Cash dividends, retained earnings and stock prices: Evidence from Jordan

Wasfi AlTroudi
Department of Banking and Financial Sciences, Hashemite University, Zarqa, Jordan

Maysa’a Milhem
Department of Banking and Financial Sciences, Hashemite University, Zarqa, Jordan

Abstract

The purpose of this study is to examine the empirical relationship between cash dividends, retained earnings and the stock prices, after controlling for earnings per share and financial leverage in the context of the Jordanian stock market. All industrial firms listed on the Amman Stock Exchange are selected for analysis over the period from 2005 to 2010. The unbalanced panel data (cross-sectional and time series) is used to examine the relationship between cash dividends, retained earnings and the stock prices. The results of this study show a positive and significant relationship between cash dividends, retained earnings, earnings per share, and stock price while stock price is positively but non-significant associated with financial leverage. The contribution of this study is to reduce the dearth of previous research on dividend policy in emerging markets regarding the empirical relationship between dividend policy and stock prices.

Keywords: Cash Dividend, Retained Earnings, Stock Price, Amman Stock Exchange.

1. Introduction

Dividend policy is a central strategic concern around which other corporate financial policies rotate. Ross et al (2005) define corporate dividend policy, simply, as determining the amount to be paid to the shareholders and that to be retained in the company to reinvest in profitable projects or for retention in case of future needs.

Dividend policy has attracted the interest of numerous researchers in the field of corporate finance over a long period (e.g. Lintner, 1956; and Gordon, 1963); however, the subject of corporate dividend policy remains a focus in many recent articles (e.g. Bhargava, 2010; Kooli and Her, 2010; Blouin et al., 2011; Grullon et al., 2011; John et al., 2011; and Renneboog and Trojanowski, 2011).

Corporate dividend policy is one of the most important financial policies in corporations regardless of the type of industry activity. Therefore, a vast literature has examined corporate dividend policy (e.g. Miller and Modigliani, 1961; Lintner, 1962; Al-Malkawi, 2007; and Al-Najjar and Hussainey, 2009).

Corporate dividend policy and its role in determining the market value of the company is a very important topic which has attracted the interest of many researchers. A group of researchers has argued that corporate dividend policy leads to increase the wealth of stockholders through its influence on the firm’s stock price and hence increases firm value (e.g. Gordon, 1963; and Salih, 2010). Another group has argued that dividend payments lead to decrease the wealth of shareholders by reducing stock price, and hence decreasing firm value (e.g. Pettit, 1972). The last group has adopted the notion of irrelevance of dividend policy, i.e., for stock prices, and hence firm value is not affected by corporate dividend policy (e.g. Miller and Modigliani, 1961; Baker et al., 1985; and Farrelly et al, 1986).
2. Previous Research

Dividend policy has been received much interest among corporate finance researchers over a long time period, especially the relationship between corporate dividend policy and stock prices. This is mainly due to the potential influence of dividend policy on a firm’s share prices.

The theoretical literature on corporate dividend policy may be classified into three points of view among researchers: (i) it increases firm value, (ii) it decreases firm value, and (iii) it has no effect on firm value. The first group of researchers has argued that corporate dividend policy, through dividend payments, lead to increase the wealth of stockholders through their influence on the firm’s common stock prices and hence increase the value of the firm, while the second group has stated that dividend payments, which is one of the means of corporate dividend policy, lead to decrease the wealth of shareholders by reducing the common stock prices of the firm, and hence decrease the value of the firm. The last group has adopted the notion of irrelevance dividend policy, i.e., the prices of stock, and hence the value of the firm, are not affected by the corporate dividend policy (Manos, 2001).

Harkavy (1953) investigates the relationship between retained earnings and stock prices. He finds, as of a given of time, there is a propensity for stock prices to differ in a straight line with the ratio of distributed earnings. The results also show that the price of firm’s stock that retained large ratio of its earnings is higher than the price of stock of firm that retained small proportion of its earnings.

Walter (1956) examines the relationship between dividend policy and common stock prices. He uses the following equation to evaluate the current stock price:

\[ V_c = \frac{E}{R_c} + \frac{R_a - R_c}{R_c^2} (E - D) \]  

(1)

Where, \( V_c \): The present value of common stock, \( E \): The firm’s profits, \( R_c \): The rate of market capitalization, \( R_a \): The rate of return on additional investment, \( D \): Cash dividends.

As it can be seen from the above equation, there is an inverse relationship between dividend payout ratio and the value of the growth stock. In other words, if the dividend payout ratio increases under such circumstances, the value of the growth stock will decrease. Furthermore, stockholders get benefits as long as the rate of return on additional investment exceeds the rate of market capitalization. In addition, there is a negative relationship between stock prices and dividend payout ratio, i.e., the higher the dividend payout ratio, the lower the stock prices.

Gordon (1959) examines the effect of dividend policy and earnings on the prices of firm’s stock by using cross-sectional data for four industries in two years. He concludes that the current stock prices is or is not use as a signal to purchase the stock of company. In fact, the retained earnings are the most important cause for growth in the firm’s dividends which is in line with Harkavy (1953), whereas there is no relationship between dividends and the prices of stock.

Friend and Puckett (1964) distinguish between the effect of dividends and retained earnings on stock prices. The results show that the effect of dividends on stock prices is greater than the effect of retained earnings in several times for three industries, which is in contrast with Harkavy (1953). In particular, earnings retention is more important than dividends for growth industries. Therefore, firm’s managers should increase dividend
payments in order to increase firms’ stock prices and encouragement current investors to keep their investments or attracting more investors.

Litzenberger and Ramaswamy (1979) examine the relationship between taxes, dividends yield and stock prices. The results show a quite highly significant and positive relationship between dividend yield and stock prices, which is consistent with Brown et al. (1977) results, while in contrast with Ben-Zion and Shalit (1975).

Litzenberger and Ramaswamy (1982) study the impact of dividends yield on stock prices. The results show that stock prices are positively affected by dividend yields inside every set subsample. In general, the relationship between dividend yields and stock returns is positive but non-significant, which is in line with Brown et al. (1977); Litzenberger and Ramaswamy (1979) and Blume (1980) results and contradicts with Ben-Zion and Shalit (1975).

Naamon (1989) investigates the effect of cash dividends and retained earnings on common stock prices in Jordan. The results show a high significant and positive relationship between both cash dividends policy and earnings retention, and stock prices, which is in line with Power and MacDonald (1995). Particularly, the effect of cash dividend on stock prices is higher than the effect of retained earnings, which is consistent with Gordon (1959), Friend and Puckett (1964) while in contrast with Harkavy (1953). In addition, according to the views of both firms’ managers and investors, the amount of realized earnings, liquidity and the preferences of investors concerning cash dividends or retained earnings are the most important determinants of dividend policy.

Nishat (1992) makes a comparison between the effect of cash dividends and the retained earnings on stock price. The results show that common stock price affected by cash dividends and retained earnings, which is similar to Naamon (1989) and Power and MacDonald (1995); however, the impact of cash dividends on share price is higher than the effect of earnings retention, which is in line with Gordon (1959), Friend and Puckett (1964) and Naamon (1989) while contradicts with Harkavy (1953).

Dhillon and Johnson (1994) investigate the effect of dividend changes on the markets of stocks and bonds. The results show that the reaction of stock prices to large increase in dividend is positive. Therefore, the variance of stock price is largely based on the future changes in dividends, which is consistent with Kothari and Shanken (1992).

Power and MacDonald (1995) investigate the effect of dividends and retained earnings on the prices of shares. They find there is a relationship amongst the prices of shares; dividend and retained earnings, which is similar to Harkavy (1953); Gordon (1959); and Friend and Puckett (1964).

Marsh and Power (1999) investigate the relationship between dividends and stock prices in the long-run. A sample of 56 large firms listed on the London Stock Exchange over the period from 1968 to 1996 is selected for analysis. The results show that there is a significant effect of dividend on stock prices, which is consistent with Brown et al. (1977); Litzenberger and Ramaswamy (1979); Blume (1980) and Litzenberger and Ramaswamy (1982) while inconsistent with Gordon (1959); Ben-Zion and Shalit (1975) and Keim (1985).


Pan (2007) investigates the effect of earnings and dividends on stock prices. The results show that no bigger than 5% of the variability of stock prices caused by raw earnings and
dividends, while the vast majority of the variability (95%) is explained by both permanent earnings and permanent dividends. Therefore, he finds that the big proportion of the stock price variability can be explained by the fundamental factors (permanent dividends and permanent earnings) as well as non-fundamentals factors (share prices’ own innovations).

Azhagaiah and Sabari (2008) examine the effect of dividend policy on stock prices. They find that the market price of stock is determined by dividend and retained earnings. The results are similar to Friend and Puckett (1964); Naamon (1989); Nishat (1992) and Pradhan (2003) while contradicts Harkavy (1953). The results of regression show that the price of share influences by the dividend policy.

Huang et al. (2009) examine the impact of the changes of cash dividend announcements on stock prices. The results show that the effect of the changes of cash dividend announcements on stock prices is positive, which is in line with Pettit (1972), Brown et al (1977).

Khan (2009) examines the effect of cash dividends and retained earnings on stock price for 96 firms listed on the Dhaka Stock Exchange over the period from 2000 to 2006. The results show that the stock price is affected by both cash dividends and retained earnings, however, the effect of cash dividends is greater than that of retained earnings which is in line with Gordon (1959), Friend and Puckett (1964) and Naamon (1989) while contradicts with Harkavy (1953).

Salih (2010) examines the empirical relationship between dividend policy and firm’s value. The results show that the firm’s market value is affected by its dividend policy which is in line with Gordon (1963) while inconsistent with Miller and Modigliani (1961); Baker et al. (1985); and Farrell yet al. (1986); Ahmad and Chaudhary (2006). There is a relationship between earnings, investment policy, and firm’s value. Most firms’ mangers prefer cash dividends on stock dividends and stock repurchases. Stockholders structure is the most important factor influencing firm’s managers when they set its dividend policy while agency theory is the less important factor.

3. Hypotheses
Previous research suggests that there is a relationship between cash dividends, retained earnings and stock prices as well as a relationship with other control variables (e.g. Harkavy, 1953; Friend and Puckett, 1964; Nishat, 1992; Power and MacDonald, 1995; Pradhan, 2003; and Khan, 2009). Therefore, those relations are constructed in the form of hypotheses (four hypotheses); each hypothesis represents an expected relationship between one independent variable and the dependent variable (stock prices). Therefore, the following are the hypotheses:

H1: there is a positive relationship between cash dividends per share and stock price in Jordan.

H2: there is a positive relationship between retained earnings per share and stock price in Jordan.

H3: there is a positive relationship between earnings per share and stock price in Jordan.

H4: there is a positive relationship between financial leverage and stock price in Jordan.

4. Research Method
4.1 The sample of the study
As a sample, all industrial firms listed on the Amman Stock Exchange during the period from 2005 to 2010 are taken to examine the empirical relationship between cash dividends, retained earnings and stock prices.
This study includes both firms which are dividend-paying and those not paying cash dividends. The exclusion of non-dividend-paying firms would result in a well-known selection bias problem (AL-Malkawi, 2007).

Concerning the number of firms that used to examine the empirical relationship between cash dividends, retained earnings and stock prices, firms enter and leave the sample each year, so, the number of firms is different from year to year (unbalanced data), and thus there is no survival bias in the data (e.g. Morgan and Thomas, 1998; McManus et al., 2004). Some firms are excluded from the sample because they have financial leverage equal to one, which means there is no equity issuance (all-debt listed firm) for this firm in that year. The final number of observations which included to examine the empirical relationship between cash dividends, retained earnings and stock prices is 390.

4.2 Statistical approach
First of all, summary statistics such as minimum, maximum, mean, and standard deviation are utilized to provide a broad description of the characteristics of all variables that are used in the analysis.

The unbalanced panel data (cross-sectional and time series) is used to examine the empirical relationship between cash dividends, retained earnings and stock prices after controlling for earnings per share and financial leverage. In addition, the correlation coefficients are used to test the strength and the direction of the relationship between each pair of independent variables as well as between each explanatory variable and dependent variable. Therefore, \( t \) test and \( F \) test are used for checking the significance of the multiple regression. On one hand, \( t \) test is used to test if the relationship between each independent variable individually is significant or not, on the other hand, \( F \) test is used to check if the relationship between the dependent variable and the set of all independent variables is significant or not. Therefore, the quantitative methods are used to examine the previous relationships.

SPSS statistical software package (version 19) is used for running the multiple regressions in order to obtain the results.

4.3 Variables definition
The variables of the relationship between cash dividends, retained earnings and stock prices are derived from the studies of a number of the previous researchers (e.g. Harkavy, 1953; Friend and Puckett, 1964; Nishat, 1992; Power and MacDonald, 1995; Pradhan, 2003; and Khan, 2009).

4.3.1 Dependent variable
Stock price \((P_t)\)
This variable is defined as the closing price of stock (at the end of the year). It is derived directly from the financial statements of firms.

4.3.2 Independent variables
Cash dividends per share \((DPS)\)
To calculate this variable, cash dividends paid to common stockholders are divided by the number of shares outstanding. This is represented algebraically as follows.

\[
DPS = \frac{D}{\# Shares} \tag{2}
\]
Where \( D \) isdenote the cash dividends and \( \# Shares \) is denote the number of shares outstanding.

**Retained earnings per share \((RPS)\)**

To calculate this variable, retained earnings are divided by the number of shares outstanding. This is represented algebraically as follows.

\[
RPS = \frac{RE}{\# Shares} \quad (3)
\]

Where \( RE \) is denote the retained earnings and \( \# Shares \) is denote the number of shares outstanding.

**Earnings per share \((EPS)\)**

This variable is calculated by dividing the net income available to common stockholders on the number of shares outstanding. This is represented algebraically as follows.

\[
EPS = \frac{NI}{\# Shares} \quad (4)
\]

Where \( NI \) is denote the net income available to common stockholders and \( \# Shares \) is denote the number of shares outstanding.

**Financial leverage \((LEV)\)**

To calculate this variable, total debt (total liabilities) is divided by total assets for each year. This is represented algebraically as follows.

\[
LEV = \frac{\sum DEBT}{\sum ASSET} \quad (5)
\]

Where \( DEBT \) is denote the total debt and \( ASSET \) is denote the total assets.

All variables (dependent and independent) are measured based on data derived from the financial statements of the industrial firms listed on the Amman Stock Exchange over the period from 2005 till 2010.

**4.4 The regression model**

The following regression model is used in this study in an attempt to examine the empirical relationship between cash dividends, retained earnings and the firm’s stock price in the Jordanian context after controlling for earnings per share and financial leverage that are likely affect the relationship between cash dividends, retained earnings and stock price.

This model is based on Harkavy (1953), Friend and Puckett (1964), Naamon (1989), Nishat (1992), Power and MacDonald (1995), Pradhan (2003)and Khan (2009). I extend these models by including the four independent variables together (cash dividends per share, retained earnings per share, earnings per share, and financial leverage).

\[
P_t = \beta_0 + \beta_{DPSt} + \beta_{RPS} + \beta_{EPS} + \beta_{LEV} + \epsilon_t \quad (6)
\]

Where, \( P_t \) denotes the stock price, \( DPSt \) denotes cash dividends per share, \( RPS \) denotes retained earnings per share, \( EPS \) denotes the earnings per share, \( LEV \) denotes the financial leverage, \( \epsilon \) is a random variable referred to as the error term.
5. The Results of Hypotheses Testing

5.1 Summary statistics

Table 1 presents the minimum, maximum, mean, and standard deviation of all variables utilized in the analysis of the relationship between cash dividends, retained earnings and stock price.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRICE</td>
<td>390</td>
<td>.1200</td>
<td>43.500</td>
<td>3.006154</td>
<td>4.4775416</td>
</tr>
<tr>
<td>DPS</td>
<td>390</td>
<td>.0000</td>
<td>1.5000</td>
<td>.072590</td>
<td>.1573649</td>
</tr>
<tr>
<td>REPS</td>
<td>390</td>
<td>-.6600</td>
<td>3.0400</td>
<td>.020872</td>
<td>.2835829</td>
</tr>
<tr>
<td>EPS</td>
<td>390</td>
<td>-.6600</td>
<td>3.7400</td>
<td>.093462</td>
<td>.3723069</td>
</tr>
<tr>
<td>FLEV</td>
<td>390</td>
<td>.0031</td>
<td>.9447</td>
<td>.319616</td>
<td>.1974934</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>390</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: PRICE denotes the closing price, DPS denotes the cash dividends per share, REPS denotes the retained earnings per share, EPS denotes the earnings per share, and FLEV denotes the financial leverage.

In Table 1, cash dividends per share is the first independent variable. Its values range from a minimum of 0.0000 to a maximum of 1.5000; i.e. some firms did not pay cash dividends at all, while some firms pay a huge amount of cash dividends. It has mean value equal to .0726, and standard deviation equal to .1574, implying that high variations in terms of cash dividends per share on the market across the period of the study.

Retained earnings per share is the second explanatory variable. It varies from -.6600 to 3.0400; i.e. some firms suffer from losses and did not retain earnings at all, while some firms retain a large amount of earnings, whereas its mean is .0209, indicating that each share has, on average a small amount of retained earnings, and standard deviation is .2836, suggesting high variations among firms listed on the Amman Stock Exchange over the period of study (2005-2010).

Earnings per share is the third independent variable. It ranges from -.6600, telling that some firms have losses, to 3.7400, which means that some firms have a huge amount of profits, with mean of .0394, indicating that firms listed on the Amman Stock Exchange, on average, have little profits, and standard deviation of .3723, which means high variations amongst firms in terms of earnings per share.

The last independent variable is financial leverage. Its values range from a minimum of .0031 to a maximum of .9447. That means, the ratio of total liabilities to total assets is very small for some firms, indicating that some firms depend heavily on issuing equity to finance their assets, while total liabilities is close to total assets for some firms, implying that some firms rely largely on debt to finance their assets. Its mean value equal to .3196, which shows that the firms listed on the Amman Stock Exchange, in general, do not depend highly on debts to finance their assets, and standard deviation equal to .1975, implying that high variations among firms regarding the financial leverage variable.

Closing price of stock is the dependent variable. Its values range from the minimum of .12, which means that some firms have stock price less than its par value, to the maximum of 43.50, with mean value equal to 3.006, telling that the industrial firms listed...
on the Amman Stock Exchange have stock price greater than their face values and standard deviation measuring 4.4775, indicating high very variations amongst the firms listed on the Amman Stock Exchange in terms of closing prices of their stocks.

5.2 Hypothesis testing
Before proceeding to discuss the testing of hypotheses, the correlation coefficients between the independent variables will be presented to show the strength and the direction of the relationship between any pair of independent variables, as well as the dependent variable.

<p>| Table 2: Correlation Coefficients of dependent and independent variables |
|-----------------------------|-------------------|----------------|----------------|----------------|</p>
<table>
<thead>
<tr>
<th></th>
<th>PRICE</th>
<th>DPS</th>
<th>REPS</th>
<th>EPS</th>
<th>FLEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRICE</td>
<td>1.00</td>
<td>.711</td>
<td>.648</td>
<td>.794</td>
<td>-.102</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.044</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
</tr>
<tr>
<td>DPS</td>
<td>.711</td>
<td>1.00</td>
<td>.375</td>
<td>.708</td>
<td>-.117</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.021</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
</tr>
<tr>
<td>REPS</td>
<td>.648</td>
<td>.375</td>
<td>1.00</td>
<td>.920</td>
<td>-.176</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
</tr>
<tr>
<td>EPS</td>
<td>.794</td>
<td>.708</td>
<td>.920</td>
<td>1.00</td>
<td>-.183</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
</tr>
<tr>
<td>FLEV</td>
<td>-.102</td>
<td>-.117</td>
<td>-.176</td>
<td>-.183</td>
<td>1.00</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.044</td>
<td>.021</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
<td>390</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Note: the table shows Pearson correlation coefficients.

Table 2 shows the correlation coefficients among the variables used in this study. It can be seen that the correlation coefficient between the closing price of the firm’s stock and cash dividends .711**, which is strongly positive and highly significant. That is, the higher the cash dividend per share, the higher the closing price of the firm’s stock and the lower the cash dividend per share, the lower the closing price of the firm’s stock.

The highest correlation is .92** between retained earnings per share and earnings per share, which is strongly positive and highly significant, that leads to the existence of Multicollinearity (one of the violation in the model assumptions). Therefore, these two variables should not be included together in the same regression model.

Expected relationships between dividend yield and some of control variables and stock returns that formed the hypotheses are tested below one by one.

The previous literature suggests that the cash dividend has an effect on the closing price of firm’s stock (e.g. Harkavy, 1953; Friend and Puckett, 1964; Naamon, 1989; Nishat, 1992; Power and MacDonald, 1995; Pradhan, 2003; and Khan, 2009). Generally, the lower the cash dividends per share, the lower the closing price of the firm’s stock and the higher the cash dividends per share, the higher the closing price of the firm’s stock. Therefore,
based on the above discussion regarding the relationship between the cash dividends per share and the closing price of firm’s stock, the following hypothesis can be formulated.

**H1:** there is a positive relationship between cash dividends per share and stock price in Jordan.

In order to test this and the remaining hypotheses, the following multiple regression model is used.

\[
P_t = \beta_0 + \beta_1 DPS + \beta_2 EPS + \beta_3 LEV + e_t (7)
\]

Where, \(P_t\) denotes the stock price, \(DPS\) denotes cash dividends per share, \(EPS\) denotes the earnings per share, \(LEV\) denotes the financial leverage, and \(e\) is a random variable referred to as the error term.

As can be seen from Eq. (7), retained earnings per share variable is not included. This is because the correlation coefficient between two independent variables (earnings per share and retained earnings per share) is very high as shown from Table 2, which leads to the existence of multicollinearity. Retained earnings per share variable, not earnings per share, is excluded because the correlation coefficient of retained earnings per share variable is materially less than that of earnings per share. However, retained earnings per share variable will be added to Eq. (7) later to examine its relationship with the closing price of firm’s stock after the discussion of all hypotheses.

The results of the relationship between the set of independent variables (except retained earnings per share variable) and the dependent variable, as represented in Model 7 are presented in Table 3.

**Table 3: Regression Coefficients of independent variables**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.427</td>
<td>.261</td>
<td>5.465</td>
<td>.000</td>
</tr>
<tr>
<td>DPS</td>
<td>8.463</td>
<td>1.166</td>
<td>.297</td>
<td>7.261</td>
</tr>
<tr>
<td>EPS</td>
<td>7.111</td>
<td>.498</td>
<td>.591</td>
<td>14.288</td>
</tr>
<tr>
<td>FLEV</td>
<td>.939</td>
<td>.667</td>
<td>.041</td>
<td>1.408</td>
</tr>
</tbody>
</table>

N = 390. Dependent Variable: PRICE

**Eq. (7):** \(P_t = \beta_0 + \beta_1 DPS + \beta_2 EPS + \beta_3 LEV + e_t\)

Table 3 shows that the Sig. value associated with the \(t\) test for the cash dividends per share of .000, therefore, the relationship between the cash dividends per share and the closing price of the firm’s stock is positive and highly significant, implying that the cash dividends per share might lead to increase the closing price of the firm’s stock. The slope coefficient of this variable is 8.463, suggesting that a 1 unit increase in the cash dividends per share would have an increase of 8.463 units in the closing price of the firm’s stock, other things being constant. For industrial firms listed on the Amman Stock Exchange, the lower the cash dividends per share, the closing price of the firm’s stock and the higher the cash dividends per share, the higher the closing price of the firm’s stock.

Furthermore, this result is consistent with Harkavy (1953), Friend and Puckett (1964), Naamon (1989), Nishat (1992), Power and MacDonald (1995), Pradhan (2003) and Khan (2009), who find a positive and significant relationship between the cash...
dividends per share and the closing price of the firm’s stock. Therefore, the result of the coefficient of the cash dividends per share as identified in Table 3 supports H1 hypothesis.

The previous literature suggests that earnings per share have an effect on closing price of the firm’s stock (e.g. Gordon, 1959; Pan, 2007; and Salih, 2010). Generally, firms with lower earnings per share might display lower closing price of the firm’s stock and firms with higher earnings per share might display higher closing price of the firm’s stock. Therefore, based on the previous discussion regarding the relationship between earnings per share and the closing price of the firm’s stock, the following hypothesis can be formulated.

**H3**: there is a positive relationship between earnings per share and stock price in Jordan.

Table 3 shows that the Sig. value associated with the t test for earnings per share is less than .05, .01 (significance levels), therefore, the relationship between earnings per share and the closing price of the firm’s stock is positive and highly significant. For firms listed on the Amman Stock Exchange, the lower the earnings per share, the lower the closing price of the firm’s stock and the higher the earnings per share, the higher the closing price of the firm’s stock. The coefficient of earnings per share is large and highly significant. The t value of the earnings per share is 14.288, which is the highest value among the other variables, i.e; the earnings per share is the more dominant effect on the closing price of the firm’s stock.

Moreover, this result is in line with Gordon (1959), Pan (2007), and Salih (2010), who find a positive and significant relationship between earnings per share and the closing price of the firm’s stock. So, the result of the coefficient of earnings per share from Table (3) supports H3 hypothesis.

Concerning to the relationship between the financial leverage and the closing price of the firm’s stock, the following hypothesis can be formulated.

**H4**: there is a positive relationship between financial leverage and stock price in Jordan.

Table 3 reports that the Sig. value associated with the t test for the financial leverage is (.160), therefore, the relationship between the financial leverage and the closing price of the firm’s stock is positive but non-significant, implying that firms with high financial leverage might not display higher closing price of the firm’s stock than firms with low financial leverage. That is, the leveraged firms in the Jordanian stock market did not display higher closing price of the firm’s stock than non-leveraged firms. The t value of financial leverage is 1.408; the smallest value among the other variables. So, the result of the coefficient of financial leverage from Table 3 does not support H4 hypothesis.

The relationship between the closing price of the firm’s stock and the set of independent variables is provided by the following estimated regression equation.

\[
P_t = 1.427 + 8.46(DPS) + 7.11(EPS) + 9.39(LEV)
\]

Table 4 shows that approximately 68% of the variability in the closing price of the firm’s stock can be explained by the linear relationship between (cash dividends per share, earnings per share, and financial leverage).
earnings per share, and the financial leverage) as independent variables and the closing price of the firm’s stock, while 32% of the variability in the closing price of the firm’s stock caused by external factors.

The Sig. value associated with the $F$ test can be used to check for the overall significance. Generally, the $F$ test (overall significance) is used to determine whether a significant relationship exists between the dependent variable and the set of independent variables. Therefore, the following table can be used to test that.

**Table 5: ANOVA for Eq. (7)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>5279.865</td>
<td>3</td>
<td>1759.955</td>
<td>269.692</td>
<td>.000*</td>
</tr>
<tr>
<td>Residual</td>
<td>2518.954</td>
<td>386</td>
<td>6.526</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7798.819</td>
<td>389</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), FLEV, DPS, EPS  
b. Dependent Variable: PRICE

Table 5 shows that the Sig. value is less than .05 and .01 (levels of significance), which means that the relationship between both the set of independent variables and the dependent variable is highly significant.

This section discusses the empirical relationship between retained earnings per share, which is dropped from the previous analysis because of high correlation between it and earnings per share as identified in Table 2, and closing price of the firm’s stock. Therefore, the following multiple regression model will be used to analyze the above relation.

$$P_t = \beta_0 + \beta_{DPS} + \beta_{REPS} + \beta_{FLEV} + \epsilon_t$$  \hspace{1cm} (9)

The results of the relationship between (cash dividends per share, retained earnings per share, and financial leverage) and closing price of the firm’s stock are presented in the following table.

**Table 6: Regression Coefficients of independent variables**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.427</td>
<td>.261</td>
<td>5.465</td>
<td>.000</td>
</tr>
<tr>
<td>DPS</td>
<td>15.575</td>
<td>.889</td>
<td>17.517</td>
<td>.000</td>
</tr>
<tr>
<td>REPS</td>
<td>7.111</td>
<td>.498</td>
<td>14.288</td>
<td>.000</td>
</tr>
<tr>
<td>FLEV</td>
<td>.939</td>
<td>.667</td>
<td>1.408</td>
<td>.160</td>
</tr>
</tbody>
</table>

a. Dependent Variable: PRICE

Table 6 shows that the relationship between retained earnings per share and the closing price of firm’s stock is positive and highly significant as identified from the Sig. value associated with retained earnings per share, implying that the firms with higher retained earnings per share are more likely to display high closing price than firms with lower retained earnings per share. That is, the higher the retained earnings per share, the higher the closing price of the firm’s stock and the lower the retained earnings per share, the...
lower the closing price of the firm’s stock. Furthermore, the coefficients of all independent variables remain significant. In addition, the impact of cash dividends per share is on the firm's stock is greater than the effect of retained earnings on it as identified from the value of Betas as shown in Table 6, where the Beta coefficient for cash dividends is 15.575 while the Beta coefficient for retained earnings is 7.111. This result is in the line of Friend and Puckett (1964); Naamon (1989); Nishat (1992); Pradhan (2003); and Khan (2009) while contradicts Harkavy (1953).

6. Summary and Concluding Remarks

The purpose of this study is to examine the empirical relationship between cash dividends, retained earnings, and stock prices in the Jordanian context. The results show that there is a positive and significant relationship between the cash dividends and the stock prices, implying that the cash dividends per share might lead to increase the closing price of the firm’s stock. For industrial firms listed on the Amman Stock Exchange, the lower the cash dividends per share, the closing price of the firm’s stock and the higher the cash dividends per share, the higher the closing price of the firm’s stock. Furthermore, this result is consistent with Harkavy (1953), Friend and Puckett (1964), Naamon (1989), Nishat (1992), Power and MacDonald (1995), Pradhan (2003) and Khan (2009), who find a positive and significant relationship between the cash dividends per share and the closing price of the firm’s stock.

The results also show that there is a strongly positive and significant relationship between the earnings per share and the closing price of the firm’s stock. For firms listed on the Amman Stock Exchange, the lower the earnings per share, the lower the closing price of the firm’s stock and the higher the earnings per share, the higher the closing price of the firm’s stock. The coefficient of earnings per share is large and highly significant. The t value of the earnings per share is 14.288, which is the highest value among the other variables, i.e; the earnings per share is the more dominant effect on the closing price of the firm’s stock. Moreover, this result is in line with Gordon (1959), Pan (2007), and Salih (2010), who find a positive and significant relationship between earnings per share and the closing price of the firm’s stock.

The relationship between the financial leverage and the closing price of the firm’s stock is positive but non-significant, implying that firms with high financial leverage might not display higher closing price of the firm’s stock than firms with low financial leverage. That is, the leveraged firms in the Jordanian stock market did not display higher closing price of the firm’s stock than non-leveraged firms.

The relationship between retained earnings per share and the closing price of firm’s stock is positive and highly significant as identified from the Sig. value associated with retained earnings per share, implying that the firms with higher retained earnings per share are more likely to display high closing price than firms with lower retained earnings per share. That is, the higher the retained earnings per share, the higher the closing price of the firm’s stock and the lower the retained earnings per share, the lower the closing price of the firm’s stock. In addition, the impact of cash dividends per share on the firm's stock is greater than the effect of retained earnings on it as identified from the value of Betas as shown in Table 6, where the Beta coefficient for cash dividends is 15.575 while the Beta coefficient for retained earnings is 7.111. This result is in the line of Friend and Puckett (1964); Naamon (1989); Nishat (1992); Pradhan (2003); and Khan (2009) while contradicts Harkavy (1953). This result indicates that investors in industrial firms listed in the Amman Stock Exchange during the period from 2005 to 2010 prefer cash dividends to retained earnings.
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