

# اثر المستوى المشترك لهيكل رأس المال وسياسة توزيع الأرباح في أسعار أسهم الشركة

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## المستخلص

على الرغم من الاعمال الكثيرة في مجال هيكل رأس المال وسياسة توزيع الأرباح، إلا هذه الاعمال مازالت غير كافية لاغناء الجوانب المعرفية المتعلقة في كيفية تاثير كل من هيكل رأس المال وسياسة توزيع الأرباح في اسعار الاسهم للشركات المساهمة. ان هذا النقص المعرفي ربما يعزى الى الى فحص تاثير كل منهما في اسعار الاسهم بشكل منفصل الواحد عن الاخر. لذلك هذا البحث يشكل محاولة لتبني تقنية جديدة تهدف الى جمع كل من هيكل رأس المال وسياسة توزيع الأرباح ضمن مستويات مختلفة لفحص تاثيرهما في اسعار الاسهم بدلا عن فصلهما البعض عن الاخر. وقد استعمل البحث تحليل الانحدار على اساس الجمع بين التحليل المقطعي وتحليل السلاسل الزمنية للبيانات **panel based regression analysis** ولعينة من الشركات الاردنية المدرجة في بورصة عمان للاوراق المالية والعاملة في قطاع الصناعة والخدمات وللمدة ٢٠٠١-٢٠١٠. نتائج اختبار الفرضيات اشارت الى ان سياسة توزيع الأرباح لها تاثير ايجابي في اسعار الاسهم ، في حين ان رافعة الشركة لها تاثير عكسي في اسعار اسهم الشركات عينة البحث. وفي اطار مستويات متعددة ومشاركة لكل من نسبة الدفع ونسبة الرافعة المالية.

**المصطلحات الرئيسية للبحث /** هيكل رأس المال- سياسة توزيع الأرباح - المستوى المشترك - اسعار الاسهم.



مجلة العلوم  
الاقتصادية والإدارية  
المجلد ٢١ العدد ٨٦  
الصفحات ١-٢٤

\*البحث مستل من اطروحة الدكتوراه



## Introduction

Financial literature suggests that corporate has different sources of financing to raise funds, including retained earnings, issuing equity and debt securities, or borrowing from public and private institutions. However each source has its own characteristics and cost, that needs to be mixed with other sources in such a way in order to design optimal financial policy that derives the best firm's value. Capital structure policy, Dividend policy is still one of the most controversial debate topics in corporate finance field. Managers and researches apply different approaches, techniques and models to determine the optimal financial policy, and to verify how policy components affect stock prices. But to date the issue is still puzzling and not totally comprehended. This is strongly related and derived from capital structure and dividend policy dilemma where the optimal of both are not achieved yet. Although a great deal of works has been done on both policies, there is still insufficient knowledge of how these policies affect stock prices, and which level of each of them drives the best stock prices. This shortcoming may have been originated from the separation between both policies when investigating the effect on stock prices. Based on this point, this research adopts a new technique, by combining the effect of both policies on stock prices rather than separating the effect, since capital structure and dividend policy are components of the whole financial policy, and the determinants of both are almost the same. Supported by recent studies that examined and confirmed the effect of one policy to another, that is all aspired to initiate this study from a new perspective as a way toward the solution of optimal capital structure and optimal dividend policy dilemma and to find out how different policies affect stock prices. Finally, up to date there is no excellent formula that explains stock prices. The research proposed combined level of capital structure and dividend policy could provide a new view of how to enhance firm value.

### The Statement of the Problem:

Up until now, there is no consensus (knowledgably and practicable filed) about the impact of capital structure and dividend policy on stock prices. Although both determined through almost the same factors, the effect of each of them has been researched separately. This issue complicates practical financial decisions making, where firms, managers and investors devote much of their time and resources in order to make the right financial decisions. According to this shortcoming along with lack of consensus and the practical needs, the purpose of this research try to solving this problem by determined the effect of combined level of dividend policy, capital structure, on stock prices. From the nature of problem the importance of the research intended to solve its dilemma help investors and managers in making better financial decisions with less effort and less time.



## Hypotheses of the Research:

### Main Hypotheses

There is no statistical significant impact of combined level of capital structure and dividend payout policy on the firm stock prices according to the level.

From main hypotheses, sub hypotheses are deriving as follows:-

- a) There is no statistical significant impact of low level of capital structure and low level of dividend payout policy on the firm stock prices.
- b) There is no statistical significant impact of low level of capital structure and medium level of dividend payout policy on the firm stock prices.
- c) There is no statistical significant impact of low level of capital structure and high level of dividend payout policy on the firm stock prices.
- d) There is no statistical significant impact of medium level of capital structure and low level of dividend payout policy on the firm stock prices.
- e) There is no statistical significant impact of medium level of capital structure and medium level of dividend payout policy on the firm stock prices.
- f) There is no statistical significant impact of medium level of capital structure and high level of dividend payout policy on the firm stock prices.
- g) There is no statistical significant impact of high level of capital structure and low level of dividend payout policy on the firm stock prices.
- h) There is no statistical significant impact of high level of capital structure and medium level of dividend payout policy on the firm stock prices.
- i) There is no statistical significant impact of high level of capital structure and high level of dividend payout policy on the firm stock prices.

### Research Goals

- a) Trying to help financial managers to design capital structure and dividend policy in a way that improve firm value by increasing stock prices.
- b) For investors the results could be critical in making investment decisions, as the issue is directly related to the stock prices and company's financial policy. And founded the best level that is effect on firm stock price.

### Population and Sample of the Research

The study was applied on the Jordanian firms listed in Amman Stock Exchange (ASE). The service and industrial sectors have been selected for this purpose. Financial sector firms were excluded from the study sample due to the special nature of these firms as they are characterized by high leveraged. If the financial services firms were included in the analysis this will distort the levels designed by the study and hence the study's results. In order to select the appropriate sample and time period for this study, relevant financial data were scanned for all the industrial and services firms (132 firms) for the period of 1998-2012 to select appropriate sample and time period. The firms included in the sample have been chosen according to the following criteria:

- Firms that maintained presences in the market by listing their shares in



Amman Stock Exchange without any gap for the period of 1998-2012.

- The annual reports of the firm must be available without any gap for the period of 1998-2012.
- Firms should distribute cash dividends at least seven years, continues for at least five years.
- No mergers between the firms and continuous trading during the study period.

Screening for Data consistency on the basis of the above mentioned criteria led to the selection of a sample of (30) firms (industrial and services firms) and a selection of (2001-2010) time period which gives the largest number of firms that provides the required information. In order to achieve the goal of the study, this study depends on a sample of (30) Jordanian firms listed in Amman Stock Exchange for the period from 2001-2010. Financial data for these firms were used to calculate all explanatory proxies for each firm per year and used to run regression and test the model.

### Limitations of the Research

- Research has been applied in Jordanian market (ASE); an emergent market suffers from inefficiency that could make results unable to be generalized into more efficient markets. And its results are related to the study period.
- Excludes many companies because of the lack of data.
- Using a financial ratio to measure particular variable could introduce error in regression analysis. Since the proxy is not the direct measure of the variable.
- Depending on the annual reports data that prepared by companies, which could include inaccurate information that may lead to misleading results.
- It is often difficult to find measures of particular attributes that are unrelated to other attributes that are of interest. Thus, selected proxy variables may be measuring the effects of several different attributes.

### Operational Definitions of Variables and Its Measurements

- a) Stock Price: Closing prices of March of next year will be used as a proxy for this variable. The reason to use March closing prices instead of yearly closing prices stems from the regulations and rules applied by Amman Stock Exchange for listing purpose.
- b) Capital structure: it's a mix of debt and equity, so financial leverage will be a suitable indicator for capital structure policy. Financial leverage (total debt/ total assets) will be used as a proxy for capital structure.
- c) Dividend policy: One of the dividend policy measurements is dividend payout, which will be used as a proxy for dividend policy. Payout ratio is Dividend per share/ Earnings per share.
- d) Combined level effect: For Combined Effect will be the effect of implement a particular level of capital structure and level of dividend policy at the same time, by using three different levels for each policy (low- medium-high), and build nine combine level (table 3).



## Panel Data

Using Panel data analysis provides the following benefits (Greene, 2010, 343) (Baltagi, 2008, 6):

- (1) Enables to control for individual heterogeneity. Time-series and cross-section studies that do not control for such heterogeneity run the risk of obtaining biased results.
- (2) Panels give more informative data, more variability, less collinearity among the variables, more degrees of freedom, and more efficiency. Time-series studies are plagued with Multicollinearity.
- (3) With panel data, one is better able to study the dynamics of adjustment. Cross-sectional distributions that look relatively stable can hide a multitude of changes. More suitable for identifying and measuring effects that are simply not detectable in pure cross-section or pure time-series data.
- (4) Models allow constructing and testing more complicated behavioral models than does pure cross-section or time-series data.
- (5) Micro panel data gathered on individuals, firms and households can be measured more accurately than similar variables measured at the macro level. Biases resulting from aggregation over firms or individuals may be reduced or eliminated.

## Related Studies

Many growing studies researched the effect of capital structure decision or dividend policy on stock prices; the others investigate the effect of one policy on the other, the third group investigates the stock prices determinants. The following presents a number of studies related with current study.

(Handoo & Sharma, 2014) A study on determinants of capital structure in India The findings of study contribute towards a better understanding of financing behavior in of 870 Listed Indian firms, comprising both private sector companies and government companies for the period 2001e2010. Hypotheses based on comparing the relationships between short term debt, long term debt, and total debt and 10 explanatory variables that represent profitability, growth, asset tangibility, size, cost of debt, liquidity, financial distress, tax rate, debt serving capacity, and age were developed to test which independent variable best explained the capital structure of Indian companies. Measures of the traditional factor that are hypothesized to affect financing decision of Indian companies namely, profitability, asset tangibility, size, tax rate, and debt servicing capacity have significant impact, while raising short term debt; profitability, growth, asset tangibility, cost of debt, tax rate, and debt serving capacity have significant impact while raising long term debt; and profitability, growth, asset tangibility, size, tax rate, and debt serving capacity have significant impact while considering total debt while making capital structure decisions of Indian companies.



Managing capital structure thus becomes a balancing act. The trade-off a company makes between financial flexibility and fiscal discipline is the most important consideration in determining its capital structure and far outweighs any tax benefits, which are negligible for most large companies unless they have extremely low debt.

(Darabi et. al., 2013) The Relationship between Financial Flexibility and Capital Structure Decisions.

The aim of this study was to investigate the relationship between financial flexibility and capital structure decisions in accepted companies in Tehran Stock Exchange with using Falkner and Wang Model. Results of testing hypothesis which are based on a sample- that is consisted of 82 firms for a period of five years from 2006 to 2011- using multivariate linear regression models as well as panel data method, implied that marginal value of cash is negative in terms of market, i.e. the market is not willing to raise funds and will not evaluate this increase to be positive in funds. Furthermore, findings represent that there is no significant relationship between marginal value of financial flexibility and capital structure decisions of firms and firms would not pay attention to financial flexibility level in their decisions regarding increasing or decreasing debts, which in long term would result in losing financial flexibility as well as profitable investment opportunities.

(Al-Najjar, 2011) The inter-relationship between capital structure and dividend policy: empirical evidence from Jordanian data.

This study examined the joint determinants of capital structure and dividend policy by applying both single equation models and reduced form equation models. The study proposed that profitability, asset tangibility, market-to-book ratio, industry classification, institutional ownership, liquidity and firm size are Joint determinants for capital structure and dividend policy. The study was applied on manufacturing and services sectors which listed in Amman Stock Exchange.

(Asif, et al.2011) Impact of financial leverage on dividend policy: Empirical evidence from Karachi Stock Exchange-listed Companies.

This study examined the relations among dividend paid by firm with the capital structure, the last year's dividend yield and the changes in the earnings of the firm. Regression analysis on panel data was used to examine the relation that exists between dividend payouts and leverage of Pakistani firms..

(Nirmala, et al, 2011) Determinants of Share Prices in India

This study attempted to identify the factors that influence share prices in Indian market. The study has chosen dividend, profitability, price-earnings ratio and leverage as possible determinants of share prices and employs the fully modified ordinary least squares method, and apply the panel co integration test to examine the equilibrium relationship between share price and the chosen variables.



(Murhadi, 2010) Study on Dividend Policy: Antecedent and Its Impact on Share Price

This study examined the signaling theory in an Indonesian capital market by testing the influence of Free Cash Flow, Structure of Ownership, growth opportunities and corporate life cycle on dividend policy and stock prices. The analysis technique used is equation estimation techniques simultaneous with path analysis.

(Dang, 2009) An Empirical Analysis Of Zero-Leverage Firms: Evidence From The UK

This paper examines the question of why some firms have zero leverage and what are the characteristics of such firms. Univariate analysis and multivariate analysis were conducted in order to test whether tangibility, growth opportunities, cash holdings, dividend payout ratio, liquidity and profitability influence firm's leverage.

(Ahmed, 2008) The Impact of Financing Decision, Dividend Policy, corporate ownership on Firm Performance at Presence or absence of growth Opportunity

The study used panel based regression approach to address whether or not policy variable such as dividend, leverage and corporate structure play differently in explaining the market based firm performance once firm faces growth opportunities or absence of growth opportunities.

(Incea, et.al.2007) The Interaction of corporate dividend policy and capital structure decisions under differential tax regimes

This study develop a valuation model that ties together capital structure and dividend payout policies while incorporating differential tax rates on corporate income, personal interest, dividends, and capital gains. Then examine how this relationship affects firm value.

## The Contribution of the Research

Research aims to contribute in the corporate finance literature, by determine the combination level that leads to the best stock prices. The results could help the firm's management in designing their financial policies in a way that maximize the firm's value, and guiding different investors in making investment decisions that suits their investment objectives. The idea of research originated from the following knowledgeable areas:

- The trade off theory assumes that firm's management looks for such a debt to equity ratio that will allow them to achieve maximum Firm value. The theory point to the connection of both policies when designing them. This lead to the idea of which level of one policy is best suit to another in context of firm's best market value.
- The Pecking order theory assumes that the firm prefers to finance their activities with internal sources; hence the returned earning is the primary source to finance the firm's investment. Shortage of funds will affect the amount paid out as dividend. Increasing the shortage will affect the firm debt ratio. Due to this theory the investment opportunity and profitability affect both policies.



- Brealey and Myers (2003) comments, dividend decisions are complex and mixed up with other corporate financing (capital structure) and investment decisions.
- McCabe (1979) argues that the firm's capital structure influences the corporate dividend in the sense that there is a negative relation between long-term debt and payout of the firm.
- Signaling theory assumes that the increasing in dividend payment represents a signal of improved financial health of the firm which will affect debt-issuing capacity of the firm. Thus a positive relationship is expected between dividend policy and capital structure (Al-Najar, 2011).

### Theoretical Foundation of Capital Structure

Main dilemma in designing capital structure is the theoretical controversy surrounded the effect of capital structure decision on firm's value. In 1952 Durand presented his traditional theory based on the belief that optimal capital structure always exists, and the value of the firm could be increased by using of leverage (Ahmadinia et. al 2012) (Chen et. al 2008). Capital structure based on the firm's ability to manage the structure to minimize the weighted average cost of capital (WACC) and firms value Maximization. Modigliani and Miller (M&M) contribute to formulate capital structure theory (called Irrelevance Theory). Their work evolved from certain assumptions which diverge from the assumption of perfect capital markets ( No brokerage costs and taxes, no bankruptcy costs, Investors can borrow at the same information as management about the firm's future investment opportunities, Earnings before interest and taxes are not affected by the use of debt) suggested that the firm's value depends mainly on the assets owned by the firm, its cash flow and risk and provide clues about what is required to for capital structure to be relevant and hence affect firm's value (Modigliani and Miller, 1958, 265-266), So the market value of firm is independent of its capital structure. In 1961 M&M discuss the effect of capital structure on firm's value by relaxing the assumption of no taxes. MM argue as the tax code allows the firms to deduct the interest payments as expenses, this considered an incentive for firms to include debt in their capital structure. Firms will pay less tax, which leave additional cash flow available for investors; therefore using debt financing will increase the firm's value. And the value of a levered firm is the value of another identical unlevered firm plus the value of any side effect of using debt financing (tax shield).

The Trade-off Theory asserts that the optimal debt ratio of a firm determined by the trade-off between the benefits of interest tax shield from borrowing against the cost of financial distress (such as, bankruptcy costs, reorganization, and also the agency costs that arise when the firm's creditworthiness is in doubt) (Frank and Goyal, 2005). According to Myers (1984), a firm that follows the trade-off theory sets a target debt-to-value ratio and then gradually moves towards the target by balancing debt tax shields against costs of bankruptcy. Frank and Goyal, (2005) break Myers's definition into two parts the static trade-off theory and the target adjustment behavior.



That a firm is said to follow the static trade-off theory if the firm's leverage is determined by a single period trade-off between the tax benefits of debt and the deadweight costs of bankruptcy. Where the firm is said to exhibit target adjustment behavior if the firm has a target level of leverage and if deviations from that target are gradually removed over time. While Myers (1984) and Myers and Majluf (1984) articulated and developed the Pecking order theory based on assumptions (The firm's managers have asymmetric information relative to external investor, and Firm's managers make decisions that are best for the existing shareholders). Theory claims that the firm will not have an optimal capital structure; instead it will follow a pecking order of incremental financing choice (Lemmon & Zender, 2008). So the theory asserts that a firm is prefers internal to external financing and debt to equity if external financing is used. As the firm prefers internal source of funds over external sources, the theory indicates that during the profitable times, the firm will use the internal funds in order to reduce the leverage level, where during the financial slack, firm will depend more in the external source and the debt leverage will increase.

Ross (1977) is originally stimulated the Information asymmetry theory of capital structure. According to Ross if managers possess inside information, then the choice of a managerial incentive schedule and a financial structure signals information to the market, so in competitive equilibrium the inferences drawn from the signals will be validated. One empirical implication of this theory is that in a cross section, the values of firms will rise with leverage, since increasing the leverage will increase the market perception of value. Finally, the presence of asymmetric information may cause a firm to raise capital according to pecking order. In this situation a firm first raises capital internally by reinvesting its net income and selling off its short-term marketable securities. When that supply of funds has been exhausted, the firm will issue debt and perhaps preferred stock. Only as a last resort will the firm issue common stock (Brigham and Ehrhardt, 2005, 2011).

### Theoretical Foundation of Dividend Policy

Designing a firm's payout policy is a critical job and other main dilemma in the corporation. Because all investors monitor firms' payout policies carefully, and unexpected changes in those policies can have significant effects on firms' stock prices (Gitman and Zutter, 2012, 561). Different theories were presented in order to investigate and explain the effect of the dividend policy on firm's stock prices, however, different point of views were introduced by these theories without any consensus has been made about the direction of the change. And dividends Policy remain one of the thorniest puzzles in corporate finance (Allen et al., 2000). Miller and Modigliani (1961, M&M) are the principal proponents of the dividend irrelevancy theory based upon perfect capital market assumptions and rational investors. They argued that the firm's value is determined only by its basic earning power and its business risk, and the value of firm depends only on the income generated by its assets, not on how this income is split between dividends and retained earnings (MM,1961,414).



So Shareholders wealth is not affected by the dividend decision and therefore they would be indifferent between dividends and capital gains, since investors can create "homemade" dividends by adjusting their portfolio in a way that matches their preferences through borrowing or lending. Many other studies supported the (M&M) irrelevance hypotheses such as Black and Scholes (1974), Hess (1982).

Although there are studies supported the irrelevance theory, most of the empirical researches provided evidence directly challenges the irrelevance hypothesis. The main challenge for irrelevance theory is the recent work of DeAngelo and DeAngelo (2006) as they showed that Miller and Modigliani dividend irrelevance proof is incomplete and inadequate, as it assumes 100% free cash flow (FCF) distribution and does not allow FCF retention. At the same time, they claim that, if retention is allowed, payout policy is not irrelevant, even in an MM world. Although the fact that some of MM assumptions are obviously unrealistic, MM's irrelevance result considered the cornerstone for modern thinking on dividend policy. MM pointed out to the conditions under which dividend policy is irrelevant. In contrast, Gordon (1959) bird-in-the hand, Lintner (1962), and Walter (1963) suggested that there is, in fact, a direct relationship between the firm's dividend policy and its market value. They assert that investors prefer less risky current dividends rather than future dividends or capital gain. So, high dividend ratios maximize the firm's value. A bird in the hand based on the idea that investors behave rationally, they are risk-averse and therefore they prefer near cash dividends to the future dividends (Vernimmen et al. 2011, 768). Although the Bird in the hand theory is widely accepted in financial field, Modigliani and Miller (1961) criticized it and argued that the Bird in the hand was a fallacy. They said that investors who want immediate cash flow from a firm that did not pay dividends could simply sell off a portion of their shares. Gitman and Zutter (2012, 573) explain this notation by the following that is; the stock price of a firm that retains earnings should rise over time as cash builds up inside the firm. By selling a few shares every quarter or every year, investors could, according to Modigliani and Miller, replicate the same cash flow stream that they would have received if the firm had paid dividends rather than retaining earnings. However, many theories supported the basic idea of Gordon (1959) that is increasing in dividend payout will increase the firm value. These theories based their arguments on different justifications. Dividend signaling theory suggests that managers increase dividends only when they are confident that higher dividends can be maintained with higher subsequent cash flow (Koch and Shenoy, 1999), hence dividends can convey information about the current or future level of earnings (Chen et al, 2009), and increasing the dividend payment will increase stock prices. Agency theory assumes that dividends payment will reduce the free cash flow available to the firm's managers (Easterbrook, 1984) and Increasing the dividend payments will reduce the overinvestment problem, which will have a positive impact on the market value of the firm (Malkawi et al, 2010).



## The Theoretical Relationship among Capital Structure, Dividend Policy, and Stock Prices

Stock prices are considered a primary tool that investors, firms and economic analysts are carefully monitored to take crucial financial decisions. This attitude energize many of researchers to detect the relationship between stock prices and other financial, economic, firm's characteristics and even industrial factors. As a result a bulk of theories and models are presented to analyze stock prices behavior and to introduce dependable models that could be used to find the fair prices of stocks. Although the Efficient market hypothesis claims that the financial markets are efficient and stock prices reflect all available information, so the stocks are priced fairly, the Capital Asset Pricing theory (CAPM) assert that the stock prices are affected by a set of systematic and unsystematic factors and the only relevant factor in stock pricing is the stock's beta (It measures a stock's relative volatility, by comparing the stock prices movement for an individual asset relative to the overall stock market prices, and consider the systematic factors are the most relevant one). This model stimulates researchers and practitioners to test the model and compare it with others in order to validate it. Although some of these practical and theoretical works stand at the side of CAPM, many other works criticized it and present other valuation models, such as arbitrage pricing theory and Multifactor models. Even though these Models claim that both systematic and unsystematic factors affect stock prices, practical investigations of the identity of such factors present different multifactor models with different variables. Indeed there is a consensus about some of these factors and their effect (such as the firm's profitability), but no consensus has been found about the identity or the effect of the others. This study strongly believes that the lack of agreement attributed to the dilemma of dividend policy and capital structure decisions, where until now there is no solid theoretical base provide a strong argument about the effect of one policy on stock prices, and confute the others theories. In contrast the related theories presented in these fields provide contradictory views.

Investigating the theoretical background shows that every theory detect the effect of one policy (dividend policy or capital structure) on stock prices while neglect the other one as well as the influencing factors, accompanied with the existence of mutual factors that affect dividend policy and capital structure decisions, in addition to the results of many practical studies which pointed to the presence of the relationship between dividend policy and capital structure decision, lead to initiate this study in order to answer the following question :  
What is the proper capital structure level that suit dividend policy and vice versa in a way that weld the factors that affect stock prices, and lead to increase stock prices?

Depend on the precious examination of the proposed theories presented in the capital structure, dividend policy and stock pricing fields, in addition to the review of the related practical studies, this study predicts the following relationships.

- A firm with high profitability and faces a lot of growth opportunities could choose to depend on the internal financing rather than external, this will lead to reduce the leverage ratio as well as the payout ratio. According to the growth opportunity and low risk (due to the low leverage) the study expects increasing of stock prices for these firms.
- High profitable firms with limited growth opportunities are expected to increase payout ratio and reduce the leverage ratio that will lead to increase in stock prices. If they do not, the stock prices are expected to fall down.
- A high profitable firm with high growth opportunities obligated to increase payout by institutional investors is expected to have a moderate to high leverage ratio. This will increase the risk but as the firm has a lot of profits and growth opportunities with high payout ratios, this type of firms is expected to have moderate to high prices of their stocks.
- Unprofitable firm which faces growth opportunities; it could handle this situation by increasing the leverage ratio. The expected situation for this firm is to have low payout ratio with moderate to high leverage ratio. The study expects low to moderate stock prices.
- Unprofitable firm with no growth opportunities is expected to have low payout ratio with moderate to high leverage. This firm is expected to have low stock prices.

### The Design Procedures to Determine Combined Level

In order to determine the combined level of capital structure and dividend policy, the study depends on the Completely Randomized Design Model (CRF) with Factorial two variables. Mainly by using two independent variables (leverage (L) and dividend payout ratio (D)) at three levels (low, medium, high) each of them, according to the following matrix in table (1), assign each firm observation to appropriate cell of the matrix (1-low level, 2-miduum level, 3- high level).

Table (1) Matrix of the Research design

L <sub>3</sub>	L <sub>2</sub>	L <sub>1</sub>	L / D
L <sub>3</sub> D <sub>1</sub>	L <sub>2</sub> D <sub>1</sub>	L <sub>1</sub> D <sub>1</sub>	D <sub>1</sub>
L <sub>3</sub> D <sub>2</sub>	L <sub>2</sub> D <sub>2</sub>	L <sub>1</sub> D <sub>2</sub>	D <sub>2</sub>
L <sub>3</sub> D <sub>3</sub>	L <sub>2</sub> D <sub>3</sub>	L <sub>1</sub> D <sub>3</sub>	D <sub>3</sub>

The levels interval for capital structure and dividend policy determine by following procedures:

- Calculate leverage (L) and payout (D) ratios for each firm observation during the study period (2001-2010)
- Calculate leverage average and payout average for the study period.
- Leverage average was: (31.41%), Payout average was: (59%)
- Calculate standard deviation for payout and leverage and use 1/2 standard deviation to determine levels:
- Standard deviation for leverage: (21.314%) and Half (10.657%)



- Standard deviation of payout : (37.093%) and Half (18.546%)
- Statistical treatment were be used for some abnormal values in payout ratios to calculate average and standard deviation (4 out of 300 observations). Using average and standard deviation to determine the levels intervals. The medium intervals was determined as following:
  - Average plus  $\frac{1}{2}$  standard deviation to determine upper limit for leverage (42.065%), for payout (77.546%)
  - Average minus  $\frac{1}{2}$  standard deviation to determine lower limit for leverage (20.75%), for payout (40.4536)

The study used  $\frac{1}{2}$  SD instead of SD as it allocates around 45% of observation on the medium interval. Using of SD allocate 70% of observation in the medium level which will not serve the study purpose on designing combined levels (the procedures were consulted and approved by statisticians). Based in the previous limits the following table (2) represents the level intervals for each policy depending on the sample statistics. And this will produce nine levels as following Table (3).

Table (2) Level Interval

Level	Leverage Ratio %	Dividend payout ratio %
Low	Lower than 20.75	Lower than 40.4536
Medium	(20.75- 42.065)	(40.4536-77.546)
High	Upper than 42.065	Upper than 77.546

Table (3) Combine Levels

Capital structure level (L)	Dividend Payout level (D)	Combined level (LD)
Low level -L <sub>1</sub>	Low level-D <sub>1</sub>	1
Low level -L <sub>1</sub>	Medium level - D <sub>2</sub>	2
Low level -L <sub>1</sub>	High level- D <sub>3</sub>	3
Medium level- L <sub>2</sub>	Low level-D <sub>1</sub>	4
Medium level - L <sub>2</sub>	Medium level - D <sub>2</sub>	5
Medium level- L <sub>2</sub>	High level- D <sub>3</sub>	6
High level - L <sub>3</sub>	Low level-D <sub>1</sub>	7
High level- L <sub>3</sub>	Medium level - D <sub>2</sub>	8
High level- L <sub>3</sub>	High level- D <sub>3</sub>	9

#### Highlights on the capital structure and dividend policy levels

##### For capital structure:

- The accepted financial leverage ratio is 50% (Brigham, 2005).
- Optimum level of financial leverage is 40% (Reilly, 2006)
- According to González (2003), who examined financial leverage across countries, the average statics for financial leverage: Minimum financial leverage is 27%, Average financial leverage is 59%, Maximum financial leverage is 95%
- Accordingly, the capital structure levels represented by financial leverage, Low (L1) (less than 40%), Medium (L2) (40%-60%), High (L3) (over 60%)

##### For dividend policy:



- The acceptable payout ratio is 50% (Brigham, 2005)
- The optimal payout ratio is 60% (Heroux, 2011). But (Lukosius, 2011) determine optimum payout ratio is between 30%-60%.
- High dividend payout ratio is over 60%,
- So, payout Ratio divided into three levels: Low (D1) less than 30%), Medium (D2) (30%-60%), High (D3) (over 60%)

Test the hypotheses According to Combine Level.

#### 1- Test the Impact of Combined Level (1) on Stock Prices

The Equation (1) below investigates the impact of low level of capital structure (leverage) with low level of dividend payout on firm stock prices.

$$SP = b_0 + b_1 L_1 D_{1it} + \varepsilon_{it} \dots \dots \dots \text{Equation (1)}$$

Table (4) presents the coefficients and significance of independent variable using pooled model, Since the Value of the Durbin Watson test is near (2), and indicates non-autocorrelation. The P-value of combined level (level one) of low level of capital structure (leverage) and low level of dividend payout policy is (0.98) larger than (0.05) the null hypothesis is accepted and there is no significant effect of this level on firm stock prices. But the autoregressive factor (AR-1) indicates that there are other variables affect stock prices. According to the R-squared Value, (78.2%) of the variation of stock prices can be explained by this equation (good fit), the significance (P-value) is (zero) which is less than (0.05), therefore the null hypothesis is rejected and the equation can explain the dependent variable (Firm stock prices).

Table (4) Regression Result of the Impact of Combined Level (1) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.60525	57.63063	0.0000
$L_1 D_1$	-0.000229	-0.015499	0.9876
AR(1)	0.909987	31.21367	0.0000
$R^2$	Adj. $R^2$	DW	
0.782	0.781	1.920	
F-test	481.47	P- value	0.0000

#### 2- Test the Impact of Combined Level (2) on Stock Prices

The equation (2) investigates the effect of combined level of low level of capital structure (leverage) with medium level of dividend payout on firm stock prices.

$$SP = b_0 + b_1 L_1 D_{2it} + \varepsilon_{it} \dots \dots \dots \text{Equation (2)}$$

Table (5) presents the coefficients and significance of independent variable using pooled model. Since the Value of the Durbin Watson test is near (2), and indicates non-autocorrelation. The (P-value) of combined level (level two) of low level of capital structure (leverage) and medium level of dividend payout policy is (0.0059) less than (0.05) the null hypothesis is rejected and there is a significant positive effect of this level on firm stock prices. The autoregressive factor (AR-1) indicates that there are other variables affect stock prices, the significance (P-value) is (zero) which is less than (0.05), therefore the null hypothesis is rejected and the independent variable can explain the dependent variable (Firm stock prices). According to the R-squared Value, (78.8%) of the variation of stock prices can be explained by this equation (good fit),



Table (5) Regression Result of the Impact of Combined Level (2) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.613571	22.62331	0.0000
$L_1D_2$	0.026472	2.773750	0.0059
AR(1)	0.908740	20.48404	0.0000
$R^2$	Adj. $R^2$	DW	
0.7881	0.7865	1.91	
F-test	496.6	P- value	0.0000

### 3- Test of the Impact of Combined Level (3) on Stock Prices

The equation (3) investigates the effect of combined level of low level of capital structure (leverage) with high level of dividend payout on firm stock prices.

$$SP = b_0 + b_1 L_1D_{3it} + \varepsilon_{it} \dots \dots \dots \text{Equation (3)}$$

Table (8) presents the coefficients and significance of independent variable using pooled model, Since the Value of the Durbin Watson test is near (2), and indicates non-autocorrelation. The (P-Value) of combined level (level three) of low level of capital structure (leverage) and high level of dividend payout policy is (0.0268) less than (0.05) therefore the null hypothesis is rejected and the independent variable can explain the dependent variable (Firm stock prices). The autoregressive factor (AR-1) indicates that there are other variables affect stock prices. According to the R-squared Value, (79.1%) of the variation of stock prices can be explained by this equation (good fit).

Table (6) Regression Result of the Impact of Combined Level (3) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.615119	19.69984	0.0000
$L_1D_3$	-0.023632	-2.225991	0.0268
AR(1)	0.918771	22.48296	0.0000
$R^2$	Adj. $R^2$	DW	
0.79148	0.78982	1.88	
F-test	506.4	P- value	0.0000

### 4- Test the Impact of Combined Level (4) on Stock Prices

The equation (4) investigates the effect of combined level of medium level of capital structure (leverage) with low level of dividend payout on firm stock prices.

$$SP = b_0 + b_1 L_2D_{1it} + \varepsilon_{it} \dots \dots \dots \text{Equation (4)}$$

Table (7) presents the coefficients and significance of independent variable using pooled model. Since the Value of the Durbin Watson test is near (2), and indicates non-autocorrelation. The (P-Value) of combined level (level four) of medium level of capital structure (leverage) and low level of dividend payout policy is (0.0133) less than (0.05) the null hypothesis is rejected and there is a significant negative effect of this level on firm stock prices. The autoregressive factor (AR-1) indicates that there are other variables affect stock prices. the significance (P-value) is (zero) which is less than (0.05), therefore the null hypothesis is rejected and the independent variable can explain the dependent variable (Firm stock prices).



According to the R-squared Value, (79.4%) of the variation of stock prices can be explained by this equation (good fit).

Table (7) Regression Result of the Impact of Combined Level (4) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.553511	27.31187	0.0000
L <sub>2</sub> D <sub>1</sub>	-0.009809	-2.491452	0.0133
AR(1)	0.912797	20.55758	0.0000
R <sup>2</sup>	Adj. R <sup>2</sup>	DW	
0.79456	0.79302	1.95	
F-test	516.3	P- value	0.0000

#### 5- Test the Impact of Combined Level (5) on Stock Prices

The equation (5) investigates the effect of combined level of medium level of capital structure (leverage) with medium level of dividend payout on firm stock prices.

$$SP = b_0 + b_1 L_2D_{2it} + \varepsilon_{it} \dots \dots \dots \text{Equation (5)}$$

table (8) presents the coefficients and significance of independent variable using pooled model. The Value of the Durbin Watson test is near (2), and indicates non-autocorrelation. Since the (P-Value) of combined level (level five) of medium level of capital structure (leverage) and medium level of dividend payout policy is (0.5477) larger than (0.05) the null hypothesis is accepted and there is no significant effect of this level on firm stock prices. The autoregressive factor (AR-1) indicates that there are other variables affect stock prices. The significance (P-value) is (zero) which is less than (0.05) therefore the null hypothesis is rejected and the equation (good fit) can explain the dependent variable (Firm stock prices). According to the R-squared Value, (79.2%) of the variation of stock prices can be explained by independent Variable.

Table (8) Regression Result of the Impact of Combined Level (5) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.557104	57.63063	0.0000
L <sub>2</sub> D <sub>2</sub>	0.005239	-0.015499	0.9876
AR(1)	0.912110	31.21367	0.0000
R <sup>2</sup>	Adj. R <sup>2</sup>	DW	
0.7926	0.7911	1.956	
F-test	510.46	P- value	0.0000

#### 6- Test of the Impact of Combined Level (6) on Stock Prices

The equation (6) investigates the effect of combined level of medium level of capital structure (leverage) with high level of dividend payout on firm stock prices.

$$SP = b_0 + b_1 L_2D_{3it} + \varepsilon_{it} \dots \dots \dots \text{Equation (6)}$$



table (9) presents the coefficients and significance of independent variable using pooled model. Since the Value of the Durbin Watson test is near (2), and indicates non-autocorrelation. The (P-Value) of combined level (level six) of medium level of capital structure and high level of dividend policy is (0.0395) less than (0.05) the null hypothesis is rejected and there is a significant positive effect of this level on firm stock prices. The autoregressive factor (AR-1) indicates that there are other variables affect stock prices. The significance (P-value) is (zero) which is less than (0.05), therefore the null hypothesis is rejected and the independent variable can explain the dependent variable (Firm stock prices). According to the R-squared Value, (79.7%) of the variation of stock prices can be explained by independent Variable.

Table (9) Regression Result of the Impact of Combined Level (6) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.539420	26.61413	0.0000
L <sub>2</sub> D <sub>3</sub>	0.012084	2.068979	0.0395
AR(1)	0.918259	2..37392	0.0000
R <sup>2</sup>	Adj. R <sup>2</sup>	DW	
0.79729	0.79577	1.959	
F-test	525.09	P- value	0.0000

#### 7- Test the Impact of Combined Level (7) on Stock Prices

The equation (7) investigates the effect of combined level of high level of capital structure (leverage) with low level of dividend payout on firm stock prices.

$$SP = b_0 + b_1 L_3 D_{lit} + \varepsilon_{it} \dots \dots \dots \text{Equation (7)}$$

Table (10) presents the coefficients and significance of independent variable using pooled model. Since the Value of the Durbin Watson test is near (2), and indicates non-autocorrelation. The (P-value) of combined level (level seven) of high level of capital structure (leverage) and low level of dividend payout policy is (0.0316) less than (0.05) the null hypothesis is rejected and there is a significant negative effect of this level on firm stock prices. The autoregressive factor (AR-1) indicates that there are other variables affect stock prices. The significance of the model (P-value) is (zero) which is less than (0.05), therefore the null hypothesis is rejected and the independent variable can explain the dependent variable (Firm stock prices). According to the R-squared Value, (79.5%) of the variation of stock prices can be explained by independent Variable.



Table (10) Regression Result of the Impact of Combined Level (7) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.556865	65.30235	0.0000
L <sub>3</sub> D <sub>1</sub>	-0.031731	-2.160614	0.0316
AR(1)	0.911231	37.28245	0.0000
R <sup>2</sup>	Adj. R <sup>2</sup>	DW	
0.79579	0.79426	1.969	
F-test	520.25	P- value	0.0000

#### 8- Test the Impact of Combined Level (8) on Stock Prices

The equation (8) investigates the effect of combined level of high level of capital structure (leverage) with medium level of dividend payout on firm stock prices.

$$SP = b_0 + b_1 L_3D_{2it} + \varepsilon_{it} \dots \dots \dots \text{Equation (8)}$$

Table (11) presents the coefficients and significance of independent variable using pooled model. Since the Value of the Durbin Watson test is near (2), the Durbin Watson statistic indicates non-autocorrelation. The (P-Value) of combined level (level eight) of high level of capital structure (leverage) and medium level of dividend payout policy is (0.0609) larger than (0.05), however there is a significant positive effect at (0.10) significance level. The autoregressive factor (AR-1) indicates that there are other variables affect stock prices. The significance (P-value) is (zero) which is less than (0.05), therefore the null hypothesis is rejected and the independent variable can explain the dependent variable (Firm stock prices). According to the R-squared Value, (79.3%) of the variation of stock prices can be explained by independent Variable.

Table (11) Regression Result of the Impact of Combined Level (8) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.552954	27.32492	0.0000
L <sub>3</sub> D <sub>2</sub>	0.030847	1.882514	0.0609
AR(1)	0.909306	21.57917	0.0000
R <sup>2</sup>	Adj. R <sup>2</sup>	DW	
0.7933	0.7918	1.98	
F-test	512.64	P- value	0.0000

#### 9- Test the Impact of Combined Level (9) on Stock Prices

The equation (9) investigates the effect of combined level of high level of capital structure (leverage) with high level of dividend payout on firm stock prices. SP =

$$b_0 + b_1 L_3D_{3it} + \varepsilon_{it} \dots \dots \dots \text{Equation (9)}$$

Table (12) presents the coefficients and significance of independent variable using pooled model. Since the Value of the Durbin Watson test is near (2), and indicates non-autocorrelation. The (P-Value) of combined level (level nine) of high level of capital structure (leverage) and high level of dividend payout policy is (0.567) larger than (0.05) the null hypothesis is accepted and there is no significant effect of this level on firm stock prices.



The autoregressive factor (AR-1) indicates that there are other variables affect stock prices. The significance (P-value) is (zero) which is less than (0.05), therefore the equation can explain the dependent variable (Firm stock prices). The R-squared Value is (79.2%) of the variation of stock prices can be explained by this equation.

Table (12) Regression Result of the Impact of Combined Level (1) on Stock Prices

Variable	Coefficient	t-test	P-value
Constant	2.558694	25.66889	0.0000
L <sub>3</sub> D <sub>3</sub>	-0.019945	-0.573207	0.5670
AR(1)	0.912867	20.76455	0.0000
R <sup>2</sup>	Adj. R <sup>2</sup>	DW	
0.79273	0.791185	1.9695	
F-test	510.6	P- value	0.0000

### Conclusions

This research investigated the effect of the different combined level of capital structure and dividend payout policy on firm stock price. The regression results indicate that the combined level of capital structure and dividend policy has a significant effect on stock prices. That means that firm stocks are being valued by investors by assessing firm's capital structure and dividend policy at the same time and reflect that on firm stock prices. The results support the study proposed idea, where the effect of combined level is always significant even if dividend or leverage don not have a significant effect on stock prices. Although the results indicate a significant negative effect of combined level on stock prices, the study cannot tell what does that mean; since the study design explore if there is effect of combined level and not the direction of this effect. This is due to the levels designed by study which not include a special rank. In order to explore the effect of combined level, the study analyzes the influence of each level proposed on stock prices, as follows:-

▪ The combined levels, level 1 (low leverage and low payout), level 5 (medium leverage and medium payout) and level 9 (high leverage and high payout) have no effect on firm stock prices. These results do not support the argument of irrelevance theory (M&M, 1961), that claims the capital structure nor does dividend policy have an effect on firm stock prices. From other point of view these firms which following these policies could have other characteristics which influence the market value of their stock (as shown by autoregressive factor presented in tables 6,10,14). One possible explanation is, these firms that follow level 1 policy may be new entry to the market which still operate on low leverage and could not pay dividend, hence stock history and trading volume for these stock could be used to explore that. Firms that adopt level 5 policies could be firms operating on mature industry. Firms that operate with level 9 could be assumed as a risky firm that are not suits with current risk averse investors, so trading volume and growth opportunities for these stocks could be investigate for this purpose.



- The combined levels, level 2 (low leverage and medium payout), level 6 (medium leverage and high payout) and level 8 (high leverage and medium payout) have a significant positive effect of firm stock prices. Risk averse investors will appreciate market value for the firms operate with low leverage and paying moderate cash dividends (level 2) and the firms operate with medium level of leverage while paying high cash dividends (level 6). Risk taker investor may be the reason behind increasing the market value for firms operating with high leverage and paying medium level of cash dividends (level 8) due to the financing need for new projects. Growth opportunities and business risk indicators could be investigated in order to explore this relation.
- The combined levels, level 3 (low leverage and high payout), level 4 (medium leverage and low payout) and level 7 (high leverage and low payout) have a significant negative effect of firm stock prices. The results indicate that firms adopt these policies may not functioning well in the market and affect stock prices negatively. Although firms that adopt level 3 policies operate with low leverage while payout high cash dividends, the results show decreasing in stock prices for these firms. One possible explanation for that is these firms may reached to the mature stage in their life cycle and do not invest their earnings in new projects or new lines, which influence the firm to operate in low leverage while pay these earnings as cash dividends to the investors. Long term investor may not invest in these firms as they may go out of market in near future. Growth opportunities, trading volume and firm life cycle could be good indicators for further explanation. Firms that operate with level 4 that have a moderate level of leverage and payout low cash dividends also affect stock prices negatively. The results support bird in the hand theory that although the firms operate with average leverage ratio the investors need firms to payout much more cash dividends. Another clarification is the comparisons with other firms that operate with the same leverage ratio these firms could not achieved the same level of earning and hence could not payout the same level of cash dividend or invest in new project, this is also may be a cause of a weak debt capacity for the firm. Firm earnings, growth opportunities and debt capacity could be investigated for further information. Another combined level that affect stock prices negatively is level 7 that firms operate with high level of leverage while payout little cash dividends. These firms are considered as risky firms from the investors' side. Risk averse investors will not investigate in these firms and risk taker investor will sell these firms stock if they not invest in a new project which will affect the stock prices negatively. Financial distress indicators and growth opportunities may be good indicators to explore that.
- In General:- It has been noticed that there is a dynamic process in capital structure composition, since the single firm changed the level of capital structure and payout out policy during it business life, this is could be due to effect of surrounding environment (as debt market) or internal factors such as earnings and new investments.



## The Recommendations

1. Jordanian firms should take into consideration the main factors: payout ratio, capital structure, combined level of capital structure and dividend policy, determining stock prices.
2. The Jordanian firms should improve earnings, size and taking more investment opportunities that increasing stock prices. Dividend payout also should be improved as they have a significant positive effect on firm stock prices.
3. Jordanian firms should reduce financial leverage since it has a significant negative effect on firm stock prices.
4. In designing firm's financial policies, firm's managers should take in consideration dividend payout policy and capital structure decision. Since it has been found the combined level of capital structure and dividend policy has different effect on stock prices according to the level of capital structure and level of dividend policy. The study recommend the following:
  - If the firm operates with low leverage it should payout moderate cash dividends as that will increase stock prices.
  - If the firm operates with medium leverage it should payout high cash dividends as that will increase stock prices.
  - If the firm operates with high leverage it should payout moderate cash dividends as that will increase stock prices.
  - Firms that aspire to achieve stability on stock prices, it recommended to follow one of following policies: a) low leverage and low payout policy, b) medium leverage with medium payout policy, c) high leverage with high payout policy.
  - Firms should avoid operate with following policies as they have a negative effect on stock prices: a) low leverage and high payout policy, b) medium leverage with low dividend payout policy, c) high leverage with low payout policy.
5. Investors should examine the influencing factors according to the sector (service and industrial sector).
6. Investors should consider the following factors when making stocks investment decisions and evaluating firm's value: firm's growth opportunities, earnings size, profitability, and institutional ownership. And at the same time capital structure in conjunction with dividend payout policy.
7. The study recommend to apply the same analysis to banking sector in Jordanian economy in order to explore the effect of combined level and other financial indicators in banking sector.
8. The study recommends conducting a study to compare explanatory power of influencing factors among industries incorporating combined effect.
9. The disclosure of more accounting, financial policies, and reasons to update, such financial policies will help evaluate firm performance and using such these information in evaluating firm values.
10. Establishing a data base by specialized authority to ease analyze and collect all related and necessary data for Jordanian firms which will have a positive bearing effect on different uses of such data.



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## اثر المستوى المشترك لهيكل رأس المال وسياسة توزيع الأرباح في أسعار أسهم الشركة

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## The Impact of Combine Level of Capital Structure and Dividend Policy on Firm Stock Price An apply study of companies listed on Amman Stock Exchange

### Abstract

Although a great deal of works has been done on the area of capital structure and dividend policy, there is still insufficient knowledge of how these policies affect stock prices. This shortcoming may have been originated from the separation between both policies when investigating their effect on stock prices. Based on this point, this research adopts a new technique (completely randomized design), to combine the effect of capital structure and dividend policy on stock prices rather than separating between them. The study used panel based regression analysis depending on the sample of 30 service and industrial Jordanian firms for the period of 2001-2010. The result of test hypotheses found the following; 1) dividend payout has a positive effect on firm stock prices. 2) Firm leverage has a negative effect on firm stock prices. 3) Combined level of capital structure and dividend policy has an effect on stock prices. 4) Different levels of combined level of capital structure and dividend policy affect stock prices in a different way.

**Key Word/ Capital structure - Dividend policy - Combined level - Stock Price.**