# AN EMPIRICAL INVESTIGATION OF THE IMPACT OF FIRM CHARACTERISTICS ON THE SMOOTHNESS OF DIVIDEND

## Bashar Abu Khalaf *

* School of Business, The University of Jordan, Amman, Jordan
Contact details: School of Business, The University of Jordan, 11942 Amman, Jordan

OPEN ACCESS

## Abstract

This paper empirically investigates the smoothness of dividends on non-financial companies in Jordan by applying the asymmetric partial adjustment model. In addition, this research investigated the data for 65 non-financial companies (37 industrial and 28 services) listed on the Amman Stock Exchange (ASE) covering the period 1997–2020. Fixed and random-effects techniques have been applied to check the smoothness of dividends. The results confirmed that the non-financial Jordanian companies smooth their dividends at a moderate rate, our results contradict the signaling theory; we find that large companies smooth their dividend faster than small ones. Furthermore, in line with the agency cost theory, low-leveraged firms smooth their dividends faster than high-leveraged firms. Also, our results confirmed that highly profitable companies smooth their dividend more and this comes in line with the signaling theory.

**Keywords:** Partial Adjustment Model, Signaling Theory, Agency Cost Theory, Fixed and Random-Effects Techniques

**Authors' individual contribution:** The Author is responsible for all the contributions to the paper according to CRediT (Contributor Roles Taxonomy) standards.

**Declaration of conflicting interests:** The Author declares that there is no conflict of interest.

## 1. INTRODUCTION

Lintner (1956) argued that companies are mainly concerned with having a stable dividend policy and will only increase dividends when the managers feel confident that the company's earnings are going to maintain increase in the future. In addition, many stockholders use dividends to pay their own expenses and this makes them unhappy if the dividend payments are not stable. Some companies might send incorrect signals to market participants when they reduce dividends to increase the funds available for investment opportunities; this could result in investors pushing down the price of the stock because they have misinterpreted the reduction of dividends as a sign of lower future earnings for the company. This suggests that companies have to find the right balance between their internal funds and paying dividends, which

would maximize the stock price (Gitman & Zutter, 2007). The smoothness of the dividend indicates that there will not be any immediate response in the dividend to a proportional shift of profits. Smoothness means that dividends regularly adapt to the long-term level of profits for the company. Leary and Michaely (2011) stated that till now, no clear answer has been found for the reason behind the smoothing of dividends; but they argued that one possible reason for a stable dividend is to reduce any doubt in the minds of investors about the future cash flows.

The contribution of this paper to the literature comes in different ways. This paper is the first to empirically investigate the impact of the different firm characteristics (size, leverage, and profitability) on the smoothness of dividends for Jordanian non-financial companies (industrial and services) using both symmetric and asymmetric partial adjustment

models. Consequently, this empirical paper will extend the previous literature by firstly empirically investigating the asymmetric partial adjustment model whereas previous studies have assumed a symmetric adjustment of dividends toward the target dividend payout ratio. Secondly, investigates what possible firm characteristics affect the asymmetric partial adjustment model; testing the hypothesis of whether large/small size, high/low leveraged and high/low profitable companies have different asymmetric adjustment behaviors towards the target dividend payout ratio.

An entity's dividend policy is argued to be irrelevant according to Miller and Modigliani (1961). This "irrelevancy proposition" involves the assumption that the firm's value relies only on how profitable its investments are (i.e., income flow from its assets); the way this income is divided between dividends and retained earnings is irrelevant. This irrelevancy proposition assumes the existence of a perfect market where there is no information asymmetry (i.e., both managers and investors have access to the same information regarding any investment opportunities) and no transaction or bankruptcy costs (i.e., issuing debt is absolutely safe). This means that both investors and corporations can borrow at the same rate. Conversely, dividends become relevant with the presence of market imperfections. In the real world, where markets are not perfect, managers and investors do not have access to the same information regarding the company's investment opportunities. This information asymmetry means that value is not always reflected in share prices, which makes managers willing to share their own knowledge in order to achieve a comparable market value equivalent to the real worth of the company (Michaely, Thaler, & Womack, 1995).

In this context, dividends can be used by managers as a signalling mechanism to convey their insider information to the market (Miller & Rock, 1985; John & Williams, 1985). This dividend signalling theory ensures that the market views dividends as a signal of a management's point of view regarding the firm's future profitability, and share prices respond accordingly. Figures of earnings and dividends may be two of the most significant available signals (Aharony & Swary, 1980), and dividends can be used as a simple, concise signal of the management's interpretation of the company's recent performance and future forecasts (Asquith & Mullins, 1986). Empirical research would tend to support this view since the share price is positively related to an increase and negatively related to a decrease (or omission) of dividends (Pettit, 1972; Bali, 2003).

An explanation for this signalling view of dividends is provided by the partial adjustment framework; it puts forward a reason as to why a company would try to smooth its dividends. In ground-breaking research, Lintner (1956) characterises corporate dividend behaviour as a partial adjustment model, by which dividends are observed to be sticky and companies pay a great deal of attention to the stability of their dividends. Thus, managers try to smooth dividends over the years and they do not increase their dividends unless they feel confident about the future earnings

of the company (Kumar & Lee, 2001). A dividend increase can be perceived as a signal of a substantial increase in the distribution of earnings, and consequently an increase in the given firm's value (Aivazian, Booth, & Cleary, 2003).

More specifically, Lintner (1956) formed a quantitative model to capture smoothing in dividends via a partial adjustment towards a target payout ratio. He argued that managers are not willing to cut dividends as they believe that if they do so, the reputation of their company will be affected in a negative way (i.e., a negative signal) which in turn affects the firm's value. Many empirical investigations have argued that because markets are not perfect and there are agency problems as well as information asymmetry, firms' investment decisions and financial decisions are related and dependent on each other. Gordon (1959) and Adedeji (1998) stated that leverage, investment, and dividend decisions are connected and the major factor that affects the previous decisions is the profitability of the company. Based on the signalling theory we would expect *profitable companies to smooth their dividends faster than their less profitable counterparts.*

In addition, Baskin (1989) concluded that the symmetry of information restricts the company's ability to raise funds externally which suggests that this will affect the dividend decision. As well, Lintner (1956) argued that the main reason why companies smooth their dividends is the need to reduce information asymmetry. Diamond and Verrecchia (1991) stated that generally the regulators and the market pay more attention to large companies given that they are more mature and more likely to disclose full information about the performance of the company than small-size companies; information asymmetry is less for large firms. Based on the signalling theory we expect *small-size firms to adjust their dividend faster than large firms to reduce the information asymmetry and signal their confidence in the financial position of the company.*

Another explanation of why companies smooth their dividends has been provided by agency theory. Jensen and Meckling (1976) contradicted the M&M irrelevance theory by arguing that there is a conflict of interest between the managers and shareholders; thus, the managers may not act exclusively on behalf of shareholders. In addition, Jensen (1986) argued that the free cash flow gives the managers the incentive to invest in less profitable projects which increases the cost of the agency problem. Frankfuter and Wood (2002) confirmed Jensen's (1986) predictions that using dividends or increasing the leverage of the company would reduce the free cash flow available to managers and consequently reduce agency costs. Dividends and debt can be used as a combined strategy, according to Jensen (1986), where they help in aligning the different interests between managers and shareholders and mitigate the agency problem. Therefore, companies with severe agency problems are expected to adjust their dividend. Based on the agency theory, we can expect that *high leveraged firms to adjust their dividends toward the target slower than their low leveraged counterparts.*

## 2. LITERATURE REVIEW

The partial adjustment mechanism recognizes that a firm's observed dividend payment ratio will not always be equal to its target level. This means that companies change their dividend and adjust to their target if the costs of getting closer to the target dividend payout ratio are lower than the costs of staying away from the target. The reason is rational, implying that dividend payments are not instantly adjusted to their target level until the benefit of moving towards that target at least outweighs its costs. Typically the benefit is the positive market reactions and consequently the increase in the market share price, while the cost would be the transaction costs. But the assumption is that the adjustment benefits, as well as the costs of reducing and increasing dividends, are symmetrical when adjusting toward the target dividend payout ratio; this view does not differentiate between firms that are below and above their target dividend payout ratios.

Consequently, there are two types of partial adjustment models: symmetric and asymmetric.

### 2.1. Symmetric adjustment model

The main assumption of the target dividend payout ratio is that companies try to find the optimal balance between the benefit, which is mainly the increase in the share price when the shareholders react positively to the payment of dividends, and the cost, which typically would be the transaction cost. Furthermore, Leary and Michaely (2011) suggested that in the absence of transaction costs, a company's observed dividend payout ratio should be its long-run target or optimal ratio. According to Lintner (1956) and Fama and Babiak (1968), the existence of the adjustment cost may prevent companies from returning back to their targets instantly. However, less developed financial markets face financial constraints, creating financial obstacles which make partial adjustments toward the target possible.

The following Model 1 will be tested as the symmetric adjustment model to achieve the first objective of this paper: empirically investigating the difference between the symmetric and asymmetric dividend payout ratio models. To investigate the symmetric adjustment model, we need to construct the dividend deviation variable ($Ddev_{i,t}$) to determine if the actual lagged dividend payment deviates from the target dividend payout ratio. As mentioned before, the $Ddev_{i,t}$ can be calculated by subtracting the lagged actual dividend payment from the target dividend payout ratio of the current year ($D^*_{i,t} - Div_{i,t-1}$)[1] The previous literature has suggested two main proxies for the target dividend payout ratio, either the mean of the industry during the period under investigation or the median of the dividend payout ratio for each firm during the period under study (Leary & Michaely, 2011). In this empirical investigation, we used the median of the dividend payout ratio and for the robustness of the results, we checked our findings with the industry mean.

Based on the preceding discussion, the symmetric adjustment model can be presented as:

*Model 1*

$$\Delta Div_{i,t} = \alpha_0 + \alpha_1 Ddev_{i,t} + \varepsilon_{i,t} \quad (1)$$

where, $\Delta Div_{i,t}$ is the change in the dividend payment ($Div_{i,t} - Div_{i,t-1}$), and $\varepsilon_{i,t}$ is the error term.

The adjustment coefficient is $\alpha_1$ which captures the adjustment in dividend changes to the target dividend payout ratio. We hypothesise that the adjustment coefficient in Model 1 lies between $0 < \alpha_1 \leq 1$, which suggests a partial adjustment towards the target; thus, companies do not react immediately to adjust their dividend payout ratio to the target payout ratio. Indeed, if $\alpha_1 = 1$, the actual changes in dividends correspond with the desired changes. Conversely, if $\alpha_1 = 0$, no changes in dividends toward the desired level are undertaken since the actual change at time *t* is the same as the one observed in the previous time period. Therefore, the $\alpha_1$ coefficient on the dividend deviation variable $Ddev_{i,t}$ is significant, companies would appear to have a target dividend payout ratio and they adjust their dividends toward the target ratio over time. Model 1 assumes a symmetrical $\alpha_1$ for dividends below and above the target dividend payout ratio which suggests that there is no difference in the costs when moving above or below the target dividend payout ratio. To clear up any differences between these two scenarios (below and above the target dividend payout ratio), we develop the asymmetric adjustment model in the next subsection.

### 2.2. Asymmetric adjustment model

When the actual dividend payout ratio is below or above the target dividend payout ratio then this suggests that the companies may experience different adjustment rates. According to Linter (1956), managers usually take decisions that maximize the wealth of the companies and consequently their shareholders. Thus, managers try to choose the dividend payout ratio that would help them to achieve the target of value maximization. Fama and French (2002) confirmed Lintners' (1956) argument and they emphasized that firms that seek to maximize their value determine their target dividend payout ratio by comparing the benefits and the costs of the last dollar of dividends. Thus, the main aim of the managers of such companies is to keep their actual dividend payout ratio at the target level, which can be achieved by smoothing the actual payment toward the target level. In addition, Lambrecht and Myers (2012) pointed out that since the adjustment costs are present then this restricts the ability of the companies to go back immediately to their target dividend payout ratio. In other words, this suggests that if a company's dividend is above the target dividend payout ratio then this company needs to adjust its dividends downward, accordingly if the company's dividend is below the target dividend payout ratio then this company needs to adjust its dividends upward. Leary and Michaely's (2011) argument is in line with Lintners' (1956) view that companies smooth the dividend payment toward the target dividend payout ratio and

---

[1] The target dividend payout ratio is calculated as the multiplication of target ratio $r_i$ by the current profits $P_{i,t}$ as follows: $D^*_{i,t} = r_i P_{i,t}$.

managers are unwilling to cut dividends which suggests an asymmetric adjustment to the target dividend payout.

By definition, the variable $Ddev_{i,t} = (D^*_{i,t} - Div_{i,t-1})$, indicates that when $Ddev_{i,t} > 0$ then the company's dividend payout ratio is below the target dividend payout ratio and when $Ddev_{i,t} < 0$ then the company's dividend payout ratio is above the target dividend payout ratio. Therefore, to empirically investigate if the Jordanian companies have different adjustment rates when the company is above or below the target dividend payout ratio, we construct Model 2 by dividing the values of $Ddev_{i,t}$ into two variables as follows in equations (2) and (3).

When we substitute the two constructed variables $Ddev_{i,t}^{above}$ and $Ddev_{i,t}^{below}$ instead of $Ddev_{i,t}$ in Model 1, then the model would be as follows in equation (4).

*Model 2*

$$Ddev_{i,t}^{below} = Ddev_{i,t} \text{ if } D^*_{i,t} - Div_{i,t-1} \geq 0 \text{ and } 0 \text{ otherwise} \tag{2}$$

$$Ddev_{i,t}^{above} = Ddev_{i,t} \text{ if } D^*_{i,t} - Div_{i,t-1} < 0 \text{ and } 0 \text{ otherwise} \tag{3}$$

$$\Delta Div_{i,t} = \delta_0 + \delta_1 Ddev_{i,t}^{below} + \delta_2 Ddev_{i,t}^{above} + \varepsilon_{i,t} \tag{4}$$

where, $\Delta Div_{i,t}$ and $\varepsilon_{i,t}$ as explained in Model 1, $Ddev_{i,t}^{below}$ and $Ddev_{i,t}^{above}$ are the dividend payment below and above the target dividend payout ratio respectively.

The above Model 2 is the asymmetric adjustment model that is used to check if the rate of adjustment differs when the dividend is above or below the target dividend payout ratio. In addition, Model 2 allows the null hypothesis that $\delta_1 = 0$, $\delta_2 = 0$ to be checked and the joint test of $\delta_1 = \delta_2$ to be investigated; the first hypothesis takes into consideration that the two coefficients have to be greater than zero to converge and not equal ($\delta_1 > 0$, $\delta_2 > 0$). Thus, the above-mentioned adjustment coefficients ($\delta_1$, $\delta_2$) capture the magnitude of response of the dividend payout ratio when it is below and above the target respectively. Consequently, we can argue that if the adjustment costs of increasing dividends are lower than decreasing dividends, (then $\delta_1 > \delta_2$), then the speed of adjustment for dividends above the target would be slower than for dividends below the target. According to Lintner (1956), one of the basic determinants of dividend policy is the company's profits. He hypothesized that usually, companies have the tendency to smooth their dividends based on the achieved profits (cash flow). For instance, managers would increase their dividends if they can maintain the same dividend payout in the future. This view is also supported by Jensen, Solberg, and Zorn (1992) and Fama and French (2002) who found a positive relation between dividends and profitability.

Based on signalling theory, managers usually use dividends to signal inside information to the market (Miller & Rock, 1985; John & Williams, 1985). The dividend-signalling theory argues that the market evaluates dividends as a signal of a management's point of view regarding the firm's future profitability, and share prices respond accordingly. Earnings and dividend information may be two of the most significant measures available for signalling future prospects (Aharony & Swary, 1980); dividends can be used as a simple, concise signal of management's interpretation of a company's recent performance and oncoming forecasts (Asquith & Mullins, 1986). Therefore, we can expect *the companies with high levels of profitability smooth (adjust) their dividend more rapidly than companies that report low levels of profitability*.

Therefore, to empirically investigate whether the adjustment above or below the target dividends varies when companies experience high/low profits, two new variables (*Hprof* for high profitability and *Lprof* for low profitability) have been constructed as follows:

• *Hpro* = companies with high profitability (interaction between a dummy variable which equals one for the firms that have profitability (ROA) greater than the median, and equals zero otherwise (i.e., zero to the firms that have a return on assets lower than the median) multiplied by the profitability variable).

• *Lprof* = companies with low profitability (interaction between a dummy variable that equals one for the firms that have profitability (ROA) lower than the median, and equals zero otherwise (i.e., zero to the firms that have a return on assets higher than the median) multiplied by the profitability variable)[2].

In addition, leverage has been mostly asserted to be an essential element in clarifying a firm's dividend policy. Jensen et al. (1992) supported the argument that leverage and dividend policy are negatively correlated, suggesting that debt and dividends serve as a substitute mechanism for mitigating the agency cost of free cash flow by reducing the amount of funds under management control. Hence, companies with high debt levels will not need to pay dividends as low debt companies in order to reduce agency costs. For high leverage firms, paying the fixed chargesincluding interest payments and principal amounts-serve to strip management of their free cash flows, and generally supports the agency cost theory of dividend policy. Consequently, we can expect that *highly leveraged companies adjust their dividends at a slower rate than low leveraged companies.*

Thus, to empirically investigate whether the adjustment above or below the target dividends ratio varies when companies experience high/low leverage, two new variables (*Llev* for low leverage and *Hlev* for high leverage) have been constructed as follows:

• *Hlev* = companies with high leverage (interaction between a dummy variable that equals one for the firms that have a total debt ratio greater

---

[2] To check for robustness of results the return on equity (ROE) has been used as another proxy of profitability to construct the high/low probitability variables.

than the median, and equals zero otherwise (i.e., zero for the firms that have a total debt to total assets ratio lower than the median) multiplied by the total debt ratio variable).

• *Llev* = companies with low leverage (interaction between a dummy variable that equals one for the firms that have a total debt to total assets ratio lower than the median, and equals zero otherwise (i.e., zero for the firms that have a total debt ratio greater than the median) multiplied by the total debt ratio variable). To check for robustness of results the total debt to equity has been used as another proxy of leverage to construct the high/low leverage variables.

Furthermore, the signalling theory suggests that in the presence of information asymmetry between investors and managers in small firms, the best way to send information about the value of the company is dividends. That is, more dividends should be paid by small companies with high levels of information asymmetry in order to signal the financial situation of the company (Deshmukh, 2003). The empirical investigation of Ramachandran and Packkirisamy (2010) found that large size companies are more likely to pay dividends than their small size counterparts; they relate this finding to the maturity (age) argument that large firms are more mature than small firms and pay dividends to keep their good image and retain the confidence of shareholders. However, in a study done by Ghosh and Woolridge (1988), they concluded that dividends help small firms to send information to the market which reduces any information asymmetry which may be present.

Therefore, we can expect *small companies to adjust their dividends more than large companies*. Accordingly, to empirically investigate whether the adjustment above or below the target dividends ratio varies for small/large companies, two new

variables (*Lsize* for large size and *Ssize* for small size) have been constructed as follows:

• *Lsize* = large size companies (interaction between a dummy variable that equals one for the firms that have a natural logarithm of total assets greater than the median and equals zero otherwise (i.e., zero for the firms that have a natural logarithm of total assets lower than the median) multiplied by the natural logarithm of total assets variable).

• *Ssize* = small size companies (interaction between a dummy variable that equals one for the firms that have a natural logarithm of total assets lower than the median, and equals zero otherwise (i.e., zero for the firms that have a natural logarithm of total assets greater than the median) multiplied by the natural logarithm of total assets variable). To check for robustness of results the natural logarithm of market capitalisation has been used as another proxy of size to construct the large/small size variables.

Table 1 summarises the expected impact of the different firm characteristics on the smoothness of dividends.

**Table 1.** The impact of different corporate theories on the smoothness of dividends

| Different corporate theories | Firm characteristic | Impact on smoothing |
|---|---|---|
| Signalling theory | Profitability | Positive |
| | Size | Negative |
| Agency theory | Leverage | Negative |

## 3. RESEARCH METHODOLOGY

Based on the previously constructed variables and when included in Model 2, the new Model 3 would be as follows:

*Model 3*

$$
\begin{aligned}
\Delta Div_{i,t} = {} & \beta_0 + \beta_1 Lprof_{i,t} + \beta_2 Hprof_{i,t} + \beta_3 Hlev_{i,t} + \beta_4 Llev_{i,t} + \beta_5 Lsize_{i,t} + \beta_6 Ssize_{i,t} + \beta_7 Ddev_{i,t}^{below} + \\
& \beta_8 Ddev_{i,t}^{above} + \beta_9 Lprof_{i,t} * Ddev_{i,t}^{below} + \beta_{10} Hprof_{i,t} * Ddev_{i,t}^{below} + \beta_{11} Lprof_{i,t} * Ddev_{i,t}^{above} + \\
& \beta_{12} Hprof_{i,t} * Ddev_{i,t}^{above} + \beta_{13} Hlev_{i,t} * Ddev_{i,t}^{below} + \beta_{14} Llev_{i,t} * Ddev_{i,t}^{below} + \beta_{15} Hlev_{i,t} * Ddev_{i,t}^{above} + \\
& \beta_{16} Llev_{i,t} * Ddev_{i,t}^{above} + \beta_{17} Lsize_{i,t} * Ddev_{i,t}^{below} + \beta_{18} Ssize_{i,t} + Ddev_{i,t}^{below} + \beta_{19} Lsize_{i,t} + Ddev_{i,t}^{above} + \\
& \beta_{20} Ssize_{i,t} * Ddev_{i,t}^{above} + \varepsilon_{i,t}
\end{aligned} \tag{5}
$$

where, $Lprof_{i,t}$, $Hprof_{i,t}$, $Hlev_{i,t}$, $Llev_{i,t}$, $Lsize_{i,t}$, and $Ssize_{i,t}$ are low profitability, high profitability, high leverage, low leverage, large size, and small size, respectively, as explained before. $Ddev_{i,t}^{below}$ and $Ddev_{i,t}^{above}$ are already explained in Model 2. $Ddev_{i,t}^{above}$ ($Lprof_{i,t} + Hprof_{i,t} + Hlev_{i,t} + Llev_{i,t} + Lsize_{i,t} + Ssize_{i,t}$) is the interaction between the dividend deviation above the target with the different firm characteristics. $Ddev_{i,t}^{below}$ ($Lprof_{i,t} + Hprof_{i,t} + Hlev_{i,t} + Llev_{i,t} + Lsize_{i,t} + Ssize_{i,t}$) is the interaction between the dividend deviation below the target with the different firm characteristics. In Model 3, where the coefficients ($\beta_9$–$\beta_{20}$) are significant and positive then dividend smoothing exists and these coefficients should not be equal for an asymmetric adjustment to exist. For example, if the coefficient ($\beta_9$) is significant and positive then low profitable companies smooth their dividends when the dividend payment is below the target payout ratio.

## 4. RESULTS AND DISCUSSION

The following four subsections discuss and analyze the results of the three previously developed models.

### 4.1. Descriptive statistics

The data used for the analysis has been obtained from firms' annual reports which were found on the ASE's website. To empirically investigate the smoothing behaviour of the Jordanian non-financial companies during the period 1997–2020, this study has collected data for companies that pay a dividend for at least 5 years of the study period. This method helps in minimising the likelihood of any spurious results. Therefore, the total number in the final sample is 65 listed Jordanian firms, out of which 37 were industrial and 28 were service companies under the condition that all firms have to be listed over the period under study.

The sample excluded the companies that did not pay dividends for more than 5 years throughout the period under investigation. In addition, companies that have been newly listed on the ASE after 1997 or companies that have been merged during the study have not been included in the final sample. In addition, all companies' financial years had to run from the first of January till the end of December for 10 years. Therefore, if a company started during the period or had no past information then it was excluded from the sample. Hausman test was used to choose the best estimation method for the specific dataset and the method which proved to have estimated the results in the best way will be presented. The following table shows the summary statistics for variables included in the given model for the sample firms.

**Table 2.** Descriptive statistics

|  | *Hprof* | *Lprof* | *Hlev* | *Llev* | *Lsize* | *Ssize* |
|---|---|---|---|---|---|---|
| Mean | 0.102 | -0.059 | 0.574 | 0.152 | 17.764 | 15.747 |
| Std. dev. | 0.102 | 0.105 | 0.091 | 0.084 | 1.574 | 0.742 |
| Min. | 0.029 | -1.512 | 0.405 | 0.001 | 16.743 | 11.256 |
| Max. | 1.145 | 0.013 | 0.980 | 0.283 | 20.435 | 16.736 |

*Note: Hprof is high profitability. Lprof is low profitability. Hlev is the high leverage ratio as. Llev is the low leverage ratio. LSize is the large size of the firms. SSize is the small size of the firms.*

### 4.2. Estimation results for Model 1 (The symmetric adjustment model)

Table 3 below shows the results of the estimation of the partial adjustment model (Model 1) for the industrial and services companies in the Jordanian market. The best specification of the results presented below is based on the random-effects model due to the insignificance of the Hausman test and the significant Lagrange multiplier (LM), which suggests that the hypothesis of the existence of non-firm-specific effects is rejected.

**Table 3.** Estimation results of the symmetric adjustment model

| *Independent variables* | *Alfa* | *Coefficient* | *Probability* |
|---|---|---|---|
| Intercept | $\alpha_0$ | 0.018* | (0.037) |
| $Ddev_{i,t}$ | $\alpha_1$ | 0.545* | (0.000) |
| R² | | 0.23 | |
| P-value (F-stat.) | | (0.000) | (0.000) |
| LM test | | 48.78 | (0.000) |
| Hausman test | | 1.96 | (0.769) |

*Note: ΔDiv$_{i,t}$ is the change in dividend payment, and Ddev$_{i,t}$ is the dividend deviation from the target dividend payout ratio. Figures in parentheses are the probabilities of significance based on the standard errors which are corrected for heteroskedasticity. The symbols *, **, and *** denote statistical significance at 1%, 5%, and 10% levels, respectively.*

The results above revealed that the value of the constant term $\alpha_0$ is statistically significant, and positive, and its value is equal to +0.018. This finding implies that a given firm resists reducing dividends so as not to affect the reputation of the company negatively and this comes in line with the signalling theory. This result comes in line with Lintner's (1956) suggestion that "the constant … will be generally positive to reflect the greater reluctance to reduce than to raise dividends" (p. 106). In addition, the adjustment coefficient value of the dividend deviation variable $Ddev_{i,t}$ is also positive, and significant, and its value is equal to 0.545. This implies that the Jordanian firms smooth dividends toward the target. Table 4 shows some selected studies to compare the adjustment rate with different empirical studies.

**Table 4.** Selected studies from the literature

| *Author* | *Market* | *Adjustment rate* | *Period of study* |
|---|---|---|---|
| Aivazian, Booth, and Cleary (2006) | USA | 0.24 | 1981–1999 |
| Goergen, Renneboog, and Correia da Silva (2005) | Germany | 0.25 | 1984–1993 |
| Pandey and Bhat (2007) | India | 0.71 | 1989–1997 |
| Aivazian et al. (2003) | Korea | 0.50 | 1980–1990 |
| | Malaysia | 0.65 | |
| | Thailand | 0.65 | |
| | Zimbabwe | 0.39 | |
| Adaoglu (2000) | Turkey | 1.00 | 1985–1997 |
| Short, Zhang, and Keasey (2002) | UK | 0.38 | 1988–1992 |

Based on the above table, the adjustment rate towards the target for the Jordanian firms (0.514) is higher when compared to developed markets such as the USA, Germany, and the UK where adjustment rates of 0.24, 0.25, and 0.38 are reported, respectively, which suggests that the Jordanian companies adjust their dividend faster (on average, over 2 years). On the other hand, Jordanian companies are slower when compared to companies in developing markets, such as India, Thailand, and Turkey with adjustment rates of 0.71, 0.65, and 1, respectively. The main reason for the difference in the adjustment rate between Jordan, and the developed and developing markets can be found

in the arguments of Al-Malkawi (2007). He argued that since 1990, Jordan has followed a policy of financial liberalization; this has allowed Jordanian companies to raise their required funds through easy access to the capital market.

Consequently, this increased the possibility of smoothing dividends toward the target since the dividend decision is not constrained by funding requirements. Taking into consideration, the fact that the results reported for the Turkish companies suggest that there is no smoothing towards the target and companies do not follow a stable dividend policy. The finding of Adaoglu (2000) means that Turkish firms during the period under study experienced no transaction costs or any other adjustment costs which facilitated a complete adjustment toward the target dividend payout ratio. An interesting conclusion that can be drawn is that the Jordanian firms do move toward the target dividend payout ratio in a moderate fashion, however.

## 4.3. Estimation results of Model 2 (The asymmetric partial adjustment model)

In this subsection, the asymmetric partial adjustment model has been examined to investigate if the adjustment rate varies when dividend payment is below or above the target. The best specification of the results is presented below. It is based on the random-effects model due to the insignificance of the Hausman test and the significance of the LM, which suggests that the hypothesis of the existence of no firm-specific effects is rejected. The dependent variable is the change in dividend $\Delta Div_{i,t}$. The explanatory variables are the dividend payment below the target dividend payout ratio $Ddev_{i,t}^{below}$ and the dividend payment above the target dividend payout ratio $Ddev_{i,t}^{above}$. The model is significant and the null hypothesis is rejected since all slope coefficients are not jointly zero at the 1% level.

**Table 5.** Estimation results of the asymmetric adjustment model

| Independent variables | Delta | Coefficient | Probability |
|---|---|---|---|
| Intercept | $\delta_0$ | 0.020 | (0.000) |
| $Ddev_{i,t}^{below}$ | $\delta_1$ | 0.714* | (0.000) |
| $Ddev_{i,t}^{above}$ | $\delta_2$ | 0.274* | (0.000) |
| R² | | 0.26 | |
| P-value (F-stat.) | | (0.000) | (0.000) |
| LM test | | 6.82 | (0.000) |
| Hausman test | | 1.02 | (0.493) |

*Note: $\Delta Div_{i,t}$ is the change in dividend payment. $Ddev_{i,t}^{below}$ is the dividend payment below the target dividend payout ratio. $Ddev_{i,t}^{above}$ is the dividend payment above the target dividend payout ratio. Figures in parentheses are the probabilities of significance based on the standard errors which are corrected for heteroskedasticity. The symbols *, **, and *** denote statistical significance at 1%, 5%, and 10% levels, respectively.*

Table 5 presents the estimated adjustment coefficients ($\delta_1$ and $\delta_2$) and shows significant positive adjustment coefficients for both dividend deviations above and below the target; they are both significantly different. This result suggests that the dividend adjustment in Jordan is asymmetric rather than symmetric; the adjustment coefficient for the dividend below the target (0.714) is higher than the adjustment coefficient of the dividend above the target (0.274).

The higher adjustment rate for below the target than the adjustment rate for above the target suggests that the Jordanian companies are more interested in increasing rather than cutting dividends. This result implies that the benefit of increasing dividends (agency cost) is higher than that of decreasing them. The behaviour involving a reluctance to reduce dividends is in line with the signalling theory and confirms that the Jordanian companies try to signal good news to the market and make the shareholders feel more confident about the future cash flow of the company. In addition, this result confirms Lintner's (1956) finding for American firms, Pandey and Bhat's (2007) result for Indian firms, and Aivazian et al.'s (2003) finding for different emerging markets. Although these studies have examined dividends during different time periods, as shown in Table 3, they still confirm that managers think of the dividend as a signalling tool.

## 4.4. Estimation results of Model 3 (The asymmetric partial adjustment model including the interaction terms)

The asymmetric partial adjustment model has been examined while taking into account the different firm characteristics (size, profitability, and leverage) to check if the adjustment rate varies when high/low leveraged firms, large/small firms, and high/low profitable companies make dividend payments below or above the target. The best specification of the results presented below is based on the random-effects model due to the insignificance of the Hausman test and the significance of the LM, which suggests that the hypothesis of the existence of no firm-specific effects is rejected.

The results reported in Table 6 suggest that the dividend adjustment in the Jordanian firms during the period (1997–2006) is not only asymmetric for below/above the target but also asymmetric for the upward/downward dividend adjustments when companies experience high/low profits, high/low leverage and even for large/small size companies. The positive coefficients ($\beta_7$–$\beta_{20}$) are significant and these coefficients are not equal, which suggests the existence of asymmetrical adjustments in the Jordanian companies. In addition, the coefficients ($\beta_2$–$\beta_6$) are significant which suggests that the small/large size, high/low leverage as well as highly profitable Jordanian companies are unwilling to cut dividends; the only exception is the insignificance of the variable $Lprof_{i,t}$ which implies that the Jordanian companies are willing to cut their dividends when they experience low profitability.

**Table 6.** Estimation results of the asymmetric adjustment model with firm characteristics interaction
(profitability, leverage, and size)

| Independent variables | Beta | Coefficient | Probability |
|---|---|---|---|
| Intercept | $\beta_0$ | 0.054** | (0.071) |
| $Hprof_{i,t}$ | $\beta_2$ | 0.664** | (0.030) |
| $Hlev_{i,t}$ | $\beta_3$ | 0.186** | (0.067) |
| $Llev_{i,t}$ | $\beta_4$ | 0.284* | (0.000) |
| $Lsize_{i,t}$ | $\beta_5$ | 0.638* | (0.000) |
| $Ssize_{i,t}$ | $\beta_6$ | 0.596* | (0.000) |
| $Ddev_{i,t}^{below}$ | $\beta_7$ | 0.703* | (0.000) |
| $Ddev_{i,t}^{above}$ | $\beta_8$ | 0.264* | (0.000) |
| $Lprof_{i,t} * Ddev_{i,t}^{below}$ | $\beta_9$ | 0.355* | (0.000) |
| $Hprof_{i,t} * Ddev_{i,t}^{below}$ | $\beta_{10}$ | 0.574* | (0.000) |
| $Lprof_{i,t} * Ddev_{i,t}^{above}$ | $\beta_{11}$ | 0.191* | (0.000) |
| $Hprof_{i,t} * Ddev_{i,t}^{above}$ | $\beta_{12}$ | 0.365* | (0.068) |
| $Hlev_{i,t} * Ddev_{i,t}^{below}$ | $\beta_{13}$ | 0.373* | (0.042) |
| $Llev_{i,t} * Ddev_{i,t}^{below}$ | $\beta_{14}$ | 0.849* | (0.000) |
| $Hlev_{i,t} * Ddev_{i,t}^{above}$ | $\beta_{15}$ | 0.346** | (0.079) |
| $Llev_{i,t} * Ddev_{i,t}^{above}$ | $\beta_{16}$ | 0.422** | (0.053) |
| $Lsize_{i,t} * Ddev_{i,t}^{below}$ | $\beta_{17}$ | 0.549* | (0.000) |
| $Ssize_{i,t} * Ddev_{i,t}^{below}$ | $\beta_{18}$ | 0.344* | (0.000) |
| $Lsize_{i,t} * Ddev_{i,t}^{above}$ | $\beta_{19}$ | 0.557** | (0.038) |
| $Ssize_{i,t} * Ddev_{i,t}^{above}$ | $\beta_{20}$ | 0.234* | (0.027) |
| R² | | 0.35 | |
| P-value (F-stat.) | | (0.000) | (0.000) |
| LM test | | 11.29 | |
| Hausman test | | 12.53 | (0.526) |

*Note: Dependent variable — $\Delta Div_{i,t}$. $\Delta Div_{i,t}$ is the change in dividend payment. $Ddev_{i,t}^{below}$ and $Ddev_{i,t}^{above}$ are the dividend payment below/above the target dividend payout ratio, respectively. $Hprof_{i,t} * Ddev_{i,t}^{below}$ and $Lprof_{i,t} * Ddev_{i,t}^{below}$ is the interaction term between high profitability and low profitability with the dividend deviation below the target, respectively. $Hlev_{i,t} * Ddev_{i,t}^{below}$ and $Hlev_{i,t} * Ddev_{i,t}^{above}$ is the interaction term between the high leveraged companies with the dividend deviation below and above the target, respectively. $Llev_{i,t} * Ddev_{i,t}^{below}$ and $Llev_{i,t} * Ddev_{i,t}^{above}$ are the interaction terms between the low leveraged firms with the dividend deviation below and above the target, respectively. $Lsize_{i,t} * Ddev_{i,t}^{below}$ and $Lsize_{i,t} * Ddev_{i,t}^{above}$ are the interaction terms between the large size companies with the dividend deviation below and above the target, respectively. $Lsize_{i,t} * Ddev_{i,t}^{below}$ and $Ssize_{i,t} * Ddev_{i,t}^{above}$ are the interaction terms between the small size companies with the dividend deviation below and above the target, respectively. $Lprof_{i,t}$, $Hprof_{i,t}$, $Hlev_{i,t}$, $Llev_{i,t}$, $Lsize_{i,t}$, and $Ssize_{i,t}$ are low profitability, high profitability, high leverage, low leverage, large size, and small size, respectively. Figures in parentheses are the probabilities of significance based on the standard errors which are corrected for heteroskedasticity. Results are robust; we run a regression with the same variables but constructed them with other proxies and the results did not change. The symbols \*, \*\*, and \*\*\* denote statistical significance at 1%, 5%, and 10% levels, respectively.*

The following subsections will explain the impact of firm characteristics (size, leverage, and profitability) on dividend smoothness.

## 4.5. The impact of large/small size

As explained when developing the model in the previous section, signalling theory suggests that dividends are the best way to send information about the value of the company in the presence of information asymmetry in small firms (Eddy & Seifert, 1988). Specifically, small companies with a great deal of information asymmetry should smooth their dividends more than large firms in order to signal the strong financial situation of the company (Deshmukh, 2003). Thus, the assumption is that dividends help small firms to send information to the market more than large firms in order to move smoothly towards the target dividend payout ratio. No empirical investigation has been done to the best of the author's knowledge having tackled the topic of signalling and smoothness of dividends in Jordan. *This paper hypothesizes that small firms adjust their dividends toward the target dividend payout ratio in the Jordanian market faster than large companies.*

The results above show that different smoothing behaviour is followed by small/large Jordanian

firms. The estimated coefficients on *Lsize, Ssize,* and its interactions $Lsize_{i,t} * Ddev_{i,t}^{below}$, $Ssize_{i,t} * Ddev_{i,t}^{below}$, and $Ssize_{i,t} * Ddev_{i,t}^{above}$ are found to be statistically significant at a 1% level, and $Lsize_{i,t} * Ddev_{i,t}^{above}$ at a 5% level. The positive estimated coefficients ($\beta_{17}-\beta_{20}$) suggest that large Jordanian firms smooth their dividends and adjust to their dividend payout ratio faster than smaller firms. This result confirms the argument of Al-Najjar and Hussainey (2009) that small firms in Jordan may experience more transaction costs than large firms since they may have to raise funds to pay their dividends through issuing debt. Therefore, one could conclude that large firms adjust their dividends faster than small firms. The results also show that the size variable for large/small firms is found to be statistically significant and positive at the 1% level, this suggests that the size of the firms has an impact on the smoothness of dividends. In Jordan, large firms can raise funds easier by having greater access to the market (assuming that they are listed) and they are more mature than small-size firms and can therefore borrow more easily. In addition, the regulators and the market concentrate more on large firms than small ones because they disclose more (Al-Najjar & Hussainey, 2009).

This finding suggests that the size characteristic of the firm has a considerable effect on the

smoothness of the dividend policy of Jordanian firms. In addition, this result supports prior research from Deshmukh (2003); although he investigated a sample from a different market (73 companies in the American market during the period 1990–1997), he found that the possibility of large companies smoothing their dividends is higher than small firms. Thus, his findings suggest that large American firms move towards the target dividend payout ratio faster than small ones.

In another study using American data, Fama and French (2001) investigated dividends for the period during 1978–199 and concluded that larger and more profitable companies are more likely to smooth their dividends compared to small size companies since large firms can afford to pay more dividends through their profits and in case they need funds then they have easier access to the market. In addition, the results in this study confirm the predictions advanced by the theoretical model developed by Redding (1997), who suggested that the probability of large and liquid companies paying dividends is higher than the possibility for small firms because paying more dividends would lower the available liquidity to managers and this would reduce the agency problem. Moreover, our results support the findings of Eriotis (2005) who empirically investigated the Greek market during the period 1996–2001 and stated that smoothing dividends and the adjustment toward a target dividend is dependent on the size of firms; larger firms adjust dividends faster than small firms.

On the other hand, the results of this paper contradict signalling theory which assumes that companies with high levels of information asymmetry need to pay more dividends to convey the information about the company in comparison with the firms which experience lower levels of information asymmetry. Also, in contrast with the results of Ahmed and Javad (2009) where the authors empirically investigated the Karachi Stock Exchange (KSE) in Pakistan during the years 2001–2006; they concluded that large companies do not pay dividends that are as stable as those paid by smaller firms; this is related to the investment behaviour of Pakistani firms; large companies tend to invest more in their assets instead of paying dividends to grow more in the market and be more powerful than other companies.

## 4.6. The impact of high/low leverage

In prior literature, leverage has been documented as an essential element in explaining a firm's dividend policy. However, mixed results have been presented in the related literature about whether leverage has a negative/positive influence on dividend policy. As discussed previously, the agency cost argument raised by Jensen et al. (1992) supports the idea that leverage negatively affects the payment of dividends. The authors argued that dividends and debts are two alternatives to solve the agency cost problem; reducing the number of funds under management control. Thus, there is a low possibility that a high-leveraged company pays more dividends than a low-leveraged firm; high-leveraged companies need to service their loans by paying the fixed charges-including interest payments and principal amounts. This generally supports the agency cost theory of

dividend policy. Therefore, it was proposed that *high leverage firms adjust their dividends toward the target dividend payout ratio slower than low leveraged ones in the Amman Stock Exchange.*

Table 6 provides the estimation results of Model 3 for the Jordanian companies under investigation. The findings in this table support the hypothesis that different dividend smoothing behaviors are followed by the high/low-leveraged Jordanian firms. The estimated coefficients on *Hlev, Llev,* and their interactions $Hlev_{i,t} * Ddev_{i,t}^{below}$, $Llev_{i,t} * Ddev_{i,t}^{below}$, are found to be statistically significant at the 1% level. The estimated coefficient for the interaction variable $Llev_{i,t} * Ddev_{i,t}^{above}$ and $Hlev_{i,t} * Ddev_{i,t}^{above}$ is statistically significant at the 10% level. The estimated coefficients ($\beta_{13} + \beta_{14}$, $\beta_{15}$, and $\beta_{16}$) suggest that high leveraged firms smooth their dividends and adjust to their dividend payout ratio at a slower rate than low leveraged firms. Therefore, one could conclude that the dividend adjustment for the low-leveraged firms is faster than for the high-leveraged ones; the transaction cost of moving towards the target dividend payout ratio for the high-leveraged companies may be higher than for the low-leveraged ones. The results also show that the leverage variable for high/low-leveraged firms is found to be statistically significant and positive at the 1% level. This finding suggests that the leverage characteristic of the firm has a considerable effect on the smoothness of the Jordanian firm's dividend policy. Our results are in line with the predictions of agency cost theory; companies in Jordan use dividends to cut down on the funds which are available in hands of managers so as not to invest in unprofitable projects in order to reduce the agency cost. Thus, our results suggest that low-leveraged Jordanian companies adjust their dividends toward the target payout ratio faster than the high-leveraged ones. This result is in line with Al-Shubiri's (2011) argument regarding the high-leveraged Jordanian firms; he found that high-leveraged companies in Jordan suffer from high transaction costs which lead to them having a weak financial position since they are not able to pay higher dividends and stay away from raising more debt.

Faccio, Lang, and Young (2001) arrived at the same results; they reported a significant relation between leverage and dividend payment suggesting that high-leveraged firms pay a lower rate of dividends. Thus, low-leveraged companies get to their target dividend faster than high-leveraged ones. Faccio et al. (2001) empirically investigated data for different counties in Asia and Europe (Taiwan, Singapore, Hong Kong, Thailand, Japan, Indonesia, Philippines, South Korea, Malaysia, Germany, France, Spain, the UK, and Italy) during the period from 1992 till 1996 and they came to the same conclusion as the current study. They argued that high-leveraged companies find themselves out of cash to pay dividends and are not in a position to raise more funds; thus, they reduce their rate of adjustment toward the target. Furthermore, Gugler and Yurtoglu (2003) examined data for German companies during a 7-year period (1992–1998) and argued that high leverage firms smooth their dividend at a lower rate than others in the market; to have enough cash flow in order to meet their financial obligations. Gugler and Yurtoglu

(2003) supported the arguments of Baskin (1989) and Allen (1993); they argued that paying a dividend would increase the company's need to generate funds externally to finance new investment opportunities because paying a dividend reduces the number of funds available internally through retained earnings.

On the other hand, our results contradict the predictions of signalling theory; when high leverage companies move to their target payout faster than low leverage firms, those companies try to signal that even though they need to service their debt they still feel confident about the future cash flows of the company. Thus, this behaviour makes shareholders feel more confident about the future of such a company. Utami and Inanga (2011) contradict our result; they examined data from the Indonesian market during the period of 1994–2007, and argued that, although their results contradicted many empirical papers, high leverage companies in their sample smoothed their dividends more (and approached their target payout ratio more quickly) than low leverage ones; managers in Indonesian firms try to signal their favourable financial expectations of future cash flows and their confidence to service their debts.

### 4.7. The impact of high/low profitability

Dividend signalling theory predicts that managers usually use dividends as a tool to signal their confidence in the firm's future profits (cash flows) for a given market; consequently, share prices react positively (Lintner, 1956). According to Juma'h and Pacheco (2008), one of the basic firm characteristics that affect dividends is the company's profitability. Their analysis was supported by Fama and French (2002) who argued that profitability affects the payment of dividends positively; companies with high profits tend to have better cash flow and are more likely to move their dividends towards the target dividend payout ratio faster. In addition, Gill, Biger, and Tibrewala (2010) also confirmed that most of the empirical papers have agreed on the rate of profits and dividends in signalling information available to shareholders about the company's future financials. Hence, it is proposed that *companies with high profits to move their dividends to the target payout ratio faster than companies with low profits in the Amman Stock Exchange.*

The results support the hypothesis that different dividend behaviours are followed by the high- and low-profit Jordanian firms, where the estimated coefficients on *Hprof,* and its interactions $Hprof_{i,t} * Ddev_{i,t}^{below}$, $Lprof_{i,t} * Ddev_{i,t}^{below}$, and $Lprof_{i,t} * Ddev_{i,t}^{above}$ are found to be statistically significant at the 1% level and $Hprof_{i,t} * Ddev_{i,t}^{above}$ at the 5% level. The positive estimated coefficients ($\beta_9 + \beta_{10}$, $\beta_{11}$, and $\beta_{12}$) suggest that high-profitable firms adjust their dividends and move to their dividend payout ratio faster than low-profitable firms; the transaction cost of moving toward the target dividend payout ratio for the highly profitable companies is lower than the low-profitable ones. The results also show that the variable of high profitability is found to be statistically significant and positive at the 5% level, suggesting that profitability affects the dividend smoothness in Jordan.

These results are in line with signalling theory suggesting that the managers of highly profitable firms tend to signal their greater confidence in the future cash flows and assure the shareholders that the company will keep smoothing dividends toward the target payout ratio. This result also agrees with the findings of Al-Malkawi (2007) who concluded that highly profitable Jordanian companies pay higher dividends than less profitable firms. Thus, this suggests that highly profitable Jordanian companies experience better cash flows and this allows them to move to the target dividend payment ratio more quickly. Pandey (2001) arrived at the same result when he found that an essential determinant of the smoothness of dividend policy in the Malaysian market was profitability. He argued that companies with higher profits are more willing to keep smoothing their dividends; he related this to signalling theory. In addition, Adaoglu (2000) argued that managers in Turkey pay close attention to profitability measures when it comes to paying dividends; more than any other characteristics of the firm. Furthermore, Abor and Amidu (2006) and Franklin and Muthusamy (2010) have empirically investigated the relationship between dividend payment and profitability in Ghana and India, respectively. Both studies concluded that profitability had a highly significant impact on a firm's ability to pay dividends. Thus, we accept the hypothesis that companies with high profits smooth dividends more than companies with low profits.

### 5. CONCLUSION

This empirical paper has investigated data for 65 companies (37 industrial and 28 services) listed on the ASE covering the period 1997–2020. Both pooled data and panel data are used as techniques for the estimation of results. This study found that the random-effects technique was the best model. This empirical paper has examined the smoothness of dividends using symmetric and asymmetric partial adjustment models and extended the previous literature by empirically investigating the asymmetric partial adjustment model; previous studies have assumed a symmetric adjustment toward the target dividend payout ratio. Jordanian companies tend not to cut their dividends which makes the downward movement when above the target dividend payout ratio less pronounced.

In addition, this research has investigated the possible firm characteristics which affect the asymmetric partial adjustment model; the hypothesis of large/small size, high/low leveraged, and high/low-profit companies making asymmetric adjustments towards their target dividend payout ratios was studied. The results suggest that Jordanian firms move toward a target payout ratio at a reasonably moderate rate of adjustment. In addition, the process of moving towards the target adjustment is asymmetrical rather than symmetrical; the Jordanian companies have different adjustment rates when they are above or below the target. Furthermore, a number of interesting results have been found in terms of the characteristics of companies (size, profitability, and leverage) and their impact on the speed of adjustment toward the target dividend. The impact of size on the smoothness of dividends contradicts signaling theory, implying

that small firms with high levels of information asymmetry are slower in moving towards the target dividend payout ratio than large firms. Further, according to agency cost theory, companies with high leverage smooth their dividends at a lower rate towards the target dividend payout ratio than low leveraged ones; which indicates that companies in Jordan use dividends to decrease funds in hands of managers so that they cannot invest in unprofitable projects in order to reduce agency cost. Moreover, the effect of profitability on the stability of paying dividends has been found to be positively significant and in line with the signaling theory. The higher the company's profit the better the financial position of the firm; so, it can maintain a stable dividend payment. Thus, it can be proposed that the partial adjustment model for the Jordanian listed firms is asymmetric and is influenced by the size, leverage, and profitability.

# REFERENCES

1. Abor, J., & Amidu, M. (2006). Determinants of the dividend payout ratio in Ghana. *The Journal of Risk Finance, 7*(2), 136–145. https://doi.org/10.1108/15265940610648580
2. Adaoglu, C. (2000). Instability in the dividend policy of the Istanbul Stock Exchange (ISE) corporations: Evidence from an emerging market. *Emerging Market Review, 1*(3), 252270. https://doi.org/10.2139/ssrn.248488
3. Adedeji, A. (1998). Does the pecking order hypothesis explain the dividend payout ratios of firms in the UK? *Journal of Business Finance & Accounting, 25*(9–10), 1127–1155. https://doi.org/10.1111/1468-5957.00230
4. Aharony, J., & Swary, I. (1980). Quarterly dividend and earnings announcements and stockholders' returns: An empirical analysis. *Journal of Finance, 35*(1), 1–12. https://doi.org/10.1111/j.1540-6261.1980.tb03466.x
5. Ahmed, H., & Javid, A. (2009). *Dynamics and determinants of dividend policy in Pakistan (Evidence from Karachi stock exchange non-financial listed firms)* (MPRA Paper No. 37342). Retrieved from https://mpra.ub.uni-muenchen.de/37342/
6. Aivazian, V., Booth, L., & Cleary, S. (2001). Dividend policy in developing countries. Paper presented at *the Eighth Annual Conference, Multinational Finance Conference.*
7. Aivazian, V., Booth, L., & Cleary, S. (2003). Dividend policy and the organisation of capital markets. *Journal of Multinational Financial Management, 13*(2), 101–121. https://doi.org/10.1016/S1042-444X(02)00038-5
8. Aivazian, V., Booth, L., & Cleary, S. (2006). Dividend smoothing and debt ratings. *Journal of Financial and Quantitative Analysis, 41*(2), 439–453. https://doi.org/10.1017/S0022109000002131
9. Allen, D. E. (1993). The pecking order hypothesis: Australian evidence. *Applied Financial Economics, 3*(2), 101–112. https://doi.org/10.1080/758532828
10. Al-Malkawi, N. H. (2007). Determinants of corporate dividend policy in Jordan: An application of the tobit model. *Journal of Economic & Administrative Sciences, 23*(2), 44–70. https://doi.org/10.1108/10264116200700007
11. Al-Najjar, B., & Hussainey, K. (2009). *What drives firms' capital structure and dividend policy?* (Working Paper, Middlesex University).
12. Al-Shubiri, F. N. (2011). Capital structure and market power: Evidence from Jordanian banks. *Managing Global Transitions, 9*(3), 289–310. Retrieved from https://www.fm-kp.si/zalozba/ISSN/1581-6311/9_289-310.pdf
13. Asimakopoulos, P., Asimakopoulos, S., & Zhang, A. (2021). Dividend smoothing and credit rating changes. *The European Journal of Finance, 27*(1–2), 62–85. https://doi.org/10.1080/1351847X.2020.1739101
14. Asquith, P., & Mullins, D. W., Jr. (1983). The impact of initiating dividend payments on shareholders' wealth. *Journal of Business, 56*(1), 77–96. https://doi.org/10.1086/296187
15. Asquith, P., & Mullins, D. W., Jr. (1986). Signalling with, dividends, stock repurchases, and equity issues. *Financial Management, 15*(3), 27–44. Retrieved from https://www.jstor.org/stable/3664842
16. Bali, R. (2003). An empirical analysis of stock returns around dividend changes. *Applied Economics, 35*(1), 51–61. https://doi.org/10.1080/0003684020158930
17. Baskin, J. (1989). An empirical-investigation of the pecking order hypothesis. *Financial Management, 18*(1), 26–35. Retrieved from https://www.jstor.org/stable/3665695
18. Deshmukh, S. (2003). Dividend initiations and asymmetric information: A hazard model. *Financial Review, 38*(3), 351–368. https://doi.org/10.1111/1540-6288.00050
19. Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. *The Journal of Finance, 46*(4), 1325–1360. https://doi.org/10.1111/j.1540-6261.1991.tb04620.x
20. Eddy, A., & Seifert, B. (1988). Firm size and dividend announcements. *Journal of Financial Research, 11*(4), 295–302. https://doi.org/10.1111/j.1475-6803.1988.tb00090.x
21. Eriotis, N. (2005). The effect of distributed earnings and size of the firm to its dividend policy: Some Greek data. *International Business & Economics Journal (IBER), 4*(1), 45–51. https://doi.org/10.19030/iber.v4i1.3568
22. Faccio, M., Lang, L. H. P., & Young, L. (2001). Dividend and expropriation. *American Economic Review, 91*(1), 54–78. https://doi.org/10.1257/aer.91.1.54
23. Fama, E. F., & Babiak, H. (1968). Dividend policy: An empirical analysis. *Journal of American Statistical Association, 63,* 1132–1161. https://doi.org/10.1080/01621459.1968.10480917
24. Fama, E. F., & French, K. R. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics, 60*(1), 3–43. https://doi.org/10.1016/S0304-405X(01)00038-1
25. Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies, 15*(1), 1–33. https://doi.org/10.1093/rfs/15.1.1
26. Frankfurter, G. M., Kosedag, A., Schmidt, H., & Topalov, M. (2002). The perception of dividends by management. *Journal of Psychology and Financial Markets, 3*(4), 202–217. https://doi.org/10.1207/S15327760JPFM0304_02
27. Frankfuter, G. M., & Wood, B. G., Jr. (2002). Dividend policies and their empirical test. *International Review of Financial Analysis, 11*(2), 111–138. https://doi.org/10.1016/S1057-5219(02)00071-6
28. Franklin, S. J., & Muthusamy, K. (2010). Leverage, growth and profitability as determinants of dividend payout ratio — Evidence from Indian paper industry. *Asian Journal of Business Management Studies, 1*(1), 26–30. Retrieved from https://idosi.org/ajbms/1(1)10/4.pdf
29. Ghosh, C., & Woolridge, J. R. (1988). An analysis of shareholder reaction to dividend cuts and omissions. *Journal of Financial Research, 11*(4), 281–294. https://doi.org/10.1111/j.1475-6803.1988.tb00089.x

30. Gill, A., Biger, N., & Tibrewala, R. (2010). Determinants of dividend payout ratios: Evidence from United States. *The Open Business Journal, 6*(3), 8–14. https://doi.org/10.2174/1874915101003010008
31. Gitman, L., & Zutter, C. (2007). *Principles of managerial finance* (12 ed.). Pearson Education.
32. Goergen, M., Renneboog, L., & Correia da Silva, L. (2005). When do German firms change their dividends? *Journal of Corporate Finance, 11*(1–2), 375–399. https://doi.org/10.1016/j.jcorpfin.2003.09.001
33. Gordon, M. J. (1959). Dividends, earnings, and stock prices. *Review of Economics and Statistics, 41*(2, Part 1), 99–105. https://doi.org/10.2307/1927792
34. Gugler, K., & Yurtoglu, B. B. (2003). Corporate governance and dividend pau-out policy in Germany. *European Economic Review, 47*(4), 731–758. https://doi.org/10.1016/S0014-2921(02)00291-X
35. Jensen, G. R., Solberg, D. P., & Zorn, T. S. (1992). Simultaneous determination of insider ownership, debt, and dividend policies. *Journal of Financial and Quantitative Analysis, 27*(2), 274–263. https://doi.org/10.2307/2331370
36. Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review, 76*(2), 323–329. Retrieved from https://www.jstor.org/stable/1818789
37. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X
38. John, K., & Williams, J. (1985). Dividends, dillution, and taxes: A signalling equilibrim. *Journal of Finance, 40*(4), 1053–1070. https://doi.org/10.1111/j.1540-6261.1985.tb02363.x
39. Juma'h, A. H., & Pacheco, C. J. (2008). The financial factors influencing cash dividend policy: A sample of U.S. manufacturing companies. *International Metro Business Journal, 4*(2), 23–43.
40. Kilincarslan, E., & Demiralay, S. (2021). Dividend policies of travel and leisure firms in the UK. *International Journal of Accounting & Information Management, 29*(2), 324–344. https://doi.org/10.1108/IJAIM-09-2020-0144
41. Koussis, N., & Makrominas, M. (2019). What factors determine dividend smoothing by US and EU banks. *Journal of Business Finance & Accounting, 46*(7–8), 1030–1059. https://doi.org/10.1111/jbfa.12399
42. Kumar, P. K., & Lee, B. S. (2001). Discrete dividend policy with permanent earnings. *Financial Management, 30*(3), 55–76. https://doi.org/10.2307/3666376
43. Lambrecht, B. M., & Myers, S. C. (2012). A Lintner model of payout and managerial rents. *The Journal of Finance, 67*(5), 1761–1810. https://doi.org/10.1111/j.1540-6261.2012.01772.x
44. Leary, M. T., & Michaely, R. (2011). Determinants of dividend smoothing: Empirical evidence. *Review of Financial Studies, 24*(10), 3197–3249. https://doi.org/10.1093/rfs/hhr072
45. Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review, 46*(2), 97–113. Retrieved from https://www.jstor.org/stable/1910664
46. Lintner, J. (1962). Dividends, earnings, leverage, stock prices and supply of capital to corporations. *The Review of Economics and Statistics, 64,* 243–269. https://doi.org/10.2307/1926397
47. Michaely, R., Thaler, R. H., & Womack, K. L. (1995). Price reactions to dividend initiations and omissions: Overreaction or drift? *Journal of Finance, 50*(2), 573–608. https://doi.org/10.1111/j.1540-6261.1995.tb04796.x
48. Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *Journal of Business, 34*(4), 411–433. Retrieved from https://www.jstor.org/stable/2351143
49. Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *Journal of Finance, 40*(4), 1031–1051. https://doi.org/10.1111/j.1540-6261.1985.tb02362.x
50. Modigliani, F., & Miller M.H. (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review, 48*(3), 261–297. Retrieved from https://www.jstor.org/stable/1809766
51. Pandey, I. M. (2001). *Corporate dividend policy and behaviour: The Malaysian experience* (IIMA Working Paper No. 2001-11-01). https://doi.org/10.2139/ssrn.299912
52. Pandey, I. M., & Bhat, R. (2007). Dividend behaviour of Indian companies under monetary policy restrictions. *Managerial Finance, 33*(1), 14–25. https://doi.org/10.1108/03074350710715782
53. Pettit, R. R. (1972). Dividend announcements, security performance, and capital market efficiency. *Journal of Finance, 27*(5), 993–1007. https://doi.org/10.1111/j.1540-6261.1972.tb03018.x
54. Ramachandran, A., & Packkirisamy, V. (2010). The impact of firm size on dividend behaviour: A study with reference to corporate firms across industries in India. *Managing Global Transitions, 8*(1), 49–78. Retrieved from https://www.fm-kp.si/en/zalozba/ISSN/1581-6311/8_049-078.pdf
55. Redding, L. S. (1997). Firm size and dividend payouts. *Journal of Financial Intermediation, 6*(3), 224–248. https://doi.org/10.1006/jfin.1997.0221
56. Short, H., Zhang, H., & Keasey, K. (2002). The link between dividend policy and institutional ownership. *Journal of Corporate Finance, 8*(2), 105–122. https://doi.org/10.1016/S0929-1199(01)00030-X
57. Utami, S. R., & Inanga, E. L. (2011). Agency costs of free cash flow, dividend policy, and leverage of firms in Indonesia. *European Journal of Economics, Finance and Administrative Sciences, 33,* 7–24.