed that previous studies showed significant impact of market ratios on stock prices rather than other financial ratios, this study suggest depending on market ratios to predict stock prices.

RESEARCH METHODOLOGY

Study sample

The study checks financial statements of Jordanian manufacturing companies listed on the Amman Stock Exchange (ASE). Only 27 out of 45 firms qualified to be included in the study sample according to the availability and continuity of published financial statements, during the period from 2009-2018, starting after the 2008 financial crisis.

Study variables

Variables used for the analysis are: dividend per share (DPS), earning per share (EPS), book value per share (BV), market/book ratio (M/B), and price/earnings ratio (P/E).

Table 1: Variables in the research model

Variable name	Type	Code	Measurement
Dividend per share	Independent	DPS	Dividends/total shares
Earning per share	Independent	EPS	Profit after tax/total shares
Book value of share	Independent	BV	Equity/total shares
market/book ratio	Independent	M/B	Stock price/book value
price/earnings ratio	Independent	P/E	Stock price/EPS
Market price	Dependent	MP	Stock price at the end of year

Hypotheses

Main hypothesis:

H01: There is no significant impact of market ratios on stock price (M.P).

Sub Hypotheses:

H11: Dividends per share (DPS) has no significant impact on firms' stock prices.

H12: Earnings per share (EPS) has no significant impact on firms' stock prices.

H13: Book value per share (BV) has no significant impact on firms' stock prices.

H14: Market/book ratio (M/B) has no significant impact on firms' stock prices.

H15: Price/earnings ratio (P/E) has no significant impact on firms' stock prices

Research Model

In order to examine the study hypotheses, the research model can be designed as follows:

$$M.P = \beta_0 + \beta_1 DPS + \beta_2 EPS + \beta_3 BV + \beta_4 M/B + \beta_5 P/E + u$$

ANALYSIS AND RESULTS

Correlation matrix

Correlation test has used to identify the relationships among study variables (Table 2).

Table 2: Correlation matrix for variables

Variable	DPS	EPS	BV	M/ B	P/E
DPS	1.00				
EPS	-0.6109	1.00			
BV	-0.2780	-0.1398	1.00		
M/ B	-0.2559	-0.1976	0.0454	1.00	
P/E	0.0769	-0.0191	-0.2523	0.0430	1.00

Correlation evaluation was carried out to take a look at the relationship amongst the variables over the period 2009–2018. Table (2) shows the correlation coefficients; all variables had a correlation coefficient value of less than 0.28 except for EPS and DPS 0.61.

The fact that some or all predictor variables are correlated among themselves does not, in general, inhibit ability to obtain a good fit nor does it tend to affect inferences about mean responses or predictions of new observations. Kutner et.al (2005). Furthermore, if correlation coefficient between variables is greater than 0.7 then severe multi collinearity may be present. Dormann et.al (2013).

Descriptive Statistics

Table (3) shows the descriptive statistics of study variables. It shows that P/E ratio shows a mean of 12.59 and high standard deviation of 62.98, which indicates high volatility. DPS has the lowest standard deviation among all the variables. This indicates that DPS was around the average of (10.1%) during the study period, indicating minimum volatility.

Table 3: Descriptive Statistics

Variable	Mean	Std. Dev	Min	Max
DPS	0.101333	0.253011	0	1.2
EPS	0.11587	0.463322	-1.08	3.6
BV	2.505221	2.883483	0.245098	21.76
M/ B	0.832267	0.478106	0.13	2.22
P/E	12.59	62.98	-356.5	661.5
M.P	3.010975	6.000102	0.14	47.29

Inferential Statistics

Multi regression analysis shows if set of variables has the predictable ability to predict another variable. Table (4) shows the results of regression test:

Table 4: Regression Test

Parameter	Estimate	Error	T Statistic	P-Value
CONSTANT	-2.10718	0.257831	-8.17272	0.0001
DPS	7.6973	0.748125	10.2888	0.0000
EPS	1.93229	0.47462	4.07124	0.0001
BV	0.796905	0.0536326	14.8586	0.0002
M/B	2.16085	0.227941	9.47987	0.0000
P/E	-0.002168	0.00205	-1.05322	0.2932
Model			0.0001	
R-squared (adjusted) =89.109%				
Standard Error of Est. = 2.02				
Durbin-Watson statistic = 2.076				

Table (4) shows the results of fitting a multiple regression model to describe the relationship between Market Price and 5 independent variables. The equation of the fitted model is:

$$M P = -2.10 + 0.796 BV + 7.697 DPS + 1.932 EPS + 2.160 M/B - 0.0021 P/E$$

Since the P-value of the model is less than 0.05, there is a statistically significant relationship between the variables. The adjusted R-squared statistic, which is more suitable for comparing models with different numbers of independent variables, is 89.1969%.

The standard error of the estimate shows the standard deviation of the residuals to be 2.02107. This value can be used to construct prediction limits for new observations. The mean absolute error (MAE) of 1.08305 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation. Since the DW value is 2.07, there is not any serious autocorrelation in the residuals.

It should be noted that almost all variables in the model have P values less than 0.05 except for P/E ratio; this means that market ratios can predict stock prices by their own significantly, and have the ability (as combined) to explain more than 89% of the stock prices movements.

CONCLUSION

This study was conducted for examining the ability of market ratios to predict market stock price. Based on the statistical results, the model showed that there is significant ability of market ratios to predict market stock price.

It should be noted that almost all variables in the model are statically significant except for P/E ratio; this means that market ratios can predict stock prices by their own significantly, and have the ability (as combined) to explain more than 89% of the stock prices movements in the Jordanian manufacturing companies. For this reason, investors and financial analysts should take market ratios into consideration, and rely on them in their investment decisions, rather than other financial ratios.

Although the empirical results of this study prove that market ratios can predict stock prices in the manufacturing companies, the future studies should be continued and expanded to other industries and markets.

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