

The Determinants of Dividend Policy by Information Technology (IT) Firms in the United States

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Abstract

This paper examines the determinants of dividend payout policy of seventy publicly traded information technology (IT) firms in the United States in 2017. More important, the standard dividend payout ratio is adjusted to include depreciation because IT firms have higher depreciation than the services sector. Thus, this higher depreciation rates may have an impact on dividend payouts by IT firms. To find out the determinants of dividend payout policy, general linear models (GLM) were estimated using for standard dividend payout and the adjusted dividend payout as the dependent variables. In the standard dividend payout regression, corporate tax and the market to book ratio have a positive relationship with the dividend payout. Operating cash flow, corporate profit, debt to equity ratio, size and sales has a negative relationship with dividend payout. Finally, the regression for the adjusted standard dividend payout showed the corporate tax, operating cash flows, profit and the market to book ratio have a positive relationship with the adjusted dividend payout. Debt to equity ratio, size, and sales has a negative relationship with adjusted dividend payout.

I. Introduction

Why do some firms pay dividends while others do not? Since the seminal contribution of Miller and Modigliani in 1961, numerous studies have been conducted to support the significance of the dividend decisions of firms. They argue that given perfect capital markets, the dividend decision does not affect the firm value and is not relevant. Such an assessment stunned many financial practitioners because the standard belief at the time suggested that a properly managed dividend policy had an impact on share prices and shareholders' wealth. In fact, the company could use this income to invest in operating assets, to acquire securities, to retire debt, and/or distributed to shareholders as cash dividends. Issues that arise if a company decides to distribute its income to shareholders include the proportion of the after-tax income would be distributed to shareholders; whether the distribution should be as cash dividends, or the cash be passed on to shareholders by buying back some of its shares.

Seneque (1978) defined dividends as "the share of the profits of a company which are received by the shareholders." However, a simple definition that has generated much debate over the years. Black (1976) wrote that "the harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just do not fit together." The "dividend puzzle" is the corollary of the two questions posed by Black (1976): why firms pay dividends and why stockholders pay attention to dividends? Black (1976) also posited the factors that influence the dividend payout decision include, taxes, transaction costs, capital structure and the demand of investors for dividends, etc. After the seminal work of Black, other variables have been added to explain the policy dividend by firms, e.g., agency costs (Rozeff, 1982; Easterbook, 1984), and growth (Higgins, 1981).

The manufacturing sector in the United States was the main engine of economic growth but the information technology sector (IT) has been rapidly growing in the past few decades. The IT

sector is capital-intensive sector and often requires huge capital asset base like manufacturing firms. The major asset of this sector is manpower as well as capital. Therefore, the funds would be comparatively more than the service sectors because of the purchase capital assets. Does this greater need of funds by IT firms hinder its ability to offer dividends to its shareholders? Hence, the broad objective of this paper was to examine empirically the determinants that impact payout dividend policy of IT firms in the United States. More specifically, the objectives were to

1. Ascertain the relationship of dividend payout and corporate profits;
2. Determine the extent of dividend payout and the amount of debt equity by the firm;
3. Assess the influence of cash flows and dividend payout;
4. Determine the impact of the relationship of the corporate tax and the dividend payout;
5. Analyze the impact sales growth and the dividend payout by the firm and;
6. Assess the market to book value and the dividend payout by the firm.

The main contribution of this paper to the literature is that earlier studies concentrated on the determinants of 'standard ratio of dividend to earnings'. This paper examined the determinants of the 'standard dividend payout ratio' and the extended payout ratio in which the denominator of the ratio includes net income after taxation and depreciation. The difference between the two ratios is greater for the IT sector that usually has relatively high levels of depreciation, in comparison to the services sector. That is, depreciation may have an impact on the dividend payout ratios.

The balance of the paper is as follows. Section 2 provides the existing literature on dividends. Section 3 delves into the model specification and the discussion of the data sources used in this analysis. Section 4 presents the empirical results, and section 5 concludes and discusses the results of the paper.

II. The Existing Literature

A. Background

Several theoretical and empirical studies have been completed in the past fifty years, and the prior research has indicated mainly three outcomes: the increase (decrease) in dividend payout affect the market value of the firm or the dividend policy of the firm does not affect the firm value at all. Regrettably, these prior empirical results present mixed results. The determination whether a firm decides to issue a dividend is the main motif in corporate finance. Brealey and Myers (2016) states that dividends is one of the top ten unresolved problems in finance. The issuance of dividends by firms as well as the 'dividend puzzle' requires additional research to be thoroughly understood (Allen and Michaely, 2003).

The main explanation for dividends is based on the desire to communicate information to shareholders or to satisfy the demand for payouts from heterogeneous dividend clienteles (Allen and Michaely, 2003). Also, DeAngelo, DeAngelo, and Skinner (2004) have cast a doubt on signaling and clientele considerations as first-order determinants of dividend policy by reporting that dividends in the United States are increasingly concentrated among a small number of large payers. DeAngelo and DeAngelo (2006) proposed an alternative view of dividends that optimal payout policy is driven by the need to distribute the firm's free cash flow.

Lintner (1956), Pruitt and Gitman (1991), Benartzi et al. (1997) and Baker and Powell (2000) examined the impact of past dividends on the issuance of future dividends by firms. Fama (1974) tried to depict the effect of investment decisions on dividend policy. Baker (1988), Dickens et al. (2002) and Mancinelli and Ozkan (2006) considered respectively industry classification, firm size and liquidity, capital adequacy and the ownership structure of companies as key determinants when deciding to issue dividends to shareholders. Baker et al. (2001) showed that past dividends,

stability of earnings and current and expected earnings have a prominent influence on the decision to issue dividends. Furthermore, Pruitt and Gitman (1991), Rozeff (1982), Lloyd et al. (1985), Colins et al. (1996) and D'Souza (1999) considered risk as a factor to issue dividends.

B. Determinants in the Decision to Have Dividend Payout

There are several determinants when determining the dividend payout decision for IT firms. The following discussion delves into each of the determinants in the decision to have a dividend payout.

Corporate Profitability (PROFIT)

Corporate profitability is often the primary indicator of a firm's capacity in its decision to pay dividends. Amidu and Abor (2006) determined that corporate profitability and dividend payout ratios have a positive relationship. More important, Linter (1956) and Baker et al. (2001) indicate that the dividend payment pattern of a firm is influenced by the current year's earnings and previous year's dividends.

Not only does the current year's earnings have an impact on the decision to offer dividend payout, also determined that the anticipated level of future earnings would also be the determinant of dividend payment (Baker et al., 2001). Pruitt and Gitman (1991) showed that current and past years' profits are important factors in influencing dividend payments by the firm. More important, Baker and Powell (2001) concluded from their survey of NYSE-listed firms that the determinants of dividend determinants could be industry specific and anticipated level of future earnings is the major determinant whether the firm decides to offer a dividend or not.

Cash Flows (Cash)

The cash flow would be an important impetus whether the firm decides to offer a dividend payout. That is, the firm needs to have a good liquidity position because a poor liquidity position means less chance of a dividend due to shortage of cash. Amidu and Abor (2006) argues that dividend payments depend more on cash flows which reflect the firm's ability to pay dividends, than on current earnings. From their assessment, they claim that current earnings do not really reflect the firm's true intentions to pay dividends.

Corporate Tax (Tax)

Modigliani and Miller (1961) studied the imperfections of the tax system as it affects corporations directly which can impact its decision to offer dividends by the firm. More important, tax-adjusted models presume that investors require and secure higher expected returns on shares of dividend-paying stocks. Consequently, the tax-adjusted theory would place divisions of investors into dividend tax clientele. Modigliani (1982) argues that the clientele effect is responsible for the alterations in portfolio composition. Also, Masulis and Trueman (1988) conclude that as tax liability increases (decreases), the dividend payment decreases (increases) while earnings reinvestment increases (decreases).

Sales Growth (Sales)

Dividend payout levels are not totally decided after a firm's investment and financing decisions have been made; rather, the decision to have dividends decision is made in conjunction with investment and financing decisions. Sales growth serves as a proxy for past sales growth for firms. Higgins (1981) shows a direct link between growth and financing needs of a firm. Also, rapidly growing firms require external financing because working capital needs normally exceed the incremental cash flows from its new sales. In fact, Higgins (1972) argues that payout ratio is negatively related to a firm's need for funds to finance growth opportunities. Rozeff (1982), Lloyd

et al. (1985), Collins et al. (1996), and Amidu and Abor (2006) show a negative relationship between historical sales growth and dividend payouts.

Market-to-Book Value (MTBV)

Market-to-book value reflects the market view of the value of equity in comparison to what shareholders have contributed to the firm since its establishment. The MTBV is used as a proxy for future growth opportunities that could influence the dividend payout ratio.

Debt to Equity Ratio (D/E)

Debt/Equity (D/E) ratio, calculated by dividing a company's total liabilities by its stockholders' equity, is a debt ratio used to measure a company's financial leverage. This ratio indicates how much debt a company is using to finance its assets relative to the value of shareholders' equity. Consequently, such risk will affect the dividend policy. Firms with high growth rates and high dividend payout ratios utilize debt financing and firms with high leverage compared to their respective industry. In some industries payout and leverage ratios are positively related while in other industries the relationship could be negative. Rozeff (1982), Lloyd et al. (1985), and Collins et al. (1986) found a statistically significant and negative relationship between firm's risk and the dividend payout ratios. From these studies, their findings suggest that firms having a higher level of risk will pay out dividends at lower rate.

In summary, the literature review summarizes that corporate profitability, cash flow, tax, sales growth, market-to-book value, and debt-to-equity ratio may impact upon the dividend payout ratio. In the previous research cited, they concentrated on the determinants of 'standard ratio of dividend to earnings. As mentioned earlier, this study also examines the determinants of the extended payout ratio in which the denominator of the extended payout ratio includes net income and depreciation. The difference between the two payout ratios is greater for the IT sector that usually has relatively high levels of depreciation, in comparison to the services sector.

III. Model Specification and Data Sources

A. Model Specification

The general model is

$$\text{Payout} = \beta_0 + \beta_1 * \text{PROFIT} + \beta_2 * \frac{D}{E} + \beta_3 * \text{CASH} + \beta_4 * \text{TAX} + \beta_5 * \text{SALES} + \beta_6 * \text{MTBV} + \beta_7 * \text{DSize} + \varepsilon_i \quad (1)$$

where Payout is the dividend payout, PROFIT is the corporate profit, $\frac{D}{E}$ is the debt to equity ratio, CASH is the operating cash flows, TAX is the corporate tax, SALES is the growth of sales between 2017 and 2016, MTBV is the market-to-book value, DSize is a dummy variable for size of the firm (1=large and 0=small) and ε_i is the stochastic error term where $\varepsilon_i \sim N(0, \sigma^2)$.

In this regression specification, the cross-section will reveal interfirm (across) variation, but this type of specification would be problematic because of the omitted variable bias problem. Consequently, this regression specification will focus on intrastate (within) variation, which will be estimated by use of the fixed effects regression. The fixed effects will be captured by the binary variables (or aka dummy variable) the size of the firm. By including the fixed effects (including a dummy variable), we are controlling for the average differences across the size of the firms in any observable or unobservable predictors. That is, the fixed effects coefficients soak up all the across group action, and the coefficient of each key predictor tells us the average, i.e., the common slope averaged across groups. What remains is the within group action (which is what we are interested in), and the problem of omitted variable bias is greatly reduced. Also, there is no dummy variable for the time variable because there is no trend in the data.

Equation (1) was estimated via the generalized linear models (GLM). In OLS, the linear models assume that the only stochastic part of the data is the normally-distributed noise around the predicted mean. However, the data for each of the variables used in this analysis do not meet the assumption of normality, so the use of OLS would not be appropriate. Consequently, GLM is a broad class of models predicting the outcome of a response as a function of some linear combination of a set of regressors. That is, models use a linear combination of variables to predict the response to predict the responses of Payout and the Adjusted Payout. More specifically, there are three components of a generalized linear model (GLM):

1. Random Component (the outcome)
2. Systematic Component (the design matrix multiplied by the parameter vector)
3. Link function (the function, $g(\cdot)$ that “links” the systematic component to the random component)

Nelder and Wedderburn (1972) are generally given credit for unifying a broad class (of existing) models into the GLM definitions. A brief discussion of each of the components of the GLM are presented. A random component, specifying the conditional distribution of the response variable, Y_i (for the i^{th} of n independently sampled observations), given the values of the explanatory variables in the model. In the initial formulation of GLMs, the distribution of Y_i was a member of an exponential family such as the Gaussian, binomial, Poisson, gamma, or inverse-Gaussian families of distributions.

For the systematic component, denote a new vector $(\eta_1, \eta_2, \dots, \eta_n)$ such that $\eta_i = \sum_j \beta_j X_{ij}$, $i = 1, \dots, n = \sum_j X_{ij} \beta$. That is a linear predictor or a linear function of the regressors, $\eta_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik}$

Finally, for the link component, a smooth and invertible linearizing link function $g(\cdot)$, which transforms the expectation of the response variable, $\mu_i = E(Y_i)$, to the linear predictor: $g(\mu_i) = \eta_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik}$. That is, the link function essentially expresses the transformation to be applied to the dependent variable. After the GLM model is specified, the maximum likelihood estimator (MLE) is used to estimate the parameters of these models.

B. Data Sources

This paper employed a cross-sectional research design as specified in equation (1) using secondary data from the Edgar database from the Securities and Exchange Commission (SEC) of randomly selected sampled firms based on the Standard Industrial Codes (SIC) for 1987, and these IT firms are active, publicly listed firms. More specifically, the SIC codes used in this sampling are SIC Code 7371 (Computer Programming Services) and SIC Code 7372 (Prepackage Software). Based on yearly observations of publicly listed firms for 2017, seventy firms were selected using convenient random sampling technique. Table 1 summarizes the measurement of each of the variables that were discussed earlier and used in equation (1).

Table 1. Measurement of the Determinants of the Dividend Payout Decision for IT Firms

Variable	Measurement
Corporate Profitability (PROFIT)	Earnings before interest and taxes/Total assets
Cash Flow (CASH)	Log of cash flow from operating activities
Corporate Tax (TAX)	Corporate tax/Net profit before tax

Sales Growth (SALES)		(Current sales - Previous sales)/Previous sales
Market-to-Book Value (MTBV)	Common shareholders' equity / Market capitalization	
Debt to Equity Ratio (D/E)	Total liabilities/Shareholders' equity	
Standard Dividend Payout Ratio (PAYOUT)	Yearly dividends/Net income after tax	
Adjusted Dividend Payout Ratio (ADJUSTED)	Yearly dividends/(Net income after tax + Depreciation)	
Size of Firm (SIZE)	A binary variable 1= large firm and 0-small firm, as designated by the SEC	

IV. Empirical Results

Summary Statistics

Table 2 presents the summary statistics for the year 2017.

Table 2. Summary Statistics (n=70)

Variable	Mean	Standard Deviation	Minimum	Maximum
Corporate Tax	0.2969	0.8982	-0.0845	4.7336
Profit	0.0295	0.4415	-0.3010	2.9234
Sales	-0.3482	0.6415	-4.0995	2.2314
Market-to-Book Value	1.3010	2.9727	-2.7784	13.0155
Debt to Equity Ratio	-0.2781	1.6838	-5.7103	5.7523
Cash	12.8405	2.9445	5.2610	18.5025
Dividend Payout	0.1740	0.8654	-1.6600	3.8020
Adjusted Dividend Payout	-1.0643	18.6355	-1.1400	54.8571

Table 2 shows that the mean of dividend payout is 0.1739 and standard deviation is 0.865 while for the adjusted dividend payout is -1.06 with a standard deviation of 18.63. The mean of debt to equity ratio is -0.278 and standard deviation is 1.688. The mean of operating cash flow share is 12.84 and standard deviation is 2.944. The mean of corporate profit is 0.029 and standard deviation is 0.4414. The mean of market to book value ratio is 1.301 and standard deviation is 2.97. The mean of cash flows is 12.84 and standard deviation is 2.94. The mean of corporate tax is 0.269 and standard deviation is 0.8981. The most noticeable results from the descriptive statistics is the minimum payment is negative and the adjusted dividend payment has a negative

mean. The main reason for these negative estimates is attributed to the net income after tax which can be negative for these IT firms.

Tables 3A and 3B presents the presents the interrelationships among the variables for this study. Table 3A presents the correlations between the variables including dividend payout and excluding the adjusted dividend payout while table 3B presents the results among the variables for the adjusted dividend payout excluding the dividend payout.

Table 3A. The Correlation Matrix of Variables Including the Dividend Payout (Prob>|R| under H_0 : $\rho=0$)

	Corporate Tax	Profit	Sales	Cash Flows	Market to Book Value	Debt to Equity Ratio	to Dividend Payout
Corporate Tax	1.000						
Profit	-0.0204 0.867	1.000					
Sales	0.1036 0.3934	0.3633* 0.002	1.000				
Cash Flows	0.4089* 0.0004	-0.1128 0.3524	0.0978 0.4206	1.000			
Market-to-Book Value	0.0904	-0.1365	0.0868	0.4314*	1.000		
Debt to Equity Ratio	0.4568 0.1039	0.2598 - 0.2691*	0.4751 0.0321	0.0002 0.3600*	0.2470*	1.000	
Dividend Payout	0.3922 -0.0422	0.0243 0.025	0.7917 -0.1897	0.0022 - 0.3022*	0.0392 -0.135	-0.2683*	1.000
	0.7289	0.8374	0.1157	0.011	0.2653	0.0247	

Note: Below the correlation coefficients are the p values and the correlations designated as * are significant at a level of significance of .05.

The dividend paid shows that the relationship with corporate tax is -0.0422 which shows a negative correlation and not significant. The dividend payout shows a weak relationship between corporate profit 0.025 but not significant. Dividend paid shows the negative relationship with market to book value -0.135 and shows that the market to book value can negatively affect the dividend payout by the IT firms. However, this correlation is not significant. Dividend payout with the operating cash flows is -0.3022 which is a negative correlation and shows that operating cash flows depends varies inversely with the dividend payout of IT firms. As for the debt to equity ratio, there is a negative correlation, -0.2683 that is significant. This correlation suggests that firms having a higher level of risk will pay out dividends at lower rate.

Table 3B. The Correlation Matrix of Variables Including the Adjusted Dividend Payout (Prob>|R| under H_0 : $\rho=0$)

	Corporate Tax	Profit	Sales	Cash Flows	Market to Book Value	Debt to Equity Ratio	Adjusted Dividend Payout
Corporate Tax	1.000						
Profit	-0.0204 0.867	1.000					
Sales	0.1036 0.3934	0.3633* 0.002	1.000				
Cash Flows	0.4089* 0.0004	-0.1128 0.3524	0.0978 0.4206	1.000			
Market-to-Book Value	0.0904 0.4568	-0.1365 0.2598	0.0868 0.4751	0.4314* 0.0002	1.000		
Debt to Equity Ratio	0.1039 0.3922	- 0.2691*	0.0321 0.7917	0.3600* 0.0022	0.2470* 0.0392	1.000	
Dividend Payout	0.0212 0.8615	0.1433 0.2366	0.0278 0.81960.	0.0939 4395	0.0432 0.7223	-0.0211 0.8326	1.000

Note: Below the correlation estimates are the p values and the correlations designated as * are significant at a level of significance of .05.

The adjusted dividend paid shows that the relationship with corporate tax is 0.0212 which shows a weak positive correlation and not significant. The adjusted dividend payout shows a weak positive relationship between corporate profit but not significant. The adjusted dividend paid shows a weak positive relationship with market to book value 0.0432 and shows that the market to book value would positively affect the payout by the IT firms. However, this correlation is not significant. The adjusted dividend payout with the operating cash flows is 0.0939 which is a positive correlation and shows that operating cash flows depends varies directly with the dividend payout of IT firms. As for the debt to equity ratio, there is a positive correlation that is not significant. This correlation suggests that firms having a higher level of risk will pay out dividends at a higher rate.

B. Results from the General Linear Models (GLM)

The regression results are divided into two parts. The first part of the regression analysis in table 4 shows the determinants on the standard dividend payout and the second part in table 5 explains the determinants on the adjusted dividend payout.

Table 4. Results from the General Linear Models (GLM)
Dependent Variable: Dividend Payout

Optimization Method	ML ¹	Residual df	61
		Scale parameter	0.6545
Deviance	39.9268	(1/df) Deviance	0.6545
Pearson	39.9268	(1/df) Pearson	0.6545

		AIC	2.5336
Log likelihood	-79.6750	BIC	-219.2320
Prob(log likelihood)	0.0001		

Independent Variable	Coefficient	Bootstrapped Standard Errors	z (Test Statistic)	P Value	MEXVAL
Binary Variable	-0.0765	0.2404	-0.3200	0.7500	104.0000
Tax	0.1120	0.0499	2.2500	0.0250	114.2500
Corporate Profit	-0.2003	0.3339	-0.6000	0.5490	107.5000
Sales	-0.2677	0.3143	-0.8500	0.3940	110.6500
Market-to-Book Value	0.0015	0.0216	0.0700	0.9460	100.8750
Debt to Equity Ratio	-0.1402	0.0626	-2.2400	0.0250	128.0000
Cash Flows	-0.2260	0.1048	-2.1600	0.0310	127.0000
Intercept	1.5302	0.8788	1.7400	0.0820	121.2500

¹The maximum likelihood (ML) algorithm was used to estimate the robust standard errors which consisted of 200 iterations.

This regression used the GLM was used with a Gaussian distribution function and an identity link function. Also, the GLM model estimated a corresponding LR test statistic and its probability, which is analogous to the F test from ordinary least squares (OLS). The test indicates that all the variables are jointly significant at p-value of $p < .001$. The GLM model estimated is quite decent. The results from Table 4 explain that corporate tax and the market to book ratio have a positive relationship with the dividend payout. Operating cash flow, corporate profit, debt to equity ratio and sales has a negative relationship with dividend payout. Based on the p values, corporate tax, operating cash flows, and the debt to equity ratio were significant determinants in the dividend payout by IT firms. The results for the binary variable for firm size show that there is a negative relationship, but no significant relationship between dividend payout and size of the firm. This is surprising, but the literature does confirm this contradictory evidence (Jeong, 2008 and Avazian et al, 2006). The relationship between the firm's liquidity and dividend is negative which explains that firms with more market liquidity will pay less dividends. Amidu and Abor (2006) find similar results evidence but Belans et al (2007) shows a negative relationship. Sales growth has no significant impact on dividend payout which indicates that sales growth is not the determinant of dividend payout policies. Baker et al. (2007) also find a similar relationship; however, Belans et al. (2007), Avizan et al. (2006) determined an opposite relationship. The corporate profit or net earnings shows a negative and no significant association with the dividend payout indicates that the firms with the positive earnings pay less dividends. This evidence is opposite of the results supported by Amidu and Abor (2006) and Belans et al (2007) and these results are confirmed by Jeong (2008).

Given the importance of the variables to describe the dividend payout for IT firms, marginal explanatory value (MEXVAL) is calculated for each of the variables. From Table 4, the marginal explanatory variable (MEXVAL) of each variable is the percentage by which the standard error of the estimate (SEE) of a regression is affected if the variable is omitted from the regression and is not replaced by another variable. The MEXVAL shows the importance of each

variable to the fit of the regression model rather than relying on the p-values to assess statistical significance (Almon, 2014). From these results, for the omission of any of these variables which are not replaced, the standard error of the estimate (SEE) would increase. Thus, we can conclude that each of these variables contributes significantly in the explaining of the dividend payout ratio for IT firms.

Table 5 presents the results for the adjusted dividend payout ratio for IT firms. Recall that the adjusted dividend payout ratio modifies the dividend payout ratio by including depreciation because the IT sector usually has relatively high levels of depreciation, in comparison to the services sectors.

Table 5. Results from the General Linear Models (GLM)

Dependent Variable: Adjusted Dividend Payout

Optimization	ML ¹	Residual df	61.0000		
		Scale parameter	368.3134		
Deviance	22467.1200	(1/df) Deviance	368.3134		
Pearson	22467.1200	(1/df) Pearson	368.3134		
		AIC	8.8663		
Log likelihood	-301.3220	BIC	22207.9600		
Prob (log likelihood)	0.0000				
Independent Variable	Coefficient	Boot Strapped Standard Errors	z (Test Statistic)	P Value	MEXVAL
Binary Variable	-7.5894	5.4428	-1.3900	0.1630	117.3750
Tax	0.2634	1.3095	0.2000	0.8410	102.5000
Corporate Profit	8.1536	10.1998	0.8000	0.4240	110.0000
Sales	-0.8306	6.4220	-0.1300	0.8970	101.6250
Market-to-Book Value	0.0908	0.4037	0.2200	0.8220	102.7500
Debt to Equity Ratio	-0.1010	1.4779	-0.0700	0.9460	100.8750
Cash Flows	0.8950	2.3518	0.3800	0.7040	104.7500
Intercept	-13.3948	20.9396	-0.6400	0.5220	108.0000

¹The maximum likelihood (ML) algorithm was used to estimate the robust standard errors which consisted of 200 iterations.

The results from Table 5 explains that corporate tax, operating cash flows, profit and the market to book ratio have a positive relationship with the adjusted dividend payout. Debt to equity ratio and sales has a negative relationship with dividend payout. Based on the p values, none of the variables were significant in explaining the adjusted dividend payout ratio. The results for the binary variable for firm size show that there is a negative relationship, but no significant relationship between dividend payout and size of the firm. The relationship between the firm's

liquidity and dividend is negative which explains that firms with more market liquidity will pay less dividends which was like the preceding regression. Sales growth has no significant impact on the adjusted dividend payout which indicates that sales growth is not the determinant of dividend payout policies. The latter was the same conclusion as in the preceding regression. The corporate profit or net earnings shows a positive and a significant association with the adjusted dividend payout indicates that the firms with the positive earnings pay more dividends. This evidence is consistent with the results supported by Amidu and Abor (2006) and Belans et al (2007) and these results were contradicted by Jeong (2008).

Then, the MEXVAL was calculated. From these results, for the omission of any of these variables which are not replaced, the standard error of the estimate (SEE) would increase. Thus, we can conclude that each of these variables contributes significantly in the explaining of the adjusted dividend payout ratio for IT firms.

V. Discussion and Conclusions

The main objective of the study was to examine the factors determining the dividend payout dynamics among the information technology (IT) firms in the United States. The findings showed that among the factors initially considered; only corporate tax, operating cash flows, and the debt to equity ratio were significant in explaining the dividend payout by IT firms while none of the variables in the adjusted dividend payout GLM were not significant. Because these variables are known in the literature to explain dividend payouts, it would be counterproductive to ignore these variables and make such conclusions. The estimates of MEXVAL in both GLM regressions indicate that these variables play an important role in determining its significance in the dividend payouts for IT firms. The dummy variable for size of the IT firm did not have any impact in either the dividend payout or the adjusted dividend payout ratios.

These findings have significant implications for the finance literature, the policy-makers, and government regulators as well as to investors. Specifically, the study extends the literature on the dividend policy by looking at the dividend policy for the IT sector in the United States. This would also assist policy-makers, government regulators, as well as investors in the development of strategies and policies for an optimal use of the dividend payouts by IT firms. Though this study has shed some light on the dividend policy by IT firms in the United States, it still suffers from some limitations that need to be addressed in the future research. Most important, the data could be expanded via a larger time span and probably more firms compared to the current study, by including more IT firms by looking at other SIC codes. Finally, the current literature includes the theories that the payout of dividends signals some private information about profitability. That is, stock prices tend to rise when a company announces an increase in dividend payouts and fall when dividends are to be decreased. Future research can examine signaling of dividend payout in the IT sector in the United States.

VI. References

- Allen, F. & Michaely, R., (2003). Dividend Policy. In: Constantinides, G., Harris, M., Stulz, R. (Eds.), *Handbook of the Economics of Finance*. North-Holland, Amsterdam.
- Almon, C. (2014). *The Craft of Econometric Modeling*. Ginn Press, Needham Heights Massachusetts. Also available at:
<http://inforumweb.umd.edu/papers/publishedwork/books/craft1.pdf>.
- Amidu M & Abor J. (2006). Determinants of Dividend Payout Ratios in Ghana. *Journal of Risk Finance*, 7,136-45.
- Aivazian , V. L. Booth, & Cleary, S. (2003). Do Emerging Market Firms Follow Different Dividend Policies from U.S. Firms, *The Journal of Financial Research* 26, 371-387.
- Baker, H., Veit, E. & Powell, G., (2001). Factors Influencing Dividends Policy Decisions of NASDAQ Firms. *Financial Review*, 36(3), 19-37.
- Baker, H. & Powell, G., (2000). Determinants of Corporate Dividends Policy: A Survey of NYSE Firms. *Financial Practice and Education*, 10(1), 29-40.
- Baker, H., (1988). Relationship between Industry Classification and Dividend Policy. *Southern Business Review*, 14(1), 1-8.
- Benartzi, S., Michaely, R. & Thaler, R., (1997). Do Changes in Dividends Signal the Future or the Past? *Journal of Finance*, 52(3), 1007-34.
- Black, F., (1976). The Dividends Puzzle. *Journal of Portfolio Management*, 2, 5-8.
- Brealey, R. A, Myers, S. C & Allen, F.S. (2016). *Principles of Corporate Finance* (12th ed). McGraw-Hill Higher Education, NY.
- Collins, M.C., Saxena, A.K. & Wansley, J.W., (1996). The Role of Insiders and Dividend Policy: A Comparison of Regulated and Unregulated Firms. *Journal of Financial and Strategic Decisions*, 9(2), 1-9.
- DeAngelo, H., & DeAngelo, L., (2006). The Irrelevance of the MM Dividend Irrelevance Theorem. *Journal of Financial Economics* 79, 293–316.
- DeAngelo, H., DeAngelo, L., & Skinner, D.J., (2004). Are Dividends Disappearing? Dividend Concentration and the Consolidation of Earnings. *Journal of Financial Economics* 72, 425–456.
- Dickens, R., Casey, K. & Newman, J., (2002). Bank Dividend Policy: Explanatory Factors. *Quarterly Journal of Business & Economics*, 41, 3-12.
- D’Souza, J., (1999). Agency Cost, Market Risk, Investment Opportunities and Dividend Policy – An International Perspective. *Managerial Finance*, 25(6), 35-43.
- Easterbrook, F.H., (1984). Two Agency- Cost Explanations of Dividends. *American Economic Review*, 74, 650- 659.
- Fama, F., (1974). The Empirical Relationship between the Dividend and Investment Decisions of Firms. *American Economic Review*, 64(3), 304-18.
- Higgins, R.C., (1981). Sustainable Growth under Inflation. *Financial Management*, 10, 36- 40.
- Jeong, J. (2008). An Investigation of Dynamic Dividend Behavior in Korea, Working Paper, Korea University, Korea. Available at:
<https://pdfs.semanticscholar.org/f247/ccfe6252707cfb69396ecfcc7f876bd141bb.pdf>.
- Lintner, J., (1956). Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes. *American Economic Review*, 61, 97-113.
- Lloyd, W.P., Jahera, S.J. & Page, D.E., (1985). Agency Cost and Dividend Payout Ratios. *Quarterly Journal of Business and Economics*, 24(3), 19-29.
- Mancinelli, M. & Ozkan, A., (2006). Ownership Structure and Dividend Policy: Evidence from Italian Firms. *European Journal of Finance*, 12(3), 265-382.

- Masulis, R.W. & Trueman, B. (1988). Corporate Investment and Dividend Decisions under Differential Personal Taxation, *Journal of Financial and Quantitative Analysis*, 23, 369-86.
- Miller, M.H., & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. *Journal of Business* 34, 411–433.
- Modigliani F. (1982). Debt, Dividend Policy, Inflation and Market Valuation. *Journal of Finance*, 37, 255-73.
- Nelder. J. A & Wedderburn, R. W. M. (1972). Generalized Linear Models. *Journal of the Royal Statistical Society A* 135, 370-84.
- Pruitt, S. & Gitman, L., (1991). The Interactions between the Investment, Financing, and Dividend Decisions of Major US Firms. *Financial Review*, 26(3), 409-30.
- Rozeff, S.M., (1982). Growth, Beta and Agency Cost as Determinants of Dividend Payout Ratios. *Journal of Financial Research*, 5, 411-33.
- Seneque, P. J. C., (1978). A Review of Factors Affecting the Dividend Policy of the Firm. *The Investment Analysts Journal*, 12, 8–17.