Corporate Governance and Dividend Policy under external financing constraints and agency problems

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Abstract

This paper analyzes the effect of corporate governance on the dividend policy when a firm has both agency problems and external financing constraints. By considering external financing constraint in a firm's decision about dividends, this paper attempts to overcome the limits and ambiguity in extant empirical studies mainly focusing on the simple relation between corporate governance and dividend payments. We empirically test whether strong corporate governance would lead to higher dividend payments to minimize agency problems (outcome hypothesis), or it would lead to lower dividend payments to avoid costly external financing (substitute hypothesis). We find that firms with higher external financing constraints tend to decrease dividends with an improvement in their corporate governance, while firms with lower external financing constraints tend to increase dividends with an improvement in their corporate governance. The results are consistent with our hypothesis that external financing costs would affect corporate dividend decisions, and firms will minimize cost of capital by reducing dividend payouts given improved corporate governance.

1. Introduction

Information asymmetry generates various problems in managing a company. For example, managers can pursue their own interest, not the interest of shareholders as argued by Jensen and Meckling (1976). Also, Myers and Majluf (1984) is another example that information asymmetry between insiders and outside investors can generate external financing constraints and raise the cost of external financing.

This study investigates how dividend policies change according to a firm's strength of shareholder rights. Especially, when we investigate the relation between dividend policies and a firm's strength of shareholders' rights, we simultaneously consider agency problems between managers and shareholders and external financing constraints between insiders and outside investors. Previous literature is mostly analyzing the direct relation between agency costs and dividend e.g. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000) (henceforth referred to as LLSV (2000)). However, we notice that external financing constraint is more binding as a company pays more dividends. Therefore, a firm's dividend policy, agency problems, and needs for outside financing should be considered at the same time.

A firm's dividend is an outlet of free cash flow to shareholders so that more dividends can deter potential managers' expropriation (Easterbrook (1984), Jensen (1986), Myers (1998), Gomes (1998), and Zwiebel (1996)). More dividends will force managers to resort to external financing in future investment projects. To issue new equity in the primary capital market, a firm should provide relevant information to outside investors and agree on detailed monitoring by outsiders. Thus, dividend can generally decrease a firm's agency problem. However, this general argument about dividend has another dimension. If the primary capital market is under-developed or severe information asymmetry exists, dividend can increase the firm's cost of external financing (Rozeff(1982)). To maintain their target capital structure, a company paying dividend today will

increase financing in the primary market in the future and accordingly should bear relatively higher transaction cost of financing. Therefore, a firm will decide its pay-out policy considering decrease of agency costs and increase of external financing costs simultaneously. This study investigates these two issues related to dividend.

Extant literature argues that efficient corporate governance including monitoring management and shareholder protection can suppress managers' agency problems (LLSV (2000)) and Jiraporn and Ning (2006) etc.). LLSV (2000) empirically test two hypotheses, an outcome hypothesis and a substitution hypothesis. The outcome hypothesis is that a company with better corporate governance will pay more dividends to decrease managers' expropriation. On the other hand, the substitution hypothesis is that a company with weak corporate governance will pay more dividends to establish its reputation and to compensate shareholders for weak legal protection. Their results, generally supporting the outcome hypothesis, show that a country with better corporate governance pays more dividends. Jiraporn and Ning (2006) examine the relation between dividends and the strength of shareholder rights. Their results reveal a negative correlation between dividend payouts and shareholder rights. Their evidence is consistent with the substitution hypothesis (LLSV (2000)). These two studies, however, do not directly consider the role of external financing costs in the relation between corporate governance and dividend payouts. To investigate the relation more specifically than the above two studies, we distinguish which hypothesis is appropriate for different firms. For example, companies with serious agency problems and less external financing constraints will increase dividend payout when the company is equipped with better corporate governance. On the other hand, companies with higher external financing costs will decrease dividend payouts even with agency problems if the company maintains efficient corporate governance. Strong corporate governance will control agency problems (e.g. LLSV (2000)) so that agency problems will be relatively minor compared to external financing costs. In

summary, the relation between corporate governance and dividends payouts is dependent on whether agency costs or external financing costs are more important in a company.

To investigate the relation between corporate governance and dividends payouts, we use a sample of firms which has governance index complied by Gompers, Ishii, and Metrick (2003) and Bebchuk, Cohen, and Ferrell (2005). Various measures of dividend payouts show positive relations with corporate governance if agency costs are high. However, once we consider external financing constraints, the relation between corporate governance and dividend payouts is reversed. In various regression specifications, the relation between corporate governance and dividend payouts conditional on more external financing constraints is negative. The evidence confirms our hypotheses: With agency problems and less external financing constraints, as a firm improves its corporate governance, it will pay more dividends. However, with increased external financing constraints, a firm with better corporate governance tends to decrease its dividend payouts. Our results are robust to different sets of dependent, independent, and control variables and to different regression methods such as pooled regressions and fixed effect models.

This study provides a basis for a company to decide how to decide its payout policy. Dividend payouts have two counteracting results; positively to firms' value by decreasing potential managers' expropriation and negatively by raising expected external financing cost. Therefore, the company should decide its optimal payout policy considering these two factors.

Various studies agree on the argument that better corporate governance guarantees higher firm's value. (Gompers, et al. (2003), Cremers and Nair (2005), Bebchuk, Cohen, and Ferrell (2005)) We consider that this study shows another route to connect a firm's corporate governance to its value. The optimal payout policy affected by the firm's governance system can increase the firm's value. This new route can be another contribution of this study to extant literature.

The remainder of this article is organized as follows. Section 2 includes hypotheses of this

study. Section 3 explains the data and main variables. The empirical results are shown in section 4 and finally section 5 concludes.

2. Hypothesis development

This study empirically tests two major hypotheses, the outcome hypothesis and the substitution hypothesis (LLSV (2000)), about the relation between a firm's corporate governance and its payout policy. The outcome hypothesis states that managers tend to expropriate free cash flows to their own interest instead of using it for shareholders' interest. Thus, shareholders prefer dividend payouts to retaining the earnings when the company generates substantial free cash flows. Especially, in a company where its governance system is more efficient, shareholders can effectively pressure managers to disgorge cash. However, the substitution hypothesis suggests another path relating corporate governance to dividend policy. According to the substitution hypothesis by LLSV (2000), a firm with weak corporate governance pays more dividends to build up its reputation. If we apply this hypothesis to a firm with strong corporate governance, the firm should decrease dividends since it already maintains good reputation. Therefore, in the case of firms with good governance, the output and substitution hypotheses are contradicting. However, extant empirical studies do not provide clear evidence whether positive or negative relation exists between corporate governance and dividend payouts. To distinguish these two hypotheses, we introduce external financing constraints in relation between dividend payouts and corporate governance.

[Hypothesis 1] Without external financing constraints and with free cash flows, better corporate governance will increase dividends. (Outcome hypothesis)

[Hypothesis 2] With external financing constraints and free cash flows, better corporate governance will decrease dividends. (Substitution hypothesis)

Rozeff (1982) points out positive and negative issues of dividends payouts. Dividend payouts can lessen agency problems under information asymmetry, but can increase a firm's external financial costs in the future. Especially, the pecking order theory by Myers and Majluf (1984) argues that external financing cost is relatively higher than internal financing cost for the companies with severe information asymmetry. Therefore, under information asymmetry, dividend payouts can affect a firm's value positively and negatively. Rozeff (1982) argues the optimal payout policy will be decided considering agency costs and external financing costs. Following his argument, we empirically investigate the relation between corporate governance and dividend policy by analyzing agency costs and external financing constraints.

In companies without severe external financing constraints, they do not need to retain cash in the company. Therefore, they will pay more dividends when they have larger free cash flows. Especially, corporate governance plays a role of controlling agency problems so that shareholders will extract more dividends. On the other hand, companies with weak corporate governance cannot curb agency problems like managers' expropriation. In this case, managers attempt to retain more cash for their personal interest.

If external financing constraints are severely binding, the above story will change. Whenever a company pays dividends, it may face higher external financing costs in the future. Therefore, as long as strong corporate governance system can control agency problems in the company, this company will pay less dividends and retain more cash in the company. The retained cash will lessen the needs for costly external financing in the future. This is a path to increase a firm's value from strong corporate governance. However, in the optimal payout policy, efficient corporate

governance can affect differently based upon external financing constraints. If dividends payouts increase external financing costs relatively more than decrease managers' expropriation under strong corporate governance, the firm will decrease dividends payouts. On the other hand, if agency problems like managers' expropriation are more important than external financing constraints, the firm will increase dividend payouts. In this study, we test these two hypotheses about the relation between corporate governance and dividend payouts. Especially, we are interested in how agency costs and external financing costs play a role in a payout policy related to corporate governance. Figure 1 summarizes our hypotheses.

- Insert Figure 1 about here -

3. Sample selection and Data

The original sample in this study is compiled from the Investor Responsibility Research Center (IRRC) corporate governance database. The IRRC collects data on corporate governance provisions, which we use as the measure of the strength of shareholder rights from various sources, such as annual reports, proxy statement, and SEC 10-Q and 10-K documents. The IRRC provides information about various takeover protections at the individual firm level as of years 1990, 1993, 1995, 1998, 2000, 2002, and 2004. Its initial coverage in the 1990 database included companies in the Standard and Poor's 500 Index and others that are followed by major news media (e.g., *Fortune*), and has expanded into smaller companies over time. Approximately 1,500 companies are covered in a given year. We use the data from 1993, 1995, 1998, 2000, 2002, and 2004.[1] Using this information, Gompers, Ishii, and Metrick (2003) construct an index, namely the governance index, by counting the number of takeover protections in a company. In this paper, we

[1] Even though the data for 1990 are available, as Jiraporn-Ning (2006) do, we exclude the data from 1990. The

use this index to measure the strength of shareholder rights.[2] As a second measure, we replace the Gompers, Ishii, and Metrick index with the index developed in Bebchuk, Cohen, and Ferrell (2005).

Firms, in the financial industry (SIC codes 6000-6999) and the utility industry (SIC codes 4900-4999), are excluded because these industries are subject to regulations and have different characteristics of their accounting information compared to those in other industries. We exclude firms that do not have data on the governance index in the Investor Responsibility Research Center (IRRC). Table 1 displays the year-by-year distribution of the final sample. The final sample consists of 4,434 firm-year observations.

- Insert Table 1 about here -

We employ four alternative measures of dividends. We use the dividend plus share repurchase[3]/the book value of equity ratio, the dividend plus share repurchase/earnings ratio, the dividend plus share repurchase/sales ratio, and the dividend plus share repurchase/the book value of total assets ratio. Dividends as a percentage of Earnings and dividends as a percentage of sales are used in extant literature, and we add dividends as a percentage of equity into our measures of dividends. If we standardize dividends using sales or assets, dividend ratios will be affected by the asset structure for a company or an industry. For example, for a company with large investment in fixed asset, it will use considerable portion of its revenue into this investment and retain smaller amount of earnings for dividends. In this case, dividend ratio standardized by sales or assets will be smaller. In this paper, we are interested in agency problems between managers and

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definitions of some variables are changed between data sets in 1990 and in 1993 by IRRC.

[2] Various studies use the governance index by Gompers et al. (2006) to measure corporate governance, e.g., Jiraporn and Gleason(2007), Dittmar and Jan Mahrt-Smith(2007), Jiraporn, Kim, Davidson, and Singh(2006), and Jiraporn and Ning(2006), etc.

[3] We measure the dollar volume of stock repurchases using Compustat data item *Purchase of Stock*. This measure of

shareholders in terms of dividends. Thus, it is more important to know how a company payout dividends out of equity including retained earnings. This is the reason we include dividend ratio by equity. Other than cash dividends, a company can pay out its earnings through share repurchases, so we use the sum of amount of share repurchases and cash dividends. (Grullon and Michaely (2002)).

We use two variables to represent corporate governance. Our first measure is the Gompers, Ishii, and Metrick (2003) corporate governance index (GINDEX), which counts the number of antitakeover provisions in a firm's charter and in the legal code of the state in which the firm is incorporated. Gompers, Ishii, and Metrick establish that more antitakeover provisions are an indication of poor corporate governance. As a second measure, we replace the Gompers, Ishii, and Metrick index by the index (OINDEX) developed in Bebchuk, Cohen, and Ferrell (2005). The two indexes are based on the same raw data, but the latter index uses only six provisions that Bebchuk, Cohen, and Ferrell show have the greatest impact on firm value. Since the above two variables represent how weak shareholder right in a company is, we use the reciprocals of the two indices, i.e. CGI1 = 1/GINDEX and CGI2 = 1/OINDEX. The larger CGI1 or CGI2, the better corporate governance.

We employ two alternative measures of the free cash flow as a proxy for the perceived likelihood of agency conflicts (Chi-Lee(1995), Lehn and Poulsen(1989), and Wu(2004)). The first is operating income minus taxes, interests expenses, and preferred and common dividends scaled by book assets and the second is EBITDA (earnings before interests, taxes, depreciation, and amortization) scaled by book value of assets.

Extant theories predict that external financing costs are rising because of information asymmetry such as adverse selection costs (Myers and Majluf (1984) Krasker (1986)). Thus, we

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repurchases is used in Bagwell and Shoven (1989), Dunsby (1994), Berger, Ofek, and Yermack(1996), Opler and Titman

proxy the level of a firm's external financing constraints using measures of information asymmetry in extant literature. (e.g., Leary and Roberts (2007)) The proxies for the external financing constraints are analyst coverage, a firm's age, and size. We construct dummy variables for the above proxies; 1 for the firms with external financing constraints and 0 for the others. If a firm's size is smaller, age is younger, and analyst coverage is less, then we assume that the firm has more information asymmetry. Generally, younger, smaller, less analyst covered companies are less known to investors and have not enough resources for internal monitoring and transparency. In this case, outside investors will face severe information asymmetry against managers, so external financing will lead to higher costs. Therefore, managers, rationally expecting higher external financing costs, will retain more earnings rather than paying out dividends.

To reflect a firm's capital structure, we use a debt ratio defined as long term debt / total assets. Return on equity (ROE) represents a firm's profitability and logarithm of total sales a firm's size.

The measure used in this study as a proxy for growth opportunities is the market-to-book ratio, defined as (Book value of assets –Book value of equity +Market value of equity)/Book value of assets (Smith and Watts (1992), Berger, Ofek, and Yermack (1997), Harford (1999), and Wu (2004)). We summarize the definitions of all variables in Table 2.

- Insert Table 2 about here -

4. Empirical evidence

4.1 Descriptive statistics

Table 3 shows the descriptive statistics for the sample of firms. We employ four different measures of dividends. The dividend/equity ratio averages 0.0980 (0.0381 median) whereas the dividend/earnings ratio averages 0.7638 (0.3372 median). The dividend/sales ratio averages

(1996), and Dittmar (2000).

0.0364 (0.0156 median) and the average dividend/assets ratio is 0.0347 (0.0163 median). A proxy for free cash flows, operating income minus taxes, interests expenses, and preferred and common dividends scaled by book assets, has an average of 0.1164 and a median of 0.1173. We also include another proxy for free cash flows, EBITDA (earnings before interests, taxes, depreciation, and amortization) scaled by book value of assets. The average of this proxy is 0.1456 and the median 0.1463. The average and the median of GINDEX (OINDEX) is 9.0796 (6.9429) and 9.0000 (7.0000), respectively. The long-term debt to total assets ratio averages 19.99% (11.11% median). The average firm in the sample has 5,230 million dollars in total assets and 4,205 million dollars in sales, suggesting that our sample firms are large. Tobin' Q, which proxies for growth opportunities, averages 1.79.

- Insert Table 3 about here -

4.2 Univariate analysis

Table 4 presents summary statistics of main variables by groups of external financing constraints and free cash flows and tests the differences of main variables between groups. To test the differences, we implement the T-test and Wilcoxon test. When external financing constraints is relatively severe (EXD1=1), a company generally pays less dividends. For example, the average (the median) of DIV/EQUITY ratio is 0.0782 (0.0299) for the companies with EXD1=1 and 0.1282 (0.0556) with EXD1=0. The difference of DIV/EQUITY ratios between firms with EXD1=1 and EXD1=0 is statistically significant with p-value is less than 0.0001. This relation between external financing constraints and a dividend ratio is robust to different kinds of dividend ratios. The average of GINDEX for the companies with EXD1=1 is 8.99, statistically different from the average of 9.35 with EXD1=0. Generally, the companies constrained by external

financing have lower asset values, sales, and growth.

We are also interested in the relation between agency costs (e.g. managers' expropriation) and dividend payouts. Accordingly, we group companies according to the amount of free cash flows, and obtain averages of main variables. In terms of three dividend ratios out of four, the companies with more free cash flows pay more dividends. For instance, the average of DIV/EQUITY ratios of companies with more free cash flows is 0.1272, but the average of those with less free cash flows is only 0.0683. The difference of these two values is statistically significant. This evidence implies that the companies with more agency problems will pay more dividends out since they would like to prevent managers' expropriation.

- Insert Table 4 about here -

4.3 Regression analysis

In Table 5, we analyze the relation between a firm's corporate governance and dividends payout according to the size of free cash flows, a proxy for agency costs, and external financing constraints. We employ pooled regressions and control heteroskedasticity and autocorrelation of error terms using Newey and West (1987) standard errors. Since the issues of dividend payouts and corporate governance are important only when a company has agency problems, first we construct an interaction variable with corporate governance and free cash flows (CGI * DFCF). Even though a company has agency problems, if it is equipped with efficient corporate governance, its agency problems can be suppressed. Therefore, the effectiveness of corporate governance in a company with agency problems is a key factor to decide its dividend policy. Also, on top of agency problems, availability of external financing is another important factor to decide the amount of dividends payout related to corporate governance. Thus, we need another three-way interaction

variable among corporate governance (CGI*DFCF*EXD), agency costs, and external financing constraints. Here, DFCF and EXD are dummy variables and CGI is 1/GINDEX, a continuous variable.

Consider Panel A of Table 5, the results with a dependent variable of DIV/SALES. The coefficient of an interaction variable of corporate governance and free cash flows (CGI*DFCF) is significantly positive. The positive coefficients can be interpreted as support for the results of LLSV (2000). LLSV (2000) argue that companies in a country with higher shareholder protection pay more dividends and our evidence confirms their results in a firm level. These results do not change with controlling variables, such as leverage, size, return on equity, industry, etc.

In the relation between corporate governance and dividends payout, if we additionally consider external financing constraints over agency problems, companies with higher external financing constraints will lower their dividend even with higher agency costs as their corporate governance becomes better. This is an extension of the substitution hypothesis by LLSV (2000). LLSV (2000) argue that, other things equal, dividend payout ratios should be higher with weak shareholder protection than with strong protection. So if we consider the converse case with strong shareholder protection, dividend payout ratio should be lower when firms need to come to the external capital market. Especially, firms with higher external financing costs should retain more earnings instead of paying dividends. In most our analyses with various dependent variables of dividend payout ratios, the coefficients for the three-way interaction variable (CGI*DFCF*EXD) are mostly negative with statistical significance. These results confirm the hypothesis 2 of the substitution hypothesis. Conclusively, firms with external financing constraints and agency problems (reflected in free cash flows) will pay smaller dividends as their governance system becomes more efficient so that the system can control agency problems. The deciding factor of payout policy is relative importance of two; external financing constraints and agency costs (Rozeff

(1982)).

Our results shed a light on the interpretation of studies about the relation between dividends payout and corporate governance under agency costs. In general, previous studies exclusively investigate the outcome hypothesis and the substitution hypothesis in the same pool of firms. Therefore, if a positive effect of strong governance on dividends is cancelled by a negative effect as in the substitution hypothesis, empiricists may end up a false conclusion that no relation exists between corporate governance and dividend payouts.

We, on the other hand, explicitly show that two contradicting effects can be observed in different firms. The firms with less external financing constraints support the outcome hypothesis, i.e., paying more dividends as corporate governance becomes more efficient. In the converse case with more external financing constraints, the firms decrease dividend payouts even though they also have agency problems such as managers' expropriation.

In another regression specification with a dependent variable of DIV/EQUITY, the interaction variable of agency costs and corporate governance has a significantly positive coefficient. To the contrary, the coefficient of three-way interaction variable of agency costs, corporate governance, and external financing constraints is significantly negative. However, its significance is down when we include control variables. Generally, all regression specification with different dividend payout ratios for the dependent variable show statistically significant results about our hypothesis 1 and 2. Panel B and C include results robust to measures of external financing constraints. We use firm age in Panel B and firm size in Panel C as a proxy for external financing constraints following Leary and Roberts (2007). Most results with these specifications are also similar to those in Panel A.

- Insert Table 5 about here -

Table 6 presents the results from tests using panel regressions. In general, results in Table 6 are consistent to our hypothesis as they are in Table 5. Most coefficients of the interaction variable of corporate governance and agency costs are positive implying dividends payouts increases with better corporate governance under agency problems. A few coefficients change their signs but never achieve statistical significance. So, we argue that we confirm the outcome hypothesis by LLSV (2000). To test the substitution hypothesis, i.e., higher dividends as worse corporate governance, we include the three-way interaction variable of corporate governance, agency costs, and external financing constraints in our regression specification. Consistent to hypothesis 2, the coefficients of the interaction variable have negative signs in various specifications. Especially, when we use DIV/SALES as the dependent variable, the t-value of the coefficient of the interaction variable is smaller than -2 robust to different measures of external financing constraints

- Insert Table 6 about here -

5. Conclusion

In this paper, we uses a sample of firms with the corporate governance index compiled by Gompers et al (2003) to test the relation between corporate governance and dividend payouts. We find that the relation between corporate governance and dividend payouts changes according to the size of free cash flows and level of external financing constraints. When agency problems measured by free cash flows are relatively more severe than external financing constraints, we show that firms pay more dividends with more efficient corporate governance. However, when external financing constraints are high, the relation is reversed.

All results are consistent with LLSV (2000), but we extend their substitution hypothesis and show a more specific mechanism between corporate governance and dividend payouts. Their substitution hypothesis is mostly about the companies in a country with weaker shareholder protection, but we extend their argument into firms with strong shareholder protection. Also, their mechanism between shareholder protection and dividends policy in the substitution hypothesis is rather abstract "reputation", but we specify more measurable factor, "external financing constraints".

Based upon all results of our analyses, we show that the relation between corporate governance and dividend payouts cannot be asserted without considering two important factors; agency costs and external financing constraints. By considering these, a firm can optimize their payout policy to maximize its value.

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Table 1. Sample distribution by year

The sample includes 4,434 firms from 1993, 1995, 1998, 2000, 2002, and 2004. The original sample is compiled from the Investor Responsibility Research Center (IRRC) corporate governance. The table reports year-by-year distribution of the sample.

YEAR	N	PERCENT
1993	567	12.79
1995	630	14.21
1998	730	16.46
2000	724	16.33
2002	817	18.43
2004	966	21.79
TOTAL	4,434	100

Table 2. Definitions of Variables

This table reports the definitions of variables we use in this study.

Variables	Definition
DIV/EQUITY	(Cash dividend + Stock repurchase)/book value of equity
DIV/EARNINGS	(Cash dividend + Stock repurchase)/earnings
DIV/SALES	(Cash dividend + Stock repurchase)/sales
DIV/ASSETS	(Cash dividend + Stock repurchase)/ book value of total assets
GINDEX	Governance Index by Gompers, Ishii, and Metrick (2003)
OINDEX	Governance Index developed in Bebchuk, Cohen, and Ferrell (2005)
CGI	CGI1 = 1/GINDEX CGI2 = 1/OINDEX
FCF	We use two proxies for free cashflow. FCF1 = [operating income - {(total income taxes-the change in deferred taxes from the previous year to the current year)+gross interest expenses on debt +dividend payments}] / book value of assets FCF2 = (earnings before interests, taxes, depreciation, and amortization) / book value of assets
DFCF	Dummy variable with the value of 1 if FCF1(FCF2) exceeds sample median, or 0 otherwise
EXD	We use three proxies to measure the level of external financing constraints. EXD1 = Dummy variable with the value of 1 if analyst coverage is below sample mean, or 0 otherwise. EXD2 = Dummy variable with the value of 1 if firm age is below sample mean, or 0 otherwise EXD3 = Dummy variable with the value of 1 if book value of total assets is below sample mean, or 0 otherwise
LEV	Debt/total assets
SIZE	Log(total sales)
ROE	
GROWTH	(Book value of assets –Book value of equity +Market value of equity)/Book value of assets

Table 3. Descriptive statistics

The sample includes 4,434 firms from 1993, 1995, 1998, 2000, 2002, and 2004. DIV/EQUITY is (Cash dividend + Stock repurchase) over book value of equity. DIV/EARNINGS is (Cash dividend + Stock repurchase) over earnings. DIV/SALES is (Cash dividend + Stock repurchase) over sales. DIV/ASSETS is (Cash dividend + Stock repurchase) over book value of total assets. FCF1 is operating income minus taxes, interests expenses, and preferred and common dividends scaled by book assets and FCF2 is EBITDA (earnings before interests, taxes, depreciation, and amortization) scaled by book value of assets. GINDEX is Governance Index by Gompers, Ishii, and Metrick (2003) and OINDEX is Governance Index developed in Bebchuk, Cohen, and Ferrell (2005). CGI is 1/GINDEX. LEV is long-term debt to total asset, ROE is earnings to book value of equity. GROWTH is (Book value of assets –Book value of equity +Market value of equity)/Book value of assets.

Var	N	Mean	Median	Std	Max	Min
DIV/SALES	4434	0.0364	0.0156	0.0625	1.0071	0.0000
DIV/EQUITY	4434	0.0980	0.0381	0.3126	9.1394	0.0000
DIV/EARNINGS	4434	0.7638	0.3372	2.5093	67.1887	0.0000
DIV/ASSETS	4434	0.0347	0.0163	0.0540	1.0763	0.0000
FCF1	4434	0.1164	0.1173	0.0964	0.7538	-0.9751
FCF2	4434	0.1456	0.1463	0.0970	0.7096	-0.8807
GINDEX	4434	9.0796	9.0000	2.7509	18.0000	2.0000
OINDEX	4434	6.9429	7.0000	1.9998	13.0000	2.0000
CGI	4434	0.1234	0.1111	0.0493	0.5000	0.0556
LEV	4434	0.1999	0.1818	0.1676	1.4761	0.0000
TOTAL ASSETS	4434	5,230.05	1,042.46	24,122.31	750,507.00	16.77
TOTAL SALES	4434	4,205.27	1,089.59	12,693.19	263,989.00	1.03
ROE	4434	0.0996	0.1243	1.0586	9.5103	-39.4251
GROWTH	4434	1.7900	1.5303	0.8431	4.9942	0.2582

Table 4. Univariate test : grouped by agency costs and external financing cost

The sample includes 4,434 firms from 1993, 1995, 1998, 2000, 2002, and 2004. DIV/EQUITY is (Cash dividend + Stock repurchase) over book value of equity. DIV/EARNINGS is (Cash dividend + Stock repurchase) over earnings. DIV/SALES is (Cash dividend + Stock repurchase) over sales. DIV/ASSETS is (Cash dividend + Stock repurchase) over book value of total assets. FCF1 is operating income minus taxes, interests expenses, and preferred and common dividends scaled by book assets and FCF2 is EBITDA (earnings before interests, taxes, depreciation, and amortization) scaled by book value of assets. GINDEX is Governance Index by Gompers, Ishii, and Metrick (2003) and OINDEX is Governance Index developed in Bebchuk, Cohen, and Ferrell (2005). LEV is long-term debt to total asset, ROE is earnings to book value of equity. GROWTH is (Book value of assets –Book value of equity +Market value of equity)/Book value of assets. EXD1 is dummy variable with the value of 1 if analyst coverage is below sample mean, or 0 otherwise. DFCF1 is dummy variable with the value of 1 if FCF1 exceeds sample median, or 0 otherwise. Numbers in [ ] denote medians. Difference tests show p-value from T-tests, where numbers in ( ) denote p-value from Wilcoxon's rank sum tests.

	Total	EXD1=0	EXD1=1	T-TEST (P-VALUE)	DFCF1=0	DFCF1=1	T-TEST (P-VALUE)
N	4434	1833	2601		2197	2237	
DIV/SALES	0.0364	0.0486	0.0277	0.0001	0.0282	0.0444	0.0001
	[0.0156]	[0.0254]	[0.0111]	(0.0001)	[0.0087]	[0.0235]	(0.0001)
DIV/EQUITY	0.0980	0.1262	0.0782	0.0001	0.0683	0.1272	0.0001
	[0.0381]	[0.0556]	[0.0299]	(0.0001)	[0.0266]	[0.0508]	(0.0001)
DIV/EARNINGS	0.7638	0.9667	0.6207	0.0001	0.7663	0.7612	0.9462
	[0.3372]	[0.4538]	[0.2664]	(0.0001)	[0.2817]	[0.3842]	(0.0001)
DIV/ASSETS	0.0347	0.0416	0.0298	0.0001	0.0250	0.0442	0.0001
	[0.0163]	[0.0222]	[0.0129]	(0.0001)	[0.0103]	[0.0228]	(0.0001)
FCF1	0.1164	0.1328	0.1049	0.0001	0.0558	0.1759	0.0001
	[0.1173]	[0.1322]	[0.1078]	(0.0001)	[0.0760]	[0.1610]	(0.0001)
FCF2	0.1456	0.1593	0.1360	0.0001	0.0957	0.1946	0.0001
	[0.1463]	[0.1602]	[0.1389]	(0.0001)	[0.1119]	[0.1875]	(0.0001)
GINDEX	9.08	9.35	8.89	0.0001	9.12	9.04	0.2842
	[9.00]	[9.00]	[9.00]	(0.0001)	[9.00]	[9.00]	(0.5230)
OINDEX	6.94	7.19	6.77	0.0001	6.96	6.93	0.5545
	[7.00]	[7.00]	[7.00]	(0.0001)	[7.00]	[7.00]	(0.0001)
LEV	0.1999	0.2005	0.1994	0.8282	0.2127	0.1872	0.0001
	[0.1818]	[0.1834]	[0.1808]	(0.2205)	[0.1905]	[0.1756]	(0.8554)
TOTAL ASSETS	5230.05	10681.71	1388.10	0.0001	5519.22	4946.04	0.4290
	[1042.46]	[3008.10]	[623.54]	(0.0001)	[929.12]	[1179.37]	(0.0001)
TOTAL SALES	4205.27	8206.63	1385.40	0.0001	3970.62	4435.73	0.2225
	[1089.59]	[2809.14]	[687.56]	(0.0001)	[963.43]	[1206.97]	(0.0001)
ROE	0.0996	0.1515	0.0631	0.0062	0.0007	0.1968	0.0001
	[0.1243]	[0.1423]	[0.1148]	(0.0001)	[0.0929]	[0.1517]	(0.0001)
GROWTH	1.79	2.02	1.62	0.0001	1.55	2.03	0.0001
	[1.53]	[1.76]	[1.42]	(0.0001)	[1.37]	[1.76]	(0.0001)

Table 5. The effect of corporate governance on dividend payments under agency problems and external financing constraints

The sample includes 4,434 firms from 1993, 1995, 1998, 2000, 2002, and 2004. DIV/EQUITY is (Cash dividend + Stock repurchase) over book value of equity. DIV/EARNINGS is (Cash dividend + Stock repurchase) over earnings. DIV/SALES is (Cash dividend + Stock repurchase) over sales. DIV/ASSETS is (Cash dividend + Stock repurchase) over book value of total assets. FCF1 is operating income minus taxes, interests expenses, and preferred and common dividends scaled by book assets and FCF2 is EBITDA (earnings before interests, taxes, depreciation, and amortization) scaled by book value of assets. GINDEX is Governance Index by Gompers, Ishii, and Metrick (2003). CGI is 1/GINDEX. LEV is long-term debt to total asset, ROE is earnings to book value of equity. GROWTH is (Book value of assets –Book value of equity +Market value of equity)/Book value of assets. EXD1 is dummy variable with the value of 1 if analyst coverage is below sample mean, or 0 otherwise. EXD2 is dummy variable with the value of 1 if firm age is below sample mean, or 0 otherwise. EXD3 is dummy variable with the value of 1 if book value of total assets is below sample mean, or 0 otherwise. DFCF1(DFCF2) is dummy variable with the value of 1 if FCF1(FCF2) exceeds sample median, or 0 otherwise. ***, **, * denotes significance at the 1%, 5%, and 10% level respectively. Numbers in ( ) denote t-values.

Panel A. EXD : EXD1 (analyst coverage)

Parameter	DIV/SALES		DIV/EQUITY		DIV/EARNINGS		DIV/ASSETS	
INTERCEPT	0.0496	0.0067	0.1031	-0.2151	0.5174	-0.2684	0.0266	-0.0287
	(6.42)	(0.62)	(5.51)	(-5.47)	(4.12)	(-0.83)	(6.85)	(-4.08)
CGI*DFCF	0.1780	0.0677	0.5917	0.0808	0.8897	0.0385	0.1821	0.0558
	(9.26)	(3.37)	(5.17)	(0.64)	(1.27)	(0.04)	(11.55)	(3.43)
CGI*DFCF*EXD	-0.1225	-0.0593	-0.3356	0.0040	-1.9521	-1.1486	-0.0740	0.0026
	(-5.96)	(-2.92)	(-2.32)	(0.03)	(-3.23)	(-1.76)	(-3.93)	(0.14)
CGI	-0.0821	-0.0543	-0.4082	-0.1685	-2.2103	-1.6950	-0.1099	-0.0737
	(-4.43)	(-2.83)	(-7.14)	(-2.79)	(-3.67)	(-2.69)	(-6.93)	(-4.49)
LEV		-0.0250		0.1798		-0.5459		-0.0335
		(-4.27)		(2.70)		(-2.71)		(-6.27)
SIZE		0.0019		0.0165		0.0821		0.0031
		(2.77)		(6.80)		(3.56)		(6.19)
ROE		0.0028		0.0481		-0.0013		0.0031
		(2.86)		(2.11)		(-0.11)		(2.55)
GROWTH		0.0158		0.0707		0.0085		0.0165
		(10.35)		(6.58)		(0.14)		(12.97)
INDUSTRY DUMMY	YES	YES	YES	YES	YES	YES	YES	YES
YEAR DUMMY	YES	YES	YES	YES	YES	YES	YES	YES
ADJ RSQ	0.0570	0.1093	0.0274	0.0966	0.0141	0.0161	0.0795	0.1650

Panel B. EXD : EXD2 (firm age)

Parameter	DIV/SALES		DIV/EQUITY		DIV/EARNINGS		DIV/ASSETS	
INTERCEPT	0.0487	0.0016	0.0980	-0.2088	0.5208	-0.4082	0.0254	-0.0267
	(5.99)	(0.15)	(4.95)	(-5.62)	(3.98)	(-1.41)	(5.82)	(-3.85)
CGI*DFCF	0.1421	0.0639	0.5445	0.1930	-0.0515	-0.7920	0.1736	0.0892
	(7.83)	(3.36)	(6.11)	(2.00)	(-0.08)	(-1.16)	(10.75)	(5.71)
CGI*DFCF*EXD	-0.0601	-0.0581	-0.2541	-0.1890	-0.3119	0.1758	-0.0594	-0.0547
	(-2.94)	(-2.79)	(-2.65)	(-1.96)	(-0.48)	(0.27)	(-3.31)	(-3.13)
CGI	-0.0842	-0.0488	-0.4021	-0.1519	-2.3283	-1.7041	-0.1081	-0.0689

	(-4.39)	(-2.54)	(-7.29)	(-2.57)	(-3.65)	(-2.66)	(-6.49)	(-4.16)
LEV		-0.0251		0.1801		-0.5511		-0.0334
		(-4.28)		(2.70)		(-2.73)		(-6.22)
SIZE		0.0021		0.0153		0.0953		0.0027
		(3.10)		(6.33)		(4.45)		(5.46)
ROE		0.0028		0.0481		-0.0026		0.0031
		(2.84)		(2.11)		(-0.22)		(2.56)
GROWTH		0.0165		0.0710		0.0192		0.0166
		(10.85)		(6.77)		(0.33)		(13.13)
INDUSTRY DUMMY	YES	YES	YES	YES	YES	YES	YES	YES
YEAR DUMMY	YES	YES	YES	YES	YES	YES	YES	YES
ADJ RSQ	0.0505	0.1093	0.0262	0.0974	0.0128	0.0157	0.0779	0.1670

Panel C. EXD : EXD3 (firm size)

	DIV/SALES		DIV/EQUITY		DIV/EARNINGS		DIV/ASSETS	
INTERCEPT	0.0474	0.0122	0.0993	-0.2241	0.4778	-0.2798	0.0259	-0.0282
	(5.48)	(1.07)	(4.85)	(-5.45)	(3.60)	(-0.91)	(5.96)	(-3.90)
CGI*DFCF	0.2377	0.1452	0.6621	-0.0043	2.0540	0.4495	0.1900	0.0592
	(8.42)	(5.08)	(5.75)	(-0.03)	(1.85)	(0.36)	(9.03)	(2.82)
CGI*DFCF*EXD	-0.1514	-0.1296	-0.3060	0.0987	-2.6592	-1.2836	-0.0587	-0.0020
	(-5.40)	(-4.50)	(-2.36)	(0.68)	(-2.49)	(-1.11)	(-2.62)	(-0.09)
CGI	-0.0820	-0.0560	-0.4152	-0.1670	-2.1928	-1.7087	-0.1120	-0.0738
	(-4.33)	(-2.88)	(-7.49)	(-2.75)	(-3.53)	(-2.72)	(-6.89)	(-4.49)
LEV		-0.0256		0.1800		-0.5543		-0.0335
		(-4.35)		(2.69)		(-2.75)		(-6.25)
SIZE		0.0011		0.0175		0.0800		0.0030
		(1.47)		(6.81)		(3.49)		(5.75)
ROE		0.0029		0.0480		-0.0013		0.0031
		(2.90)		(2.11)		(-0.11)		(2.55)
GROWTH		0.0163		0.0708		0.0182		0.0165
		(10.72)		(6.70)		(0.31)		(12.99)
INDUSTRY DUMMY	YES	YES	YES	YES	YES	YES	YES	YES
YEAR DUMMY	YES	YES	YES	YES	YES	YES	YES	YES
ADJ RSQ	0.0551	0.1114	0.0259	0.0967	0.0141	0.0159	0.0767	0.1650

Table 6. The effect of corporate governance on dividend payments under agency problems and external financing constraints (fixed effects results)

The sample includes 4,434 firms from 1993, 1995, 1998, 2000, 2002, and 2004. DIV/EQUITY is (Cash dividend + Stock repurchase) over book value of equity. DIV/EARNINGS is (Cash dividend + Stock repurchase) over earnings. DIV/SALES is (Cash dividend + Stock repurchase) over sales. DIV/ASSETS is (Cash dividend + Stock repurchase) over book value of total assets. FCF1 is operating income minus taxes, interests expenses, and preferred and common dividends scaled by book assets and FCF2 is EBITDA (earnings before interests, taxes, depreciation, and amortization) scaled by book value of assets. GINDEX is Governance Index by Gompers, Ishii, and Metrick (2003). CGI is 1/GINDEX. LEV is long-term debt to total asset, ROE is earnings to book value of equity. GROWTH is (Book value of assets –Book value of equity +Market value of equity)/Book value of assets. EXD1 is dummy variable with the value of 1 if analyst coverage is below sample mean, or 0 otherwise. EXD2 is dummy variable with the value of 1 if firm age is below sample mean, or 0 otherwise. DFCF1(DFCF2) is dummy variable with the value of 1 if FCF1(FCF2) exceeds sample median, or 0 otherwise. ***, **, * denotes significance at the 1%, 5%, and 10% level respectively. Numbers in ( ) denote t-values.

	DIV/SALES		DIV/EQUITY		DIV/EARNINGS		DIV/ASSETS	
EXD measures:	EXD1	EXD2	EXD1	EXD2	EXD1	EXD2	EXD1	EXD2
INTERCEPT	0.0053	0.0006	-0.2199	-0.2121	-0.2321	-0.3905	-0.0303	-0.0278
	(0.49)	(0.05)	(-5.54)	(-5.67)	(-0.71)	(-1.37)	(-4.31)	(-4.01)
CGI*DFCF	0.0499	0.0483	0.0484	0.1445	0.1466	-0.6711	0.0433	0.0718
	(3.20)	(3.35)	(0.48)	(1.98)	(0.20)	(-1.33)	(3.35)	(5.92)
CGI*DFCF*EXD	-0.0453	-0.0461	0.0125	-0.1538	-1.0228	0.3162	0.0059	-0.0431
	(-2.83)	(-2.87)	(0.11)	(-2.12)	(-1.74)	(0.57)	(0.40)	(-3.11)
CGI	-0.0491	-0.0438	-0.1530	-0.1354	-1.8029	-1.8396	-0.0678	-0.0628
	(-2.66)	(-2.36)	(-2.60)	(-2.37)	(-2.95)	(-2.90)	(-4.16)	(-3.83)
LEV	-0.0252	-0.0253	0.1791	0.1794	-0.5412	-0.5469	-0.0337	-0.0336
	(-4.31)	(-4.32)	(2.70)	(2.70)	(-2.71)	(-2.73)	(-6.32)	(-6.28)
SIZE	0.0020	0.0022	0.0167	0.0154	0.0799	0.0956	0.0032	0.0028
	(2.88)	(3.19)	(6.85)	(6.47)	(3.42)	(4.49)	(6.39)	(5.60)
ROE	0.0028	0.0028	0.0481	0.0482	-0.0013	-0.0028	0.0031	0.0031
	(2.85)	(2.83)	(2.11)	(2.11)	(-0.12)	(-0.24)	(2.54)	(2.55)
GROWTH	0.0159	0.0166	0.0711	0.0713	0.0060	0.0172	0.0165	0.0166
	(10.45)	(10.93)	(6.57)	(6.74)	(0.10)	(0.29)	(12.99)	(13.09)
INDUSTRY DUMMY	YES	YES	YES	YES	YES	YES	YES	YES
YEAR DUMMY	YES	YES	YES	YES	YES	YES	YES	YES
ADJ RSQ	0.1091	0.1092	0.0966	0.0973	0.0161	0.0157	0.1655	0.1675

Figure 1. Summary of Hypotheses (Substitution Hypothesis vs. Outcome Hypothesis)