Do Jordanian Firms Smooth their Dividends? Empirical Test of Symmetric and Asymmetric Partial Adjustment Models

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Abstract

The theoretical framework of dividend theories suggests the potential for exhibiting asymmetrical dividend smoothing behaviour. Therefore, this study aims at empirically investigating whether value maximizing firms follow a symmetric or asymmetric target-dividend adjustment. It also investigates whether this behaviour exits for firms with positive and negative earnings. Using data for a sample of 38 firms listed in Amman Stock Exchange (ASE), our empirical results suggests that Jordanian firms have a target dividend payout ratio with rate of adjustment, implying that these firms try to stabilize or smooth their dividend policy. Moreover, the results show dividend adjustment is not only asymmetric for upward and downward (below and above-target) dividends adjustment, but also asymmetric for below-target dividends adjustment with positive and negative earnings as well for above-target dividends adjustment with positive and negative earnings

Keywords: Target dividend payout, partial adjustment, asymmetric adjustment, earnings, Amman Stock Exchange.

1. Introduction

The puzzling issue of dividend policy makes this policy one of the most controversial topic in corporate finance theory. Numerous attempts have been made to solve this puzzle. However, the large body of theoretical and empirical researches does not provide an optimal explanation as to why firms pay dividend or smooth their dividend policy. Prior to Miller and Modigliani (1961), the predominant believe was that paying dividend tends to increase the firm value. However, in their seminal paper, Miller and Modigliani (1961) posit that under certain assumptions, the firm’s dividend policy is independent of its value. MM demonstrate that the value of firm depends only on the profitability of its investment opportunities (income stream from it is assets); no matter how it splits this income between retained earning and dividend payments. The underlying argument behind their statement is that investment policy is not altered by changing dividend policy. Miller and Modigliani (1961) dismissed the impact of internal capital on investment, suggesting that investment is insensitive to the availability
of internal capital. Hence, firms should not have any preference of internal over external capital as long as firms are facing no restrictions in their access to the external financing, consequently, firms can use internally generated funds to make cash dividend payments. In their model, the dismissal of tax effect makes investors indifference between capital gain and dividend. Miller and Modigliani (1961) build their argument on the perfection assumption of capital market in which there are no transaction costs, no information asymmetry, no bankruptcy costs -debt is risk-free regardless of the amount used, reducing the possibility of using internally generated funds for financing and consequently, saving more funds for cash dividend payments- no tax differentials (no taxes exist either on individuals or companies, cash dividend and capital gain are not taxed). Finally, management acts on the exclusive behalf of shareholders, hence, no agency problem exist.

Empirically, the irrelevancy theory of dividend policy has gained a little support. Among a lot of those who have tested dividend policy, few who have provided evidence consistent with its underlying argument (e.g. Black and Scholes, 1974; Miller & Scholes, 1978). However, the studies that have provided evidence inconsistent with the irrelevancy theory of Miller and Modigliani (1961) suggest different explanation as to why dividend policy is relevant. Moreover, these studies provide no common results regarding the effect of dividend policy on the firm’s value. Some of these studies suggest that the market reacts positively to dividend increases and consequently the shareholder wealth (stock price), while the other suggest the opposite. The most influential theories of explaining dividend behaviour are the signalling theory and agency theory. These alternatives are based on examining what happens if Modigliani and Miller’s assumptions do not hold.

Different views have suggested that the financial decisions in developing countries are somehow different from those of developed ones. Ramcharran (2001) points out those firms in developing markets are financially constrained with limited alternatives of financing for their new investment opportunities. Therefore, these firms are expected to follow the hierarchy behaviour with respect to each source of financing as pecking order theory suggests, starting first with internally generated funds, reducing the amount of funds available to pay dividends. Consistent with view, Glen et al. (1995) found that the pay out ratio of firms in developing market is lower than those in developed markets. Aivazian et al. (2003) and Frankfurter and Wood (1997) support this view. They argue that dividend behaviour is subject to change over time and across countries. The main reason for this variation is mainly attributed to institutional and capital market differences their institutional differences such as the level of transparency and investor protection, besides the bankruptcy, tax laws, market liquidity and competition. Greenwald et al. (1984) indicate that developed countries are waked up early to asymmetric information and agency problems. Therefore, the direction to keep the problem controllable and insure the honest managerial behaviour is taken through the use of well-suited regulations and supervisions. Compared with developed markets, developing ones are less developed, less competitive and suffering from the lack of compatible regulations and sufficient supervision. Therefore, one could expect that capital frictions are more severe in developing countries. Hence the dividend practise of these countries is somehow different from those of developed ones. However, the empirical studies that have been conducted in the context of developed countries and revealed that investment is highly sensitive to the availability of internal funds (e.g. Fazzari et al 1988, Charton et al. 2002) have altered the predominant believe that capital market frictions are matter only for developing countries.

It has been documented that in the presence of market frictions- information asymmetry and agency problems, firms’ financial (leverage and dividend) decisions and investment decisions are dependent and mixed up with each other (Baskin, 1989; Allen, 1993, Adadeji, 1998). Baskin (1989)

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2 For example, Adedeji (1998) provide evidence suggesting that investment, leverage and dividend decisions are dependent, or but, the interrelationship are largely affected by the way through which a firm responds to earnings shortage.
argues that the asymmetric information does not only restrict the firm ability to raise funds externally but also internally, suggesting the impact of information asymmetries on dividend payments. Therefore, Lintner (1956) suggest that stabilize dividend payment policy tends to mitigate the agency and signalling problems.

In the light of imperfection condition of Jordanian capital market, what should be expected regarding the dividend behaviour of Jordanian firms listed in Amman Stock Exchange? Therefore this study aims at investigating whether the non-financial Jordanian firms have target pay-out ratio and move gradually towards that target and whether adjustment is symmetric or asymmetric (this argument will be discussed later in the model specifications).

1.2. Jordanian Capital Market

The Amman Financial market was founded in 1976, started operations in 1978. In accordance with the security act of 1997, Amman Financial market was renamed Amman Stock Exchange. During the 1980s and early of 1990s, Amman Stock Exchange is largely affected by the uncertainty that overshadowed the region such the first and second gulf crises and consequently, induced banks to adopt conservative credit policies, reducing firms’ ability to raise funds from banks. At the same time, the barriers that may face the Jordanian companies when seeking funds from Amman Stock exchange make it difficult to use this market as a major alternative to the banking sector. This, along with the fact that bond market in Jordan is not developed well (see, Booth et al., 2001), increased their reliance on internally generated funds through retained earnings, reducing the amount of funds available for dividend payment. Compared with developed markets, even with some of developing ones, Jordanian capital market is small and thin with a limited number and volume of transactions, low liquidity and high spreads. These features make stock prices more volatile in the secondary market, consequently raising the cost of finance in primary market. Moreover, in this kind of market, information is not available to outsiders, making them demand premiums to invest, and consequently raising the cost of external financing.

It is worth noting that information problem is not the only frictions that force firms to rely on internal funds. The ownership structure in which managers of Jordanian firms have a low percentage of investment, gives the rise to the agency problem (Jensen and Meckling, 1976). Their ownership is too low, on average; it is not more than 4% (Amman stock exchange, 2005). Hence, the conflict of interest between managers and shareholders may raise the cost of external capital. However, the majority of stockholders in these firms are institutional investors who may work for the benefits of other stockholders. Booth et al (2001) noted that Jordanian firms depend largely on short term debt for financing, suggesting that these firms use short term debt to reduce the agency cost of asset substitution problem (Jensen and Meckling, 1976).

As above review suggests, the presence of market frictions- information asymmetric and agency costs- reduces the accessibility Jordanian firm to external capital, especially for small ones. Hence these firms have limited financial instruments to finance their investment opportunities. This, indeed, increased the need for developing the capital market. Therefore, Jordan, since 1990, has followed the path of financial liberalization. As a result, comprehensive economic, social, and structural reform programmes have been implemented, aiming at improving the efficiency and competitiveness of the economy, integrating Jordan with the international economy and finally, creating a favourable investment environment. Further liberalization procedures have been taken and motivated by the entry of the country in the World Trade Organization and the US-Jordan Free Trade Agreement.

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3 According to El-Khoury and Hmedat (1992) these barriers might be classified into two categories. The first category includes general environmental factors such as the economic and political instability which gives rise to capital flight. The second category includes the complicated listed procedures, high issue costs, high transaction costs and investors desire for current dividend income.

4 Gandhi et al, (1980) and Drake, (1977) show how small and then capital market affect stock prices and cost of financing.

5 The sample firms in their study are from Malaysia, Zimbabwe, Mexico, Brazil, Turkey, Jordan, India, Pakistan, Thailand, and Korea.
Agreement which represented new competitive threats for the Jordanian firms. Competition means keeping a flow of high quality products and services while reducing costs requiring these firms to finance their investment activities at the lowest possible costs.

The government efforts to liberalize the financial system privatize the public sector and increase the capital market efficiency result in a substantial transformation of the institutional group within which firms have been operating. The state share in Jordanian firms has totally been disappeared, the number of foreign investors has increased and financial managers are given more flexibility in choosing the financing policy of the firm, making Jordanian firms value-maximizing firms. This suggests the target level of leverage and/or dividend payout ratio that maximizes the firm value. Although the importance of both capital structure and dividend policies as an area of research for Jordan, this study investigates only the dividend policy of Jordanian firms listed in Amman Stock Exchange. More precisely, it investigates whether Jordanian firms have long run dividend pay out ratio stabilize their dividend policy.

This adds another motivation to conduct this study.

1.3. Signalling and Agency Explanations of Dividend Smoothing

As seen above, Lintner (1956) provides two explanations as to why firms tend to stabilize their dividend policy. These explanations are mainly stemmed from the fact that smoothing dividend policy tend to reduce asymmetric information and agency problems. Therefore, it is expected that firms with more severe agency and asymmetric information problems to smooth their dividend policy.

It is well-known that Miller and Modigliani (1961) assume that information is available to all participants in the capital market, making insiders and outsiders in the same level of knowledge about the firm’s performance. Inconsistence with their argument, Myers and Majluf, (1984) suggest what is known in fiancé as information asymmetries. They argue that managers are more knowledgeable than outsiders (investors) and they cannot credibly convey the quality of their existing assets and available investment opportunities to potential investors, forcing managers to use dividend policy as a mechanism to signal what they already have about the firm’s cash flow to the outsiders. The underlying argument behind the use of dividend as a signalling is that, higher dividend payout translates into higher stock price and consequently, firm value. However, there is evidence to suggest that changing dividend does not necessarily lead to higher firm value (Benartzi et al., 1997). According to Allen and Michaely (1995), the positive stock price reaction requires the market to take dividend payment as a signal for a firm’s cash flows; otherwise, stock prices may remain the same or react negatively to dividend increases.

However, the key question what does announcement of dividend increase signal to the outsiders? Lintner (1956) who sets up the partial adjustment model of dividend policy suggests that dividend increases convey to outsiders that current cash flow is stable (increase in cash flow is permanent). This suggests that firms tend to increase their dividend payments only if their cash flow increases is stable to avoid dividend cut and consequently, the negative market reaction and thereby, the firm value (Brav et. al., 2005). Therefore, managers of value-maximizing firms will tend to smooth their dividend policy and be reluctant to cut dividend. The degree of smoothing dividend policy depends on how large information problem is severe in these firms, implying that firms with more severe information asymmetries will tend to stabilise or smooth dividend more. If this is the case, firms that experience earnings decrease will tend to borrow or to cut their investment to pay dividend or maintain the levels of their dividend payments. On their comparative study Archbold and Vieira (2010) provide evidence consistent with signalling theory. They found that UK respondents strongly indicate that dividends convey information to investors, as opposed to a minority of Portuguese respondents. Archbold and Vieira (2010) attributed this difference on signalling between the groups to the negative consequences of dividend reductions. The signaling hypothesis is empirically supported by Okpara (2010), John and Lang (1991) and Miller and Rock (1985). Their evidence suggests that because of asymmetric information particularly between managers and investors dividend changes are valuable in that they convey information about the firm’s prospects.
The agency theory suggests another explanation as to why firms tend to smooth dividend policy. Contrary to what is assumed by M&M (1961 and 1958), management may not act on the exclusive behalf of shareholders, creating conflicts of interest between shareholders and managers (Jensen and Meckling, 1976; Jensen, 1986). Jensen and Meckling (1976) argue that the separation of owners and management provides managers with the incentive to work for their own interest, ignoring those of shareholders. Jensen (1986) introduces the free cash flow theory, suggesting that the presence of free cash flow provides managers with the incentives to consume more perquisites or to invest in less profitable project, magnifying the conflicts of interests between managers and shareholders and consequently increasing the cost of agency conflict. According to Jensen and Meckling (1976) these costs are unavoidable result of the agency problem and borne by the origin owner of the firm who will have the incentive to minimize these costs because they will capture the benefits of reducing them.

Literature suggests that using debt and/or dividend reduce the amount of funds available under management control, and subsequently reduce the agency costs (Jensen, 1986, Stulz, 1990, Frankurter and Wood, 2002). According to Jensen (1986), debt and dividend work as a substitute mechanism to align the interests and mitigate the agency problem. Although the use of debt motivates the conflict of interests between shareholders and debt-holders and consequently, the agency and bankruptcy costs of debt, using debt makes managers to bonding their promise to pay out future cash flows in a way that cannot be accomplished by simple dividend increases (Jensen and Meckling, 1976).

However, Watts and Zimmerman, (1986) point out that creating debt may induce managers to take actions that tend to reduce the value of the firm. Moreover, stockholders generally prefer dividend as a way to reduce the discretionary funds to managers for four reasons: firstly, increasing dividend payments will reduce the over- investment problem by reducing the amount of free cash flow that can be used by managers to maximize their utility (Lang and Lizenberger, 1989). Secondly, Dividend likes debt convey information about firm’s profitability and value (Fama and French, 2002), but unlike debt, dividend increases involves a good news about its profitability and value (positive signal), implying that the value of firm is positively related to dividend. Finally, paying cash dividend help stockholders to monitor the managerial behaviour at a lowest possible costs. Finally, paying cash dividend mitigates the conflict of interest between shareholders and managers directly, while debt takes time. In contrast, debt may increase the amount of funds under management control, making dividend the best option for reducing agency costs.

Based on the above analysis, firms that having large amount of excess cash with low investment opportunities and consequently, more severe agency conflict tend to smooth more. Hence, managers of firms with less severe agency problems or information asymmetry may have the freedom to use cash in any positive NPV projects.

As mentioned above, the most relevant considerations which apply in the Jordanian context are the agency costs, information asymmetries, transaction and bankruptcy costs. In Jordan where the capital market is imperfect; these considerations affect firm’s policies in borrowing, issuing equity and paying dividend. Hence, it is expected that Jordanian firms tend to stabilize their dividend policy to mitigate the agency and information costs.

**Methodology: Data and Empirical Models**
This study aims at investigating dividend smoothing behaviour of non-financial firms listed in Amman Stock Exchange. For the purpose of this analysis, the sample is limited to those firms that are dividend payers. More precisely, it includes those firms that have a dividend payment for at least 6 years during the period of 1998-2009. Hence, it excludes those with zero dividend payment or less than 6 years dividend payment during the study period. This procedure reduces the possibility of any spurious

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6 For example, the manager could issue additional debt and use the proceeds to pay dividends leaving the old and new debt holders with cash leftover. The market anticipates the managers’ value-reducing behaviour and prices the debt accordingly.
results of dividend smoothing. In addition to the previous sample selection criteria in choosing the study sample, the study excludes all firms with missing data over the study period. Firms that have been incorporated after year 1998 or engaged in merger or acquisitions during the study period are excluded. Because of their different capital structure and income taxes, this study excludes all firms operate in financial (banking and insurance) sectors (see, Rajan and Zingals, 1995 and Lesfer 1995). The application of these criteria results in 38 firms with at least 6 years a dividend payment.

In order to find a best and data adequate model of dividend smoothing behaviour, the study employs pooled data and panel data analysis which is usually estimated by either fixed effect technique or random effects technique. Data for pooled and panel analysis is extracted from the firm’s annual reports, and from Amman Stock Exchange’s publications (The Yearly Shareholding Companies Guide and Amman Stock Exchange Monthly Statistical Bulletins).

**Models Specification**

It has been argued that markets put a premium on firms with stable dividends while discipline those that cut dividends, making managers more reluctant to cut dividends to avoid any negative market reaction and consequently, stock price reduction. Therefore, managers of value maximizing firms select the dividend payout ratios that maximize their value. Lintner (1956) argues that firms target a long-term payout ratio when determining dividend policy. Consistent with view, Fama and French (2002) pointed out that value-maximizing firms identify their target payout ratio by weighing the costs and benefits of the last dollar of dividend. Therefore, managers of these firms will work to maintain their actual payout ratios at the target level by adjusting the actual payout ratio towards the target level. However, there is evidence to suggest that the presence of adjustment costs restrict the firms’ ability to revert back to their target payout ratio immediately, suggesting the occurrence of partial adjustment process (Fama and French, 2002). Lintner (1956) who provides the basis for partial adjustment has argued that firms tend to smooth their dividend policy and managers of these firms are reluctant to cut dividends, suggesting that adjustment toward the target payout may take the form of asymmetric not symmetric. Asymmetric and symmetric adjustment models are tested to investigate whether dividend stability behaviour of Jordanian listed in Amman Stock Exchange is asymmetric or symmetric. For this purpose, we construct the $TPAP_t = (D^*_t - D_{t-1}^*)$ variable to measure how far the actual dividend payout deviates from the target one.\(^7\) This variable will be divided into two new variables to measure the negative and positive deviations from the target. More precisely, it measures whether the actual dividend payout is above or below its long run target payout ratio. Therefore, the first testable model for dividend stability will be formalized as follows:

$$\Delta DV_t = \gamma_0 + \gamma_1 TPAP_t + \varepsilon_{it}$$

(1)

Where $\Delta DV_t = DV_t - DV_{t-1}$ and $\varepsilon_{it}$ is the error term with usual properties; namely, $\varepsilon_{it} \sim$ IID $(0, \sigma^2)$. $\gamma_1$ is the adjustment coefficient that captures the desired extent of adjustment to the target. The hypothesis in model (1) is $0 < \gamma_1 < 1$, indicating partial adjustment towards the target, but implying positive adjustment costs, and hence, firms have no incentive to adjust their dividends to match their target payout ratio immediately.\(^8\) For dividend smoothing to exist, the adjustment coefficient needs to be low. The fact that markets put a premium on firms that increase dividends while discipline those

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7 The target level of dividend payment : $DV^*_t = pr_t E^*_t$ where, $pr_t$ is the target dividend payout ratio , while $E^*_t$ is the earning at time t

8 The significant adjustment coefficient ( $\gamma_1$ ) suggests that firms have target dividend payout ratio. If $\gamma_1 = 1$, no adjustment cost exists and then a complete adjustment towards the target occurs, suggesting no dividend smoothing exists, while $\gamma_1 = 0$ suggests that no adjustment towards the target occurs and the dividend policy is completely stable. $\gamma_1 >1$ implies that adjustment more than would be necessary takes place (Over-adjustment) and still the target is not reached.
that cut dividends, makes the benefits of increasing dividend higher than those of reducing it. Hence, firms may experience different rates of dividend adjustment depending on whether they are below-or above-target dividend payout ratio. To investigate whether they have different adjustment rates, we develop the following adjustment model by splitting the values of $TPAP_{it}$ variable. The two new variables are constructed as follows:

$$TPAP_{it}^{below} = TPAP_{it} \text{ if } DV_{it}^* - DV_{it-1} > 0 \text{ and zero otherwise.}$$

$$TPAP_{it}^{above} = TPAP_{it} \text{ if } DV_{it}^* - DV_{it-1} < 0 \text{ and zero otherwise.}$$

By substituting $TPAP_{it}^{below}$ and $TPAP_{it}^{above}$ for $TPAP_{it}$ in model (1), it can be rewritten as follows:

$$\Delta DV_{it} = \psi_0 + \psi_1 TPAP_{it}^{below} + \psi_2 TPAP_{it}^{above} + \epsilon_{it} \quad (2)$$

Model 2 provides asymmetric adjustment model specification, where $TPAP_{it}^{below}$ and $TPAP_{it}^{above}$ indicate that the firm’s target dividend payout is below and above it target ratio respectively. $\psi_1$ and $\psi_2$ are the adjustment coefficients to be estimated. Asymmetric adjustment behaviour $\psi_1$ and $\psi_2$ need be statistically significant, greater than zero and not equal ($\psi_1 \neq \psi_2$).

As firms may experience positive and negative earnings, adjustment towards target may vary depending on whether they have positive or negative earnings. Lintner (1956) hypothesises that firms tend to smooth their dividends in response to changes in their cash flows (earnings). Firm increase dividends only if the new level of dividend payout can be sustained, while those with losses may not necessarily cut dividends directly, cutting dividends only if they have no choice but cut dividends. Hence, firms experience positive earnings with dividends below its target are expected to adjust their dividends relatively faster than those of negative earnings with dividend above its target. To investigate adjustment for below and above-target dividends with positive and negative earnings, two dummies are used to construct two additional explanatory variables: $D_{it}^{+ \text{ earnings}}$ and $D_{it}^{- \text{ earnings}}$ are dummy variables for positive and negative earnings respectively. Based on the above analysis, Model (2) can be re-formalized as follows:

$$\Delta DV_{it} = (\lambda_1 D_{it}^{+ \text{ earnings}} + \lambda_2 D_{it}^{- \text{ earnings}}) + (\lambda_3 D_{it}^{+ \text{ earnings}} + \lambda_4 D_{it}^{- \text{ earnings}})TPAP_{it}^{below}$$

$$+ (\lambda_5 D_{it}^{+ \text{ earnings}} + \lambda_6 D_{it}^{- \text{ earnings}})TPAP_{it}^{above} + \epsilon_{it} \quad (3)$$

$\lambda_1, \lambda_2, \lambda_3, \lambda_4, \lambda_5$ and $\lambda_6$ are the adjustment coefficients to be estimated. These coefficients should be positive and significantly different from one and zero in order for dividend smoothing to exist. $\lambda_1$ and $\lambda_2$ should be statistically insignificant to suggest that firms are reluctant to cut dividends. For asymmetric dividend smoothing to exist, $\lambda_3$ and $\lambda_4$, $\lambda_5$ and $\lambda_6$, $\lambda_3$, $\lambda_4$ and $\lambda_5$, $\lambda_6$ should not be equal. Theoretically, the impetus of firms to smooth dividend when they have negative earnings is higher than that of smoothing when they have positive earnings.

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9 As the adjustment costs is a function of the transaction size required to reach the target and firms tend to increase dividend rather than cutting it, adjustment costs of increasing dividend are assumed to lower for increasing dividend than for reducing dividend.

10 $D_{it}^{+ \text{ earnings}}$ equals one for the positive earnings ($Earnings_{it} > 0$) and zero otherwise ($Earnings_{it} < 0$), while $D_{it}^{- \text{ earnings}}$ equals $(1- D_{it}^{+ \text{ earnings}})$. $TPAP_{it}^{below}$ and $TPAP_{it}^{above}$ is the below-target dividend payout and above-target dividend payout respectively.

11 The wald test is used to test the null hypothesis that:

$\lambda_3$ and $\lambda_4$ are equal

$\lambda_5$ and $\lambda_6$, are equal

$\lambda_3, \lambda_4$ and $\lambda_5, \lambda_6$ are equal
To empirically test dividend smoothing models, we employ pooled and panel data analysis techniques. Panel data analysis is usually estimated by either fixed effect technique or random effects technique. The main advantage of panel data technique over pooled data analysis is helping researchers to minimize the problems substantially that arise when there are omitted variable problems such as time and individual-specific variables (Gujarati, 2003). Furthermore, it generates more informative data, more variability, less collinearity among variables, more degrees of freedom, and more efficiency (Gujarati, 2003).

Breusch and Pagan (1980) and Lagrange multiplier (LM) are used for testing random effects models against pooled OLS model under the null hypothesis that the cross-sectional variance components are zero (H0: $\beta = 0$). The significant Lagrange multiplier (LM) test leads to the rejection of the null hypothesis, suggesting that the individual effect is not equal to zero and that the estimate coefficients obtained from pooled model are not consistent. To discriminate between fixed effects and the random effects model, we use the Hausman test. It tests the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. The rejection of the null hypothesis, on the other hand, suggests that fixed effects estimations are more appropriate than random effects estimations.

### Results

The diagnostics tests suggest that the model with random effects is found to be the preferred specification, since the Hausman test is found to be insignificant while, Lagrange multiplier test was significant, suggesting that the hypothesis that no firm-specific effects exist is rejected.

**Table 1:** The estimation results of model (1)

<table>
<thead>
<tr>
<th>Estimation technique</th>
<th>Pooled OLS Column(1)</th>
<th>Fixed effects Column(2)</th>
<th>Random effects Column(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>Coefficient</td>
<td>Coefficient</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.016</td>
<td>1.301</td>
<td>1.070</td>
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<tr>
<td></td>
<td>(0.208)</td>
<td>(0.221)</td>
<td>(0.210)</td>
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<tr>
<td>$TRAP_t$</td>
<td>0.325</td>
<td>0.271</td>
<td>0.282</td>
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<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.37</td>
<td>0.39</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>LM Test</td>
<td>116.17</td>
<td></td>
<td>13.76</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td></td>
<td>(0.112)</td>
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</table>

The results presented in table (1) show that the adjustment coefficient is statistically different from one, suggesting that Jordanian firms have target dividend payout and move gradually toward that target level. The low adjustment coefficient suggests that these firms tend to smooth or stabilize their dividends and be reluctant to cut their dividend, where the constant term ($\gamma_0$) is found to be positive and statistically significant at 1% level. This result suggests that Jordanian firms needs around 5 years to correct any deviation from the target. Although El-khouri and Almwalla, (1997) provide evidence suggesting that announcement of dividend distribution creates no direct stock price reaction in Jordanian capital market, this study provide evidence suggesting the opposite. This result supports the

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12 It is worth noting that the random effects estimator is efficient and consistent under the null hypothesis and inconsistent under the alternative hypothesis, and the fixed effects model is consistent under both the null and the alternative hypothesis.

13 The study uses the following formula to calculate the time required to eliminate half of the deviation of the actual leverage ratio from the target one: $\ln \left(\frac{1}{2}\right) / \ln \left(1-TPAP_{coefficient}\right)$. 
signalling theory of dividend smoothing. In fact the financial liberalization that Jordan has followed, since 1990, increases Jordanian firms accessibility to capital market to raise funds required for financing, reducing the reliance on internal funds, and consequently, increasing their ability to pay dividend. Moreover, financial the liberalization and privatization make Jordanian firms value-maximization firms which provides them with incentive to gradually adjust their dividends to maintain them at the target level.

Target adjustment requires value maximizing firms to increase or reduce dividends to maintain their dividends at the target. In contrast to leverage adjustments, dividends adjustment is somehow different, firms are more reluctant to cut dividend, implying that dividend adjustment may take the form of asymmetric not symmetric. The results presented in Table 2 support this suggestion, where the estimated adjustment coefficients $\psi_1$ and $\psi_2$ are statistically significant, but significantly different as the null hypothesis that $\psi_1 = \psi_2$ is soundly rejected. The adjustment coefficient is higher for below-target dividends (0.392) than for above-target dividends (0.154), indicating that the impetus of increasing dividends is higher than that of reducing dividends. This finding suggest that Jordanian firms needs 8.4 years to revert back to the target whey are above the target compared with 3 years when they are below the target. Hence, dividend smoothing is more for above-target dividend than for below-target dividend. The reasonable explanation of this finding is that, investors prefer dividend and react negatively to dividend cut, while react positively to dividend announcement. Hence, the benefit of increasing dividend is higher than those of reducing dividend, making upward and downward dividend target adjustment is not symmetric.

Table 2: The estimation results of model (2)

<table>
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<th>Estimation technique</th>
<th>Pooled OLS</th>
<th>Fixed effects</th>
<th>Random effects</th>
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</thead>
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<tr>
<td></td>
<td>Column(1)</td>
<td>Column(2)</td>
<td>Column(3)</td>
</tr>
<tr>
<td>Variables</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Intercept</td>
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<td>0.965</td>
<td>0.505</td>
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<td></td>
<td>(0.120)</td>
<td>(0.147)</td>
<td>(0.0144)</td>
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<tr>
<td>$TRAP_{below}$</td>
<td>0.485</td>
<td>0.408</td>
<td>0.392</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>$TRAP_{above}$</td>
<td>0.205</td>
<td>0.161</td>
<td>0.154</td>
</tr>
<tr>
<td></td>
<td>(0.060)</td>
<td>(0.015)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.42</td>
<td>0.44</td>
<td>0.46</td>
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<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>LM Test</td>
<td>116.17</td>
<td>77.63</td>
<td>112.92</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Hausman Test</td>
<td>11.24</td>
<td>8.03</td>
<td>13.76</td>
</tr>
<tr>
<td></td>
<td>(0.116)</td>
<td>(0.264)</td>
<td>(0.112)</td>
</tr>
</tbody>
</table>

$TPAP_{below}$ and $TPAP_{above}$ is the below-target dividend payout and above-target dividend payout respectively

The empirical investigation of model as presented in table (3) suggests that dividend adjustment is not only asymmetric for upward and downward (below and above-target) dividends adjustment, but also asymmetric for below-target dividends adjustment with positive and negative earnings as well for above-target dividends adjustment with positive and negative earnings. $\lambda_3, \lambda_4 and \lambda_5$ are found statistically significant and different from one, whilst $\hat{\lambda}_5$ was statistically not different from zero,

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14 The Wald test regarding the null hypothesis that $\gamma_1 = \gamma_2$ is found to be statistically significant at the 1% level (15.69 with a p-value of 0.000)
implying that no adjustment toward target occurs when Jordanian firms experience positive earnings with dividend payout above their target.15

Table 3: The estimation results of model (3)

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Fixed effects model</th>
<th>Fixed effects model</th>
<th>Random effects model</th>
</tr>
</thead>
<tbody>
<tr>
<td>$D_{it}^{\text{earnings}}$</td>
<td>-0.494 (0.203)</td>
<td>-0.397 (0.203)</td>
<td>-0.487 (0.203)</td>
</tr>
<tr>
<td>$D_{it}^{\text{earnings}}$</td>
<td>-0.239* (0.045)</td>
<td>-0.197* (0.045)</td>
<td>-0.212* (0.045)</td>
</tr>
<tr>
<td>$D_{it}^{\text{earnings}} * TPAP_{it}^{\text{below}}$</td>
<td>0.071*** (0.089)</td>
<td>0.087*** (0.089)</td>
<td>0.079*** (0.089)</td>
</tr>
<tr>
<td>$D_{it}^{\text{earnings}} * TPAP_{it}^{\text{above}}$</td>
<td>0.102*** (0.078)</td>
<td>0.112*** (0.045)</td>
<td>0.094*** (0.058)</td>
</tr>
<tr>
<td>$D_{it}^{+\text{earnings}} * TPAP_{it}^{\text{above}}$</td>
<td>0.128 (0.187)</td>
<td>0.128 (0.187)</td>
<td>0.128 (0.187)</td>
</tr>
<tr>
<td>$D_{it}^{+\text{earnings}} * TPAP_{it}^{\text{below}}$</td>
<td>0.128 (0.187)</td>
<td>0.128 (0.187)</td>
<td>0.128 (0.187)</td>
</tr>
<tr>
<td>R²</td>
<td>0.48 (0.000)</td>
<td>0.51 (0.000)</td>
<td>0.53 (0.000)</td>
</tr>
<tr>
<td>P-value(F-st)</td>
<td>912</td>
<td>912</td>
<td>912</td>
</tr>
<tr>
<td>N</td>
<td>70.89 (0.000)</td>
<td>1.87 (0.875)</td>
<td></td>
</tr>
</tbody>
</table>

For others estimated coefficients, the results suggest that that Jordanian firms have a target long run dividend payout and move gradually toward that target if any deviation exists. However, target reversion occurs much more slowly, indicating that dividend smoothing behaviour is the choice of Jordanian firms, but the propensity of smoothing depends on whether they are above or below the target and/or they have positive and negative earnings.

For above target dividend with negative earnings, the results suggests that Jordanian firms try to cut dividend gradually but at low rates, implying that these firms will not take the option of cutting dividend directly until to make sure that earnings reduction will sustain and they could not maintain the current dividend level. Therefore, they tend to stabilize their dividend policy. The same dividends pattern will prevail when they have negative earnings with below-target dividends. The adjustment rate is found to be lower than that of positive earnings with below-target adjustment, indicatinng that the impetus of Jordanian firms to increase dividend when they experience negative earnings with below-target dividend is lower than that of increasing dividend when they experience positive earnings with below-target dividend. These firms are expected to be more sensitive for smoothing when they experience negative earnings with below-target dividend than would otherwise, be. A possible explanation for this finding is that Jordanian firms will not increase dividend until making sure that any dividend increase will be maintained, making the permanent not the temporary changes in earnings is main determinant of dividend policy of Jordanian firms.

15The null hypothesis that $\lambda_3$, $\lambda_4$, $\lambda_5$, $\lambda_6$, $\lambda_3$, $\lambda_4$, and $\lambda_5$, $\lambda_6$ are equal is rejected, where, the Wald tests is founded to be statistically significant.
Summary and Conclusion
This study has tested the partial adjustment model based on Lintner's (1956) idea of dividend payout targets. While the extant research has tested the partial adjustment model assuming the symmetric adjustment toward the target dividend payout, an obvious extension to this study is to test firstly, for the hypothesis of asymmetric adjustment toward the target dividend payout. As firms are reluctant to cut dividend, the possibility exist that movement toward the long run payout ration will not be symmetric, secondly, for the hypothesis of asymmetric adjustment when firms have positive and negative earnings. We have tested for these by estimating two empirical models designed to capture asymmetric adjustment behaviour, besides the ones that have been designed to capture the effects of having positive and negative earnings on the asymmetric adjustment rates. The study empirically examined the data for a sample of 38 firms listed in Amman Stock Exchange (ASE) using pooled OLS Regression with fixed effects and random effects model. Our results suggest that Jordanian firms have a target dividend payout with low rate of target adjustment. However, target adjustment is not symmetrical; it is asymmetrical adjustment process, depending on whether they are above the target or below that target. Moreover, dividend adjustment is not only asymmetric for upward and downward (below and above-target) dividends adjustment, but also asymmetric for below-target dividends adjustment with positive and negative earnings as well for above-target dividends adjustment with positive and negative earnings. These findings suggest that the asymmetrical partial adjustment model based on Lintner's (1956) idea of dividend payout targets perform well in the Jordanian. The findings also support the asymmetric information agency explanation of dividend smoothing.

Reference