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Executive Portfolio Diversification Through Dividends

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EXECUTIVE PORTFOLIO DIVERSIFICATION THROUGH DIVIDENDS

by

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ABSTRACT

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Through Dividends

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In recent decades, many managers and executives have received company stock and stock options as a portion of their pay. As the incidence of this phenomenon increased, it became evident that insiders needed a way to diversify their holdings. One way this could be accommodated is through the issuance of dividends. This paper examined how executive stock ownership and managerial power impacted a firm's dividend policy. Specifically, it examined the power of an executive as measured by the G index. It further took into account the current level of ownership for a particular manager, as well as the value of their shares as a percentage of their total compensation, and how these measures affected the relationships. We hypothesized that greater managerial power and ownership would result in greater dividends issued per share as a means to diversify the managers' portfolio of wealth. In order to conduct this analysis, data on executive compensation, firm characteristics, and dividend policy was obtained from Compustat and Institutional Shareholder Services (ISS) within Wharton Research Data Services (WRDS). Econometric techniques such as regression analysis, panel vector auto-regression, and Granger causality tests were employed to test this hypothesis. Results looking at both correlation and causality between the power measure, level of ownership, and dividends per share were discussed.

(23 pages)

PUBLIC ABSTRACT

Executive Portfolio Diversification Through Dividends

Janette Goodridge

In the recent past, the way in which executives of companies and firms have gotten paid is shifting. In addition to the monetary compensation, many have also begun receiving stock of the company they manage as a portion of their pay. This is known as stock compensation.

As the number of shares held by a manger increases, this could result in a manger who is not diversified in his personal investments. Rather than owning stock in many different companies, they might have an investment portfolio that is mostly made up of stock from the firm that they manage.

If this were the case, a manager would not want to sell that stock because if a manager is selling stock of the firm they manage it could lead people to believe that something is going wrong with that company. Alternatively, if a manager can issue dividends, they would have access to cash extracted from their shares of stock without actually selling the stock. The extracted cash could then be used to diversify the manager's portfolio.

This is important to understand because if managers are using dividends to diversify their portfolio, they may be doing so at the expense of shareholders. Executives should do things that are in the best interest of the people who own stock of the firm they manage. Based on this, they should only issue dividends if it is in the best interest of the stockholder. If the opposite is true, perhaps there are changes that can be made to restrict or limit it. The research in this paper proposes to determine if this might be happening.

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I. INTRODUCTION AND LITERATURE REVIEW

An important aspect of any investment portfolio involves diversification. Diversification may be defined as investing in a wide variety of asset classes within a portfolio in order to reduce risk and maximize returns. If a portfolio is well diversified, a loss on some investments will be offset by the stability or gains of other investments. Markowitz (1952) shows that the rational investor will diversify their portfolio in a mean-variance maximizing manner.

In recent decades, company stock and stock options have become increasingly large portions of managers' and executives' compensation. As of 1995, stock options became the largest performance-based incentive compensation received by CEO's, with 2/3 of all CEO's receiving stock options and the value of such options representing about 1/3 of total CEO compensation (Yermack, 1996). Due to the recent growth associated with stock compensation, executives should encounter a diversification problem, since a large portion of their portfolio is made up of their own firm's stock. Beck and Zorn (1992) confirm this, when they state that the costs of insider ownership are borne by insiders, who must allocate a large portion of their wealth to the firms, and thus hold undiversified portfolios concentrated with their own firm's stock. In this situation, it would be difficult for managers to sell stock legally and within the bounds of contracting constraints without sending a negative signal to the market.

While the selling of company stock is one way for managers to diversify their holdings, an additional way to do so is through the issuance of dividends. Research indicates that the introduction of executive stock options leads to a reduction in total dollar

value of dividends issued (Lambert, Lanen & Larcker, 1989). Further research points out that managers holding a large number of stock options tend to substitute stock repurchases for dividends (Jolls, 1995), resulting in lower total dividend payments. When studying corporate payout policy, Fenn and Liang (2001) find that stock options do not encourage larger total payouts, but that they change the composition of existing payouts. This suggests that stock options could help to explain the rise in repurchases at the expense of dividends. Managers who hold stock options have incentive to increase stock repurchases and decrease dividends because repurchases increase the value of the underlying stock (which in turn moves their options more in-the-money), while dividends decrease the value (leading to options being more out-of-the-money).

It is important to note that these findings apply to situations where managers have been offered stock options, but have not actually exercised those options. Lambert, Lanen, and Larcker (1989) point out that stock options may not affect dividend policy immediately, because options are exercisable over a period of time, usually up to 10 years. Once a manager exercises the option and takes ownership of the stock, there may be a different effect on dividend policy. White (1996) indicates that dividend yield is linked to managements' stock ownership, and that top managers who are also shareholders are less averse to dividends than managers who do not have direct access to the cash distributed as dividends. Therefore, a reasonable assumption is that, while management stock options lead to a decrease in dividend payments, management stock ownership may lead to an increase in dividends.

Many authors have investigated the determinants that influence the likelihood that a firm will pay dividends, including Denis & Osobov (2008), Fama & French (2001, 2015),

and Chen & Steiner (1999). Some of the reasons they have found include firm size, growth opportunity, profitability, risk, ratio of retained earnings to total equity, and free cash flow. When considering investment opportunities, Rozeff (1982) has shown that greater growth leads to lower dividends as measured by the dividend yield. Additionally, Kale and Noe (1990) show that higher risk results in lower total dividend payments. Both of these findings are related to the fact that firms are investing free cash flow rather than distributing it as dividends. This idea is solidified by Myers and Majluf (1984), who reason that firms may have to choose between dividend payments and capital expenditures. Jensen, Solberg and Zorn (1982) explore the relationship between the dividend payout ratio and profitability, and conclude that higher profitability is expected to result in higher dividend payout ratios.

Previous studies show evidence suggesting that greater insider ownership is connected with lower dividend payments. Rozeff (1982) finds a negative relationship between insider ownership and dividend yield among firms. This is confirmed by Jensen Solberg and Zorn (1982), who state that insider ownership has a negative influence on a firm's dividend payout ratio. However, Farinah (2002) finds that the relationship between the dividend payout ratio and managerial ownership takes on a U shape, and at an entrenchment level of 30% the coefficient estimate changes from negative to positive.

Fama and French (2001) show that the number of firms who pay dividends peaked in 1978, but has steadily fallen from that time until 1999, when their study was complete. However, more recently, Julio & Ikenberry (2004) find that dividend payments are on the rebound. They suggest several reasons that may contribute to this change, none of which directly address diversification. Although previous research has investigated the

relationship between managerial ownership and total dollar value of dividends, dividend yield, and dividend payout ratios, it has not addressed dividends per share. This is not a trivial difference. While dividends per share is used to calculate dividend yield, if a manager wishes to get a cash payment from her stock then she cares about the dividends per share, not the other measures. Fluctuations in stock price impacts the yield and therefore can distort implications from examining the relationship between dividend yield and compensation. Thus, this study focuses on dividend per share rather than yield.

Based on this reasoning, it becomes evident that insiders need a way to diversify their holdings. If managers have some kind of influence over the dividend policy of the firm, then they have a way to extract cash from their shares without selling stock. This line of thought leads to the following hypothesis:

> Hypothesis: Managers who have greater power over the dividend policy and who have a greater portion of their own portfolio in company stock, will have a larger dividend payout policy, as measured by dividends per share, than those who do not.

The work proposed in this paper seeks to test this hypothesis.

II. EMPIRICAL METHODOLOGY

The first step in testing this hypothesis is to determine a means to measure the level of power a particular manager has over dividend policy. One available method, and the method that is employed for this study, involves looking at managerial entrenchment as it is measured by the G Index, which is established by Gompers, Ishii, & Metrick (2003). The G index indicates the number of anti-takeover provisions that a firm has, and measures inability to remove a manager. The higher a firm's G Index, the more entrenched a manager is.

The next step is to decide which other variables need to be added to the regression equation. According to Jensen and Meckling (1976), the proportion of equity controlled by insiders should influence the policies of a firm. One example of this is the dividend policy. Jensen Solberg and Zorn (1992) validate this, stating that inside ownership is an important component in determining dividend policy. As a result, the percentage of the company owned by a particular manager is included. It is represented by the variable *pown* and quantified as the number of shares owned by the executive divided by the number of shares outstanding. A second analysis is conducted using a similar ownership measure, the value of a managers shares as a percentage of his total compensation. This variable is denoted as *potc* and computed as total number of shares owned by the CEO or CFO multiplied by the price per share, all divided by the total annual compensation of the executive.

According to Fama and French (2001), three important characteristics that determine dividend policy are profitability, investment opportunities, and size. In light of this information, these three additional control variables are used in the regressions, all measured as established by Fama and French (2001, 2015). The first, profitability, is represented by *prof* and measured as aggregate earnings/aggregate assets. The next one, capital expenditures, is used as a means of measuring investment opportunities, and is represented by *capex*. *Capex* is computed as growth of total assets for fiscal year ending in t-1 divided by total assets at the end of t-2. The third variable, *size*, is quantified as price per share multiplied by number of shares outstanding.

An additional consideration is whether or not a particular firm paid dividend's last year, as this would have an impact on whether or not dividends are paid in subsequent

years. This is signified by the variable *dpslag* and added to the regression equations. For the Probit regressions, dpslag is a binary variable that equals 1 if the firm paid dividends last year and 0 otherwise. Dpslag is altered for the Tobit regressions, and is set equal to the monetary value of last year's dividend payment.

Due to a limitation in the data, only executives who are listed as the firm's Chief Executive Officer (CEO) or Chief Financial Officer (CFO) are included. In order to examine relevant difference between CEOs and CFOs, we introduce a binary variable named *CEO*. *CEO* takes on the value of 1 if the executive is the CEO and 0 for the CFO. This binary variable is interacted with both *lnpown* and *lnpotc*. Lastly, the dependent variable is dividends per share. This is denoted as *dps* and measured as total dividends divided by total number of shares outstanding. Descriptive statistics of the data can be seen in Table 1.

Due to the high correlation between *pown* and *potc,* separate regressions are estimated using each ownership variable independently. The variables that are created when the ownership variables are interacted with the power measure are also highly correlated. To account for this multicollinearity, the interaction terms *lnpown_g* and *lnpotc_g* are residual centered, as pioneered by Lance (1988), before being included in the regressions. These correlations can be seen in Table 2.

Whether or not a firm pays dividends is not randomly determined, but is a decision that is made, which leads to selection bias. As can be seen in Figure 1, the dependent variable (lndps) is censored, causing a concentration of observations with the value of zero. In order to account for this, the Heckman two-stage estimation procedure is used (Heckman, 1979).

TABLE 1: DESCRIPTIVE STATISTICS

Panel A: Raw Variables

Variable	Mean	Stand Dev	25th Pctl	Median	75th Pctl
dps	0.2574	0.4132	0.0000	0.0175	0.3636
gindex	8.9680	2.6190	7.0000	9.0000	11.0000
pown	0.0204	0.0564	0.0002	0.0012	0.0068
potc	20.7571	91.5498	0.2495	0.9493	3.5552
prof	0.0857	0.1035	0.0445	0.0890	0.1384
capex	6.0278	22.6089	-0.7326	0.0039	2.6840
size	5.33E+09	1.38E+10	4.56E+08	1.23E+09	3.54E+09
CEO	0.9058	0.2922	1.0000	1.0000	1.0000
re_to_tot	0.3173	2.4555	0.2029	0.5706	0.8578

Panel B: Logged Variables

Variable	Mean	Stand Dev	25th Pctl	Median	75th Pctl
lndps	0.1885	0.2666	0.0000	0.0173	0.3102
lngindex	2.2623	0.2791	2.0794	2.3026	2.4849
lnpown	0.0189	0.0503	0.0002	0.0012	0.0067
lnpotc	1.1840	1.4169	0.2228	0.6675	1.5163
lnprof	0.0771	0.1039	0.0436	0.0853	0.1297
lncapex	-0.0020	2.0029	-1.3192	0.0039	1.3040
lnsize	20.9554	1.8415	19.9377	20.9302	21.9883
lnre_to_tot	0.4043	0.5362	0.2441	0.4771	0.6314
Number of Observations:			5359.0000		
Number of Unique firms:			1260.0000		
Average Number of years per firm:			6.2400		

The first step in this procedure is to use a Probit model, the results of which are used to generate the inverse Mills ratio. The equation used in the Probit is modeled after the Probit regression equation used by Fama and French (2001). An additional variable needs to be created for use in the Probit, since a Probit model needs one more variable than the accompanying Tobit model. This variable is *re_to_tot,* and is calculated as the ratio of retained earnings to total equity. This is established by Denis & Osobov (2008) as a determinant of whether or not a firm pays dividends. The results from the Probit model are then used to calculate the inverse Mills ratio, represented by *IMR.* The IMR is used as an additional explanatory variable in the Tobit model.

TABLE 2: CORRELATION BETWEEN VARIABLES

	lndps	*lngindex*	*lnpown*	*lnpotc*	*lnprof*	*lncapex*	*lnsize*	*lnre_to_tot*	lnpown_ceo	lnpotc_ceo	*lnpown_g*	*lnpotc_g*
lndps	1.0000	-	-	-	-	-	-	-	-	-	-	-
lngindex	0.2431	1.0000	-	-	-	-	-	-	-	-	-	-
lnpown	-0.0521	-0.1837	1.0000	-	-	-	-	-	-	-	-	-
lnpotc	-0.0391	-0.1581	**0.7913**	1.0000	-	-	-	-	-	-	-	-
lnprof	0.1424	0.0197	-0.0057	0.1010	1.0000	-	-	-	-	-	-	-
lncapex	-0.0037	-0.0342	0.0106	0.0034	-0.0065	1.0000	-	-	-	-	-	-
lnsize	0.2832	0.1219	-0.1459	0.0117	0.3541	-0.0202	1.0000	-	-	-	-	-
lnre_to_tot	0.2215	0.0527	0.0282	0.0404	0.2117	0.0096	-0.0709	1.0000	-	-	-	-
lnpown_ceo	-0.0519	-0.1839	**1.0000**	**0.7911**	0.0058	0.0106	-0.1455	0.0282	1.0000	-	-	-
lnpotc_ceo	-0.0389	-0.1615	**0.7919**	**0.9888**	0.0913	0.0016	-0.0018	0.0371	**0.7924**	1.0000	-	-
lnpown_g	-0.0549	-0.1022	**0.9662**	**0.8198**	0.0002	0.0099	-0.1675	0.0172	**0.9662**	**0.8213**	1.0000	-
lnpotc_g	-0.0219	-0.0001	**0.6938**	**0.9567**	0.1258	0.0025	-0.0597	0.0444	**0.6935**	**0.9407**	**0.7435**	1.0000

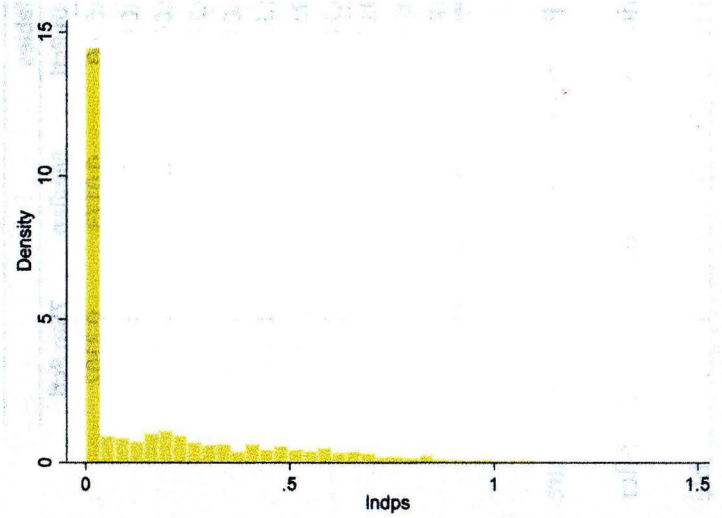

Figure 1: Distribution of the log of Dividends per Share

Data is analyzed in 3 different sets of regression equations. The first is using Compustat data before it is merged with the ISS data containing the power measure. The second is estimated using all available data sets, but without including the G index in the regression equations. Lastly, regressions are estimated using all available data and including the power measure. For the final part of the analysis, *gindex* is interacted with both *pown* and *potc* and included in the regressions. This leads to the following regression equations:

Regression Equations:

Part 1 & 2

$$dps_{dummy} = \beta_0 + \beta_2 lnpown + \beta_3 lnprof + \beta_4 lncapex + \beta_5 lnsize + \beta_6 dpslag + \beta_7 CEO + \beta_8 lnpown * CEO + \beta_9 lnretoto$$

$$dps_{dummy} = \beta_0 + \beta_2 lnpotc + \beta_3 lnprof + \beta_4 lncapex + \beta_5 lnsize + \beta_6 dpslag + \beta_7 CEO + \beta_8 lnpotc * CEO + \beta_9 lnretoto$$

$$lndps = \beta_0 + \beta_2 lnpown + \beta_3 lnprof + \beta_4 lncapex + \beta_5 lnsize + \beta_6 dpslag + \beta_7 CEO + \beta_8 lnpown * CEO + \beta_9 IMR$$

$$lndps = \beta_0 + \beta_2 lnpotc + \beta_3 lnprof + \beta_4 lncapex + \beta_5 lnsize + \beta_6 dpslag + \beta_7 CEO + \beta_8 lnpotc * CEO + \beta_9 IMR$$

Part 3:

$$dps_{dummy} = \beta_0 + \beta_2 lnpown + \beta_3 lngindex + \beta_4 lnprof + \beta_5 lncapex + \beta_6 lnsize + \beta_7 dpslag + \beta_8 CEO + \beta_9 \ln(pown * g) + \beta_{10} lnpown * CEO + \beta_{11} lnretoto$$

$$dps_{dummy} = \beta_0 + \beta_2 lnpotc + \beta_3 lngindex + \beta_4 lnprof + \beta_5 lncapex + \beta_6 lnsize + \beta_7 dpslag + \beta_8 CEO + \beta_9 \ln(potc * g) + \beta_{10} lnpotc * CEO + \beta_{11} lnretoto$$

$$lndps = \beta_0 + \beta_2 lnpow + \beta_3 lngindex + \beta_4 lnprof + \beta_5 lncapex + \beta_6 lnsize + \beta_7 dpslag + \beta_8 CEO + \beta_9 \ln(pown * g) + \beta_{10} lnpown * CEO + \beta_{11} IMR$$

$$lndps = \beta_0 + \beta_2 lnpotc + \beta_3 lngindex + \beta_4 lnprof + \beta_5 lncapex + \beta_6 lnsize + \beta_7 dpslag + \beta_8 CEO + \beta_9 \ln(potc * g) + \beta_{10} lnpotc * CEO + \beta_{11} IMR$$

where dps = dividends per share
pown = percentage of the company that is owned by the CEO
potc= value of the managers shares as a percentage of his total compensation
prof = profitability of the firm
capex = capital expenditures of the firm

size = size of the firm
dpslag=lagged dividend decision
CEO=dummy denoting whether manager is CEO or CFO
re_to_tot= ratio of retained earnings to total equity
gindex= the power measure G Index

Jensen, Solberg, and Zorn (1992) show that managerial ownership, debt, and dividends are jointly related. This indicates that insider ownership is related to firm specific attributes that affect dividend policy, resulting in endogeneity between dividends and managerial ownership. In order to examine how these variables relate to one another, Chen & Steiner (1999) use a model where managerial ownership and dividend policy are treated as internally originating, jointly determined variables. Based on this precedence, the assumption is made that there is endogeneity in the model. Because of this, the results of the regressions would only allow for discussion of correlation between variables. In order to expand this analysis to address causality, a panel vector autoregression (pvar) coupled with a Granger causality test are used. Default options are used when estimating the pvar.

Some of the variables that are included in the regression equations are not needed for the pvar and the causality test, and are dropped. The variables that are included in this portion of the analysis are *lndps, lngindex, lnprof, lncapex, lnsize, CEO, lnpown, and lnpotc.* As is done with the regressions, separate pvar's are ran for the two ownership variables in order to account for multicollinearity.

Before the pvar and causality test can be used, a unit root test is conducted for each variable in order to ensure that the data is stationary. The assumption is made that rejection of the null hypothesis, which is that all panels contain a unit root, on 3 of the 4 tests is sufficient to establish data stationarity. Results from the unit root test show that all variables except *lngindex* are stationary and do not contain a unit root. It is not surprising that *lngindex* is non-stationary, as the

original data only includes information for even years, and missing values are generated through imputation for the odd years (1997, 1999, 2001, 2003, & 2005). In addition to this, the G Index is highly invariant, meaning that this year's G index value would be highly dependent on last year's. Because of these reasons, analysis will continue despite non-stationarity in the G Index. Results from the unit root tests are displayed in Table 3.

TABLE 3: RESULTS FROM UNIT ROOT TESTS

Variable	Inverse Chi-squared	Inverse Normal	Inverse Logit	Mod Inv Chi Squared
lncapex	2539.6410	-12.2736	-25.6062	33.7228
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
lnprof	1985.5021	-7.8584	-16.7663	21.4419
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
lndps	1468.7567	0.0773	-9.5202	10.0439
	(0.0000)	(0.7801)	(0.0000)	(0.0000)
lnsize	2192.7531	-6.2217	-17.6821	26.0350
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
lnre_to_tot	1803.1721	-2.8236	-12.0486	19.8404
	(0.0000)	(0.0024)	(0.0000)	(0.0000)
lngindex	985.4181	-2.8662	-10.7888	-0.7221
	(0.7626)	(0.0021)	(0.0000)	(0.7649)
lnpown	2433.8952	-1.6886	-16.1741	31.4545
	(0.0000)	(0.0456)	(0.0000)	(0.0000)
lnpotc	1586.8905	-1.7937	-10.3597	14.3068
	(0.0000)	(0.0364)	(0.0000)	(0.0000)
lnpown_ceo	2114.0188	-0.9065	-13.8929	24.3584
	(0.0000)	(0.1823)	(0.0000)	(0.0000)
lnpotc_ceo	1467.8625	-1.8295	-9.9785	11.5903
	(0.0000)	(0.0337)	(0.0000)	(0.0000)

Number of Panels: 403
T Statistics on first line, P-values in parentheses

III. DATA

Data is obtained from Compustat and Institutional Shareholder Services (ISS) within Wharton Research Data Services (WRDS). The sample size includes all firms that data is provided for. However, financial firms (SIC 6000-6999) and utility firms (SIC 4900-4999) are excluded for

this analysis. It is important to realize that Compustat and ISS are limited to companies contained in the WRDS database; they do not include information for any other firms.

Data analysis takes place over two different time spans. When evaluating the data prior to adding the power measure, the range of years is 1992-2006. However, the available data from ISS only includes the years 1996-2006. As a result, once the data with the power measure G Index is added, the time span is reduced to 1996-2006.

Before beginning examination of the data, a rudimentary inspection is conducted. For all observations within the data set where information is missing, the missing values are replaced with a 0. Observations that are duplicates for all variables are dropped. Due to a limitation in the data, any observations that have executives who are not represented as the CEO or the CFO are dropped. In order to try and limit the extreme values in the data, the variables are winsorized. Lastly, with the exception of binary variables, all variables are logged before beginning regression analysis. This is done in order to normalize the distributions, as well as to create an elasticity. This leads to 5359 observations, with 1260 unique firms and an average number of years per firm of 6.24.

IV. RESULTS

Table 4 presents the results from the marginal effects of the Probit regressions. The first two columns display results when using only Compustat Data. Results indicate that if the executive is a CEO, a 1% increase in *pown* leads to 0.054% increase in dividends per share. If the executive is the CFO, this increases to 0.485%. When the ownership variable *potc* is used and the executive is the CEO, results indicate a 1% increase in *potc* is associated with 0.0001% decrease in *dps*. For a CFO, this changes to an increase of 0.033%, and is statistically significant at the 5% level.

TABLE 4: PROBIT REGRESSION MARGINAL EFFECTS RESULTS

	Results Using Comp/Exec Data		Results Excluding G Index		Results Including G Index	
Ownership Variable:	*POWN*	*POTC*	*POWN*	*POTC*	*POWN*	*POTC*
lnpown	0.485	-	1.309	-	0.966	-
	(1.03)	-	(0.24)	-	(0.18)	-
lnpown_ceo	-0.431	-	-1.244	-	-0.873	-
	(-0.91)	-	(-0.23)	-	(-0.16)	-
lnpown_g_rc	-	-	-	-	-0.0128	-
	-	-	-	-	(-0.19)	-
lnpotc	-	0.0331**	-	0.0132	-	0.0101
	-	(2.01)	-	(0.87)	-	(0.63)
lnpotc_ceo	-	-0.0332**	-	-0.00960	-	-0.00546
	-	(-2.01)	-	(-0.63)	-	(-0.33)
lnpotc_g_rc	-	-	-	-	-	0.00695
	-	-	-	-	-	(0.91)
lnprof	0.0331	0.0499	0.148***	0.156***	0.153***	0.154***
	(1.04)	(1.57)	(2.87)	(2.82)	(2.98)	(2.83)
lncapex	-0.000676	-0.000351	0.000182	-0.000746	0.000334	-0.000617
	(-0.58)	(-0.30)	(0.13)	(-0.52)	(0.23)	(-0.42)
lnsize	0.00918***	0.00379	0.00471	0.00127	0.00436	0.000872
	(4.72)	(1.36)	(1.59)	(0.30)	(1.56)	(0.20)
dpslag_1	0.873***	0.868***	0.897***	0.897***	0.893***	0.894***
	(119.34)	(110.63)	(102.67)	(94.40)	(100.47)	(91.37)
CEO	0.00839	0.0260**	0.00982	0.0184	0.0114	0.0164
	(0.85)	(2.00)	(0.78)	(1.12)	(0.92)	(0.97)
lnre_to_tot	0.0272***	0.0290***	0.0272***	0.0279***	0.0268***	0.0279***
	(4.51)	(4.76)	(3.55)	(3.69)	(3.50)	(3.70)
lngindex	-	-	-	-	0.0325***	0.0276**
	-	-	-	-	(2.72)	(2.21)
Time Fixed Effects:	yes	yes	yes	yes	yes	yes
Observations	8,413	8,070	3,835	3,682	3,835	3,682

Robust z-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The third and fourth column include ISS data, but the regression equations do not include the power measure. Results suggest that, when using *pown* as the ownership variable, a 1% increase in *pown* leads to a 0.065% increase in dividends per share. They further indicate that a 1% increase in *potc* leads to a 0.004% increase in *dps*. Both of these are conditional on the

executive being a CEO. If the executive is a CFO, then a 1% increase in *pown* and *potc* lead to a 1.309% and 0.013% increase in dividends per share.

The last two columns in Table 4 include data from both Compustat and ISS, and the regression equations include the power measure. Based on results from the regressions, a 1% increase in *pown* leads to a 0.093% increase in dividends per share, and a 1% increase in *potc* leads to a 0.005% increase in *dps* for an executive who is the CEO. Similarly, if the manager is a CFO, a 1% increase in *pown* leads to a 0.966% increase in *dps*, and a 1% increase in *potc* leads to a 0.010% increase in dividends per share. Results further indicate that a 1% increase in *gindex* leads to a 0.032% increase in dividends per share for someone who owns an average percentage of the firm, and is statistically significant at the 5% level. They also suggest that, for someone with an average *potc,* a 1% increase in *gindex* results in a 0.036% increase in dividends per share.

Table 5 reports results from the Tobit regressions, using the same column format as Table 4. Findings in columns 1 & 2 indicate that for an executive who is a CEO, a 1% increase in *pown* leads to a 0.099% increase in dividends per share and a 1% increase in *potc* leads to a 0.00004% increase in *dps.* The former of these is statistically significant at the 5% level. Similarly, if the manager is a CFO a 1% increase in *pown* suggests a 0.184% increase in *dps* and a 1% increase in *potc* leads to a 0.005% increase in *dps.*

Column 3 results indicate that a 1% increase in *pown* signifies a 0.172% increase in *dps* if the executive is the CEO, and a 1.785% increase otherwise. The first of these is statistically significant at the 1% level. Column 4 suggests that a 1% increase in *potc* leads to a 0.006% increase and a 0.004% decrease in dividends per share for a CEO and a CFO, respectively. The first of these is statistically significant at the 5% level.

TABLE 5: RESULTS FROM TOBIT REGRESSION

	Results Using Comp/Exec Data		Results Excluding G Index		Results Including G Index	
VARIABLES	Tobit_1 Pown	Tobit_1 Potc	Tobit_2 Pown	Tobit_2 Potc	Tobit_3 Pown	Tobit_3 Potc
lnpown	0.184	-	1.785	-	1.156	-
	(0.27)	-	(0.17)	-	(0.11)	-
lnpown_ceo	-0.0853	-	-1.613	-	-0.967	-
	(-0.13)	-	(-0.16)	-	(-0.09)	-
lnpown_g_rc	-	-	-	-	0.0150	-
	-	-	-	-	(0.28)	-
lnpotc	-	0.00448	-	-0.00381	-	-0.00452
	-	(0.26)	-	(-0.22)	-	(-0.26)
lnpotc_ceo	-	-0.00444	-	0.00975	-	0.0112
	-	(-0.26)	-	(0.56)	-	(0.63)
lnpotc_g_rc	-	-	-	-	-	0.00313
	-	-	-	-	-	(0.44)
lnprof	0.0435	0.0449	0.169***	0.176***	0.174***	0.184***
	(1.62)	(1.64)	(3.96)	(4.02)	(4.07)	(4.17)
lncapex	-0.000683	-0.00121	0.00123	0.000911	0.00124	0.000946
	(-0.62)	(-1.07)	(0.81)	(0.59)	(0.82)	(0.61)
lnsize	0.0108***	0.0113***	0.00718***	0.00651***	0.00717***	0.00612***
	(7.41)	(7.79)	(3.49)	(3.15)	(3.45)	(2.94)
dpslag_2	0.853***	0.850***	0.883***	0.881***	0.878***	0.876***
	(93.02)	(90.00)	(66.48)	(65.29)	(65.43)	(64.44)
CEO	0.00361	0.0141	0.00375	0.000387	0.00440	0.000464
	(0.37)	(0.97)	(0.31)	(0.02)	(0.36)	(0.03)
lngindex	-	-	-	-	0.0221*	0.0236**
	-	-	-	-	(1.91)	(2.01)
IMR_1	-0.669***	-	-0.563***	-	-0.585***	-
	(-38.41)	-	(-25.27)	-	(-25.15)	-
IMR_2	-	-0.639***	-	-0.550***	-	-0.565***
	-	(-37.76)	-	(-25.07)	-	(-24.92)
Constant	-0.0287	-0.0321	0.0148	0.0374	-0.0440	-0.0161
	(-0.91)	(-0.98)	(0.33)	(0.84)	(-0.86)	(-0.32)
Observations	8,369	8,017	3,828	3,670	3,828	3,670

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Results from column 5 & 6 demonstrate that, if the executive is the CEO, dividends per share will increase by 0.189% and 0.007% given a 1% increase in *pown* and *potc*. Both of these are statistically significant, the first at the 1% level and the second at the 5% level. Similarly, if the executive is the CFO a 1% increase in *pown* and *potc* imply a *dps* increase of 1.156% and a decrease in *dps* of 0.005%. Results further indicate that a 1% increase in *gindex* leads to a 0.022%

increase in dividends per share for someone who owns an average percentage of the firm. They also suggest that, for someone with an average *potc,* a 1% increase in *gindex* results in a 0.027% increase in *dps*.

Results from the panel vector autoregression are illustrated in Table 6. They demonstrate

TABLE 6: PANEL VECTOR AUTOREGRESSION RESULTS

Panel A: Results Using POWN

VARIABLES	*lndps*	*lngindex*	*lnpown*	*lnprof*	*lncapex*	*lnsize*
L.lndps	0.241*	0.0401	0.0217	-0.0285	0.964	-0.853**
	(1.82)	(0.67)	(0.56)	(-0.66)	(0.58)	(-2.16)
L.lngindex	0.372***	0.814***	-0.0204	0.0563	-0.0577	0.978***
	(4.71)	(14.40)	(-1.17)	(1.48)	(-0.05)	(2.95)
L.lnpown	-1.062*	-0.283	1.173***	0.160	2.609	-0.428
	(-1.80)	(-1.14)	(4.36)	(0.66)	(0.39)	(-0.24)
L.lnprof	-0.222***	0.00933	0.0220	0.582***	-0.842	-0.304
	(-2.78)	(0.19)	(1.22)	(6.38)	(-0.63)	(-0.51)
L.lncapex	-0.000855	0.00239*	0.000125	0.000495	0.542***	-0.00470
	(-0.45)	(1.87)	(0.41)	(0.43)	(11.24)	(-0.50)
L.lnsize	0.0895***	-0.0153**	-0.00295	0.0113	0.140	0.950***
	(5.46)	(-2.05)	(-0.83)	(1.59)	(0.56)	(14.06)
Observations	2,892	2,892	2,892	2,892	2,892	2,892

Panel B: Results Using POTC

VARIABLES	*lndps*	*lngindex*	*lnpotc*	*lnprof*	*lncapex*	*lnsize*
L.lndps	0.0208	0.0470	-0.905	-0.0262	-0.368	-1.664**
	(0.11)	(0.53)	(-0.89)	(-0.44)	(-0.16)	(-2.52)
L.lngindex	0.465***	0.801***	0.959	0.0489	0.205	1.407***
	(3.95)	(11.66)	(1.59)	(1.07)	(0.13)	(3.06)
L.lnpotc	-0.0568***	-0.00522	0.485***	0.00299	-0.217	-0.0991
	(-3.47)	(-0.68)	(4.94)	(0.42)	(-0.96)	(-1.56)
L.lnprof	-0.304***	0.00133	-0.0376	0.544***	-1.459	-0.776
	(-2.74)	(0.02)	(-0.07)	(5.79)	(-0.95)	(-1.14)
L.lncapex	-0.00302	0.00214	-0.00690	-3.23e-05	0.531***	-0.0116
	(-1.29)	(1.53)	(-0.53)	(-0.03)	(10.36)	(-1.05)
L.lnsize	0.151***	-0.0114	0.345**	0.00372	0.420	1.059***
	(5.30)	(-0.97)	(2.28)	(0.40)	(1.14)	(10.66)
Observations	2,544	2,544	2,544	2,544	2,544	2,544

z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

that when using the ownership variable *pown* a 1% increase in the lag of *gindex* is associated with a 0.372% increase in *dps,* and is statistically significant at the 1% level. They also show that a 1% increase in the lag of *pown* leads to a 1.062% decrease in *dps,* and is statistically significant at the10% level. Findings further suggest that when using the *potc* as the ownership variable, 1% increases in the lags of *gindex* and *potc* are associated with a 0.465% increase and a 0.057% decrease in *dps.* Both of these findings are statistically significant at the 1% level.

Results from the Granger Causality Tests are displayed in Table 7. Panel A shows results when the ownership variable *pown* is used, and *potc* is shown in Panel B. When using the ownership variable *pown*, *lngindex*, *lnpown*, *lnprof* and *lnsize* granger cause *lndps.* All of these are statistically significant at the 1% level, except *lnpown,* which is statistically significant at the 10% level. According to results from Panel B, *lngindex, lnpotc, lnprof* and *lnsize* granger cause *lndps*. All of these variables are statistically significant at the 1% level.

V. Conclusion

The purpose of this paper is to determine if managers who have greater power over the dividend policy and who have a larger portion of their own portfolio in company stock will have a larger dividend payout policy, as measured by dividends per share, than those who do not. The source of the data is WRDS, and information is used for all firms included in their database, with the exception of financial and utility firms.

It is known prior to data examination that insider ownership is related to firm specific characteristics that affect dividend policy, therefore introducing endogeneity into the model. Because of this, regression analysis can only address correlation, and a panel vector autoregression coupled with a granger causality test are added to the analysis in order to discuss causality.

TABLE 7: GRANGER CAUSALITY TEST RESULTS

Panel A: Results Using POWN

	Equations:					
Variables :	*lndps*	*lngindex*	*lnpown*	*lnprof*	*lncapex*	*lnsize*
lndps	-	0.446	0.316	0.434	0.342	4.664**
	-	(0.504)	(0.574)	(0.510)	(0.559)	(0.031)
lngindex	22.196***	-	1.367	2.187	0.002	8.724***
	(0.000)	-	(0.242)	(0.139)	(0.961)	(0.003)
lnpown	3.230*	1.293	-	0.432	0.154	0.057
	(0.072)	(0.256)	-	(0.511)	(0.695)	(0.811)
lnprof	7.751***	0.034	1.498	-	0.399	0.261
	(0.005)	(0.853)	(0.221)	-	(0.528)	(0.609)
lncapex	0.203	3.484*	0.166	0.187	-	0.249
	(0.653)	(0.062)	(0.684)	(0.666)	-	(0.618)
lnsize	29.788***	4.223**	0.697	2.527	0.314	-
	(0.000)	(0.040)	(0.404)	(0.112)	(0.575)	-

Panel B: Results Using POTC

	Equations:					
Variables:	*lndps*	*lngindex*	*lnpotc*	*lnprof*	*lncapex*	*lnsize*
lndps	-	0.286	0.792	0.189	0.024	6.367**
	-	(0.593)	(0.373)	(0.663)	(0.876)	(0.012)
lngindex	15.574***	-	2.542	1.152	0.018	9.334***
	(0.000)	-	(0.111)	(0.283)	(0.893)	(0.002)
lnpotc	12.045***	0.463	-	0.174	0.931	2.419
	(0.001)	(0.496)	-	(0.677)	(0.335)	(0.120)
lnprof	7.5***	0.001	0.005	-	0.896	1.29
	(0.006)	(0.982)	(0.944)	-	(0.344)	(0.256)
lncapex	1.661	2.355	0.285	0.001	-	1.095
	(0.198)	(0.125)	(0.594)	(0.979)	-	(0.295)
lnsize	28.091***	0.934	5.183**	0.156	1.301	-
	(0.000)	(0.334)	(0.023)	(0.693)	(0.254)	-

Chi squared values on first line. ***p<0.01, **p<0.05, *p<0.1
P-Values in Parentheses

Results from the Probit regressions suggest that, holding all else constant, a 1% increase in *potc* is correlated with a 0.033% increase in dividends per share when using only Compustat Data, and when the executive is a CFO. They further imply that a 1% increase in *gindex* is correlated with a 0.032% increase in dividends per share when the executive has an average *pown*.

When looking at results from the Tobit regressions, results imply correlation between a 1% increase in *pown* and a 0.099% increase in dps when using only Compustat data and when the

manager is a CEO. They further show association between a 1% increase in *pown* and a 0.172% increase in *dps* when *gindex* is not used in the regression equations and the manager is the CEO. They also indicate statistical significance between both *pown* and *potc* and dividends per share when the power measure is included. Specifically, a 1% increase in *pown* is associated with a 0.189% increase in *dps*. Lastly, a 1% increase in *potc* is correlated with a 0.006% increase in *dps* when executive is CEO and *gindex* is not included in regression, and a 0.007% increase in *dps* when *gindex* is included.

After estimating the panel vector autoregression and conducting a Granger causality test, results signal that there is a relationship between *gindex* and *dps* when using both ownership variables. Specifically, when using *pown* a 1% increase in the lag of *gindex* is correlated with a 0.372% increase in *dps*, and a 0.465% increase in *dps* when using *potc*. Additionally, a 1% increase in the lag of *pown* is correlated with a 1.062% decrease in *dps* and a 1% increase in the lag of *potc* is associated with a 0.057 decrease in *dps*.

Results further indicate that *lngindex* granger causes *lndps*. These results occur individually for each of the ownership variables, *pown* and *potc*. Findings further indicate that, when using *pown* as the ownership variable, *lnpown* granger causes *lndps*. When using *potc,* results illustrate that *lnpotc* granger causes *lndps*.

The original hypothesis expected to find a positive relationship between the ownership variables *pown* and *potc* and dividends per share, however, results from the pvar and Granger causality test show a negative relationship. Potential reasons for this opposing relationship will be explored in future work. Pvar and Granger causality test results further indicate a positive relationship between *lngindex* and the *dps*. These results could be consistent with the portion of the hypothesis that states that managers who have greater power over dividend policy, as measured

by the G Index, will have a larger dividend payout, as measured by dividends per share. However, the relationship between the ownership variables and dividends per share must be explored further before any conclusions can be made on this matter.

VI. FURTHER RESERACH

When considering further research, there are several venues which could be explored. One, which is closely related to the research question being addressed in this paper, is considering whether a firm who is issuing more dividends in lieu of sale of stock is selling more stock than firms who are not.

Another potential research topic lies around a hypothesis that managers will sell stock less often and in smaller amounts when they have small holdings in company stock, and consequently do not have a diversification problem as a result of management stock ownership. Unfortunately, the authors do not currently have access to the data that would allow pursuit of this question.

A third possibility for further research is whether managers are more likely to exercise stock options and retain the shares of stock just prior to the ex-dividend date, making them eligible for the most recently declared dividend. Again, there is a limitation to the data making it impossible for this research idea to be explored at this time.

Lastly, one line of research that may be continued is examining what is happening to dividend payments now. As stated in the literature review above, Fama and French (2001) studied firms who paid dividends up until the year 1999. Julio & Ikenberry (2004) have supplemented their study, going up to the year 2004. At the time of this paper, it has been 13 years since Julio & Ikenberry completed their work. A viable research pursuit would be to explore what has happened to dividends since the conclusion of their work.

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