# The Interrelationship between Capital Structure and Corporate Payout Policy

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#### Abstract

This paper is concerned with studying the association between capital structure and corporate payout policy; capital structure or leverage representing the independent variable once and once as the dependent variable. Same as for corporate payout; representing the dependent variable once and once as the independent variable. The investigation has been performed using a data of 62 listed non-financial Egyptian firms over a period of fourteen years from 2003-2016. The results show that the interrelationship between capital structure and the payouts of the firm is statistically significant with a positive sign from both directions.

# 1. Introduction

Over the past few decades, both capital structure and payout policy are among the most studied, crucial, and interrelated issues in the financial literature history (Khan et al., 2016). Since the main goal for financial managers is to maximise the shareholders' wealth, an optimal capital structure as well as payout policy are needed for achieving this goal. Although, almost enough literature about the effect of capital structure on the payout policy, the results are still mixed and inconclusive. Contrarily, only few empirical studies investigate the impact of the payout policy on the capital structure decision; to the best of our knowledge. Thus, this study aims at investigating the interrelationship between capital structure and corporate payout policy from both directions.

The distribution of control power between the manager and investors is vital not only due to agency or information asymmetry problems, but due to also the disagreement about the value of the project available to the firm resulted from the potentially conflicting beliefs. Therefore, corporate performance especially past performance is the key factor that affects such disagreement as well as the allocation of control (Faulkender, Milbourn, and Thakor, 2006). Better past performance leads to less disagreement and affects the costs and benefits of different control allocations. Both dividend and capital structure policies constitute an implicit governance mechanism that determines how much control over the firm's investment decisions is exercised by manager compared to shareholders (Sulaimon, 2014).

In the contemporary world, organizations do not rely on a single source of funding, but seek more modern and innovative sources of funding to mitigate risk and increase the perceived financial benefits of a project (Schepens, 2016). Shareholder's equity, long-term debt and hybrid securities are the main components of a company's capital structure. The collection of funds through these instruments depends on the cost assumed in the issuance of these instruments and the value derived from them (Serfling, 2016).Different theories have been presented in the literature on corporate finance, for example, the theory of the irrelevance of capital structure by Modigliani and Miller (1958), the trade-off theory (Modigliani and Miller, 1963, Schwarz and Aronson, 1967, and Gupta, 1969), pecking order theory of the capital structure (Myers & Majluf, 1984), the agency cost theory (Jensen and Meckling, 1976). These are known to be the traditional capital structure theories. Whereas, the market timing theory (Baker and Wurgler, 2002), and the concept of behavioural element (Uckar, 2012) are considered as the modern theories of capital structure.

The payout policy has been among the core focus of financial economist concerns over the past view decades, and yet an inclusive understanding has been developed regarding the factors affecting the payout decisions (Bhattacharyya, 2007). When in fact, the dividend policy is the payout policy firms follow in determining amount as well as the types of distributions to its shareholders overtime. There are several types of distributions a firm can undertake; for instance, the cash distributions to shareholders can be in form of cash dividends, share repurchase (Gitman and Zutter, 2010). Brealey and Myers (2002) report that payout policy is amongst the top ten important unsolved problems in corporate finance; this discussion about the relevancy has been growing since the originating work of Gordon (1959), Lintner (1956, 1962) and Miller and Modigliani (1958, 1961). Black (1976) wrote that "the harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just do not fit together".

The aim of this paper is to investigate the association between capital structure and dividend policy. Since they are both jointly determined as part of a continuum of control allocations between managers and investors; hence, the variations in both are driven by the same underlying factors. Therefore, the study also intends to address these factors and investigates their potential effect on both capital structure and dividend policy; known as corporate financial policy.

The remainder of this paper is designed as follow; the next section presents the literature review, and previous studies regarding corporate payout and corporate capital structure and the relationship between them. In section three the description of data and methodology is showed; whereas the result of the study are on the forth section. Finally, the last section concludes the paper and the results.

#### 2. Literature Review and Hypotheses Development

The literature on corporate financial policy, namely dividend policy and capital structure is massive and has an ancient tradition, dating back to the seminal Modigliani and Miller (1958) contributions. Two aspects of this literature are remarkable. First, for the most part, theories of dividend policy differ from theories of capital structure; the literature has treated dividend policy and capital structure as two distinct choices, although there is reason to believe that there are common factors affecting both. Second, the empirical success of these theories has been mixed at best, leaving us with many unanswered questions.

The development of dividend policy literature resulted from the contributions of many economist as well as financial analysts (for example: Rozeff, 1982; Jensen, 1986; Masulis and Trueman, 1988; Hand and Landsman, 2005). The topic of dividend policy has been presented by many theories, suggesting a mixed evidence about the dividend policy effect on the value of the firm. Some of these theories propose that dividend policy is not relevant and doesn't affect the firm's market value, whereas others emphasize on the dividends significance on the firm's market value (Sindhu, UI Hag and Ali, 2014). On the other hand, the literature about capital structure have been founded by

Modigliani and Miller (1958) providing a well-grounded base for theories about capital structure. Similarly, the results from capital structure empirical studies have showed also a mixed evidence since theories about capital structure are known to be conditional, each works under specific assumptions.

# **2.1. Corporate Payout Theories**

The corporate payout refers to the decisions that firms make about whether to distribute cash to shareholders, how much cash to distribute, and by what means the cash should be distributed (Gitman and Zutter, 2010). Basically; there are three types of payout policies for firms to maximize the wealth of the shareholders while maintaining a sufficient financing. One of the three basic payout policy is the constant payout policy; a fixed percentage of earnings established by the financial manager of the firm is paid each dividend period to the owners. The problem with such policy is that, if the earnings of the firm decline or even a loss occurs in any given period, the dividends may be low or even nonexistent. This could negatively affect the stock prices since the dividends are often considered as an indicator for the future condition of the firm. The second payout policy is the regular dividends policy; this policy is mainly based on a fixed monetary dividend payment in each period. Firms that use this policy usually increase the regular dividend when a feasible increase in their earnings occurs. The third policy is the low-regular-and-extra- dividend policy; under this policy firms pay a low regular dividend, complemented by an extra dividend if earnings are higher than normal in a given period. Such policy is common among firms with cyclical shifts in earnings. Firms give investors the needed stable income to strengthen their confidence in the firms through the low regular payment of dividend each period; whereas the extra dividend endorses them to share in the earnings from an especially good period.

Several theories describe the corporate payout policy, yet none can explain the reason behind firms paying dividends to their shareholders. The signalling theory (Bhattacharya, 1979; John and Williams, 1985; Miller and Rock, 1985; and Ofer and Thakor, 1987) and the free cash flow theory (Easterbrook, 1984; Jensen, 1986; and Lang and Litzenberger, 1989) are known to be the main two dominant dividend policy theories. Both theories suggest that unexpected rise in dividends should be generating positive price reactions which has been supported empirically. The signalling theory is concerned with the information asymmetry among the different parties in the market and specifically between managers and investors; proposing that when the firm's stock is undervalued, the firm pays dividends as a way to save losses to existing shareholders. The benefits to existing investors from holding on to the undervalued firm's stocks is more than offsetting the extra tax costs these investors pay on dividends.

On the other hands, the free cash flow theory suggests that since managers may not necessarily act to maximise shareholders' wealth, an increase in dividends payments would shift the reinvestment decision back to shareholders. Unlike the signalling theory which concerned with information asymmetry problem, the free cash flow theory is concerned with the separation of power and control which rise to agency conflicts as defined in Jensen and Meckling (1976). Therefore, an increase in the retained earnings level is expected to be misused by managers in bad projects. The main assumption here is that managers may tend to over consume the available cash than to maximise the shareholders' wealth; thus, generous dividend payments is assumed to shift the reinvestment decision back to owners (Manos, 2001). The separation of ownership and control problem is expected to raise the agency cost conflicts as argued by Jensen and Meckling (1976). Therefore, managers are expected to spend available funds over bad projects when the retained earnings levels are high either as a way to promote for their own interests or due to incompetency. Hence, generous dividend policy will enhance the value of the firm as it help reducing the amount of free cash flows available to mangers; accordingly controls the over investment problem (Jensen, 1986).

Easterbrook (1984) argues that the process of dividends payment reduces the agency cost problems by raising the cost of external finance, since the dividends payment is one of the possible solution to the agency problem which tends to lead to under-monitoring of the firm and its management. Accordingly the dividends payment and the subsequent raising of external finance encourage investigation of the firm by financial intermediaries such as investment banks, regulators of

the securities exchange where the firm's stock is traded, and potential investors. Such capital market monitoring reduces agency costs and causes an appreciation in the firm's market value.

The transaction cost theory proposes that firms may incur costs in dividends distribution, whereas investors may on the other hands incur costs on the collection and reinvestments of these payments. Moreover, when the firm has to raise external finance as a way to meet investment needs due to dividends payments, both firms and investors may incur costs. Although dividends are proven to be beneficial saving transaction costs associated with selling shares for consumption purpose, it has been found that the incurred transaction costs when using external financing sources are the cost of dividends (Bhattacharya, 1979). Therefore, dividend policy should impact earnings expectations and hence the firm value and share price, since there are additional transaction costs associated with paying dividends or not (Manos, 2001). Alternatively, if dividend policy has an impact on the investment decisions of management, dividends may influence the firm's value.

Another theory about the corporate payout is the bird in hand theory, which is considered as one of the traditional theories in favour of dividends. It proposes that since dividends transfer shareholders' cash inflows forward, dividends payment is helpful reducing risk. The risk reduction proposed by the bird in hand theory can be justified as follow; with dividends payment the firms transfer cash inflows to their shareholders, hence reducing the uncertainty associated with future cash flows (Graham and Dodd, 1951; and with Gordon, 1959). Despite the dividends payment, the firms doesn't retract from risky investments, accordingly the risk is transferred to new investors (Easterbrook, 1984). With regards to the investors' preferences between capital gain and dividends; based on the bird on hand theory and according to Gordon (1963) and Linter (1962) since capital gains are not as certain as dividends, essentially investors choose dividends over capital gain for the sake of their certainty.

On the opposite side, the residual theory of dividend assumes that for the sake of future profitable projects, a firm may retain its earnings whereas distributes the residual of its earnings as dividends; exerting that dividends are not too important (Benartzi et al., 1997; Conroy et al., 2000). The residual theory of dividend proposes that a firm will only pay dividends from its residual earnings; meaning that only if after the optimum level of capital expenditure is incurred there are remaining funds, dividends will be paid. Under the residual theory of dividend policy, firms focus mainly on its investments opportunities causing the dividend policy to become an irrelevant decision. Therefore, the value of the firm will be subject to its investments decisions. Some studies conducted on firms in the United States reveal that firms prefer share repurchase as a substitution for dividends which gives less importance to the dividends payouts (Grullon and Michaely, 2002).

#### 2.2. Capital Structure Theories

Capital structure is of the same importance as dividend policy on our research. The capital structure was first highlighted by Modigliani and Miller (1958) through the irrelevancy theory proposition, which suggested the irrelevance of capital structure in determining the firm value. Assuming the existence of perfect capital markets where no bankruptcy cost, no taxes and no transaction costs, they proposed that the firm value depends upon profitability and risks rather that debt equity proportion; such assumption was the main pitfall of this theory. After releasing the tax-free assumption in 1963, Modigliani and Miller argued that the debt sources of capital are very important for firms due to the privileges of tax shield gain on the interest payment. In 1973 the trade-off theory was founded by Kraus and Litzenberger, stating that the use of debt financing will remain a better source up to the extent where the benefit of debt (tax shield) higher than the cost associated with debt (bankruptcy cost). The theory proposes the existence of an optimal capital structure which maximises the firm value.

The trade-off theory (Modigliani and Miller, 1963, Schwarz and Aronson, 1967, and Gupta, 1969) is one of the most three influential theory of capital structure, it focuses on the trade-off between debt tax shields or tax saving and bankruptcy costs; and assuming the existence of an optimal capital

structure. It emerged from ceasing the assumption of absence of bankruptcy costs in the MM theory by some studies, stating that when the net tax advantage of debt financing and the leverage related costs such as bankruptcy are balanced, optimal capital structure exists.

The pecking order theory was then introduced by Myers and Majluf (1984), clarifying the preferences of firms in choosing between equity and debt. They argue that firms prefer the use of internal source of financing over external ones; while choose equity finance as their last option. Jensen and Meckling (1976) presented the agency cost theory; the theory suggests that since the agency problem derived from the information asymmetry existed in some cases, firms tend to prefer the use of debt financing over equity financing. This theory argues that the debt represents a fixed obligation that the firm must meet, through payment of debt interest and principals. Such obligations are assumed restrict any act by managers that may result in over consuming the firm's financial resources, by taking over the free cash flow of the firm if exists. Furthermore, total agency cost, has been defined as the sum of the agency cost of equity and the agency cost of debt (Jensen and Meckling, 1976). The latter is partly due to potential wealth transfer from bond to equity holders through assets substitutions. Thus Easterbrook (1984) note that by paying out dividends and then raising debt, new debt contracts can be negotiated to reduce the potential for wealth transfer.

The decisions about capital structure have an effect on the firm's dividends policy; firms that need more debt for financing their projects tend to less likely announce dividends for shareholders. The dividend literature has relied upon two major bases to develop forecasts about the dividend behaviour: agency costs and information asymmetry (Dewenter, Vincent and Warther; 1998). The latter models (the information asymmetry) argue that managers are better informed than the outside investors about the firm's prospect, and so dividends display some of this information to the market. This indicates that stock returns should be positively related to dividend change announcements, since a higher dividend level indicates higher current or future earnings.

#### 2.3. The Relationship between Capital Structure and Corporate Payout

In 2006, Aivazian, Booth, and Cleary documented a strong interaction between debt and dividend policy as they investigated the relationship between dividend policy and public debt holding versus bank debt using the presence of credit rating as a measure of public debt. The result of their research shows that firms with public debt tend to pay dividends more likely than those firms with private debt. They argue that the results is due to the fact that, firms that access public debt markets are larger firms with more tangible assets and lower Market-to-Book ratios, and tend to pay dividends. The bond rating aggregates this information into a single variable, which empirically serves to differentiate dividend policy. The results also show that the probability of a firm paying a dividend increases with the firm's profitability and decreases with the firm's debt level and the existence of high future growth opportunities. These tests also confirm that the probability of a firm paying a dividend has declined over time, consistent with the recent work of Fama and French (2001) who performed a 20 years analysis of firms paying dividends, and the results show that the number of firms that pay dividends were declining dramatically over the period of the analysis. Moreover, their results also show that cash dividend is the least attracting attention among all dividends types.

Allen et al. (2012) used loan-specific data to describe the relationship between the use of debt financing and dividend payouts; record an inverse significant relationship between a firm's dividend payouts and the severity of reliance on debt financing by the firm. They find that debt financing restrict dividend payouts as a way to protect the large claims on the firm's assets; additionally, the use of debt financing to pay dividends raises the agency problem between managers and owners of the firm. Thus, managers tend to issue less dividends in the presences of high level of debt.

In 2018; Abbas, Hashmi, and Chishti studied the relationship between dividend payout and capital structure in order to explore the determinants of both dividend payout and capital structure in manufacturing sector in Pakistan. They have utilized penal data ranging from 2006 to 2011 of selected 100 manufacturing firms of Pakistan. Although each of dividend payout and capital structure decisions has its own determinants, they have found that there are some common factors affecting both decisions

in an almost similar manner. The results of their study show that the relationship is significant at a level of 10%. This positive relationship indicates that high leverage firms have high dividend payout ratio. They argue that the reason behind that is debt is cheaper than capital, the highly geared firms are prone to more dividend payments as high gearing increases profitability and increase in profitability leads to regular and stable dividend payout policy.

Jiang and Jiranyakul (2013) conducted an analysis on listed firms in New York Stock (NYSE) and Shanghai Stock Exchanges (SSE) during 1992 to 2008 using panel data of 378 listed firms in SSE and select 537 listed firms in NYSE; to compare the decision on dividend payout of listed firms in the two stock markets. The results show that factors that can explain dividend payout of firms in NYSE poorly explain dividend payout of firms in SSE. With regards to the capital structure and payout association; the estimated coefficient of debt financing of firms in NYSE is positive and significant at the 10 percent level while that of firms in SSE is insignificantly positive with a negligible size. Meaning that, for firms in NYSE, an increase in debt financing causes dividend payout to increase; while an increase in debt financing has no effect on dividend payout of firms in SSE. Meaning that, debt financing is less important for firms in SSE than in NYSE as a determinant of dividend payouts. Furthermore, they suggest that firms in an emerging stock market like SSE should consider the optimal capital structure by relying more on debt financing such that investors can invest more on fixed-income securities. As investors tend invest more on corporate bonds with lower level of default risk.

Kim, Rhim and Friesner (2007), argue that an optimal combination of capital structure and dividend policies may be used to minimise the agency costs. They propose that dividend policy is not determined independently, instead simultaneously with other factors including a firm's debt policy i.e. capital structure policy (Jensen et al. 1992, Crutchley et al. 1999). Kim, Rhim and Friesner examined the interrelationship between debt policy and dividend policy. Like previous studies, their approach allows for the possibility that leverage and dividends are endogenously determined. Unlike much of the existing literature which finds inconclusive and conflicting evidence about the nature of the relationships, their results suggest that higher levels of dividends negatively affect leverage. Simultaneously, leverage both positively impact dividends. They suggest that researchers should examine this issue both theoretically as well as empirically, since this relationship may be due to an improper specification of the agency cost function. This, in turn, may lead to a mis-specified empirical model and biased empirical results. However, since they have utilized data on Korean manufacturing firms; therefore our findings may be limited to this population. Thus, a further investigation will support or weaken their findings.

In their study Faulkender, Malibourn and Thakor (2006) propose a new integrated theory of dividend policy and capital structure, through treating these financial variables as closely related to each other; and empirically testing its predictions. A key aspect for their theory is that both capital structure and dividend policy determined simultaneously as a part of an ongoing allocations of control between managers and investors; that's why they argue that variations in both determined by same factors. Malibourn and Thakor (2006), suggest that the allocation of control between managers and investors is important due to the potentiality of beliefs conflicts which may lead to disagreement about the value of the project available to the firm; but not the agency nor the private information problems. Therefore, they argue that the corporate performance is the main factor affecting both dividend policy and capital structure; as better corporate performance leads less disagreement and more confidence between investors and managers. Hence, good performance affects the benefits and costs of different allocations of control and enables managers to make financial choices decisions more confidently. The results propose that, lower debt levels occur when there's a higher agreement level between managers and investors; also, better corporate performance leads to lower dividends payout ratios. The results of their study show that; firms with greater agreement have significantly more debt in their capital structure (measured either using book value or market value) and tend to pay out relatively small proportions of their earnings as dividends (measured using both dividend payouts and dividend yields).

According to Ross (1977), and Miller and Rock (1985) leverage and/or dividends used by managers as a means of providing a positive signals to capital markets which promote debt and dividends to become a substitute-signalling forces. Therefore, Kim, Rhim and Friesner (2007) expect the debt to negatively impact the dividend payouts to same extent mentioned in the relationship with ownership (if the convergence of interests theory holds); otherwise if the entrenchment theory holds, they expect a positive impact of debt on dividends.

## 2.4. Factors Affecting Capital Structure and Corporate Payout

Several empirical studies have focused on investigating the association between capital structure and dividend payout ratio from one direction only; only few have investigated the relationship between capital structure and payout policy from both directions. Since both capital structure and payouts policy "corporate financial policy" share common determinants such as: firm size, profitability, liquidity, business risk and interest rate all affect the speeds of adjustment to long-run financial targets even though the speeds of adjustment may vary among companies (Myers, 1984; Myers and Majluf, 1984; Walsh and Ryan, 1997; Ho, 2003; Aivazian, Booth and Cleary, 2003; Chen, 2004; Shah and Hijazi, 2004; Omet and Mashharawe, 2004; Bahng et al, 2011; Ayyash et al., 2013; Farooq, 2015). Therefore, we take into consideration part of these determinants as control variables when investigating the relationship between capital structure and payout policy; focusing on the most common factors namely profitability and liquidity.

According to Patra et al. (2012), liquidity, profitability, and leverage are important factors affecting dividend policy among Greek firms. Al-Malkawi (2007) reported size, age and profitability as the major dividend policy determinants in a Jordanian context. Investigating 34 emerging countries, Abor and Bokpin (2010) also identified profitability among the key determinates and leverage, and as minor determinants of dividend policy. Al-Ajmi and Hussain (2011) found that profitability is one of the main determinants of dividend policy among Saudi Arabian firms. Arko et al. (2014) found that profitability, investment opportunity, taxation, institutional shareholding, leverage and earning volatility are the leading determinants are profitability, liquidity and leverage. According to Chiang et al. (2010), Reinhard and Li (2010), Jordan et al. (1998) and Margaritis and Psillaki (2007); profitability, liquidity, size and growth opportunity are the most important determinants of capital structure. Eldomiaty (2008), reported bankruptcy risk, liquidity, growth, financial flexibility (dividends payout) and profitability are the explanatory determinants of capital structure. Also, Kumar, Colombage and Rao (2017), reported that firm size, profitability, liquidity growth and payouts are among the most important determinants of capital structure.

# **Profitability**

According to the trade-off theory, firms with greater profitability should have more leverage and higher debt ratios, for firms that have great profitability tends to have less bankruptcy risk and creditors have much tendency for funding these firms. Also, Urn (2001) as well as several other researchers such as Chiang et al. (2010), Reinhard and Li (2010), Jordan et al. (1998) and Margaritis and Psillaki (2007) state that high profit levels also lower the probability of bankruptcy giving rise to higher incentives to use tax shields, thus leading to a higher level of debt. Leland and Pyle (1977) argue that the amount of a firm's leverage due to information asymmetry has a significant positive relationship with profitability. On the other hands, under the pecking order theory Myers (1984) findings suggests that if a firm is profitable then it is more likely that financing would be from internal sources rather than external sources. Therefore, more profitable firms do not need external financing and often use internal financing and are expected to hold less leverage in their capital structure since it is easier and more cost effective to finance internally.

Profitability of the firm is a significant factor that influences a firm's dividend policy (Lintner, 1956; Adaoglu, 2000; Pandey, 2003; Aivazian et al., 2006). According to pecking order theory, highly profitable firms are in a position to distribute dividends; Fama and French (2001) report a positive

association between dividends and profitability which they interpret as evidence in support of the pecking order theory. With regards to Signaling theory; this theory postulates that managers use dividends to signal a firm's future prospects or profitability to outside shareholders because they have asymmetric information about the firm. According to Yarram and Dollery (2015), firms can signal their future profitability or earnings by paying dividends. Firms that do not experience permanent increases in earnings have difficulty imitating such signaling. Firms incurring losses are expected to have a negative influence on the decision to pay dividends. Thus, proposing a positive relationship between profitability and dividends payouts.

## Liquidity

The trade-off theory suggests a positive relationship between liquidity and leverage (Rajan and Zingales, 1995). On the other hands, both pecking order and agency cost theories suggest a negative relationship between liquidity and leverage, as firms with higher liquidity prefers to use internal sources of finance (i.e. retained earnings) while financing its new investments (in regards to the pecking order theory). Additionally, the agency cost theory justifies the negative relation by the potential conflict between shareholders and debtholders (Jensen and Meckling, 1976; Myers, 2001; Ramadan, 2009). However, major empirical studies showed negative relationship between liquidity and debt ratios (Deesomsak et al., 2004; Mazur, 2007; Viviani, 2008); which may possibly be the outcome of excessive liquidity maintained by the firms which encourage managers to consume more than the optimal level of perquisites. In this study, liquidity is measured using the most common liquidity measure that is: the current ratio (defined as current assets divided by the current liabilities).

Baker et al. (1985), who state that liquidity is the main determinant of dividend policy, while Lintner (1956) identifies liquidity as a less generally known factor in his qualitative study of 28 corporate managers. Both the Signalling Theory and the Agency suggest that firm's liquidity is positively related with dividend policy. This positive relationship indicates that the firms who have more liquid assets generally in the form of cash have high dividend payout ratio. Previous empirical studies results supported such relationship such as: Milbourn and Thakor (2006), Kim, Rhim, and Friesner (2007), Hanyunga and Stephens (2008), Anil and Kapoor (2008), Botoc and Pirtea (2014), Sulaimon (2014). On the other hands, Banerjee et al. (2007) highlights a negative relationship between dividend policy and liquidity and called it the "liquidity hypothesis of dividends," a model supported by Zhiqiang et al. (2015). Baker and Kapoor (2015) also reveal strong support for the liquidity hypothesis in the Indian context for stock dividends.

Based on the above literature, we hypothesize the following:

H1: Capital Structure has a significant Impact on Corporate Payout.

H2: Corporate Payout has a significant impact on Capital Structure.

# 3. Description of Data and Methodology

# 3.1. Data

This study utilizes annual data of non-financial listed companies in the Egyptian Stock Exchange from their published financial statements during the period 2003:2016. Financial companies and the banking sector are excluded due to the uniqueness of their capital structure and the strict legal requirements for their financing choices (Gaud et al., 2005). The majority of companies are in the food and beverage and the industrial goods and services sectors. Our final sample consists of 62 Egyptian companies was obtained for a period of 14 years resulting in 868 observations and covering 12 industries, the Table 1 summarises the classification of firms across the various industries. The main source for the data used is the Egyptian Stock Exchange (EGX) and the Egyptian Financial Regulatory Authority (EFRA) as they contain the authorized information for listed companies as well as the different Industries.

Sector	No. of Firms in the Sector
Basic Resources	2
Chemicals	3
Construction and Materials	4
Oil and Gas	2
Food and Beverage	16
Healthcare	8
Media	1
Industrial Goods and Services	12
Personal and Household products	8
Technology	1
Travel and Leisure	1
Real Estate and Housing	4
Total	62

 Table 1:
 Classification of the Used Sample of Listed Companies

#### **3.2. Empirical Models**

There are two models to investigate the relationship between capital structure and corporate payout; in the first model capital structure is dependent variable, corporate payout is the independent, and liquidity, and profitability are control variables. Whereas in the second model corporate payout is the dependent variable, capital structure is the independent variable, and the control variables remain the same. So, we investigate the relationship between capital structure and corporate payout from both directions.

Model 1

 $L_{i,t} = \beta_{0\,i,t} + \beta_1 DPR_{i,t+1} + \beta_2 FPROF_{i,t} + \beta_3 LIQ_{i,t} + \varepsilon_{i,t}$ 

Where;

 $L_{i,t}$ : is a measure of leverage taken as total debt divided by total assets for firm (i) at time (t); Rajan and Zeangles(1995), Booth et al(2001) and Shah and Khan,2007 used book value of total debts divided by the book value of total assets. Thus, the same proxy is used in this study.

DPR<sub>i,t+1</sub>: Rozeff, 1982; Jensen et al., 1992; Holder et al., 1998 used the dividend payout ratio taken as the annual dividends paid by firm (i) at the next year (t+1) as measure for dividend payout. Therefore the same measure is used in this study. They argue that, the capital structure of the firm affect the dividends paid by the firm during the next year.

 $FPROF._{i,t}$ : is a measure of profitability taken as Earnings before interest, taxes and depreciation over total assets by firm (i) at time (t); previous studies of Bas et al. 2009; Shah and Hijazi, 2004 also used the same measure for firm's profitability.

 $LIQ._{i,t}$ : is a measure of liquidity taken as current ratio (measured by dividing current assets over current liability) by firm (i) at time (t); Kania & Bacon, 2005; Kanwal & Kapoor, 2008; Ahmed & Javid, 2009 also used current ratio to measure the liquidity.

 $\epsilon_{i.t}$  is the random error.

Model 2

$$DPR_{i,t} = \beta_{0 i,t} + \beta_1 LEV_{i,t} + \beta_2 FPROF_{i,t} + \beta_3 LIQ_{i,t} + \varepsilon_{i,t}$$

Where;

 $DPR_{i,t}$ : is a measure of the dividend payout ratio taken as the annual dividends paid by firm (i) at time year (t);

LEV<sub>i.t</sub>: is a measure of leverage taken as total debt divided by total assets for firm (i) at time (t);

 $FPROF_{i,t}$ : is a measure of profitability taken as Earnings before interest, taxes and depreciation over total assets by firm (i) at time (t);

 $LIQ_{i,t}$ : is a measure of liquidity taken as current ratio (measured by dividing current assets over current liability) by firm (i) at time (t);

 $\varepsilon_{i,t}$  is the random error.

In both models, profitability and liquidity are treated as control variables.

# 4. Results

In this section the descriptive statistics results, the correlation matrix, VIF results as well as the regression results will be represented here.

#### **4.1. Descriptive Statistics Results**

Table 2 represents the descriptive statistics results, we can conclude the following:

The average for total debt, profitability, liquidity, and payouts are 0.46, 0.21, 2.60, and 4.97 respectively. Revealing that with regard to the Egyptian context, firms rely heavily on debt while sharing a high liquidity which may be an indication of the existence of idle and unused cash. Moreover, the results show that companies do prefer to pay dividends over retaining earnings.

Variables	Mean	Median	Std. Dev.	Min.	Max.	Skewness	Kurtosis
Total Leverage	0.46	0.44	0.28	0.002	1.05	0.17	-0.74
Profitability	0.21	0.13	0.24	-0.38	1.53	0.64	1.70
Liquidity	2.60	2.46	1.41	0.27	7.86	0.64	1.38
<b>Dividends Payout</b>	4.97	4.88	3.57	0.266	11.37	0.082	0.163

**Table 2:**Descriptive Results

In the descriptive analysis, it is apparent that all variables show a low level of both skewness and kurtosis. A skewness value of  $\pm 1.96$  and a kurtosis value of  $\pm 2$  are required for data to be considered normal (Abdul Rahman & Ali, 2006). The descriptive results show that all variables are normally distributed.

Tables 3 reports the correlation matrix; whereas table 4 presents the VIF results, total debt to total assets is used as a dependent variable once, and then the dividends payout as a dependent variable respectively. The pairwise correlation seems to relatively be low between the explanatory variables so the possible problem of multicollinearity is eliminated. According to Leahy (2000), a possible multicollinearity problem is initiated from a correlation coefficient of 0.8; whereas Hair et al. (1995) and Gujarati (2003) recommended that correlation coefficient above 0.70 is considered the threshold at which multicollinearity concerns might be threatening for the regression analysis. None of these correlations were significant; since the correlations are lower than 0.70.

Also, the VIF results indicate that the regression equation is free of multicollinearity since VIF is less than 5.

<b>Table 3:</b> Pearson Correlation Coefficient
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Variables	Total Leverage	Profitability	Liquidity	<b>Dividends Payout</b>
Total Leverage	1.000	.112	721	.231
Profitability		1.000	079	132
Liquidity			1.000	.007
<b>Dividends Payout</b>				1.000

The total leverage has been found to be positively correlated to profitability, liquidity, and to the payouts. Also, the dividends payout is positively correlated to both total leverage and liquidity; which may indicate that firms with higher liquidity as well as higher debt ratio tends to pay more dividends to its shareholders. On the other hands, firms with higher profitability tends to pay less dividends while acquire more debt.

Variables	VIF	
Total Leverage as Dependent Variable		
Dividends Payout	1.024	
Profitability	1.006	
Liquidity	1.018	
Mean VIF	1.016	
Dividends Payout as Dependent Variable		
Total Leverage	1.029	
Profitability	2.118	
Liquidity	2.145	
Mean VIF	1.764	

#### Table 4:VIF Results

#### 4.2. Main Results

Table 5 presents the main regression results. Based on the OLS regression results, dividends payout, profitability, and liquidity are statistically significant when the total debt to total assets is the dependent variable. Similarly, total debt to total assets, profitability, and liquidity are statistically significant when the dividends payout is the dependent variable.

Variables		Model 1 TD/TA	Model2 DPR	
variables		LEV. Constant	DPR Constant	
	Expected Sign		+	
	Coefficient	002	0.310	
LEV.	Т	.005	6.556	
	Sig.	.001	000	
	Expected Sign	+		
DDD	Coefficient	0.148	001	
DPR.	Т	6.556	022	
	Sig.	000	0.982	
BROE	Expected Sign	+	-	
	Coefficient	0.129	114	
PROF.	Т	5.744	-3.487	
	Sig.	0.000	0.001	
	Expected Sign	+	+	
	Coefficient	-0.702	0.092	
LIQ.	Т	-31.182	1.958	
	Sig.	0.000	0.05	
Number of Observations		896	896	
Adjusted R Square		0.554	0.658	
Chi-Square		37.125	20.131	
Chi-Square test for independence P-value		0.00	0.00	
Durbin Watson		2.229	1.564	

Table 5:	<b>OLS Regression Results</b>
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The results of the regression show that, at confidence level of 95% the P-Value is either less than or equal to 0.05 for all variables under both models. Thus, a significant relationship exists between capital structure and dividends payout. Under the first model "TD/TA is the dependent variable", the coefficient of capital structure is positive with dividends payout, and profitability while negative with liquidity. Thus, there's a positive significant relationship between capital structure and the dividend payouts of the firm; which suggests that the increase in the leverage in the firm's capital

structure will be associated with an increase in the dividends paid by the firm in the next year. Similarly, under the second model "dividends payout as dependent variable", the coefficient of dividend payout is positive with leverage and liquidity, while negative with profitability. Therefore, the increase in the dividends paid by the firm will be associated with an increase in the leverage in the firm's capital structure.

Based on the results of the regression analysis and conforming to the literature the interrelationship between capital structure and the payouts of the firm is statistically significant with a positive sign from both directions. Meaning that, capital structure does have an impact on and influences the payouts of the firm, and vice versa. The results is also consistent with Abbas, Hashmi, and Chishti (2018), Jiang and Jiranyakul (2013), Kim, Rhim and Friesner (2007) whose results show a positive association between capital structure and dividends payout. However, it's inconsistent with Kim, Rhim and Friesner (2007), as their results show a negative relationship between dividends payout and capital structure.

With regards to the capital structure; the results show that dividends have a significant positive influence on leverage proportion in the capital structure. The result is consistent with both the trade-off theory and the agency cost theory; both theories propose that the increase in the dividends results in increase in the amount of leverage in the capital structure. On the other hands, regarding the dividends payout; the results showed that capital structure have a significant positive influence on the dividends paid. This is consistent also with the free cash flow theory which proposes that dividends payments would shift the reinvestment decision back to shareholders. Thus, when managers apply for and acquire additional debt, part of the debt will be shifted to dividends.

## 5. Conclusion

This study investigates the interrelationship between capital structure and corporate payout. The study utilizes data extracted from the Egyptian Stock Exchange, focusing on the nonfinancial firms listed in the index EGX100, and using a panel data analysis for the period 2003-2016. The study uses the capital structure measured by total debt to total assets as a dependent variable once and again as independent variable; and the corporate payout measured by the dividend payout ratio as an independent variable once and again as a dependent variable. Since there are some other factors that affect both the capital structure and the corporate payout, the study use profitability and liquidity measured by earnings before interest and taxes to total assets and current ratio respectively as control variables.

The literature about the interrelationship between capital structure and corporate payout is scarce, only very few empirical studies investigate such topic to the best of the authors' knowledge. Therefore, this study is considered to be of a value added to the literature specially when focusing on emerging markets.

Based on the sample of listed Egyptian nonfinancial firms, and using the accounting based measures mentioned above in this paper, the results indicate that there's a statistical significant association between capital structure and corporate payouts. The results is consistent with similar studies performed on emerging markets in Korea, Pakistan, and Malaysia as well as developed markets sych as New York Stock Exchange (Hashmi, and Chishti, 2018; Jiang and Jiranyakul, 2013; Kim, Rhim and Friesner, 2007), as they show a positive association between capital structure and corporate payout. However it's inconsistent with Kim, Rhim and Friesner (2007), as their results show a negative relationship between dividends payout and capital structure.

These results illustrate that corporate financial policy, namely dividend policy and capital structure is positively associated, meaning that a firm increasing its leverage in the capital structure is expected to be paying more dividends to its shareholders. Also, a firm that is increasing its dividends payout is expected to increase leverage in its capital structure. Further researches could take into

consideration the impact of ownership structure either as a third component of the interrelationship or as a control factor, since it affects both capital structure and corporate payout.

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