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Stock Price Determinants: Empirical Evidence from Muscat Securities Market, Oman

Dharmendra Singh

Abstract

Stock price is one of the main indicators for measuring firm performance and also the only factor determining shareholders' wealth. Stock price changes are based on information related to the firm and the market as a whole. This paper is focused on the determinants of the share price of the twenty-six non-financial companies listed in Muscat Securities Market, Oman. In this study, closing annual stock price from 2011 to 2016 is the dependent variable and the firm-specific variables like firm size (logarithm of total assets), dividends payout, earning per share (EPS), debt ratio, price-earnings(PE) ratio, first lag of dependent variable(stock price) are the independent variables in the panel data regression using random effect model. There are two categories of research hypothesis: the first one is based on semi-strong form of Efficient Market Hypothesis (EMH) and second one is based on Arbitrage Pricing theory (APT). To test the second set of hypothesis, oil price, growth rate in GDP and consumer price index are considered as independent variables as they effect performance of business and so do the stock prices. EPS, debt ratio and first lag of stock prices are significant determinants of stock prices. Dividend payout, firm size and PE ratio are insignificant variables.

Keywords: dividend, stock price, Muscat, random effect, oil price

1. Introduction

In today's world, the performance of business and corporates of a country plays a very important role in its position as a world leader. The per capita income, employment rate and other economic variables depend a lot upon the performance of business houses in that country. The stock price of a company fluctuates according to the performance of the business and the economy as a whole. The timing and the decision about buying and selling of stock depend upon the

stock price level. When an investor decides to invest in a stock he always looks for strong and growing companies, the value of the firm is reflected in the stock prices of that firm, and that is how an investor without any finance knowledge selects the stock-by-stock price movements.

One of the key sources of financing for the listed firms is the stock issue, and for successful stock issue, firms need to have a strong track record in the stock market. There are various stakeholders to the business, like shareholders, creditors, customers, employees, and government. The rising stock price is an indicator of good management and satisfaction for all the stakeholders. There are company-specific and market-related determinants of stock prices; in literature, many theories are available that explain the movement in the stock prices.

One of the most significant theories is the Efficient Market Hypothesis (EMH), which is based on the assumption that rational investors in the market react to the available information like company fundamentals and other important declaration about the company to decide on the stock buying or selling. If they feel that the information is positive, then they retain the shares if already bought or buy the one which was not purchased earlier and vice versa. The action of buying and selling stocks by the investors is responsible for changes in stock price. There are three forms of EMH—weak, semi-strong and strong form—and they vary regarding available information for public and investors. Another theory 'Random walk' states that stock prices are random and cannot be predicted by any means. This theory has been empirically tested many times and proved by the researchers. A random walk is consistent with EMH, as the flow of information is random which helps investors in reassessing the stock price.

The third theory 'Behavioral Finance Theory' is very different from the random walk and the EMH theories. This theory states that investors do not behave rationally rather they invest by psychological and behavioral factors; for example, they will invest in the stock if the stock price is increasing even if there are no significant changes in the company fundamentals.

Gordon [1] revealed that dividend payment and growth rate of the company have an impact on the intrinsic value of shares. The model was based on the assumption of constant growth in dividends which was one of the weaknesses of the model, but still, it is the highly used model to calculate the intrinsic value of the stock. This model claims that expected dividend and growth rate of the company are positive determinants of stock prices.

A considerable amount of research has been done to find out internal determinants of share price changes of companies, some of the common factors found are dividend yield, total assets, earning per share, capital structure and book value per share. Apart from internal variables, macroeconomic variables also have an impact on share prices that have been discussed by Roll and Ross [2] in his arbitrage pricing theory (APT), a framework for pricing securities for investors. According to Ross, common macroeconomic factors affecting share prices were unexpected changes in inflation, GDP and changes in the yield curve. APT model is flexible as investors can select other factors also depending on the market like for oil exporting and importing countries oil price can be an important factor affecting security prices. Mukherjee and Naka [3] supported the APT theory by confirming the impact of economic variables on the stock returns; they argued that changes in economic variables affect dividend payments and discount rates and thus have an impact on share prices as well.

In the present study, the attempt has been made to study the impact of select internal determinants and macroeconomic determinants of the share price of listed 26 nonfinancial companies in the Muscat Securities Market. A lot of work has been done on this topic, but most of the studies are based on establishing a relationship between dividend policy and stock prices. To the best of researcher's knowledge, this study is the pioneer study on the Oman capital market, based on stock price determinants of the companies from Muscat securities market. In the previous studies from GCC countries [4–6] and studies from other countries, authors have not studied any specific sector for share price determinants. Another contribution of this study is that it is exclusively based on nonfinancial companies. The nature of balance sheet in financial companies varies from nonfinancial companies in terms of leverage, current assets and fixed assets composition. Therefore, to study the impact of company-specific determinants on share prices a separate sample of financial and nonfinancial companies would yield better results rather than studying the mix of all types of companies.

The whole chapter is organized into five sections including introduction. Section 2 describes the literature review. Section 3 discusses the methodology and data. Section 4 presents the empirical results and its discussion thereof. Section 5 presents conclusion with policy implications.

2. Review of literature

Collins [7] was the pioneering work on determinants of share prices based on the US market, the findings of the chapter recognized book value of equity, dividend, net profit and operating cash flows as the significant factors affecting share prices.

Nirmala et al. [8] used fully modified least square regression model on panel data of 37 Indian companies from 2000 to 2009. The study identified price earnings ratio, leverage and dividend per share as the major determinants of share prices. In the Indian context, this study was also conducted by Tandon and Malhotra [9]; they tried to identify determinants of stock prices for 100 companies listed in National Stock Exchange (NSE) using linear regression model from 2007 to 2012. The results indicated that firms' book value, earning per share and price-earnings ratio have a significant positive association with firm's stock price, while dividend yield has a significant inverse association with the market price of the firm's stock.

Malhotra and Prakash [10] studied the determinants of stock prices of Indian companies during 1990–1999 with the help of correlation and regression analysis. Book value per share, dividend per share, market to book ratio and PE ratio emerged as the significant determinants of the share prices.

Oseni [11] studied the impact of earnings per share (EPS), oil price, dividend per share (DPS), GDP, foreign exchange rate and interest rates on share prices of 130 companies from the Nigerian stock exchange. The study revealed a strong positive correlation between stock prices and EPS, oil price, dividend per share and GDP.

Gjerde and Saettem [12] studied the relationship between stock returns and macroeconomic variables like inflation, real economic activity and oil prices in Norway. The empirical study revealed that inflation is not a significant variable for changes in stock prices. However, there was a positive relationship between oil price and stock price.

Irfan et al. [13] attempted to explain the impact of six company variables dividend yield, dividend payout ratio, leverage, size of the firm, earnings volatility and asset growth rate on stock prices of Pakistani companies during the period 1981–2000. A regression model was

Study	Methodology	Results of the study (+/− significant or insignificant)	Place
Bhattarai [15]	Multiple Regression Model	dividend payout ratio (insignificant), dividend yield (−), earnings per share (+), price earnings ratio (+), logarithm of total assets (insignificant)	Banking sector of Nepal
Şebnem and Vuran [16]	Dynamic Panel Data Analysis	closing price of the stock at time t-1 (+), book-to-market equity (+), leverage ratio (−), firm size (+), dividend paid (−), oil price (−)	Istanbul Stock Exchange
Gregoriou et al. [17]	Panel least squares regression model	earnings per share (insignificant), net cash from operating activities per share (+), book value per share (+), long-term debt to total assets (+), dividends per share (+)	Mobile companies from Europe, Asia, the Middle East and America
Ibrahim Obeidat [6]	Multiple Regression Model	Earnings per share (+), dividends per share (+), book value per share (+)	Abu Dhabi Securities Market
Mohammad Khan Ghauri [18]	Fixed effect regression model	Equity (−), dividend yield (insignificant), return on assets (insignificant), asset growth (insignificant)	Banking sector of Pakistan
Raithatha and Bapat [19]	Fixed effect regression model	Beta (+), market capitalization (+), current ratio (insignificant), earnings per share (+), D/E ratio (insignificant), return on capital employed (insignificant)	Indian Stock Market
Srinivasan [20]	Random effects model	Dividend per share (−), price earnings ratio (+), EPS (+), size-sales (insignificant), book value per share (insignificant)	Indian Manufacturing Companies
Adrangi et al. [21]	Johansen and Juselius co-integration model	Inflation rate (−), economic activity (GDP) (+)	Brazil stock market
Papapetrou [22]	Multivariate vector-auto regression (VAR) approach	Oil prices (−), real economic activity and employment	Greece stock market
Fama and Schwert [23]	Regression Model	Expected inflation (−) and unexpected inflation (−)	New York Stock Exchange

Table 1. Summary of other identified studies.

used to establish the relationship; the study concluded that none of the fundamental factors considered were significant for the changes in the share prices.

Al-Deehani [4] studied the impact of EPS, DPS, previous year dividend, return on equity (ROE), price to book value and cash flow per share on the share prices of companies listed in the Kuwait stock exchange. The study concluded that variables DPS, previous year dividends per share, ROE, price to book value and cash flow per share are all highly correlated with the share price.

Al-Tamimi et al. [5] investigated the key determinants of stock prices of 17 companies listed in UAE stock market during 1990–2005. The regression result indicated EPS as a strong determinant having positive impact on share prices; consumer price index was found to be statistically significant with a negative coefficient. Money supply and GDP were found to have a positive coefficient, but they were statistically insignificant.

Allen and Rachim [14] tested the effect of dividend policy on the stock price volatility with the control variables like leverage, growth, earnings volatility and firm size. The data on 173 companies listed in the Australian stock market from 1972 to 1985 were analyzed with the help of cross-sectional regression analysis. The results showed the significant positive relation between stock price volatility and leverage, size and earnings volatility. It was also concluded that dividend policy is not influencing stock price volatility. Apart from the studies mentioned above, few more important studies from different markets are identified and mentioned in **Table 1**.

In the existing literature, there is a mixed opinion on the determinants of stock prices and their positive or negative impact. Very few studies are based on GCC countries and none of them from Muscat securities market, Oman. This study thus fills the gap by researching the impact of select firm-specific and economic variables on the stock prices of the nonfinancial sample companies listed in Muscat securities market, Oman.

3. Data and variables

By available literature and data, the author has identified dividend payout ratio, debt ratio, earnings per share (EPS), logarithm of total assets (a proxy for company size) and price earnings ratio as the regressors of the stock price in this study. This study is based on 26 nonfinancial companies listed in Muscat securities market during 2011–2016. The sample companies selected for the study are based on the availability and fullness of the data. The selected companies are Al Saffa Foods, Salalah Mills, Oman Cement, Raysut Cement, Galfar Engineering and contracting, Anwar Ceramic Tiles, Jazeera Steel Products, National Aluminum Products, Gulf International Chemicals, Oman Chlorine, Oman Cables Industry, Voltamp Energy, Omantel telecommunications, Port Services Corporation, Almaha petroleum products, National Gas, Oman oil marketing, Shell Oman Marketing, ACWA Power Barka, SMN Power Holding, Sohar Power, United Power, Al Jazeira Services, Oman Investment and Finance, Renaissance Services and Ooredoo.

Roll and Ross [2] in his arbitrage pricing theory (APT) has proved the relevance of macroeconomic variables in stock pricing. Based on the literature, economic variables like growth rate in GDP, consumer price index and crude oil prices have also been considered as the external

variables affecting stock prices. Fama and Schwert [23] the well-known study was also based on the relationship between stock prices and inflation. Oman being the net exporter and mainly depending on oil and gas export is facing the heat of low oil prices. Economy of Oman like other GCC countries is driven by oil and gas, so consideration of oil price as an independent variable makes sense.

Dividend payout ratio is the ratio of the amount of dividend paid per unit of total earnings, also represents the percentage of earnings distributed in the form of dividends to share-holders. The payout ratio is considered to be one of the important variables affecting stock price as current stock value is the discounted value of future cash flows from that stock. The second variable 'debt ratio' is defined as the ratio of total debt to total assets, expressed as a decimal or percentage. It can be interpreted as the proportion of a company's assets that are financed by debt. It is a measure of financial risk on the assets of a company, and higher financial risk will affect the returns and consequently price of a stock. The third variable considered in the study is EPS, which measures the income generated on one share. It is a ratio of net income to the number of shares outstanding. In most of the studies, EPS has emerged as a significant variable having a positive impact on share prices. In literature, many studies have tried to measure the impact of the size of the company on the stock prices. Some of them have used the logarithm of sales as the proxy for company size and in some cases logarithm of total assets. Both sales and total assets are an indicator of business size. Many investors take their investment decision by company size as bigger companies are more stable regarding profit and are also less prone to the business cycle. Price-earnings ratio commonly known as PE ratio is one of the prime indicators used in the stock selection by the investors. PE ratio is the ratio of the market price of a stock to its EPS. It is a measure of investor's confidence on stock and is a reflection of investor's anticipation of higher growth in the future. Gordon growth model confirms the role of the growth rate of the company on the intrinsic value of the stock.

3.1. Hypothesis

The following hypothesis statements were formulated on the basis of available literature and theory which provides the scope and depth to the study.

Hypotheses H_{01} to H_{06} are framed to test the reflection of publicly available information on the stock prices based on semi-strong form of EMH.

H_{01}: There is no significant effect of size of the company on its share price.

H_{02}: There is no significant effect of dividend payout ratio on share price.

H_{03}: There is no significant effect of EPS on share price.

H_{04}: There is no significant effect of leverage on share price.

H_{05}: There is no significant effect of price-earnings ratio on share price.

H_{06}: There is no significant effect of first lag of share price on current share price.

The following hypothesis are framed to confirm the impact of economic variables on the stock returns based on arbitrage pricing theory (APT),

H_{07}: There is no significant effect of crude oil price on share price.

H_{08}: There is no significant effect of inflation on share price.

H_{09}: There is no significant effect of growth in GDP on share price.

3.2. Panel data analysis

Panel data analysis has been used to analyze the impact of firm-specific and macroeconomic determinants on the share price of the nonfinancial listed companies in Oman. Panel data always has advantages over time-series and cross-sectional data. Panel data analysis weakens the interaction between the variables that result in more reliable parameters, Hsiao [24]. Employment of this technique is considered more efficient as it reduces the co-linearity of the predictor variables and also it offers gain regarding the degree of freedom. The research study uses both the panel data methods, that is, fixed effect method and the random effect method. The better method is then selected applying the Hausman test. Both the models fixed effects and the random effects have been represented by the following Eqs. (1) and (2), respectively:

$$
\begin{aligned}
CP_{jt} = \ & \beta_{0j} + \beta_1 CP_{jt-1} + \beta_2 Dividend_{jt} + \beta_3 EPS_{jt} + \beta_4 Leverage_{jt} + \beta_5 GDP_{jt} \\
& + \beta_6 Inflation_{jt} + \beta_7 Size_{jt} + \beta_8 Oil_{jt} + \beta_9 PE_{jt} + \mu_{jt}
\end{aligned}
\tag{1}
$$

$$
\begin{aligned}
CP_{jt} = \ & \beta_0 + \beta_1 CP_{jt-1} + \beta_2 Dividend_{jt} + \beta_3 EPS_{jt} + \beta_4 Leverage_{jt} + \beta_5 GDP_{jt} \\
& + \beta_6 Inflation_{jt} + \beta_7 Size_{jt} + \beta_8 Oil_{jt} + \beta_9 PE_{jt} + \mu_{jt}
\end{aligned}
\tag{2}
$$

where, CP_{jt} = annual closing price of firm's stock in year t; β_0 = common y-intercept; β_1–β_9 are the coefficients of concerned explanatory variables; ε_{jt} = stochastic error term for firm j at time t; β_{0j} = firm j's y-intercept; μ_{jt} = error term for firm j at time t.

Based on the literature on share price determinants, the following company-specific variables dividend payout ratio, leverage, earning per share, size of the company, price earnings ratio and three economy based variables growth rate in GDP, inflation rate and crude oil prices were selected as the predictor variables in the regression analysis. Apart from these variables, first lag of yearly closing price of shares was also considered as a predictor variable.

4. Data analysis

This section presents the results of panel data analysis which are reported in **Table 2**. Both the fixed effect and random effect model was used to measure the impact of the selected independent variables on the stock prices of sample companies. Then the Hausman specification test was used to select a better model between fixed effects and random effects model. The null hypothesis in Hausman test is that the preferred model is random effects and the alternate hypothesis is that the preferred model is fixed effects.

Variables	Fixed effects model		Random effects model	
	Coefficient	Probability value	Coefficient	Probability value
Constant	−7.520228	0.0146	−2.388403	0.0112
Lag dependent	0.046939	0.0306	0.049934	0.0116
Dividend	−0.085040	0.8511	−0.158990	0.4880
Leverage	−0.348200	0.6613	0.694747	0.0286
EPS	12.28314	0.0000	12.16380	0.0000
GDP	0.004827	0.7650	0.004485	0.7791
Inflation	−0.053186	0.2667	−0.080517	0.0778
Size	0.558998	0.0409	0.082158	0.1875
Oil price	0.349209	0.0432	0.316537	0.0620
PE ratio	−0.000300	0.8755	−0.000619	0.7284

Table 2. Determinants of share price according to fixed and random effect model.

According to the results of fixed effects model earnings per share, a log of total assets (a proxy for company size) and crude oil prices are found to be significant determinants of the changes in stock prices. All the three variables have a positive relationship with share prices. The macroeconomic variables growth rate in GDP and consumer price index are found to be insignificant in explaining the changes in share prices.

Results of the Hausman test are reported in **Table 3**, and according to that, null hypothesis is accepted. Therefore, random effects model is supposed to be a better model for analyzing this panel data. Value of R square is also quite high with 93.23% of variations in stock price explained by the regression model. In Random effects model, among the company-specific variables used in this study, lag of share prices, earnings per share and leverage are the statistically significant variables. The two variables earnings per share and first lag of share prices are even significant at 1% level of significance. The lag of the share prices has positive coefficient which means the previous hike in share prices are responsible for the increase in share price of the next year. Investors invest by stock price movement; this result supports the behavioral theory of finance. Earnings per share (EPS) is one of the most dominant determinants of share prices with the highest positive regression coefficient of 12.16 and significant at 1%. Debt to the total asset (leverage) is also significant and is positively related to sharing prices of the sample companies. The dividend has proved to be an insignificant determinant of the share prices, and this supports the irrelevance of dividend policy on the firm value. The logarithm of total assets (size of the company) and PE ratio are also not significant determinants at 5%.

From the three external variables, inflation rate and crude oil price are significant at 10% level of significance. The result of inflation rate is consistent with the previous studies and has a negative impact on share prices [21, 23]. Oman being an exporter of crude oil, the oil prices are significant determinants and have a positive impact on them. The growth rate in GDP is not seen as important and significant variables for share prices in Oman.

Test Summary	Chi-Square Statistic	Probability
Cross-section random	0.000000	1.0000

Table 3. Result of Hausman Test.

4.1. Testing of research hypotheses

Results of random effect model indicate the rejection of the null hypothesis H_{03}, H_{04} and H_{06} at 5% level of significance. Other null hypothesis like H_{01}, H_{02} and H_{05} are not rejected at 5%. Hypothesis H_{01} to H_{06} were framed to test the existence of semi-strong form of EMH in capital market of Oman, which is partially met. Similarly, two null hypotheses (H_{07} and H_{08}) are rejected at 10% level of significance and supports APT theory for stock prices.

5. Conclusion

The study aimed at investigating the effect of dividend payout, EPS, a log of total assets, debt ratio, PE ratio and previous year stock price on the current stock price of 26 listed nonfinancial companies in Oman. Three economic variables—growth rate in GDP, crude oil prices and consumer price index—are also considered as an independent variable in this study.

The empirical analysis is based on random effect model regression analysis with the stock price as the dependent variable. Based on the data analysis, the study finds that EPS has a significant positive effect on the price of common stock. Relatively, the value of the coefficient (12.16) for EPS is the highest among all the independent variables. In the majority of the existing studies, EPS had shown the same relationship with stock price [5, 6, 15, 19, 20]. EPS is a direct measure of shareholders earning on one share, and stocks with high EPS are commonly selected by equity analysts. Debt ratio (leverage) is also a significant variable having a positive relationship with stock price. Conceptually higher debt capital is an indication of financial risk, and hence an investor avoids these stocks. The reason for a positive relation between leverage and stock price could be a low percentage of debt capital in sample companies, as up to a certain level debt capital is favorable for stockholders which has been explained by the concept of 'trading on equity.'

First lag of stock price is also significant and has a positive effect on current stock price consistent with Şebnem and Vuran [16]. This finding supports 'Behavioral Finance Theory' which explains the inconsistent behavior of investors toward theories and concepts. Dividend payout is insignificant determinant for stock prices, and results are consistent with the previous studies [9, 15, 18]. However, intrinsic value of a stock depends on future dividends; this may be because of anomalies or investors giving weightage to capital gains. The firm size is not significant; this result shows that investors are not giving any preference to bigger and established firms.

The macroeconomic changes also influence stock prices; inflation is negatively related to stock prices which support the well-known study of Fama and Schwert [23]. He justified the negative relationship by arguing that 'an increase in inflation causes uncertainty and reduces future economic activity and thus future earnings of the firm which results in a reduction of stock price.'

The current study confirms that stock prices are affected by certain firm-specific variables and also by select economic variables. The results of the study might help investors and equity analysts in better decision-making. The study has achieved its objectives and recommends future research in the context of Oman with financial companies or with another set of variables that might have a significant effect on stock prices.

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