DETERMINANTS OF DIVIDEND POLICY IN GCC FIRMS: AN APPLICATION OF PARTIAL LEAST SQUARE METHOD

B Rajesh Kumar*, K S Sujit**

* Professor, Institute of Management Technology, Dubai International Academic City, UAE
** Associate Professor, Institute of Management Technology, Dubai International Academic City, UAE

Abstract

This study focuses on providing empirical evidence on explanation of alternate dividend theories and determinants of payout policies by examining the GCC market. The study explores the financial determinants of the dividend payout policies by examining 646 dividend intensive firms of the GCC. The results suggest that large firms in GCC tends to have larger retained cash flows and tend to have higher dividend intensity. It can be implied that GCC based firms adopt a balanced and cautious approach regarding future growth opportunities as well as the dividend payout policy. Higher the liquidity and profitability signals higher dividend intensity. GCC firms which are liquid and profitable tend to pay more dividends. GCC firms with higher market valuation tend to pay more dividends. Firms with high growth rates of earnings and assets tend to pay less dividends. Firms with high leverage are riskier and risky firms tend to pay less dividends.

Keywords: Dividend Payout, Investment Intensity, Market Valuation, PLS SEM, Residual Theory, Pecking Order Theory, Signaling Theory

1. INTRODUCTION

It is a known fact that companies which pay out regularly to shareholders from earnings convey a powerful message about the future prospects of the company. A firm's willingness and ability for dividend payment reflects the nature of the fundamentals of the companies. Typically mature companies pay dividends. The three major pillars of decision making in corporate finance are the investment, financing and dividend decisions. For value maximization a firm must invest in projects that earn a return greater than the minimum acceptable hurdle rate. The dividend principle states that if there are not enough investment opportunities, then ideally a firm should return the cash to the stock holders. The forms of returns i.e. dividends and stock buybacks will depend on the stockholder's characteristics. Studies have shown that dividends have made up the lion's share of an investor's total return. Professor Jeremy Siegel's study based over a century had found out that roughly three quarters of the real return from stock market came from dividends with only one quarter from capital gains.[1] One of the advantages of dividends is that they provide investors with consistent realized income on a quarterly basis. Capital gains are not realized until the shares are not actually sold. Moreover, capital gains can disappear by the drop in stock price. Dividends may also have tax advantages. In essence dividends are distributions of a portion of a firm's earnings to its shareholders. Dividends also provide a way for investors to assess a firm as an investment prospect. In its years of high growth, Microsoft paid no dividends but reinvested all earnings to fuel further growth. But when growth slowed down from the unprecedented rate, the company started to return back to the shareholders in the form of dividends and buybacks. Apple started paying dividends only in 2012.

Generally, there are three schools of thought on dividend policy. The dividend irrelevance theory proposed by Miller and Modigliani suggest that dividends do not affect the firm value. This theory is based on the assumption that dividends is not a tax disadvantage for an investor and firms can raise funds in capital markets for new investments without much issuance costs. The second school of thought proposes that dividends are bad as they have a tax disadvantage for average shareholder and hence value of firm decreases when dividends are paid. Dividends create a tax disadvantage for investors who receive them when they are taxed much more heavily than price appreciation (capital gains). In such a scenario, dividend payments will reduce the returns to the shareholders after personal taxes. The third school of thought proposes that dividends can increase the value of the firm. Investors usually prefer dividends to capital gains since dividends are certain and capital gains are not. Investors who are risk averse prefer dividends. Investors often invest in stocks of companies with dividend policies which match their preferences. This pattern of clustering stocks in companies is called client effect. Dividends also convey signals to stock markets. Event studies provide empirical evidence regarding price reactions to dividend increases

[1] http://www.forbes.com/2011/09/30/the-importance-of-dividends

The third school of thought states that dividends are good and can increase the value of the firm. Investors prefer dividends to capital gains since dividends are certain and capital gains are not. Risk averse investors will therefore prefer dividends. The clientele effect suggests that stockholders tend to invest in firms whose dividend policies match their preferences. This clustering of stocks in companies with dividend policies that match their preferences is called the client effect. Dividends also operate as an information signal to financial markets. The empirical evidence concerning price reactions to dividend increases and decreases is consistent at least on average with this signaling theory.

2. OBJECTIVES OF THE STUDY

This study aims to provide empirical evidence on explanation of alternate dividend theories and determinants of payout policies by examining the GCC market. The study focuses on explaining the financial determinants of the dividend payout policies by examining the dividend intensive firms of the GCC Countries.

3. THEORETICAL POSTULATES

The residual theory of dividends postulates a negative relationship between dividend payout and external financing costs. The dividend decisions of firms are influenced by the investment policy of the firms. The residual theory is built with the assumption that firms which experience higher revenue growth have higher capital investment expenditures. Such firms tend to reinvest earnings back into the firm rather than paying dividends. In other words, on account of costly external financing, firms tend to establish lower dividend payout. If managers expect higher growth rate of revenues in future, then the firm is most likely to retain funds for future capital expenditures by lowering the dividend payout. The residual theory further affirms that a company would pay dividends only when its internally generated funds are not completely used for investment purposes. Firms which have high growth rates have large investment requirements. The pecking order theory hypothesizes that the growth firms should be characterized by low payout ratios. The variability in capital structure indicates that a company will have greater accessibility to capital markets as the firm will be able to switch between debt and equity and take advantage of lower transaction costs. This flexibility facilitates the firms with ability to pay more stable and higher dividends. Hence a positive relationship between dividend payout and capital structure variability is expected.

One of the main explanation in literature for dividend payouts is the mitigation of agency problems between managers and shareholders. Payouts tend to lower retained earnings and forces managers to access the external capital markets to finance new projects. The external financial markets play a disciplining and monitoring role that presumably reduces managers' incentives to engage in empire-building activities.

Dividends can be used as a means to reduce agency costs. This hypothesis holds when the outside shareholder's equity ownership is large compared to insider promoter's shareholding. It can be hypothesized that firms pay higher dividends in order to reduce agency costs. Outside shareholders demand more dividends. Thus dividend payout is positively related to the percentage of ownership of outside shareholders in the firm. In other words, the dividend payout will be negatively related to the percentage of stocks held by investors. Agency problems are also likely to be more severe when a firm has excess cash, which increases the pressure on managers to pay dividends.

Signaling theory suggest that dividend payments signals information about the current or future level of earnings. In this context stability of cash flows can be related to dividend payout. An inverse relationship between cash flow variance and dividend payout ratio can be expected. Relationship between financial slack and dividend payout can also be expected. Firms tend to increase their financial slack in order to maintain their ability to undertake profitable investments thereby reducing dividend payments. Financial slack is expected to be inversely related to dividend payout ratio. Another critical determinant of dividend decision is liquidity. Firms with higher cash flows tend to distribute higher cash dividends in order to reduce agency costs. Profitability is also a factor affecting dividend decisions. Higher the profitability of companies, greater would be the propensity to give dividends.
Higher measure of beta signals higher operating and financial leverage. Firms with higher fixed charges like interest payments pay lower dividends in order to avoid the cost of external financing. Internal financing through retained earnings are less costly compared to external financing.

4. REVIEW OF LITERATURE

Lintner (1956) suggests that firms have target payout ratios and adjust dividends to earnings with a lag. The study finds three consistent patterns. Firstly, the firms set target dividend payout ratios by determining the fraction of earnings which would be paid out as dividends in long term. Secondly they change dividends to match long term and sustainable shifts in earnings. Thirdly the study finds that managers are much more concerned about changes in dividends than about the level of dividends. Fama and Baiak (1968) confirmed Linter's findings that dividend changes tend to follow earnings changes. Miller and Modigliani (1961) establish the irrelevance of dividend policy in a perfect capital market. The study finds that dividend policy is irrelevant in valuing the current worth of shares in the context of irrational assumptions, market perfections, zero transaction costs and indifferent behavior of investors. Higgins (1972) employs a model which utilizes the firm's cash flow constraint and its optimal debt equity ratio to derive an expression which relates dividends to profits and investment. The Higgin model suggests that the optimal payout is a function of residual dividend policy combined with the minimization of the sum of the costs of "excessive current assets" and the costs of external equity financing. This study also suggests that the dividend payout of firms is influenced by factors like the fund requirement for investment purposes and debt financing requirements. Fama (1974) finds support for the fact that investment influences dividend policy. Miller and Scholes (1978) present sufficient conditions for taxable investors to be indifferent to dividends despite tax differentials in favor of capital gains. Macabe (1979) suggests that new long term debt have a negative influence on the dividend policy. Rozeff (1982) suggest that investment policy influences dividend policy. The study suggests that agency costs decline as dividend payout is increased but at the same time the transaction costs of financing increases. In such a case an optimum cost can be derived at a lower dividend payout ratio. The model results of the study suggest that dividend payout is negatively related to the firm's past and expected future growth rate of sales, beta coefficient, percentage of stock held by insiders and significantly positively related to the number of stock holders. Rozeff (1982) uses the equity beta to proxy for the cost of external financing. Firms use debt more frequently than equity when raising external capital. It can be hypothesized that other things equal, a firm having higher operating and financial leverage will choose a lower dividend payout policy in order to minimize the cost of external financing. Hence dividend payout ratio is negatively related to the firm's beta coefficient. Firm size measured as the log of total assets can be used as proxy for the cost of external debt financing. A positive relationship is expected between size and dividend payout since large firms face lower issuing costs. The pecking order advocated by Myers and Majluf (1984) hypotheses that growth firms should be characterized by low payout ratios.

The study by Kasim et al (1993) finds strong support for the transaction cost/residual theory of dividends, pecking order argument and role of dividends in mitigating agency problems. The study also finds that firms with financial flexibility that maintain stable dividends pay higher dividends.

The tax clientele argument postulated by studies like Elton and Gruber (1970), Litzenberger and Ramaswamy (1979), Brennan (1990), DeAngelo and Masulis (1980), that investors in low tax brackets prefer high dividend paying stocks when compared to investors in high tax brackets. Study by Sterk and Vandenberg (1990) find a preference for cash dividends despite the elimination of different tax rates between capital gains and dividend income.

Kale and Nole (1990) suggest that dividends are used to signal the quality of the firm's cash flows. Aharony et al (1980) shows that managers use cash dividend announcements to signal changes in their expectations about future prospects of the firm. The study by Asquith et al (1983) investigates the impact of dividends on stock holder's wealth by analyzing 168 firms that either pay the first dividend in their corporate history or initiate dividends after a 10-year hiatus. The empirical results exhibit larger positive excess returns. Miller et al (1982) extend the standard finance model of the firm's dividend decisions by allowing the firm's managers to know more than outside investors about the true state of the firm's current earnings. The studies by Bhattacharya (1979), John and Williams (1985) and Kane, Lee and Marcus (1984) finds that dividends can convey information about the current or future level of earnings. The empirical studies by Watts (1973), Gonedes (1978), Penman (1983), Kumar (1988) indicates that dividends are not good predictors of the firm's future earnings.

Dividends can be used in reducing the agency problem between managers and stockholders. Jensen and Meckling (1976) define the concept of agency costs and investigate the nature of agency costs generated by the existence of debt and equity. In his seminal paper, Jensen points that payment of dividends reduces the discretionary funds which are available to managers and helps to reduce the agency conflict which exist between managers and stockholders. Crutchley (1989) suggest that equity agency costs can be reduced by increasing dividends. The work r by Easterbrook (1984) examines whether dividends are a method of aligning managers' interest with those of investors and offers agency cost explanations of dividends. Jensen et al (1992) finds that high insider ownership firms choose lower levels of both debt and dividends. Their results suggest that the effects of profitability, growth and investment spending on debt and dividend policy support a modified "pecking order" hypothesis.

The studies by Linter (1956), Baker et al (1985), Fama and Babiak (1968), Laub (1976) finds that firms prefer a certain degree of stability in dividend payments. Titman and Wessels (1988) suggest that firms having more collateralizable assets have fewer agency problems between bondholders and stockholders as these assets serve as collateral against borrowing. Therefore, a positive relationship is expected between the ratio of net plant to total assets and dividend payout.

Benito and Young (2001) find that liquidity and dividend payment behavior of a company have a direct relationship. Deshmukh (2005) examine the effect of asymmetric information on dividend policy in light of an alternative explanation based on the pecking order theory. The study finds that dividends are inversely related to the level of asymmetric information. This finding is consistent with the pecking order theory, but inconsistent with the signaling theory.

The study by Denis et al (2008) using sample countries over the period 1994-2002 finds that in countries like US, Canada, UK, France and Japan, the propensity to pay dividends is higher among larger more profitable firms and for those which retained earnings comprise a large fraction of total equity. The study supports agency cost based life cycle theories and cast doubt on signaling, clientele and catering explanations for dividend. The empirical paper by Kuo et al (2013) study the determinants of dividend payout policy and examine the role of liquidity, risk and catering in explaining the propensity to pay. The results indicate that risk play a major role in firms' dividend policy. The study further points that liquidity is an important determinant of dividend payout policy in developed markets of US and Europe. The study by Louis et al (2015) find that the effect of conservatism on dividend payout is more negative when agency conflicts between managers and shareholders are potentially more pronounced.

5. DATA AND METHODOLOGY

The data for this study is collected from Thomson Reuter's website for the companies from GCC. There were 646 companies with some companies there were some missing information. The study used stochastic multiple regression imputation algorithm for missing data. The values for the variables are the average values during the period 2010-2015.

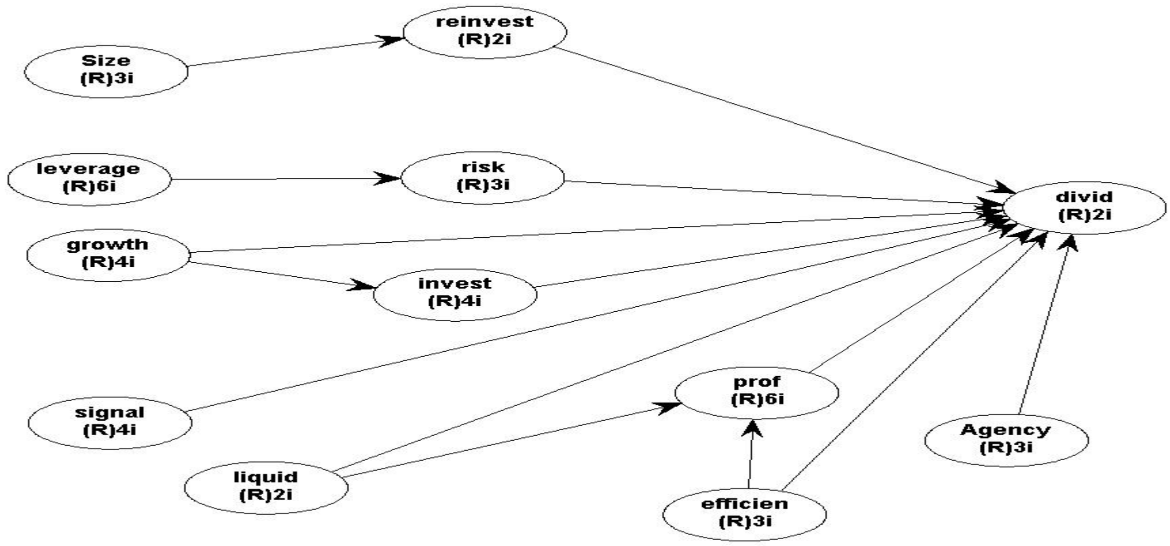
In most of the management research variables of importance are often latent and a proxy is used with a single variable. This fails to capture the real effect of the construct on the dependent variable. The structural equation modeling (SEM) procedure is often useful to address this issue by including all the reflective indicators to represent a meaningful construct. There are two types of SEMs popularly used in management research, namely, covariance-based structural equation modeling (CB-SEM) and partial least squares structural equations modeling (PLS-SEM). Recently, there has been an increased use of PLS-SEM rather than CB-SEM due to both theoretical and methodological reasons (Hair et al., 2012). This study uses PLS-SEM using WrapPLS software which handles nonlinear relationships effectively.

PLS-SEM estimates latent variables through composites, which are exact linear combinations of the indicators assigned to the latent variables (Knock, 2014). PLS method focuses on maximizing the explained variance of the endogenous latent variables instead of reproducing the theoretical covariance matrix.

In this study we have twin objectives of developing a model that explains the path of dividend policy and its relationships with different important variables in GCC countries. PLS-SEM is used for this study for model development and prediction of theories as suggested by Hair et al., 2011, 2012).

The model used in this study is reflective in nature and the path diagram of the model is presented in figure-1.

Figure 1. Reflective Model



6. EMPIRICAL ANALYSIS AND RESULTS

For the initial assessment of the model all the indicators representing latent variables mentioned in the list of variables are used. The loadings of all the indicators are used in the model for scale purification. Any indicator which has less than 0.5 loading is dropped from the model. This exercise of scale purification is essential as only highly correlated indicators can qualify to explain latent variables. There are quite a few indicators loadings turned out to be below 0.5 and hence not included in the main model. After dropping the indicators with less loading the model is re-estimated once again. The indicators combined loading and cross loading is presented in Appendix-3. Desirable P value for loadings should be <0.05 and in our model all the loadings qualifies this criterion.

After scale purification the model is estimated again for reliability and validity of the construct used in the measurement model. This study employs the reflective measurement scale as the indicators are highly correlated and interchangeable. Indicators of reflective measurement model should be assessed for its reliability and validity in order to achieve consistency (Hair et al., 2013; Petter et al., 2007).

Table 2. Reliability and Validity

Latent Variables	*Composite reliability coefficients*	*Cronbach's alpha coefficients*	*Average variances extracted*	*Full collinearity VIFs*
Size	0.92	0.869	0.79	1.71
Reinvestment	0.653	**-0.063**	0.49	1.078
Agency Cost	0.825	**0.576**	0.70	2.02
Leverage	0.793	**0.605**	0.56	1.383
Investment Intensity	0.847	**0.638**	0.73	1.16
efficiency	0.774	**0.415**	0.63	2.001
profitability	0.959	0.915	0.92	1.292
Dividend intensity	0.746	**0.321**	0.59	1.091
Signaling	0.668	**0.006**	0.50	1.064
Liquidity	0.997	0.995	0.99	1.039
Growth	0.751	**0.335**	0.60	1.119
risk	0.983	0.974	0.95	1.344

6.1. Reliability assessment:

The internal consistency reliability of reflective measures is analyzed through composite reliability and Cronbach's alpha. Composite reliability is used as an estimate of the internal consistency and of the construct as suggested by Hair et al. (2011). Composite reliability values of 0.60 to 0.70 in exploratory research and values from 0.70 to 0.90 in more advanced stages of research are regarded as satisfactory (Nunnally and Bernstein 1994). As shown in Table-2, the composite reliability score of all the latent variables are above 0.65 indicating latent variables are reliable.

Reliability of measurement model in measuring intended latent constructs is checked using Cronbach alpha score. Nunnally (1978) suggest that Cronbach alpha greater than 0.7 indicate that the measurement model is reliable. As seen in the above Table-2, there are eight latent variables where Cronbach alpha value is less than 0.7 but their composite reliability and average variance extracted (AVE) values are high, hence these latent variables are retained in the model.

6.2. Construct Validity

The estimated strength of these relationships in the model between the latent variables can only be meaningfully interpreted if construct validity was established (Peter and Churchill 1986). In order to test construct validity, the convergent and discriminant validity is used.

Convergent validity is measured using the average variance extracted (AVE) which the grand mean value of the squared loadings of all indicators associated with the construct. Each construct should account for at least 50 per cent of the assigned indicators' variance. As can be seen from the table-2 that all the latent variables have AVE values more than 0.5 except reinvestment. For latent variable reinvestment the value is 0.49 which it is very close to the cutoff point so this variable is retained.

Discriminant validity ensures that a construct measure is empirically unique and represents phenomena of interest that other measures in a structural equation model do not capture (Hair et al. 2010). Discriminant Validity is established if a latent variable accounts for more variance in its associated indicator variables than it shares with other constructs in the same model (Fornell and Larcker 1981). The Fornell Larcker criterion suggests that the square root of AVE must be greater than the correlation of the construct with all other constructs in the structural model. Table-3 shows the correlations among latent variables with square root of average variance extracted by each latent variable. It can be seen that each latent variable AVEs is higher than the correlation of the latent variables indicating discriminant validity of the latent variables.

Another popular approach for establishing discriminant validity at the item level is by the assessment of cross-loadings. According to Gefen and Straub (2005), discriminant validity is established if each measurement item correlates weakly with all other constructs except for the one to which it is theoretically associated. In Appendix-3 the result of cross loading is presented and can be seen that each measurement items correlates weakly with all other constructs.

After establishing reliability and validity of the latent variables, the model is ready for interpretation and analysis of path coefficient and assessment of the model fit and quality indices.

6.3. Results of the measurement model (outer model) of PLS-SEM

Path coefficient of the measurement model is estimated using various schemes to ensure robustness of the relationship. Stable method relies directly on the application of exponential smoothing formulas and yields estimates of the actual standard errors that are consistent with those obtained via bootstrapping, in many cases yielding more precise estimates of the actual standard errors (Kock, 2014).

Bootstrapping creates number of resamples, in this case 500, replacement where each resample contains a random arrangement of the rows of the original dataset, where some rows may be repeated. On the other hand, Blindfolding employs, a resampling algorithm that creates a number of resamples by a method whereby each resample has a certain number of rows replaced with the means of the respective columns.

Figure 2. NonLinear Measurement Model

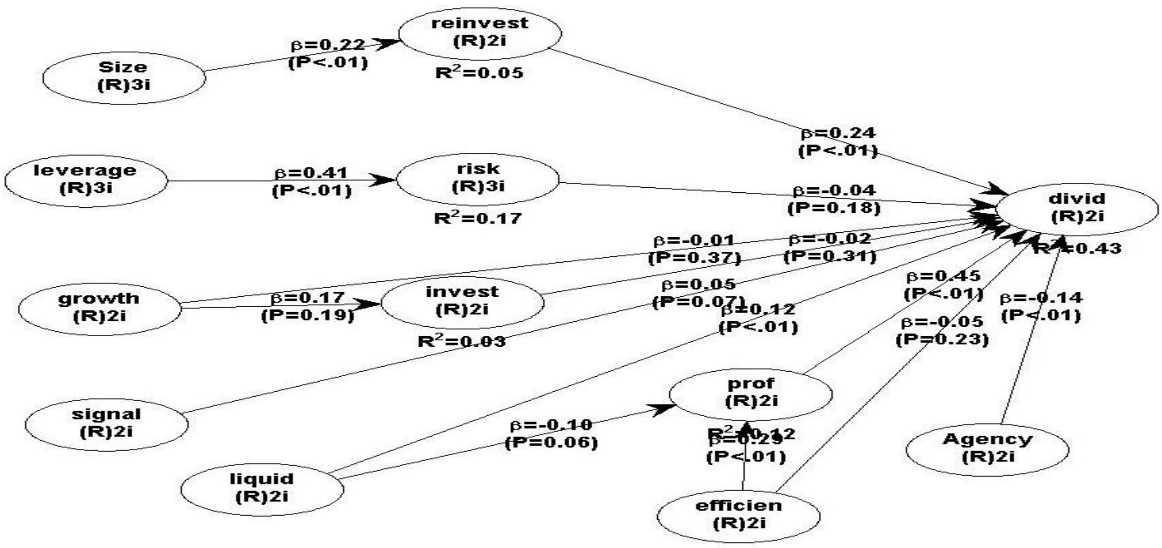


Table 3. Correlation among latent variables with square root of AVEs

Latent Variables	*Size*	*Reinvestment*	*Agency Cost*	*Leverage*	*Investment Intensity*	*efficiency*	*profitability*	*Dividend intensity*	*Signaling*	*Liquidity*	*Growth*	*risk*
Size	-0.89											
Reinvestment	0.111	-0.696										
Agency Cost	-0.109	0.027	-0.838									
Leverage	0.414	-0.125	-0.179	-0.75								
Investment Intensity	-0.023	-0.063	-0.185	-0.001	-0.857							
efficiency	0.018	0.068	0.646	-0.116	-0.147	-0.794						
profitability	0.243	0.04	-0.102	-0.042	-0.06	0.192	-0.96					
Dividend intensity	0.058	0.056	-0.107	-0.082	-0.03	-0.057	0.211	-0.772				
Signaling	0.037	0.024	-0.023	0.149	0	-0.113	0.011	0.105	-0.708			
Liquidity	-0.112	-0.034	-0.086	-0.089	0.103	-0.073	-0.044	0.013	-0.001	-0.997		
Growth	0.066	-0.081	-0.03	0.061	0.288	-0.037	0.053	0.052	0.002	-0.027	-0.775	
risk	0.488	-0.044	-0.098	0.248	0.026	-0.055	0.068	-0.009	0	-0.027	0.032	-0.975
Note: Square root of Variance extracted is shown in the diagonal												

Table 4. R-square, Adj R square and Q-square of the models

	Non Linear Model			*Linear Model*		
Latent Variables	*R-squared coefficients*	*Adjusted R-squared coefficients*	*Q-Square*	*R-squared coefficients*	*Adjusted R-squared coefficients*	*Q-Square*
Reinvestment	0.05	0.049	0.051	0.046	0.044	0.046
Investment Intensity	0.03	0.028	0.03	0.007	0.006	0.008
Profitability	0.12	0.117	0.122	0.11	0.107	0.111
Dividend intensity	0.435	0.427	0.436	0.471	0.464	0.472
Risk	0.167	0.166	0.168	0.167	0.166	0.167

Table 5. Path coefficient total effect using PLS regression

	Wraps Non Linear		*Wraps Non Linear*		*Linear*	
	Boot strapping		*Blindfolding*		*Boot strapping*	
Total effect	*Coefficient*	*P value*	*Coefficient*	*P value*	*Coefficient*	*P value*
Size -> reinvest	0.224	<0.001	0.224	<0.001	0.214	<0.001
growth -> Investment intensity	0.173	0.194	0.173	<0.001	0.086	0.224
efficiency > Prof	0.289	<0.001	0.289	<0.001	0.313	<0.001
liquidity -> prof	-0.101	0.058	-0.101	0.005	-0.078	0.071
reinvestment > div	0.244	<0.001	0.244	<0.001	0.219	<0.001
agency > div	-0.141	0.002	-0.141	<0.001	-0.232	<0.001
investment > div	-0.023	0.314	-0.023	0.276	-0.066	0.132
efficiency > div	-0.046	0.226	-0.046	0.122	-0.113	0.018
profitability > div	0.451	<0.001	0.451	<0.001	0.559	<0.001
signaling > div	0.051	0.07	0.051	0.099	0.083	0.007
liquidity > div	0.117	0.001	0.117	0.001	0.139	<0.001
growth > div	-0.013	0.369	-0.013	0.373	-0.08	0.004
risk > div	-0.036	0.184	-0.036	0.181	-0.076	0.012
leverage > risk	0.409	<0.001	0.409	<0.001	0.409	<0.001
No of observations	646		646		646	

The results for both linear and nonlinear models turned out to be similar in signs and values of the coefficients as shown in Table-5. The goodness of fit and quality indices is also very similar as shown in Table-6. All the estimated models were estimated using PLS regression with 500 resample used. The results of path coefficients and its corresponding P-value is presented in table-5.

The results suggest that large firms in GCC tends to have larger retained cash flows and tend to have higher dividend intensity. In path coefficient analysis results, size is positively related to latent variable of reinvestment with coefficient of 0.224 (linear model) and 0.214(nonlinear model). The above results are statistically significant at all levels. The relationship between growth and investment intensity was weak with no statistical significance. This may be true in case of GCC companies because investment intensity does not depend on growth rate of earnings or assets of the company. The path coefficient for management efficiency was positively related to profitability with statistical significance. Higher management efficiency leads to higher profitability. Liquid firms tend have lower profitability. The path coefficient results suggest that higher the liquidity of firms, higher is the propensity to pay dividends. The latent construct of liquidity is positively related to dividend intensity with statistical significance at all levels. Profitable firms tend to pay more dividends. The latent construct of capital intensity is negatively related to dividend intensity. Thus firms with high level of capital investments tend to pay lower dividends. But the results are not statistically significant. Companies with higher market valuations tend to pay more dividends. The results suggest that the signaling latent construct was positively related to dividend intensity. Signaling explains dividend policy but at 5% level of significance Thus high market valuations signal the dividend paying capacity of firms. Growth turned out to be not significant in nonlinear models but significant in linear model at 5% level of significance. The relationship is negative which indicates that growth negatively affects dividend policy. Hence it can be implied that high growth firms tend to pay less dividends. It can be implied that high growth firms have enough investment opportunities so that funds would be required to carry out future investment activities. Higher leverage results in higher risk. Risk variable is negatively related to the dividend policy variable with statistical significance at 5% for the linear model.

Model fit and quality indices of the measurement model is reported in Table-6. It indicates that all the indicators are within the acceptance range and significant. Tenenhaus goodness of fit is 0.342 which indicates that 34% of the variation is explained by the measurement model and considered to be medium fit. This ensures that the results are reliable and can be used for model building. The model fit for both linear and non-linear models are similar in values indicating there is not much difference in linear and non-linear models.

Table 6. Model fit and quality indices

Model fit and quality indices	*Non-Linear*	*Linear*	*Acceptance*
Average path coefficient (APC)	0.166	0.191	P<0.001
Average R-squared (ARS)	0.16	0.16	P=0.002
Average adjusted R-squared (AARS)	0.157	0.157	P=0.003
Average block VIF (AVIF)	1.215	1.429	Acceptable
Average full collinearity VIF (AFVIF)	1.924	1.924	Acceptable
Tenenhaus GoF (GoF)	0.342	0.342	Medium
Sympson's paradox ratio (SPR)	0.929	0.929	Acceptable
R-squared contribution ratio (RSCR)	0.997	0.994	Acceptable
Statistical suppression ratio (SSR)	1	0.714	Acceptable
Nonlinear bivariate causality direction ratio (NLBCDR)	0.857	0.857	Acceptable

7. CONCLUSION AND IMPLICATION

The study examines the major financial determinants of the dividend policy of firms in GCC region based on a sample of 646 companies. The values of the financial variables were based on average values during the period 2010-2015. The study finds that large firms in GCC tends to have higher retained cash flows and higher dividend payout intensity. Usually the portion of earnings which are not paid to investors is ideally used for investment purposes to provide for future earnings growth. It can be interpreted that higher the size of the firm, greater is its propensity to retain cash flows as well as payout dividends for the investors. Perhaps GCC based firms adopt a balanced and cautious approach regarding future growth opportunities as well as the dividend payout policy. According to residual theory of dividends, firms tend to reinvest earnings back into the firm rather than paying dividends. Firms tend to retain funds for future capital expenditures by means of reducing dividend payments. Firms with high growth rates tend to have higher investment requirements. Higher the liquidity and profitability signals higher dividend intensity. GCC firms which are liquid and profitable tend to pay more dividends. GCC firms with higher market valuation tend to pay more dividends. Firms with high growth rates of earnings and assets tend to pay less dividends. Firms with high leverage are riskier and risky firms tend to pay less dividends.

8. FUTURE DIRECTION

Future studies can focus on the role of an optimal mix of cash flow retention and dividend policy of firms in the GCC region.

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Appendix 1. List of variables and its definitions

Latent Variable	*Code*	*Variable*	*Variable definition*
Size	size_1	size_lnsale	Log of Sales
	size_2	size_Lnasset	Log of Assets
	size_3	Size_fixedA	Log of Fixed Assets
Reinvestment	reivest_1	reinvest_reear	Retained earnings/ Book value of equity
	reivest_2	reinvest_reop	Retained earnings/ Operating income
Agency Cost	Agency_1	Agency_sata	Sales/Total assets
	Agency_2	Agency_sepbdit	Selling and advertisement expenses/pbdit
	Agency_3	Agency_seta	Selling and advertisement expenses/total asset
Leverage	lever_1	Lev_tate	Total assets/total equity
	lever_2	Lev_icr	Interest coverage ratio
	lever_3	Lev_LTD	long term debt/ total assets
	lever_4	lev_TDTC	Total debt/ total capital
	lever_5	lev_DER	Debt equity ratio
	lever_6	Lev_tdr	Total debt ratio
Investment Intensity	Invest_1	Inv_capexta	Capital expenditure/ total asset
	Invest_2	Inv_capexs	Capital expenditure/ sales
	Invest_3	inv_gwcsa	Gross working capital/sales
	Invest_4	inv_gwcta	Gross working capital/total assets
efficiency	effic_1	effi_salenwc	Sales/Net working capital
	effic_2	effi_sanfa	Sales/Fixed assets
	effic_3	effi_sata	Sales/ Total assets
profitability	prof_1	prof_eps	Earnings per share (EPS)
	prof_2	prof_npm	Net profit margin
	prof_3	prof_roce	Returns on capital employed
	prof_4	prof_roic	Returns on invested capital
	prof_5	prof_roa	Returns on Assets (ROA)
	prof_6	Prof_roe	Returns on Equity (ROE)
Dividend intensity	divid_1	Div_dpseps	DPS/EPS
	divid_2	Div_divsa	Dividend / Sales
Signaling	signal_1	signal_pb	P/B =Price to Book Ratio
	signal_2	signal_pe	P/E = Price to Earnings Ratio
	signal_3	signal_ps	p/s = Price to Sales
	signal_4	signal_peg	Price Earnings growth (PEG)
Liquidity	liquid_1	liquid_cr	Current ratio
	liquid_2	liquid_qr	Quick ratio
Growth	growth_1	growth_sal	Sales growth
	growth_2	growth_pbdit	Growth of pbdit
	growth_3	growth_netin	Growth of net income
	growth_4	growth_asset	Growth of assets
risk	risk_1	risk_pbdit	Standard deviation of Pbdita
	risk_2	risk_pbit	Standard deviation of Pbit
	risk_3	risk_netin	Standard deviation of Net Income

Appendix 2. Descriptive Statistics

Table 2. Descriptive Statistics

Variables	*Mean*	*Std.Dev*	*Minimum*	*Maximum*	*Median*	*Mode*	*Skewness*	*Normality*
size_1	4.542	1.869	0	10.752	4.542	4.542	0.049	Yes
size_2	6.064	1.93	0.347	11.548	5.796	8.548	0.525	No
size_3	3.991	2.16	0	10.997	3.991	3.991	0.099	Yes
reivest_1	0.117	0.857	-13.362	2.3	0.267	0.004	-8.719	No
reivest_2	2.592	14.893	-150	150.094	2.384	2.592	0.511	No
Agency_1	0.41	0.507	-0.039	4.758	0.264	0	3.318	No
Agency_2	0.424	1.604	-15.206	10.465	0.424	0.424	-2.407	No
Agency_3	0.072	0.082	-0.044	1.25	0.057	0.072	5.823	No
lever_1	2.95	3.4	-12.719	39.48	1.898	3.521	3.836	No
lever_2	74.157	550.278	-2070.4	10454.7	14.084	74.157	15.652	No
lever_3	0.112	0.224	0	4.537	0.05	0	12.347	No
lever_4	0.275	0.245	-0.249	1.508	0.237	0	0.743	No
lever_5	627.972	15113	-27684	383103	31.915	0	25.139	No
lever_6	215.236	4885.67	0	124195	15.473	0	25.355	No
Invest_1	0.035	0.047	0	0.481	0.018	0	3.098	No
Invest_2	0.304	2.327	-1.875	54.292	0.053	0	20.357	No
Invest_3	1.302	1.73	-3.433	26.25	1.302	1.302	8.204	No
Invest_4	0.389	0.17	0.006	1	0.389	0.389	0.7	No
effic_1	3.675	13.358	-142.12	171.355	3.675	3.675	2.781	No
effic_2	7.852	16.749	-0.527	178.441	2.525	7.852	5.1	No
effic_3	0.41	0.507	-0.039	4.758	0.264	0	3.318	No
prof_1	1.126	5.554	-4.782	117.473	0.036	0.019	15.632	No
prof_2	-1530.4	32235.1	-813281	9916.91	12.003	-1530.4	-24.809	No
prof_3	0.042	0.1	-1.5	0.351	0.042	0.042	-6.226	No
prof_4	5.425	21.1	-457.02	125.03	5.649	-4.642	-16.012	No
prof_5	-9.808	338.14	-8577.8	36.078	3.485	-9.808	-25.245	No
prof_6	5.855	46.548	-1057.8	300.277	7.439	5.855	-18.046	No
divid_1	0.368	0.68	-12.684	5.271	0.368	0	-9.991	No
divid_2	0.104	0.194	0	2.985	0.05	0	7.381	No
signal_1	4.449	74.661	-223.62	1884.87	1.353	4.449	24.746	No
signal_2	-1530.4	32235.1	-813281	9916.91	12.003	-1530.4	-24.809	No
signal_3	42.338	401.834	-109.25	8447.83	2.825	42.338	16.4	No
signal_4	-0.723	17.789	-376.02	120.203	-0.367	-0.723	-14.632	No
liquid_1	3.548	10.886	0.002	264.757	3.495	3.548	21.718	No
liquid_2	2.738	7.867	0	181.84	2.647	2.738	19.096	No
growth_1	0.299	2.019	-2.564	43.167	0.089	0.299	17.076	No
growth_2	0.01	2.217	-12.094	49.561	0.033	0.01	17.158	No
growth_3	-0.128	1.675	-14.192	8.597	0.057	0	-1.788	No
growth_4	0.097	0.5	-1	11.976	0.053	-0.036	20.912	No
risk_1	42.451	127.946	0	1728.62	8.485	0	8.221	No
risk_2	40.79	126.851	0	1753.49	8.304	0	8.892	No
risk_3	40.135	110.991	0	1747.59	9.014	0.548	8.37	No

Appendix 3. Indicators Loadings and Cross Loadings

Indicators	*Size*	*Reinvestment*	*Agency Cost*	*Leverage*	*Investment Intensity*	*efficiency*	*profitability*	*Dividend intensity*	*Signaling*	*Liquidity*	*Growth*	*risk*	*SE*	*P*
size_1	-0.90	0.12	0.15	0.31	-0.15	0.22	0.30	0.03	0.03	-0.08	0.05	0.43	0.02	<0.001
size_2	-0.91	0.08	-0.30	0.45	0.03	-0.15	0.18	0.08	0.03	-0.09	0.09	0.46	0.01	<0.001
size_3	-0.86	0.10	-0.15	0.34	0.06	-0.02	0.17	0.05	0.03	-0.13	0.04	0.41	0.03	<0.001
reivest_1	0.19	-0.70	0.04	-0.16	-0.06	0.09	0.12	0.18	0.05	-0.03	-0.04	-0.03	0.04	<0.001
reivest_2	-0.04	-0.70	0.00	-0.01	-0.03	0.01	-0.07	-0.11	-0.01	-0.02	-0.07	-0.03	0.04	<0.001
Agency_1	-0.01	0.06	-0.84	-0.16	-0.18	0.79	0.24	-0.06	-0.01	-0.09	-0.03	-0.08	0.09	<0.001
Agency_3	-0.18	-0.01	-0.84	-0.14	-0.13	0.29	-0.42	-0.12	-0.03	-0.06	-0.02	-0.08	0.09	<0.001
lever_1	0.32	-0.21	-0.12	-0.71	-0.08	-0.11	-0.05	-0.05	0.16	-0.04	-0.03	0.25	0.07	<0.001
lever_3	0.19	-0.02	-0.12	-0.69	0.06	-0.09	-0.07	-0.04	0.09	-0.04	0.09	0.11	0.23	0.002
lever_4	0.42	-0.05	-0.16	-0.84	0.02	-0.06	0.02	-0.09	0.09	-0.12	0.08	0.21	0.15	<0.001
Invest_3	0.05	-0.02	-0.09	0.03	-0.86	-0.06	-0.02	-0.03	-0.01	0.00	0.26	0.01	0.09	<0.001
Invest_4	-0.09	-0.09	-0.23	-0.03	-0.86	-0.19	-0.08	-0.02	0.01	0.18	0.24	0.04	0.09	<0.001
effic_1	0.04	0.05	0.19	-0.02	-0.05	-0.79	0.06	-0.03	-0.18	-0.03	-0.03	-0.01	0.06	<0.001
effic_3	-0.01	0.06	0.84	-0.16	-0.18	-0.79	0.24	-0.06	-0.01	-0.09	-0.03	-0.08	0.06	<0.001
prof_3	0.26	0.05	-0.04	-0.04	-0.07	0.21	-0.96	0.25	0.01	-0.06	0.07	0.07	0.03	<0.001
prof_4	0.21	0.03	-0.16	-0.04	-0.04	0.16	-0.96	0.15	0.01	-0.03	0.04	0.06	0.03	<0.001
divid_1	0.07	0.11	0.04	0.00	-0.08	0.04	0.18	-0.77	0.16	-0.01	0.05	-0.02	0.13	<0.001
divid_2	0.02	-0.02	-0.21	-0.13	0.03	-0.13	0.15	-0.77	0.01	0.03	0.03	0.01	0.13	<0.001
signal_1	0.03	0.04	-0.02	0.19	-0.02	-0.12	0.02	0.13	-0.71	-0.01	0.01	-0.01	0.00	<0.001
signal_4	0.03	0.00	-0.01	0.02	0.02	-0.04	0.00	0.02	-0.71	0.01	-0.01	0.01	0.00	<0.001
liquid_1	-0.11	-0.03	-0.08	-0.09	0.09	-0.07	-0.04	0.01	0.00	-1.00	-0.03	-0.03	0.00	<0.001
liquid_2	-0.12	-0.04	-0.09	-0.09	0.12	-0.08	-0.05	0.02	0.00	-1.00	-0.03	-0.03	0.00	<0.001
growth_1	-0.01	-0.09	-0.04	0.02	0.43	-0.03	-0.02	-0.04	0.00	-0.01	-0.78	0.00	0.10	<0.001
growth_3	0.11	-0.04	0.00	0.07	0.02	-0.02	0.10	0.12	0.01	-0.03	-0.78	0.05	0.10	<0.001
risk_1	0.48	-0.03	-0.09	0.24	0.02	-0.04	0.07	0.00	0.00	-0.03	0.02	-0.98	0.01	<0.001
risk_2	0.46	-0.05	-0.09	0.23	0.03	-0.04	0.07	-0.01	0.00	-0.02	0.04	-0.99	0.01	<0.001
risk_3	0.49	-0.06	-0.11	0.26	0.03	-0.07	0.06	-0.02	0.00	-0.02	0.04	-0.96	0.02	<0.001

Note: Loadings are unrotated and cross loadings are oblique rotated. SE and P values are for loadings.

Appendix 4. Descriptive statistics

Latent variables	**Min**	**Max**	**Median**	**Mode**	**Skewness**	**Kurtosis**
Size	-1.823	1.952	-0.044	1.165	0.13	-1.133
Reinvestment	-2.043	2.086	-0.011	-1.591	-0.015	-0.909
Agency Cost	-2.015	1.981	-0.149	-2.009	0.055	-0.947
Leverage	-1.638	2.115	-0.046	1.563	0.127	-1.087
Investment Intensity	-2.724	2.358	-0.082	-0.596	-0.07	-0.156
Efficiency	-2.379	2.323	-0.157	-2.164	0.142	-0.359
Profitability	-1.813	1.814	-0.022	-0.505	0.006	-1.066
Dividend intensity	-1.203	2.088	-0.003	-1.203	0.252	-1.195
Signaling	-1.771	2.377	-0.02	0.558	0.255	-0.881
Liquidity	-2.281	1.425	0.659	0.734	-0.751	-0.837
Growth	-2.148	2.238	0.01	0.288	0.042	-0.62
Risk	-1.387	1.911	-0.133	-1.387	0.287	-1.19