

The effect of internal and external factors on stock market prices - evidence from Saudi Arabia

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Keywords

dividends, Stock Price, Oil Prices, Stock Market, Inflation

Abstract

This study investigates the impact of dividend as an internal factor, and oil prices as external factor on the market prices of equity in oil producing economies. The data sample for this study is drawn from 40 firms listed on the Saudi Stock Exchange during the period 2011 to 2015. The study employed the panel data regression model to analyze the data and to investigate the possible linkages among the variables identified. A dummy variable is used to capture the sectoral effect on the market price of equity. The result of the investigation provides empirical evidence supporting the view that dividend is relevant in explaining the market price of equity, especially listed firms on the Saudi Stock Exchange. The findings revealed a weak significant positive impact of oil prices, and the sector to which a firm belong may play a role in determining the price of a firm's equity.

Introduction

The core purpose of this paper is to investigate the possible impact of certain factors (firm specific factors and general factors) on the market price of equity. Firm specific factors are those linked to the firm's performance. While general factors, are those linked to the macroeconomic conditions as a whole.

In the light of a thorough review of the literature related to the factors affecting the price of equity shares, it can be argued that both macro and micro economic factors play role in determining the price of equity in the stock markets. Another classification of these factors could be internal and external. The internal factors are those represent the firm's performance or the microeconomic factors. While external factors generally include variables that represent the country's economic performance or the macroeconomic factors.

The impact of these factors may differ from country to country, industry to industry, and firm to firm. Corwin (2003) argues that most of the factors affecting the market price of equity appear to have the same behavior regardless of firm, industry or time constraints. For example, increased inflation, declining dividends and earnings, and poor management leave negative impact on market price of equity.

Al Masum (2014) states that in the past two decades many economies in the world experienced volatility (booms and depression); one of the major impacts of such volatility is the volatility in the stock market prices. Even the most successful corporations were not saved off these volatilities in spite of their proven records of excellent performance in terms of both profit (cash) generation and dividends pay-outs. He argues, that it is not wise to study the impact of company specific factors while the economic history provide sufficient evidence that stock market prices are affected by both internal as well as external factors. The significance and magnitude of these factors may differ from time to time and the level of severity of each type.

Considering the firm specific (internal) factors, most researchers suggest that the price of equity is mostly affected by the variables of dividend policy, retention ratio, profit after tax, earnings per share, and return on equity (Majanga, 2015). Dividend policy (which determines how much of the profit to pay out as dividends, and how much to retain) is one of the most widely researched

topics but the question is whether dividend policy affects stock prices still remain debatable. There are two different views regarding the dividend policy and stock price. Those who think dividends have more impact in determining share price, argues that shareholder prefers current return rather than future return and dividend distribution is an indicator of earning capacity in future. The other views are based on the importance of retained earnings. They argue that retained earnings are indicator of future investment opportunities. The shareholders can enjoy tax advantages in retained earnings. For tax purpose, retained amount is not treated as income until it is realized.

On the Macro level a large number of studies tried to explore the impact and relationship of a number of macroeconomic indicators on the stock market returns. Among these indicators are GDP, Inflation, Interest rate and the oil prices. Again, the results and conclusions of these studies are inconclusive. Recently a stream of literature emerged focusing on the impact of oil prices and volatilities on the stock market prices. According to this stream of literature, oil price is one of the most important indicators of the economy; therefore it is expected to influence the general performance of the economy including the stock market's performance. In this regard, Bayramoğlu and Hamzacebi (2010) argue that when we look at the literature, we can easily see that a small change in oil prices has either a negative or a positive effect on economy; therefore, oil prices must be considered when financial decisions are made. Effects of oil prices on economy differ whether the country is an oil-producer or an-oil consumer country (Akgun 2006: 83).

The present study attempts to investigate the impact of three variables on the market price of equity for firms listed in the Saudi Arabia Stock Exchange. Dividend will be examined as a company specific factor while oil price will be examined as an external factor related to the country's economy as a whole. The inflation rate will be introduced in the model as a control variable. The remaining part of the study has been structured as follows: Section 2 discusses the related literature while section 3 highlights the data collection and methodology and Section 4 devotes itself to the analysis and findings. Section 5 concludes the paper.

Literature review

This section will briefly demonstrate the literature related to dividend and oil price impact on stock market prices.

Dividend literature

The determinants of share price was initiated by Collins (1957) for the US market and he identified dividend, net profit, operating earnings and book value as the prominent factors affecting share prices in the US. Ever since, a significant body of theoretical and empirical literature has evolved that considers the determinants of market price of shares.

Dividend is the result of a discretionary decision made by the board of directors of a firm. Generally, a firm announces dividend on the profit. Corporate dividend policy is one of the most enduring issues in modern corporate finance. Dividend policy determines the division of earnings between payments to stockholders and reinvestment in the firm (Weston, Copeland & Shatri: 2004). The issue of whether or not dividend policy has relevance with share price volatility has been a topic of intense debate for many years. Many academic works have provided evidence that both support and reject the idea that dividends reduce stock price volatility. Some argue that dividends signal to investors that the company is operating effectively, while others argue that when all other variables are fixed, the payout of dividends does not effectively reduce the stocks volatility (Proffitt and Bacon, 2013).

The most well-known study on dividend irrelevance was by Miller and Modigliani (1961; "MM"). This study has become a benchmark to other researchers in developing various models pertaining to dividend behavior of firm values and the policies that guided the managers in setting up company payout policies. MM documented that firm value is independent from dividend policy. They argued that dividends have no overall effect on its stock returns because price appreciation has a compensating effect on the dividend distribution. Therefore, the value of the firm is based on its

basic earning power and its business risk, not how it distributes earnings to shareholders. In reality investors will be paying high taxes on dividend instead of capital gains. The investors will be taxable once their shares are sold. A company that pays no dividends will be more attractive to investors than a company that gives dividends payment (Black, 1976). Thus, stock price for non-dividend paying company tend to increase. For this reason, most of companies will be tempted to eliminate dividend payments.

Since the introduction of MM theory, many studies have emerged over the time such as Gordon (1962), Walter (1963), Friend and Puckett (1964); Black and Scholes (1974). Some studies supported MM's theory of dividend irrelevance whereas most of the studies opposed. In General, early studies of the dividend irrelevance theory seemed to confirm MM's research. For example, using data from the period before the seventies of the last century, studies such as Friend and Puckett (1964) and Black and Scholes (1974) were unable to find any significant relationship between dividend policy and total returns on a risk-adjusted basis.

On the other-side of the debate, Gorden (1963) introduced dividends relevance theory and argued that dividend has impact on market value and value of firm because investors prefer dividends on capital gain. Dividend payment could provide a signal to the investors that the company is complying with good corporate governance practices (Jo and Pan, 2009). Good corporate governance practices are valuable for a company as it implies the company's ability to raise funds from capital market with attractive terms ((Zakaria et al., 2012). Many of scholars who support the dividend relevancy argue that, if a company distributes cash dividends to the shareholders then positive results will be found because dividends has a signaling effect which tells about the financial condition of the firm and attracts the investors.

Recently, large number of studies emphasized the pivotal role played by dividend policy and dividend payment in the predication of stock market price (Joshi, 2012, Hashemijoo et al., 2012, Ather & Kawal, 2011, Nishat & Irfan, 2003). Dividend policy is considered an important tool for investors to assess the company's financial position as they require return on their investment and dividend paying company will certainly attract them (Ansar et al., 2015). Asquith & Mullins (1983), and Pandey, 2005, posits that the value and the performance of a firm is a function of the dividend policy and other variables like the way the firm is being financed. Therefore, firm's dividend policy is expected to have a significant positive impact on its stockholders' wealth.

As investors always look out for return on their investments, most stockholders are interested most in the dividends they get from the firm's profits (Barfield 1995). Therefore, the reaction of stockholders to the announcements and expectations of dividend plays a vital role in influencing the stock price (Bitok, et al., 2011). A number of scholars who believe in wealth creation, such as, Bainbridge (1993); Jensen (2001); Brigham & Ehrhardt (2002); Brealey & Myers (2003), and Moyer et al. (2003) argue that shareholder wealth is maximized when the company gives out a regular dividend to shareholders and when the stock price appreciates the stock market so that the investor makes some capital gains.

Oil price literature

Oil price is one of the most important economic factors influencing the world's economy. A small change in oil prices has positive or negative effects on all the economic factors (Toraman et al., 2011). In recent years, a large body of literature has focused on the links between oil prices and macroeconomic variables. It has confirmed that oil price fluctuations have significant effects on economic activity in many developed and emerging economies [Cunado and Perez de Garcia (2005), Balaz and Londarev (2006), Gronwald (2008), Cologni and Manera (2008) and Kilian (2008)]. Oil price fluctuations are normally regarded as an exogenous shock in the economy of each country (Hamilton, 2003 and Kilian, 2008) and it has been stated that its effect on total production is significant (Mork, 1994). Recognizing the vital role of oil in the modern economy, many studies were

directed to focus on the effect of oil price shocks on macro-economic indicators that may directly affect GDP, such as trade cycles, inflation, and foreign exchange rate.

Most previous studies have explored the effects of oil price shocks on economies of industrial countries that often import oil but few of them have focused on economic effects of oil price shocks on developing countries that export oil. In developed countries, oil is considered one of the production factors and increasing its price will have inflationary and recessionary effects, and decreasing its price is considered as the positive shock of the supply side. This is while not the same in developing countries that export oil.

Despite the large body of research examining the effect of oil price volatilities on GDP, there has been relatively little work done on the relationship between oil price variations and stock markets. The most known works in this field remain those of Jones and Kaul (1996), Sadorsky (1999), Huang et al. (1996), El-Sharif et al. (2005), Naifar and Al Dohaiman (2013), Mohanty, et al. (2011), Nguyen and Bhatti (2012), Shimon and Raphael (2006). And the bulk of what little work has been done has focused on stock markets in developed countries. Very few studies have looked at the stock markets in emerging economies.

Oil price returns and its volatility has a major impact on the economic activity and hence on present and future stock market returns. Previous studies document that oil price increases and volatility lead to rising inflation and unemployment and therefore depress macroeconomic growth and financial assets (Shimon and Raphael, 2006). In theory, there are several channels through which oil prices may affect stock market prices. The most invoked rationale of using oil price changes as a factor affecting stock market returns is that value of stock equals discounted sum of expected future cash-flows. These cash-flows are affected by macroeconomic events that possibly can be influenced by oil shocks. Thus, oil price fluctuations may influence stock market returns (Arouri et al., 2010). Moreover, if oil price affects GDP, it will affect the earnings of companies for which oil is a direct or indirect operational cost. Thus, an increase in oil prices will possibly cause expected earnings to decline, and this will bring about an immediate decrease in stock prices if the stock market efficiently capitalizes the cash flow implications of the oil price increase (Lake and Katrakilidis, 2009).

The impact of oil prices on stock market returns depends on whether the country under consideration is an oil producing or oil consuming economy. Studies particularly focused on stock markets of oil producing countries reveal that positive oil price changes tend to negatively affect stock returns. The seminal paper by Jones and Kaul (1996) was among the first to reveal a negative relationship between the oil prices and stock market returns. In addition, Sadorsky (1999) concludes that oil price changes are important determinants of stock market returns. In particular, he shows that stock markets respond negatively to a positive oil price change. A number of studies such as Filis (2010), Chen (2009), Miller and Ratti (2009), Park and Ratti (2008), Driesprong et al. (2008) and Gjerde and Sættem (1999) confirmed the findings of Sadorsky (1999) and Jones and Kaul (1996).

Furthermore, studies that examined the effect of oil price change on different sectors found that the exact relationship between oil price and stock market returns depends on the nature of those sectors. In particular, oil-related stock market sectors tend to appreciate in the event of a positive oil price change, whereas the reverse holds for oil-intensive sectors (see, for example, Arouri and Nguyen, 2010; Arouri, 2011). On the other hand the negative relationship does not hold for stock markets operating in oil-exporting countries. Arouri and Rault (2011) show that for the oil-exporting countries, there is a positive relationship between oil price shocks and stock market returns.

Related studies

Ehikiyoa (2015) investigated the impact of dividend policy on the value and performance of firms in developing economies. The data sample was drawn from 81 firms listed on the Nigeria Stock Exchange during the period 2001 to 2010. The study employed the panel data regression model to analyze the data and to investigate the possible link among the variables identified. The result of the

investigation provides empirical evidence to support the view that dividend policy is relevant in explaining the value and performance of firms in developing economies. The finding confirms the proposition that dividend policy is an important determinant of firm performance. The study suggests policies that may help to improve the value and performance of the firm while contributing to shareholders' wealth maximization.

In a study conducted in the Bahrain Stock Market, Sharif et al. (2015) found that the stock prices are significantly determined by a number of internal variables like return on equity, firm size, book value, dividend yield, and dividend per share. The most significant and key factor among these was dividends given to stockholders. It was evident that dividend could not be ruled out in establishing the determinants of stock prices. This finding was in line with Masum (2014), which indicated that the dividend policy of a company will definitely have a positive impact on the prices of its shares.

Khan et al. (2014) examined the possible impact of macroeconomic variables like fiscal policies and monetary policies (interest rate) and inflation rates on stock market performance in Pakistan. The paper found that macroeconomic variables significantly affect the stock market index in Pakistan. Specifically, interest rate and government revenue have significant negative relationship with stock market index, whereas the inflation rate and government expenditures have significant positive relationship.

Reboredo and Rivera-Castro (2014) examine the connection between oil price and stock market returns using daily data that consists of the aggregate S&P 500 and Dow Jones Stoxx Europe 600 indexes and US and European industrial sectors (automobile and parts, banks, chemical, oil and gas, industrial goods, utilities, telecommunications, and technologies) over the period from 01 June 2000 to 29 July 2011. Based on wavelet multi-resolution analysis they found that oil price changes have no much effect on stock market returns in the pre-crisis period at either the aggregate as well as the sectoral level. With the onset of the financial crisis, their findings support the positive interdependence between oil price shocks and the stock returns at both the aggregate and the sectoral level.

Joshi (2012) conducted a study on both banking and non-banking sector in Nepal. In his study, secondary data was used to examine the impact of dividends on stock prices, and a multivariate linear regression analysis was implied in which current market stock price was taken as a dependent variable and four other variables namely Dividend Per Share (DPS), Retained Earnings Per Share (REPS), Lagged Price Earnings Ratio (P/E ratio) and Lagged Market Price Per Share (MPS) as the explanatory variables. The conclusion drawn in this study revealed that, the impact of dividends on the stock price is more pronounced than that of retained earnings.

Somoye, Akintoye, and Oseni (2009) conducted a survey on 130 companies traded in the Nigerian stock exchange between 2001 and 2007 in order to analyze the impact of various macroeconomic factors on the market price of shares. The study employed OLS regression and regressed stock prices on earnings per share, dividend per share, oil price, gross domestic product, lending interest rate and foreign exchange rate on stock price. All the variables revealed a positive correlation to stock prices with the exception of lending interest rate and foreign exchange rate. Similar findings were echoed by Zhao (1999) who studied the relationships among inflation, industrial output and stock prices in the Chinese economy for the period 1993-1998. Results revealed a negative relationship existing with both the variables studied on market price per share.

Al-Qenae et al. (2002) made a significant contribution to the topic by basing his research on the GCC market. He analyzed the impact of the effect of earnings and other macroeconomic variables on the stock prices of Kuwait Stock Exchange during the period 1981-1997. The macroeconomic variables examined were gross national product (GNP), interest rate, and inflation. The study found that earnings and GNP were positively related to stock prices, while inflation and interest rate showed a significant negative impact on the stock prices in Kuwait. The reason

attributed for the effect in Kuwaiti shares is that the Kuwait share market is highly responsive to the sentiments of public and external events.

Sadorsky (1999) used monthly data to probe the relationship between oil prices and stock returns for the US from January 1947 to April 1996. The author applied an unrestricted VAR with GARCH effects and showed a significant relationship between oil price changes and aggregate stock returns in US. In particular, he showed that oil price shocks have asymmetric effects: positive oil shocks have a greater impact on stock returns and economy activity than do negative oil price shocks.

The pioneer paper of Jones and Kaul (1996) studied the response of international stock markets to changes in the oil prices using quarterly data. The study focused on stock returns from the US, Canada, the UK, and Japan, utilized simple regression models, and reported that the stock returns for all countries (except the UK) were negatively impacted by oil prices.

Data and methodology

The researcher obtained data from a sample of companies listed in the Saudi Stock Exchange (SSE) during the study period from 2011 to 2015. The companies are distributed among seven sectors (Telecommunication, Banking, Insurance, Power, Cement, Petrochemicals, and Construction). The sample selection is based on a number of criteria previously employed in similar studies such as Ehikioya (2015). For instance, in this study, we considered firms with records of dividend payment during the period under review. We also eliminated firms without records of financial and market activities sufficient to estimate data for the model specified to examine the link between dividend payments, oil price and inflation rate and performance of the firm measured by the market price of its shares. The final sample for this study consists of 40 firms listed on the SSE with information necessary and sufficient to investigate the impact of dividend payments, oil prices, and inflation rates on the performance of firms in developing and oil exporting economies, evidence from Saudi Arabia.

Different sources and techniques were used for the construction of the study data. As already mentioned, all companies considered in the sample have been active throughout the study period. The average annual share price was calculated by dividing the sum of daily closing prices by the number of trading days in each year. Dividends were taken from the annual financial statements of the companies understudy. The daily closing prices and the annual financial statements of companies are both available on SSE website (Tadawul). Inflation rates were taken from the Saudi Arabian Monetary Agency. Oil prices from Saudi Ministry of Finance. Average monthly oil prices were taken and used for the calculation of the annual average oil prices.

Table 1 below demonstrates the descriptive statistics of the variables.

Nos	Variable	Number of observations	Max	Min	Mean	Standard deviation
1	Average market price of shares	200	159.5	7.25	30.571	23.079
2	Dividend	200	97	0	13.786	18.581
3	Inflation rate	200	%4.1	%2.9	3.6	0.401
4	Average Oil prices	200	111.66	61.49	94.5	20.495

Table 1: Descriptive statistics of the study variables

To gain the maximum possible observations, the study adopts the panel data regression model structured on the Ordinary Least Squares (OLS) regression method to examine the impact of dividend and oil price on the performance of a sample of firms listed on the SSE. The constructed panel comprised of 40 companies with 5 years observations (2011-2015). Thus the total number of observations that will be examined is 200. The regression model that will be applied to examine the impact of independent variables on the dependent variable is expressed in the following equation:

$$\ln avshpr = \alpha + \beta_1 \ln psd_{it} + \beta_2 \ln oil_t - \beta_3 \ln inf_t + \beta_4 sec + \varepsilon_{it}$$

In the above equation, α represents the intercept, β the regression coefficients and ε_{it} is the error term. While i is the company observation and t is the year of observation. The dependent variable is the average market price of shares (avshpr). The study utilized the firm dividend payments per share (psd) and average annual oil price (oil) as independent variables. All variables both dependent and independent are expressed in the form natural logarithm (\ln). The control variables that might also influence market price are the inflation rate (inf) which is also expressed in the form of natural logarithm, the sector (sec) to which the firm belongs measured as dummy variable taking the value of 1 if the firm belongs to a particular sector, 0 otherwise.

The specification of our model was fairly straightforward, as we wanted to measure the percentage change in stock prices as a result of the percentage change in our variables. Therefore, we used the natural log on both the left-hand side and right-hand side of the equation. It is likely that in our regression equation we have excluded some important variables that are known to have a significant impact on stock prices. GDP and earnings per share are among other variables that have been shown to have some impact on share prices, but there are several reasons why not to include all of these variables in our regression equation. The first problem is that many of these variables are significantly correlated with one another, resulting in the violation of Classical Assumption VI, which specifies that no explanatory variable is a perfect linear function of any other explanatory variables. While we would always expect some level of correlation between independent variables, multi-collinearity is a greater problem in a regression such as ours because of the time-series nature of the data to constantly increase over time.

4. Empirical results and analysis

Pooled OLS Regression:

Nos	Regression	1	2	3	4
1	Constant	2.665*** (0.058)	3.475*** (0.380)	1.197 (1.355)	0.922 (0.629)
2	Dividend	0.283*** (0.024)	0.275*** (0.024)	0.272*** (0.024)	0.272*** (0.024)
3	Inflation		-0.623** (0.289)	-0.095 (0.416)	
4	Oil price			0.357* (0.204)	0.390* (0.140)
5	F Statistics	136.87***	72.02***	49.54***	74.64***
6	R Square	0.4087	0.4224	0.4313	0.4311
7	Adjusted R Square	0.4057	0.4161	0.4226	0.4253

Dependent variable: Price share, * Significance at the 10 percent level, ** Significance at the 5 percent level, *** Significance at the 1 percent level, Standard errors reported in parenthesis.

Table 2: Regression analysis of the three independent variable

Dependent variable: Price share, * Significance at the 10 percent level, ** Significance at the 5 percent level, *** Significance at the 1 percent level, Standard errors reported in parenthesis.

To understand the behavior of the explanatory variables, four pooled OLS regressions were estimated. Table 2 presents the results of these four regressions. In the first regression only dividend has been entered as an explanatory variable. Regression two demonstrates the effect of both dividend and inflation rate. In the third regression all the three independent variables were entered simultaneously, while the fourth regression shows the effect of dividend and oil price only. In all the four regressions, R^2 ranges between 40 - 43% with F-Stat significant in all the four regression at 1% level of significance.

Looking at the results demonstrated in table 2 it is very clear that in all the four regressions, dividend plays a significant role in determining the stock price. A 10 percent increase in dividend leads to approximately 2.7 percent rise in the price of stock in the Saudi stock market and this result is significant at 1% level of significance in all the four regressions. In the second regression it is obvious that the inflation plays a significant role in decreasing the stock price. A 10 percent increase in inflation rate makes the stock price fall by approximately 6 percent which is significant at 5 percent level of significance. But the significance of inflation role in determining the price of stock in the Saudi market disappears in the third regression when oil price is added as an explanatory variable in the regression showing that a 10 percent rise in the oil price, leads to a rise in stock prices by approximately 3.6 percent, but with a weak significance level. The disappearing effect of inflation in the third regression maybe attributed to the multi-collinearity effect between inflation and oil prices.

Constant	1.225 (1.230)
Dividend	0.262*** (0.026)
Inflation	-0.105 (0.378)
Oil price	0.363* (0.185)
Cement Sector	0.156 (0.108)
Petrochemicals	-0.026 (0.108)
Banking	-0.015 (0.106)
Power	-0.557*** (0.149)
Telecommunications	0.160 (0.127)
Construction	-0.339*** (0.103)
Insurance	0.290** (0.123)
F Statistics	23.03***
R Square	0.5493
Adjusted R Square	0.5255

Dependent variable: Price share, * Significance at the 10 percent level, ** Significance at the 5 percent level, *** Significance at the 1 percent level, Standard errors reported in parenthesis.

Table 3: Regression analysis of the three independent variables along with sectors dummies

Dependent variable: Price share, * Significance at the 10 percent level, ** Significance at the 5 percent level, *** Significance at the 1 percent level, Standard errors reported in parenthesis.

Table 3 above demonstrates the results of running the regression for our full model as specified in the methodology section. The regression shows no significant changes in the results in terms of the magnitudes, signs or significance levels. The regression provides a deeper insight as to how the prices of shares in the Saudi Security Exchange responds differently as a result of changes in dividend, oil prices and inflation rates. Three out of the seven sectors listed in table 3 showed significant difference in behavior. In case the stock belongs to the Power or construction sectors, the price will be lower than the average market price of the total market and this result is significant at 1

percent level. On the hand if the stock belongs to the insurance sector the price will rise by 0.29% above the average market price.

5. Conclusion

This paper sought to detect the impact of firms' internal and external factors on the prices of stocks in the Saudi Security Market. Using panel data and the technique of pooled OLS regression over the period 2011-2015, the results of the regressions confirm that there is a significant effect of both internal and external factors. But, it is obvious that the effect of the internal factors is much more significant, though the magnitude of external factors is higher.

As per the results of the regression, a 10% increase in the dividend paid to shareholders in the Saudi Security Market results in a 2.7 percent rise in the average stock market price and this is significant at 1 percent level as the t- statistics indicates. Whereas if the price of oil rises by 10 percent the average price of stocks rises by 3.6 percent. But this result is only significant at the 10 percent level. Again, this result confirms the results of pervious research in oil producing countries which contradicts with those in oil importing countries.

Finally, the analysis revealed that the firm's divided policy as an internal factor, and the fluctuation of oil prices as an external factor, will not have the same effect on the prices of stocks in different sectors.

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