Dividend Clienteles: A Global Investigation

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Abstract

We compare the cross-sectional variation in the dividend payout policies of companies across 32 countries. Beyond the impact of firm-specific accounting and financial variables, this study investigates how the country level variations: shareholder demand due to demographic variations and consumption needs, agency problems manifested in the extent of minority shareholder protection and business disclosures, and market quality in terms of transparency and liquidity; affect the dividend payout policies. We find that firms have generous dividend payout policies when diverse shareholder demands are strong, extents of business disclosures and legal protections are weak, and the market qualities are poor. The empirical evidence supports the presence of strong dividend clienteles in a global setting.

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I. Introduction

Miller and Modigliani (1961) established that, in a frictionless world, when the investment policy of a firm is held constant, the dividend payout policy is irrelevant for shareholder wealth. Higher dividend payouts lead to lower earnings retained and hence, lower capital gains, and vice versa, leaving the total wealth of the shareholders unchanged. In empirical studies using accounting and market data, dividend payout policy has been related to firm-specific variables, such as net income, cash flows, and firm size.[1] However, the observed dividend payouts are more likely to be the results of premeditated financial decisions which consider factors beyond firm-specific accounting and financial variables.

 We compare the cross-sectional variation in the dividend payout policies of companies across 32 countries. The measurements of dividend payout policy include dividend yield, dividend payer, and dividend initiation.[2] Beyond the impact of firm-specific accounting and financial variables, this study investigates how the country level variations, such as shareholder demand due to demographic variations and consumption needs, agency problems manifested in the extent of minority shareholder protection and business disclosures, and market quality in terms of transparency and liquidity; affect the dividend payout policies.

As a departure from the conventional supply-based theory of corporate payout policy, Becker, Ivkovic, and Weisbenner (2011) propose a demand-based theory and use local senior as a proxy for shareholder demand. They find that corporations respond to the preferences of their shareholders when setting the payout policy. Our study extends Becker et al. demand-based

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[1] See Allen and Michaely (2003)
[2] The three measurements are defined in Appendix A.

theory to an international setting and investigates whether shareholder demand measured at a country level helps explain individual firms' dividend payouts across countries. In addition, we analyze several other proxy variables such as proportion of government expenditure on health, proportion of foreign investment in domestic stock markets, and domestic investor overconfidence, to capture the different dimensions of shareholder demand for dividends.[3]

Another popular explanation is that dividend payouts address agency problems between corporate insiders and outside shareholders (Easterbrook, 1984). The explanation stresses that unless profits are paid out to shareholders, they may be diverted by the insiders for personal use or committed to unprofitable projects that provide private benefits to the insiders. Additionally, due to the divergence of interests between insiders and outsiders, the former often process and trade on information about firm's shares values, making profits at the expense of the outside shareholders. Dividends may then act as a signaling mechanism as it is a costly to replicate vehicle for conveying private information to capital market (Easterbrook, 1984; La Porta et al., 2000; Dennis and Osobov, 2008; Brockman and Unlu, 2009; 2011; Kuo, 2012). However, most of the studies testing the agency explanation for dividend payouts use La Porta et al. (1998) Anti-Director Right Index (ADRI). We extend this literature by testing the agency hypothesis using a more reliable ADRI index, revised by Spamann (2010), and the extent of business disclosure index, provided by the World Bank.

Asymmetric information and ease of trading in capital markets provide alternate explanations for dividend policy. Banerjee, Gatchev, and Spindt (2007) document that the firms with less liquid common stocks are more likely to pay cash dividends. The asymmetric

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[3] All the variables used in this study are defined in Appendix A.

information explanation for dividends would predict that the firms headquartered in a country with opaque capital markets will have to rely on generous dividend payouts to establish their reputation. We test these predictions by analyzing the effect of stock market liquidity and stock price informativeness on dividend payout policy.

We find that firms respond to the tendency of older investors to hold dividend-paying stocks in combination with individual investors' increased financial demands due to a low government funding in health expenses. Firms also try to attract foreign investors by resorting to a generous payout policy. We also find that less confident investors, as measured by index of individualism (IDV) developed by Hofstede (2001), prefer dividends over capital gains.

Next we document that firms operating in countries with poor protection of minority shareholders and low level of business disclosure pay higher dividends. Hence, dividends serve as a substitute for effective legal protection, which enables firms in unprotected legal environments to establish reputations for good treatment of investors through dividend payouts. Hence, when shareholders face the potential exploitation due to weak shareholder protection, the preference for dividend payments become stronger.

Further we show that firms headquartered in a country with poor market quality, which has worse price informativeness due to reduced transparency, and low stock market liquidity; pay higher dividends. The empirical evidence is consistent with the argument that shareholders demand a higher dividend payout when the market quality is poor and the uncertainty surrounding the future realization of capital gain increases.

Finally, we show that firms headquartered in countries with low tax rates on dividends pay higher dividends relative to the companies headquartered in countries with high taxes on

dividends. The empirical results show that there exists a "tax preference" clientele among investors across countries. Investors in lower tax countries have a preference for equities with generous payout policy. In contrast, investors in higher tax countries prefer firms to retain cash flow for investment and realize equity return through the appreciation of stock prices.

II. Hypotheses Development

In this study we test whether the shareholder demand for dividends, the agency costs, and the stock market quality in a given country affects a firm's payout policy. In this section we motivate each of these factors and develop the testable hypotheses.

II.1. Shareholder demand for dividends

Becker, Ivkovic and Weisbenner (2011) find that, for the sample of US firms, shareholder demand for dividends influences a firm's payout policy. The authors capture the shareholder demand for dividends by the fraction of 65 years old or older residents in the county where a firm is headquartered.[4,5] We extend this literature to an international setting and use proportion of population who are 65 years old or older in a given country (*Seniors*) as a proxy for the demand for dividends in that country and test the following hypothesis:

H1. Firms headquartered in countries with larger proportion of Senior population should have a generous dividend payout policy.

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[4] The selection of the proxy for dividend demand is based on two streams of literature: first, Shefrin and Thaler (1988) argue that seniors have a preference for dividend-paying stocks, and second, Huberman (2001) and Grinblatt and Keloharju (2001), and Ivkovic and Weisbenner (2005) show that individual investors tend to hold stocks of local firms.

[5] Using data on the stock holdings of individual investors, Pettit (1977) and Lewellen, Stanley, Lease, and Schlarbaum (1978) find that the correlation between dividend yield and age is significantly positive.

In addition, to capture different aspects of shareholder demand at the country level, we include several other proxy variables such as proportion of government expenditure on health, proportion of foreign investment in domestic stock markets, and domestic investor overconfidence.

According the World Health Organization, health related expenditures are a major expense for seniors. Countries across the globe have varying health care services funded by the government which can drive the consumption needs of the Seniors. We test the following hypothesis:

H2. Firms headquartered in countries with lower proportion of government expenditure on health should have a generous dividend payout policy.

Empirical evidence on impact of foreign investment in the domestic stock markets on dividend payout policy is mixed. Jeon, Lee and Moffett (2011) and Kang, Lee and Park (2010) find that most foreign investors on Korean markets are institutional investors who maintain large positions and serve as effective monitors of these firms, which results in higher dividend payouts. While, Dhalquist and Robertsson (2001) find that foreign investors prefer firms paying low dividends for Swedish firms as dividends are taxed at a higher rate than capital gains. We participate in this debate by testing the following hypothesis:

H3. Firms headquartered in countries with higher proportions of equity ownership by foreign investors should have a generous dividend payout policy.

Impact of investors behavioral biases generated due to cultural difference on dividend payout policy has not been explored in the literature. Chui, Titman and Wei (2010) find that Hofstede's (2001) individualism index measuring investor overconfidence is positively

associated with trading volume.[6] Van den Steen (2004) argues that when individuals are overoptimistic about their abilities, they tend to overestimate the precision of their predictions. Hence we argue that the overconfident investors would be indifferent between capital gains and dividends while the less confident investors would have a preference for dividend payments. Specifically, we test the following hypothesis:

H4. Firms headquartered in countries with lower score on individualism index should have a generous dividend payout policy.

II.2. Agency Cost

Miller and Modigliani derive their dividend irrelevance proposition by ignoring the agency cost between the owners and outside shareholders. Many researchers have challenged this assumption and argued the relevance of dividend payout policy in addressing the agency problems.

Two competing agency hypotheses—outcome model versus substitute model—are outlined in La Porta et al. (2000) to describe the relationship between the shareholder rights and dividend payouts. The outcome model hypothesizes that better shareholder rights lead to higher dividend payouts because shareholders can exercise their legal powers to force firms to disgorge the excess cash flows. In contrast, the substitute model argues that poor shareholder rights lead to higher payouts because firms have stronger incentives to establish their reputation for fair treatment. La Porta et al. find support for the outcome model using the Anti-Director Right Index (ADRI) proposed by La Porta et al. (1998) as a measurement of shareholder protection.

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[6] Anderson, Fedenia, Hirschey, and Skiba (2011) present an excellent summary of 5 cultural dimensions provided by Hofstede.

Spamann (2010) re-examines the procedure adopted by La Porta et al. (1998) in developing the ADRI and finds that the original ADRI does not follow rigorous legal definitions. To avoid the ambiguity in creating ADRI for individual countries, Spamann gets help from local attorney in the respective countries and compiles a new ADRI. The reexamination of ADRI data compilation procedure leads to more than two thirds corrections for the sample countries and the correlation between corrected and original ADRI values is only 0.53. This study reexamines the relationship between agency problems using the corrected ADRI and the Business Disclosure index provided by the World Bank, and the dividend payout policy by testing the following hypothesis:

H5. Firms headquartered in countries with better minority shareholder protection should have a generous dividend payout policy.

II.3. Stock Market Quality

Miller and Modigliani's (1961) dividend irrelevance proposition is based on the key assumption that trading is frictionless. Hence, investors can instantly buy or sell any stock without incurring any trading costs and price impact. If an investor prefers dividends, he can create homemade dividends by selling a portion of his holdings in the firm. However, in real world, an investor has to incur a cost for trading stocks. Using the data from US markets, Banerjee, Gatchev, and Spindt (2007) argue that the stocks that pay cash dividends, satisfies investors' liquidity needs without any trading in the stock. As a result, investors with current or anticipated future liquidity needs can avoid trading frictions by investing in dividend paying stocks. Hence, there should be a negative relationship between liquidity and dividend payout policy. In this study we use two different measures of liquidity. We measure transaction costs by

estimating the proportion of zero daily firm returns (Lesmond, Ogden and Trzcinka, 1999; Bekaert, Harvey and Lundblad, 2007). To capture different dimension of liquidity we use turnover ratio as measured by the total value of shares traded divided by the average market capitalization (Lipson and Mortal, 2009). Using a comprehensive sample of firms from 32 countries we test the following hypothesis:

H6. Firms headquartered in countries with poor liquidity should have a generous dividend policy.

Another key parameter of stock market quality is the level of market transparency. Miller and Modigliani in their dividend irrelevance proposition assume complete market transparency. In this perfect capital market investors have homogeneous expectations of a firm's current and future investment opportunities and cash flows. Hence, there exists a consensus about the firm's value which makes them indifferent between dividends and capital gains. However, the real world markets are opaque (Jin and Myers, 2006) and there exist firm specific uncertainties. In this case investors would show stronger preference for dividends than future capital gains when the asymmetric information becomes more severe and the market becomes more opaque (Bhattacharya, 1979; Lee, 2011). We formulate these theoretical predictions by testing the following hypothesis:

H7. Firms headquartered in countries with opaque stock markets should have a generous dividend payout policy.

We use stock price informativeness (Jin and Myers, 2006) as a measure of level of stock market transparency in a given country. Based on Roll's (1988) Presidential address on R^2, Jin and Myers (2006) show that, for a sample of firms from 40 countries, stock price

informativeness, as measured by one minus coefficient of determination from country specific market models around the world, is significantly positively related to the stock market transparency.

III. Data Description and Methodology

The global investigation becomes feasible when the expanded global databases become readily available and new measurements are documented in finance literature addressing the issues of shareholder demand, agency problems, and market quality.[7] The first sub-section describes the data sources and the measurement of the country level explanatory variables as well as the firm level control variables. The second and the third sub sections explain the measures of the stock price informativeness and the market liquidity, respectively. Summary statistics are reported in the fourth sub-section. Appendix A describes all the variables used in the analyses.

III.1. Data Description

We compile data from several sources. Stock price, dividend yield and firm-level accounting information such as, net income, cash, market-to-book ratio, debt, market value, and total assets come from Datastream. We download data for all the firms in all the 48 countries for which Spamann (2010) provides the Anti-Director Rights Index (ADRI) for the years 1997 and 2005. From this original universe, we eliminate firms with dividend yield of greater than 20%

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[7] World Bank Database, DataStream, International Monetary Fund's (IMF) Coordinated Portfolio Investment Survey (CPIS), Investor overconfidence index, OECD tax database, and Hofstede's cultural dimensions.

and select top 100 firms for each country based on market capitalization.[8,9] We also control for the monthly returns averaged over the preceding 3 year period and return volatility for each firm, which is the variance of monthly stock returns over the preceding 3 years.

To capture different aspects of shareholder demand at the country level, we include proxy variables such as proportion of population 65 years old or older in a given country (*Seniors*), percentage of government expenditure on health (*Government Health Expense*), proportion of foreign equity investment in the domestic stock markets (*FPI*), and an index of individualism (*IDV*) developed by Hofstede (2001), which measures investor overconfidence and self-attribution bias (Chui, Titman and Wei, 2010).

Demographic data on seniors at the country level come from the World Bank. We also obtain the data on the government expenditure on health, stock trading turnover ratio and the extent of business disclosure for each of the sample countries from the World Bank database. Foreign equity investment in the domestic stock markets is provided by the Coordinated Portfolio Investment Survey (CPIS) database from the International Monetary Fund (IMF) data library. Data on investor overconfidence as measured by the investors' individualism scores are obtained from Hofstede's website.[10]

We use Antidirector Rights Index (ADRI) (Spamann, 2010) and extent of business disclosure to capture the agency problem between the minority shareholders and owner managers. The ADRI comes from Spamann (2010), and reflects such aspects of minority rights

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[8] Dividend yield had extreme outliers and we removed those data from our final analysis. Dividend yield of 20% represents the 99.5th percentile. Our results are robust to alternate cutoffs for the variable (we tested our results for cutoffs ranging from 10%-30%)

[9] We select top 100 firms to create a balanced sample among countries. Our results hold for the full sample of firms from DataStream.

[10] http://geerthofstede.nl/index.aspx

as the ease of voting for directors, the possibility of electing directors through a cumulative voting mechanism, the existence of grievance mechanism for oppressed minority shareholders, such as a class action lawsuit, the percentage of votes needed to call a special shareholder meeting, and the existence of preemptive rights. Since this index is available only for years 1997 and 2005, we restrict our analysis to these years with most of our analyses focusing on the data from the more recent year, 2005. Extent of business disclosure index measures the financial and operational transparency of businesses in a given country. This index is based on a survey conducted by the World Bank and the scores vary between zero and ten.

We use country-level data on taxes in some of the analysis. Data on tax rates are obtained from the Organization for Economic Co-operation and Development (OECD) Tax Database, which provides effective tax rates on distribution of domestic source of income to a resident individual shareholder in each country. We use the Net Dividend Tax, which is the top marginal statutory personal income tax rate imposed on dividend income after taking account imputation systems, tax credits, and tax allowances in each country. [11]

We merge the data from the various data sources and the unmatched firms were deleted from the final analyses. We delete the countries with less than 35 firms from our final analysis that reduces our sample to 2,975 firms from 32 countries.

III.2. Stock Price Informativeness

We calculate our measure of stock price informativeness using a two-factor international model as in Morck, Yeung, and Wu (2000) to include both the local and U.S. market index

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[11] Under a classical system (like in the U.S.), profits are first taxed at the corporate level, and then after corporate tax profits are taxed again at the shareholder level when that income is distributed to them as a dividend. Under an imputation system (whether in full or just partial), part or all of the corporate income tax paid by a company on its profits is credited against the personal income tax liability of the shareholders

returns. This model is also used by Fernandes and Ferreira (2009) and has the following specifications:

$$r_{j,t} = \alpha_j + \beta_{1j}r_{m,t} + \beta_{2j}r_{US,t} + \varepsilon_{j,t} \tag{1}$$

where $r_{j,t}$ is the firm j return for month t, $r_{m,t}$ is the domestic market index return, $r_{US,t}$ is the USA market index return during month t with,[12]

$$Cov(r_{m,t}, \varepsilon_{j,t}) = Cov(r_{US,t}, \varepsilon_{j,t}) = 0. \tag{2}$$

Our measure of informativeness is $1 - R_j^2$ of equations (1). Given the bounded nature of R^2, we conduct our tests using the following logistic transformation of $1 - R_j^2$ outlined in Fernandes and Ferreira (2009):

$$\psi_j = \log\left(\frac{1 - R_j^2}{R_j^2}\right) \tag{3}$$

Thus, ψ_j measures firm-specific stock return variation relative to market-wide variation, or lack of synchronicity with the market. To conduct our country-level study, we list ψ_j across firms for each country. The median ψ_j in the list represents the price informativeness for a country. A higher median value derived from all firms in a country means more informativeness for that country.

III.3. Measures of Liquidity

One of the problems with an international study is that the data from certain countries are of relatively poor quality, and detailed transaction data (for example, bid-ask spreads or market impact estimates) are not widely available (Bekaert, Harvey and Lundblad, 2007). To take care

[12] In a separate analysis we used world market index return from Morgan Stanley Capital International (MSCI) database to calculate the informativeness measure. We obtained qualitatively similar results to the one presented using USA market index return.

of this problem we rely on the incidence of observed zero daily returns in these markets. Lesmond et al. (1999) argue that if the value of an information signal is insufficient to outweigh the costs associated with transacting, then market participants will elect not to trade, resulting in an observed zero return. The advantage of this measure is that it requires only a time series of daily equity returns. Given the paucity of time-series data on preferred measures such as bid-ask spreads or bona-fide order flow used in Kyle (1985), this measure is an attractive empirical alternative as documented by Bekaert, Harvey and Lundblad (2007).

Our second measure of liquidity is the turnover ratio reported for every country by the World Bank. This ratio is the total value of shares traded divided by the average market capitalization.

III.4. Descriptive Statistics

Table 1 reports the 32 countries included in the analysis with the descriptive statistics on the key variables across countries. We find that Finland had the highest average dividend yield (2.89%), Japan had the largest proportion of firms paying dividends (66%) while France had the largest proportion of firms initiating dividends (9%) during the sample period. Japan had the highest proportion of senior population (19.92%) during 2005. The USA had the worst shareholder protection (ADRI) and the most liquid stock market while Spain had the most opaque stock market during the sample period.

\\\\\ *Insert Table 1 about here* \\\\\

Table 2 summarizes the descriptive statistics for the key explanatory variables included in the study. We observe that a typical firm included in the sample pays about 1.40% dividends per year. About 42% of the sample firms paid dividends during the period under investigation while

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4% of the sample firms initiated dividends in 2005. An average sample country has about 12% of population classified as seniors, with the mean government expenditure on health of about 13%. Foreign equity investment comprises of about 29% of domestic market capitalization of a typical sample country's stock market and the individualism score for typical investor is 55.24 on a scale of 1 through 100. The average minority shareholder protection as measured by ADRI index is 4.02 on a scale of 1 through 6 and the average level of business disclosure is 6.23 on a scale of 1 through 10. Average informativeness and illiquidity scores are 2.98 and 39.68% respectively while the turnover ratio is about 2.84 times the market capitalization.

\\\\\ *Insert Table 2 about here* \\\\\

Table 3 presents the Pearson's product moment correlation coefficients among the key variables included in the study. We find that the *Seniors* is positively related *Dividend Yield*. Hence, a firm headquartered in a country with larger proportion of senior population pays higher dividend. We also find that *Dividend Yield* increases with low *Government Health Expense*, high *FPI*, and low *IDV*. These results support our demand based explanation for dividends summarized in Hypotheses 1 through 4. Table 3 also reports that *Dividend Yield* is higher for firms headquartered in a country with a lower score for *ADRI* and *Business Disclosure*. These results reject the outcome model for dividends and our Hypothesis 5. Hence, our results support the substitute model for dividends. Finally we find that *Dividend Yield* is higher for firms headquartered in a country with lower *Informativeness*, higher *Illiquidity*, and lower *Turnover Ratio*. Hence, the *Dividend Yield* declines as the stock market quality of a given country improves. These results support our market quality Hypotheses 6 and 7. Overall, the bivariate

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results shows that investors demand higher dividends from a firm headquartered in a country

with strong shareholder demand, poor minority shareholder rights or poor market quality.

\\\\\ *Insert Table 3 about here* \\\\\

IV. Results

We analyze the factors that affect the payout policy. Dividend yield, dividend payer and

dividend initiation capture the payout policy of a firm. We analyze the three broad factors that

can influence the payout policy: investor demand for dividends, agency costs and stock market

conditions. Finally we analyze the impact of taxation on payout policy.

IV.1. Relationship between the payout policy and investor demand, agency costs and market

conditions.

We analyze the impact of the following three broad factors on the dividend payout

policy: (1) the local dividend demand determined by country specific demographics such as,

Seniors, *Government Health Expense*, *FPI* and *IDV*, (2) agency costs determined by *ADRI* index

and *business disclosure index*, and (3) stock market quality determined by price *informativeness*

and *liquidity*. We consider three measures of dividend payout policy: the dividend yield variable

(*Dividend Yield*), an indicator variable for paying dividends (*Dividend Payer*), and an indicator

variable for paying dividends conditional on having not paid dividends in the previous fiscal year

(*Dividend Initiation*). To analyze this relationship we use the following regression model:

$DIVIDEND\ POLICY_{i,t} = \alpha_1 + \alpha_2 DEMAND_{it\text{-}1} + \alpha_3 AGENCY_{it\text{-}1} + \alpha_4 MARKET\ QUALITY_{it\text{-}1} +$

$$\alpha_5 CONTROL\ VARIABLES_{it\text{-}1} + \mu_{i,t} \tag{4}$$

Our payout policy dependent variables, defined in the previous section, are measured one

year after the independent variables. *Demand factors* include: *Seniors*, which is the proportion of

population who are 65 years old or older in a given country in which a firm is headquartered; *Government Health Expense*, which is the proportion of health expenditure funded by government, as reported by the world bank; *FPI*, which is the total investment in domestic stock markets by foreign investors and is normalized by the stock market capitalization; *IDV,* which is an index of individualism developed by Hofstede (2001) as a measurement of investor overconfidence and self-attribution bias.

 Agency factors are *ADRI*, which is the Antidirector Rights Index that measures shareholder protection; and *Business Disclosure,* that measures the financial and operational transparency of businesses in a given country. *Market Quality factors* include *Informativeness*, which is the median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country; *Illiquidity*, which is the proportion of zero daily returns across all firms for each country averaged over the month; and *Turnover ratio*, which is the total value of shares traded divided by the average market capitalization.

 In addition to these factors, the regressions also include firm-specific controls scaled by the market value of the equity: *Net Income, Cash, market-to-book ratio and Debt. Volatility* refers to the variance of monthly stock returns over the preceding 3 years. *Return* refers to monthly stock returns over the preceding 3 years. *Asset Growth* is the logarithm of the growth rate of assets over the prior year and *Lagged Dividend Yield* is the dividend yield during the previous year.

 The results from these analyses are presented in the Tables 4 and 5. The Variance Inflation Factors (VIFs) for all the variables are less than 5 hence, we do not have any

multicollinearity issues when including all the relevant explanatory variables together in one regression model.[13] The estimated coefficients pertaining to the firm-specific accounting and financial variables, (control variables) line up with the prior expectations and the literature. Return, net income, cash, and firm size (market value and total assets), all increase the dividend yield and the probability of paying dividends, while return volatility, market-to-book ratio, debt, and asset growth reduces the dividend yield and the likelihood of paying dividends.[14] Positive and statistically significant coefficient for lagged dividend yield shows the stickiness in the payout policy.

IV.1.a. Demand based explanation

Table 4, Column (1) summarizes the results from a restricted model including only the DEMAND factors and the control variables. All four of the DEMAND factors significantly predict dividend yield. *Seniors* and foreign equity investment (*FPI*) are significantly positively related to the dividend yield, while *government expenditure on health* and individualism (*IDV*) are significantly negatively related to the payout policy. Column (4) summarizes the results from the pooled regression analysis. A positive and statistically significant coefficient of 0.19 for *Seniors* suggests that *Dividend Yield* increases by 0.19 standard deviations for every one standard deviation increase in *Seniors*. Hence, firms headquartered in a country with larger *Senior* population pays higher dividend than a firm headquartered in a country with lower *Senior* population. This result is consistent with the findings in Becker et al. (2011) and supports our Hypothesis 1.

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[13] For each independent variable, VIF is calculated as: $VIF_i = 1/(1 - R_i^2)$ (see Greene (2000) for more details)
[14] Our results support Lee, Gupta, Chen, and Lee's (2011) findings that dividend yield is negative related to firm's growth.

A negative and statistically significant coefficient of -0.12 for government health expense suggest that with the decline in government health expenditure, personal out-of-pocket health related expenses increases and the firms respond to this increased demand for dividends by investors by paying generous dividends. Hence, we find support for our Hypothesis 2.

We also find a positive and statistically significant coefficient of 0.04 for FPI. Hence, dividend yield also increases with the increase in the foreign equity investment. This result is consistent with the findings in Jeon, Lee and Moffett (2011) and Kang, Lee and Park (2010) and supports our Hypothesis 3. Finally we find that the dividend yield declines with the increase investor individualism (*IDV*). Overconfident investors show the willingness to assume the uncertainty associated with capital gains and hence reduce the demand for dividends. This result is consistent with our Hypothesis 4.

\\\\\ *Insert Table 4 about here* \\\\\

Results for our other payout policy variables, dividend payer and dividend initiation, are summarized in columns (2) and (3) of Table 5. Column (1) in Table 5 is copied from column (4) in Table 4 and used as a benchmark for comparison purpose. Column (2) summarizes the results for the impact of demand factors on firm's probability of dividend payments. In general, the results in column (2) are qualitatively similar to the ones presented for dividend yield in column (1). All the four demand factors are significant predictor of probability of a firm paying dividend. We find that increase in both, the *Senior* population and *foreign investors*, increases the probability of dividend payments while increase in *government health expense* and *IDV* decreases the probability of dividend payments.

Results for our last payout policy variable, dividend initiation, are summarized in column (3) of Table 5. The variability in the dividend initiation variable is smaller because few nondividend payers in the year 2005 began to pay dividends in the year 2006 (only 4% of the sample firms fall in this category). Three of the DEMAND factors, *Seniors*, *FPI*, and *IDV*, significantly predict the dividend initiations.

\\\\\ *Insert Table 5 about here* \\\\\

These results provide evidence of an effect of investor demand on dividend policy. The estimated coefficients suggest an economically important relation between corporate payout behavior and local dividend demand, particularly for dividend yield and dividend payer.

Although our findings are consistent with individual investor demand driving corporate payout policy decisions, this clearly is not the only plausible interpretation of our results. We consider potential alternative explanations in the following sub-sections.

IV.1.b. Explanation based on agency problems

Easterbrook (1984) argue that dividends help in reducing the agency problems between the insiders and outside shareholders. La Porta et al. (2000) use the ADRI from La Porta et al. (1998) as a proxy for this agency cost. The ADRI for the year 2005 is corrected and updated by Spamann (2010). We analyze the agency explanation for dividends for more recent period and using the corrected ADRI and business disclosure index provided by the World Bank.

Columns (2) and (4) in Table 4 summarize the impact of agency cost on the dividend yield. We find a negative and statistically significant coefficient of -0.08 for ADRI and -0.07 for Business Disclosure in column (4). These results suggest that firms operating in countries with poor protection of minority shareholders and low business disclosure pay higher dividends. We

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find qualitatively similar results for other two payout policy variables, dividend payer and dividend initiation, as summarized in Table 5, columns (2) and (3). These results contradict the findings of La Porta et al. (2000) and are inconsistent with our Hypothesis 5. Hence, our results reject the outcome model but support the substitute model for dividends. We provide two explanations for this contradiction. First, we consider a different time period than La Port et al. (2000). The way the market operates has changed drastically between the two time periods [see Jain, (2005) for more details]. Second, Spamann (2010) revised the La Porta et al (1998) ADRI index and finds that the LLSV ADRI compiled by La Porta et al. does not follow rigorous legal definition. To avoid the ambiguity in compiling ADRI, Spamann gets help from local attorney in individual countries and compiles a new set of corrected ADRI. The revised measurement of agency costs provides a new perspective on the relation between the dividend payout policy and the agency problems.

In untabulated results, we analyzed the impact of ADRI on dividend yields for the year 1997 (same period as in La Porta et al. (2000)).We find support for La Porta et al. results for this sample period and using the LLSV ADRI index from La Porta et al. (1998). When we used the corrected index from Spamann for 1997, we find that the sign of the coefficient on ADRI is consistent with the outcome model but not significant.

IV.1.c. Explanation based on market quality

Miller and Modigliani's homemade dividend argument relies on the key assumptions of complete transparency and frictionless trading. We test these predictions for markets with varying degree of transparency and illiquidity. Table 4, column (3) summarizes the results for the restricted model including only the market quality factors: the price informativeness and the

market liquidity, and the control variables. We find a negative and statistically significant coefficient of -0.04 for informativeness which suggests that higher the informativeness, lower is the dividend yield. Pooled regression results from column (4) show similar results and support our Hypothesis 6.

We also find a statistically significant and positive coefficient for Illiquidity and negative coefficient for Turnover in both, the restricted regression results (column (3)) and pooled regression results (column (4)). These results suggest that firms headquartered in a country with better stock market liquidity pay lower dividends. Hence, the results support our Hypothesis 7.

We find qualitatively similar results for the other two payout policy variables, dividend payer and dividend initiation, summarized in Table 5, columns (2) and (3), except for Turnover, which is not significant predictor for either the dividend payer or the dividend initiation. Hence, the firms headquartered in a country with poor stock price informativeness and lower liquidity, have a higher probability for dividend payments and dividend initiations.

IV.2. Relative contribution of the individual factors

In order to measure the relative importance of each of the three factors: shareholder demand, agency costs and market quality, in explaining the dividend yield, we calculate the individual contribution of each of these factors to the R^2 of the pooled dividend yield regression summarized in Table 4, Column (4). Results from this analysis are summarized in Table 6. We find that all the three factors have significant explanatory power for explaining the dividend yields of the sample firms. We find that demand factors and market quality factors improve the explanatory power for dividend yields by about 2% each, while the agency factors improve the

explanatory power for dividend yields by 2.5%, beyond what is explained by the firm specific controls.

\\\\\ *Insert Table 6 about here* \\\\\

IV.3. Taxes and dividend payout policy

As our final analysis, we analyze the impact of taxes on dividend payout policy. The empirical evidence of impact of taxes on dividend payout policy is ambiguous. Many researchers have argued that changes in the tax rate on dividends have a significant effect on payout policy (Elton and Gruber, 1970; Pettit, 1977; Perez-Gonzalez, 2003; and Graham and Kumar; 2006) while others have found that taxes have no effect on dividend payout policy (Lewellen, Stanley, Lease, and Schlarbaum, 1978; Grinstein and Michaely, 2005; and Barclay, Holderness and Sheehan, 2009). Hence, the debate over the effect of taxes on dividend payout policy continued unresolved. We participate in this debate and use the net dividend tax to measure the level of taxes on dividends in each country. Since we have dividend tax information only for the Organization for Economic Co-operation and Development (OECD) countries, for this analysis we consider companies listed on 24 countries for which we can find the data on net tax rate on dividends. The Net Dividend Tax is the top marginal statutory personal income tax rate imposed on dividend income after taking account imputation systems, tax credits, and tax allowances in each country.

The results from this analysis are summarized in Table 7. We find a negative and statistically significant coefficient for Net Taxes for all the three dividend payout policy variables. This result suggests that the higher the tax rate on dividends, the lower is the dividend

yield. We also find that probability of dividend payments and dividend initiations increases with decline in the dividend tax rates.

V. Robustness Tests

V.1. Country fixed effects

A robust test with respect to heterogeneous error variance terms across countries is in order. Stock prices within a country are subject to market disturbance and hence, their regression disturbance terms for all firms in a country will be highly cross correlated. Ordinary least squares estimators are unbiased but their variance-covariance matrix is inefficient. In estimating an efficient covariance structure, White (1980) heteroscedasticity consistent estimator is applied to control for both within country correlation and heteroscedasticity across countries. The correlation among various residual terms from a country is allowed to change across countries. The variance-covariance matrix for regression coefficients is estimated by $(X'X)^{-1} \sum_i (X_i' \hat{\mu}_i \hat{\mu}_i' X_i)(X'X)^{-1}$ where X is the regression design matrix, X_i is the explanatory variables for firms in the i-th country, $\hat{\mu}_i$ is residual vector estimated from ordinary least squares regression model applied to firms in the i-th country. This exercise gives us results consistent with the ones presented earlier. We find support for our result that all the three factors- investor demand, agency costs and market quality, explain the dividend payout policy, although the statistical significance for *IDV* regression coefficient weakens after the adjustment for within country correlation and heteroscedasticity across countries.

V.2. Sample Selection

For the results presented thus far, we select top 100 stocks from each sample country based on market capitalization. In untabulated results we also use total assets as selection criterion and we get qualitatively similar results as the ones reported. Our results are also robust to inclusion of all the firms available in Datastream from the 32 sample countries.

It might be argued that selecting top 100 firms based on market capitalization may bias the results due to the presence of large capital markets, such as US, UK, and Japan. Hence, instead of selecting top 100 firms from each country, we randomly select 100 firms from each of the sample country. Our results are robust to this alternate sample selection process.[15]

V.3. Model Specifications

The results presented thus far are derived using the ordinary least squares regression method. To test the robustness of our results to alternate model specifications, we estimate these regressions using Tobit framework for *Dividend Yield* and Probit and Logit frameworks for *Dividend Payer* and *Dividend Initiation* models. The results are reported in Table 8. We obtain qualitatively similar results as the ones reported in Table 5. All the three factors, investor demand for dividends, agency costs, and market quality, significantly predict dividend payout policy and the coefficients have the same signs with similar statistical significance as reported in Table 5.

\\\\\ *Insert Table 8 about here* \\\\\

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[15] Results are available on request.

VI. Conclusions

This paper uses a sample of firms from 32 countries around the world to analyze the firm's dividend payout policies. We take advantage of the diverse demographics, market quality and different levels of legal protection of minority shareholders across these countries to compare dividend policies of companies. Finally, we analyze the effect of taxes on dividend payout policy.

Miller and Modigliani (1961) raise an important question of whether the firms set their payout policies and investors sort accordingly, or whether companies set their payout policies in response to the preferences of their current shareholders. In this paper, we provide evidence consistent with the later argument. Specifically, we test for the effect of dividend demand on payout policy. Firms seem to respond to the tendency of older investors to hold dividend-paying stocks in combination with individual investors' increased financial demands due to a low government funding in health expenses. Firms also try to attract foreign investors by resorting to a generous payout policy. We also find that overconfident investors, as measured by index of individualism (IDV) developed by Hofstede (2001), reduce their demand for dividends. Demographics thus provide an empirical proxy for dividend demand, which we exploit in this paper to examine the broader question of whether the demand factors of current owners influence corporate actions.

Next, we analyze the agency costs based explanation for payout policy. Agency costs are captured by the extent of minority shareholder protection as measured by Anti-Director Right Index (ADRI) and the level of business disclosure. We find that firms operating in countries with poor protection of minority shareholders and low level of business disclosure pay higher

dividends. Unlike LaPorta et al. (2000) findings that support the outcome agency model, our results support the substitute agency model for dividends. Dividends serve as a substitute for effective legal protection, which enables firms in unprotected legal environments to establish reputations for good treatment of investors through the dividend policies. We find that the reason for this contradiction is the difference in the study periods covered by the two studies. Also, Spamann (2010) argues that the LLSV ADRI compiled by La Porta et al. (1998) does not follow rigorous legal definition. The findings are consistent with the intuition that when shareholders face the potential exploitation due to weak shareholder protection, the demand for dividend payments becomes stronger.

A country with good market quality has better price informativeness due to improved transparency, and higher stock market liquidity. We test the effect of market quality on payout policy and find that a firm headquartered in a country whose stock market is transparent and liquid, pay lower dividends. Finally, we show that companies headquartered in countries with low dividend tax rates pay higher dividends relative to the companies headquartered in countries with high taxes on dividends.

Overall, our results support the presence of strong dividend clienteles. Firms headquartered in countries with a lower proportion of senior citizens, generous universal health care, higher investor overconfidence, lower proportion of foreign investors, lower agency costs, a liquid and transparent market, and higher taxes have clients for firms with lower dividend payouts.

Understanding dividend policy is important not only because of the amount of money involved and the repeated nature of the decision, but also because payout policy is closely related

to, and interacts with most of the financial and investment decisions firms make (Allen and Michaely, 2003). Synthesizing innovations in financial theories and measurements, this global investigation of dividend clienteles substantiate the explanatory power of variables derived from shareholder demand, agency problems, market quality and taxes.

References

Allen F, Michaely R (2003) "Payout policy" Handbook of the Economics of Finance in: G.M. Constantinides and M. Harris & R. M. Stulz (ed.) Handbook of the Economics of Finance edition 1 volume 1 chapter 7: 337-429 Elsevier.

Anderson CW, Fedenia M, Hirschey M, Skiba H (2011) Cultural influences on home bias and international diversification by institutional investors. Journal of Banking and Finance 35: 916-934.

Banerjee S, Gatchev VA, Spindt PA (2007) Stock Market Liquidity and Firm Dividend Policy. Journal of Financial and Quantitative Analysis 42: 369-397.

Barclay M, Holderness C, Sheehan D (2009) Dividends and corporate shareholders. Review of Financial Studies 22: 2423-2455.

Becker B, Ivković Z, Weisbenner S (2011) Local dividend clienteles. Journal of Finance 66: 655-683.

Bekaert G, Harvey CR, Lundblad C (2007) Liquidity and expected returns: Lessons from emerging markets. Review of Financial Studies 20: 1783-1831.

Bhattacharya S (1979) Imperfect Information Dividend Policy and "The Bird in the Hand Fallacy." Bell Journal of Economics 10: 259-70.

Brockman P, Unlu E (2009) Dividend policy creditor rights and the agency costs of debt. Journal of Financial Economics 92: 276-299.

Brockman P, Unlu E (2011) Earned/contributed capital dividend policy and accounting discourse quality: An international study. Journal of Banking and Finance 35: 1610-1625.

Chui ACW, Titman S, Wei KCJ (2010) Individualism and momentum around the world. Journal
of Finance 65: 361–92.

Denis DJ, Osobov I (2008) Why do firms pay dividends? International evidence on the
determinants of dividend policy. Journal of Financial Economics 89: 62–82.

Dahlquist M, Robertsson G (2001) Direct foreign ownership institutional investors and firm
characteristics. Journal of Financial Economics 59: 413–440.

Easterbrook F (1984) Two agency-cost explanations of dividends. American Economic Review
74: 650-659.

Elton E, Gruber M (1970) Marginal Stockholder Tax Rates and the Clientele Effect. Review of
Economics and Statistics 52: 68‑74.

Fernandes N, Ferreira MA (2009) Insider trading laws and stock price informativeness. Review
of Financial Studies 22: 1845-1877.

Graham J, Kumar A (2006) Do Dividend Clienteles Exist? Evidence on Dividend Preferences of
Retail Investors. Journal of Finance 61: 1305‑36.

Greene W (2000) Econometric Analysis 4th ed. Prentice Hall Englewood Cliffs.

Grinblatt M, Keloharju M (2001) How distance language and culture influence stockholdings
and trades. Journal of Finance 56: 1053–1073.

Grinstein Y, Michaely R (2005) Institutional Holdings and Payout Policy. Journal of Finance
60:1389‑426.

Hofstede G (2001) Culture's consequences: Comparing values behaviors institutions and
organizations across Nations 2nd edition (Sage Publication: Beverly Hills CA)

Huberman G (2001) Familiarity Breeds Investment. Review of Financial Studies 14: 659-680.

Ivkovic Z, Weisbenner S (2005) Local does as local is: Information content of the geography of individual investors' common stock investments. Journal of Finance 60: 267-306.

Jain PK (2005) Financial market design and the equity premium: Electronic versus floor trading. Journal of Finance 60: 2955–2985.

Jeon JQ, Lee C, Moffett CM (2011) Effects of foreign ownership on payout policy: Evidence from the Korean market. Journal of Financial Markets 14: 344-375.

Jin L, Myers SC (2006) R^2 around the world: New theory and new tests. Journal of Financial Economics 79: 257-292.

Kang HC, Lee DW, Park KS (2010) Does the difference in valuation between domestic and foreign investors help explain their distinct holdings of domestic stocks? Journal of Banking and Finance 34: 2886-2896.

Kuo,NT (2012) Dividend tax signaling and the pricing of future earnings: a case of taxable stock dividends. Review of Quantitative Finance and Accounting: 1-32.

Kyle AS (1985) Continuous auctions and insider trading. Econometrica 53: 1315-1336

La Porta R, Lopez de Silanes F, Shleifer A, Vishny R (1998) Law and finance. Journal of Political Economy 106: 1113–1155

La Porta R, Lopez de Silanes F, Shleifer A, Vishny R (2000) Agency problems and dividend policies around the world. Journal of Finance 55: 1-33.

Lee CF, Gupta MC, Chen HY, Lee AC (2011) Optimal payout ratio under uncertainty and the flexibility hypothesis: Theory and empirical evidence. Journal of Corporate Finance 17(3): 483-501.

Lee WJ (2011) Managerial entrenchment and the value of dividends. Review of Quantitative Finance and Accounting 36(2): 297-322.

Lesmond DA, Ogden JP, Trzcinka CA (1999) A new estimate of transaction costs. The Review of Financial Studies 12: 1113–1141.

Lewellen WG, Stanley KL, Lease RC, Schlarbaum GG (1978) Some direct evidence on the dividend clientele phenomenon. Journal of Finance 33: 1385–1399.

Lipson ML, Mortal SC (2009) Liquidity and Capital Structure Journal of Financial Markets 12: 611-644.

Miller M, Modigliani F (1961) Dividend policy growth and the valuation of shares. Journal of Business 34: 411–33.

Morck R, Yeung B, Wu W (2000) The information content of stock markets: Why do emerging markets have synchronous stock price movements? Journal of Financial Economics 58: 215-260.

Pettit RR (1977) Taxes transaction costs and the clientele effect of dividends. Journal of Financial Economics 5: 419–436.

Roll R (1988) R². Journal of Finance 43: 541-566.

Perez-Gonzalez F (2003) Large Shareholders and Dividends: Evidence from U.S. Tax Reforms. Unpublished Working Paper Columbia University New York.

Shefrin H, Thaler RH (1988) The behavioral life-cycle hypothesis. Economic Inquiry 26: 609–643.

Spamann H (2010) The "Antidirector rights index" revisited. Review of Financial Studies 23: 467–486.

Van den Steen E (2004) Rational overoptimism (and other biases). American Economic Review
94: 1141-1151.

White H (1980) A heteroscedasticity-consistent covariance matrix estimator and a direct test for
heteroscedasticity. Econometrica 48: 817-838.

Table 1
Summary Statistics across Countries

This table presents summary statistics for the key variables analyzed in the study across countries. The sample consists of the pooled cross sections for 2005. *N* is the number of firms included in the final sample from a given country, *Dividend Yield* is the dollar amount of dividends paid out in year divided by end-of-year equity market value, *Dividend Payer* is an indicator variable equal to 0 for nonpayers and 1 for dividend payers, *Dividend Initiation* is an indicator variable equal to 1 for nonpayers at the end of year t-1 who start to pay a dividend in year t, and zero otherwise, *Seniors* is the proportion of population who are 65 years old or older in a given country in which a firm is headquartered, *ADRI* is the Antidirector Rights Index that measures shareholder protection, *Informativeness* is the median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country, and *Illiquidity* is proportion of zero daily returns across all firms for each country averaged over the month.

Country	N	Dividend Yield (%)	Dividend Payer	Dividend Initiation	Seniors (%)	ADRI	Informativeness	Illiquidity (%)
Argentina	68	1.92	0.36	0.04	10.34	3.00	3.45	50.91
Australia	99	1.90	0.41	0.03	12.94	4.00	2.82	53.44
Austria	92	1.45	0.58	0.05	16.21	4.00	3.18	49.70
Belgium	100	1.98	0.64	0.04	17.26	2.00	2.76	43.76
Brazil	100	1.48	0.31	0.02	6.17	5.00	3.17	70.65
Canada	100	1.63	0.44	0.04	13.11	4.00	2.91	55.48
Chile	100	1.88	0.33	0.02	8.10	5.00	3.19	69.29
Denmark	100	1.72	0.56	0.03	15.13	4.00	3.27	43.66
Finland	100	2.89	0.60	0.04	15.95	4.00	3.29	34.26
France	100	1.91	0.53	0.09	16.46	5.00	2.96	38.74
Germany	100	1.65	0.52	0.01	18.86	4.00	2.97	38.02
Greece	100	1.62	0.50	0.04	17.99	3.00	3.22	29.67
India	100	1.04	0.33	0.03	4.59	4.00	2.86	42.29
Ireland	45	1.33	0.39	0.02	10.99	4.00	2.54	38.80
Israel	100	1.55	0.35	0.05	10.10	4.00	3.18	51.26
Italy	100	1.88	0.52	0.06	19.65	4.00	2.95	28.71
Japan	100	1.92	0.66	0.04	19.92	5.00	2.42	26.32
Malaysia	99	0.73	0.27	0.01	4.36	4.00	3.27	40.28
Mexico	100	1.37	0.31	0.02	5.77	3.00	3.15	58.49
Netherlands	100	2.13	0.55	0.02	14.15	4.00	2.95	28.45
Norway	100	2.83	0.57	0.06	14.51	4.00	2.77	38.97
Pakistan	89	1.68	0.49	0.04	3.81	5.00	2.70	45.50
Philippines	100	0.55	0.24	0.02	3.85	5.00	3.22	78.33
Portugal	52	1.48	0.48	0.05	17.06	4.00	3.10	44.83
Spain	100	1.22	0.57	0.04	16.76	6.00	1.28	37.70
Sweden	100	1.92	0.47	0.07	17.15	4.00	2.68	33.61
Switzerland	100	0.96	0.44	0.04	15.98	3.00	3.22	34.62
Thailand	98	1.08	0.34	0.07	7.10	4.00	2.73	61.56
Turkey	100	1.38	0.28	0.05	5.66	4.00	3.48	31.45
UK	99	1.89	0.48	0.03	16.10	5.00	2.47	51.79
USA	99	1.92	0.49	0.02	12.38	2.00	4.17	13.41
Venezuela	35	1.35	0.52	0.04	4.98	2.00	3.21	87.96

Table 2
Summary Statistics

This table reports summary statistics for payout policy variables and the key country level variables. The sample consists of the pooled cross sections for the year 2005. *Dividend Yield* is the dollar amount of dividends paid out in year divided by end-of-year equity market value. *Dividend Payer* is an indicator variable equal to 0 for nonpayers and 1 for dividend payers. *Dividend Initiation* is an indicator variable equal to 1 for nonpayers at the end of year t-1 who start to pay a dividend in year t, and zero otherwise. *Seniors* is the proportion of population who are 65 years old or older in a given country in which a firm is headquartered, *Government Health Expense* is the proportion of health expenditure funded by government, *FPI* is the total investment in domestic stock markets by foreign investors and is normalized by the stock market capitalization, *IDV* is an index of individualism developed by Hofstede (2001), which measures investor overconfidence and self-attribution bias, *Informativeness* is the median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country, *ADRI* is the Antidirector Rights Index that measures shareholder protection, *Business Disclosure* measures the financial and operational transparency of businesses in a given country, *Illiquidity* is the proportion of zero daily returns across all firms for each country averaged over the month, and *Turnover ratio* is the total value of shares traded divided by the average market capitalization.

Variables	Mean	25th Percentile	Median	75th Percentile	Standard Deviation
Payout Policy Variables					
Dividend Yield (%)	1.40	0.00	0.00	2.03	2.49
Dividend Payer (%)	42.00	0.00	0.00	100.00	0.49
Dividend Initiation (%)	4.00	0.00	0.00	0.00	0.20
Dividend Demand Variables					
Seniors (%)	12.41	7.10	14.15	16.77	5.23
Government Health Expense (%)	13.02	11.56	14.11	16.24	4.28
FPI (% of market capitalization)	28.81	19.10	22.35	31.53	27.42
IDV	55.24	35.00	57.00	74.00	22.76
Agency					
ADRI	4.02	4.00	4.00	5.00	0.90
Business Disclosure	6.23	5.00	7.00	8.00	2.61
Market Quality					
Informativeness	2.98	2.77	2.97	3.22	0.46
Illiquidity (%)	39.68	22.73	34.78	50.00	23.48
Turnover ratio	2.84	2.41	2.88	3.35	0.69

Table 3
Correlation Matrix

This table reports the product moment correlation coefficients for the key variables included in the study. The sample consists of the pooled cross sections for 2005. *Dividend Yield* is the dollar amount of dividends paid out in year divided by end-of-year equity market value, *Seniors* is the proportion of population who are 65 years old or older in a given country in which a firm is headquartered, *Government Health Expense* is the proportion of health expenditure funded by government, *FPI* is the total investment in domestic stock markets by foreign investors and is normalized by the stock market capitalization, *IDV* is an index of individualism developed by Hofstede (2001), which measures investor overconfidence and self-attribution bias, *Informativeness* is the median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country, *ADRI* is the Antidirector Rights Index that measures shareholder protection, *Business Disclosure* measures the financial and operational transparency of businesses in a given country, *Illiquidity* is the proportion of zero daily returns across all firms for each country averaged over the month, and *Turnover ratio* is the total value of shares traded divided by the average market capitalization.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Dividend Yield	1.00									
(2) Seniors	0.07	1.00								
(3) Government Health Expense	-0.11	0.24	1.00							
(4) FPI	0.02	0.23	0.29	1.00						
(5) IDV	-0.17	0.43	0.35	0.31	1.00					
(6) Informativeness	-0.01	-0.27	-0.15	0.15	-0.05	1.00				
(7) ADRI	-0.01	-0.06	-0.03	0.03	0.18	0.36	1.00			
(8) Business Disclosure	-0.04	-0.18	-0.02	0.08	0.10	0.09	0.16	1.00		
(9) Illiquidity	0.08	-0.15	-0.31	-0.22	-0.37	-0.09	-0.19	-0.02	1.00	
(10) Turnover ratio	-0.03	0.09	0.04	0.04	0.10	0.28	0.29	0.02	-0.37	1.00

Table 4
Dividend Yield

This table presents OLS regression results for firm dividend payout behavior, estimated over the sample of pooled observations from the 2005 cross sections. Dependent variable is measured 1 year after the firm- and the country-level controls. *Dividend Yield* is the dollar amount of dividends paid out in year divided by end-of-year equity market value. Our key independent variables are *Seniors* is the proportion of population who are 65 years old or older in a given country in which a firm is headquartered, *Government Health Expense* is the proportion of health expenditure funded by government, *FPI* is the total investment in domestic stock markets by foreign investors and is normalized by the stock market capitalization, *IDV* is an index of individualism developed by Hofstede (2001), which measures investor overconfidence and self-attribution bias, *ADRI* is the Antidirector Rights Index that measures shareholder protection, *Business Disclosure* measures the financial and operational transparency of businesses in a given country, *Informativeness* is the median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country, *Illiquidity* is the proportion of zero daily returns across all firms for each country averaged over the month, and *Turnover ratio* is the total value of shares traded divided by the average market capitalization. Besides the key variables, the regressions include firm-specific controls: *Net Income, Cash, market-to-book ratio and Debt. Volatility* refers to the variance of monthly stock returns over the preceding 3 years. *Return* refers to monthly stock returns over the preceding 3 years. *Asset Growth* is the logarithm of the growth rate of assets over the prior year and *Lagged Dividend Yield* is the dividend yield during the previous year. Standard errors (shown in parentheses) allow for heteroskedasticity. ∗∗∗, ∗∗, ∗ denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Dividend Demand Variables				
Seniors	0.06*** (0.02)	-	-	0.19*** (0.03)
Government Health Expense	-0.07*** (0.03)	-	-	-0.12*** (0.03)
FPI	0.02* (0.01)	-	-	0.04*** (0.01)
IDV	-0.04** (0.02)	-	-	-0.07*** (0.03)
Agency				
ADRI	-	-0.02** (0.01)	-	-0.08*** (0.03)
Business Disclosure	-	-0.03** (0.01)	-	-0.07*** (0.02)
Market Quality				
Informativeness	-	-	-0.04***	-0.06***

	(1)	(2)	(3)	(4)
			(0.01)	(0.03)
Illiquidity	-	-	0.06***	0.13***
			(0.02)	(0.01)
Turnover	-	-	-0.06***	-0.08***
			(0.02)	(0.02)
Control Variables				
Return	0.04***	0.04***	0.04**	0.05***
	(0.02)	(0.02)	(0.02)	(0.02)
Return Volatility	-0.03*	-0.03*	-0.03*	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)
Net Income	0.05**	0.05**	0.05**	0.05**
	(0.02)	(0.03)	(0.02)	(0.02)
Cash	0.05	0.05	0.05	0.05
	(0.04)	(0.04)	(0.04)	(0.04)
Market-to-book	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)
Debt	-0.02	-0.02	-0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)
Log of Market Value	0.13***	0.11***	0.13***	0.15***
	(0.03)	(0.03)	(0.03)	(0.03)
Log of Assets	0.08**	0.12***	0.10***	0.07**
	(0.03)	(0.03)	(0.03)	(0.03)
Asset Growth	-0.02	-0.01	-0.01	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)
Lag Dividend Yield	0.43***	0.43***	0.43***	0.42***
	(0.13)	(0.13)	(0.13)	(0.13)
Adjusted R^2	0.29	0.28	0.29	0.30

Table 5
Dividend Payout Policy

This table presents OLS regression results for firm dividend payout behavior, estimated over the sample of pooled observations from the 2005 cross sections. Dependent variable is measured 1 year after the firm- and the country-level controls. *Dividend Payer* is an indicator variable equal to 0 for nonpayers and 1 for dividend payers. *Dividend Initiation* is an indicator variable equal to 1 for nonpayers at the end of year t-1 who start to pay a dividend in year t, and zero otherwise. Our key independent variables are *Seniors* is the proportion of population who are 65 years old or older in a given country in which a firm is headquartered, *Government Health Expense* is the proportion of health expenditure funded by government, *FPI* is the total investment in domestic stock markets by foreign investors and is normalized by the stock market capitalization, *IDV* is an index of individualism developed by Hofstede (2001), which measures investor overconfidence and self-attribution bias, *ADRI* is the Antidirector Rights Index that measures shareholder protection, Business Disclosure measures the financial and operational transparency of businesses in a given country, *Informativeness* is the median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country, *Illiquidity* is the proportion of zero daily returns across all firms for each country averaged over the month, and *Turnover ratio* is the total value of shares traded divided by the average market capitalization. Besides the key variables, the regressions include firm-specific controls: *Net Income, Cash, market-to-book ratio and Debt. Volatility* refers to the variance of monthly stock returns over the preceding 3 years. *Return* refers to monthly stock returns over the preceding 3 years. *Asset Growth* is the logarithm of the growth rate of assets over the prior year and *Lagged Dividend Yield* is the dividend yield during the previous year. Standard errors (shown in parentheses) allow for heteroskedasticity. ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
	Dividend Yield	Dividend Payer	Dividend Initiation
Dividend Demand Variables			
Seniors	0.19***	0.34***	0.07**
	(0.03)	(0.03)	(0.01)
Government Health Expense	-0.12***	-0.14***	-0.01
	(0.03)	(0.03)	(0.03)
FPI	0.04***	0.05***	0.04*
	(0.01)	(0.02)	(0.02)
IDV	-0.07***	-0.06**	-0.06*
	(0.03)	(0.02)	(0.04)
Agency			
ADRI	-0.08***	-0.07***	-0.03*
	(0.03)	(0.02)	(0.01)
Business Disclosure	-0.07***	-0.03**	-0.04*
	(0.02)	(0.02)	(0.02)
Market Quality			
Informativeness	-0.06***	-0.02**	-0.04*

	(0.03)	(0.01)	(0.02)
Illiquidity	0.13***	0.04**	0.03*
	(0.01)	(0.02)	(0.02)
Turnover ratio	-0.08***	-0.02	-0.02
	(0.02)	(0.02)	(0.03)
Control Variables			
Return	0.05***	0.11***	0.05**
	(0.02)	(0.02)	(0.02)
Return Volatility	-0.03	-0.06*	-0.01
	(0.02)	(0.03)	(0.01)
Net Income	0.05**	0.02	-0.01
	(0.02)	(0.02)	(0.01)
Cash	0.05	0.03*	0.01
	(0.04)	(0.02)	(0.00)
Market-to-book	-0.03***	-0.02***	0.01*
	(0.01)	(0.01)	(0.00)
Debt	-0.02	-0.01	0.01
	(0.02)	(0.01)	(0.01)
Log of Market Value	0.15***	0.28***	0.04
	(0.03)	(0.03)	(0.03)
Log of Assets	0.07**	0.15***	0.06**
	(0.03)	(0.03)	(0.03)
Asset Growth	-0.02	-0.01	-0.06**
	(0.01)	(0.01)	(0.02)
Lag Dividend Yield	0.42***	0.25***	0.14***
	(0.13)	(0.07)	(0.04)
Adjusted R^2	0.30	0.36	0.03

Table 6
Change in R^2 test

This table reports the individual contribution of each category of factors influencing the payout policy in explaining the dividend yield which is the dollar amount of dividends paid out divided by the end-of-year equity market value. Demand Factors include: *Seniors*, which is the proportion of population who are 65 years old or older in a given country in which a firm is headquartered, *Government Health Expense*, which is the proportion of health expenditure funded by government, as reported by the World Bank, *FPI*, which is the total investment in domestic stock markets by foreign investors and is normalized by the stock market capitalization, *IDV,* which is an index of individualism developed by Hofstede (2001), that measures investor overconfidence and self-attribution bias. Agency factors are *ADRI*, which is the Antidirector Rights Index that measures shareholder protection, and *Business Disclosure,* that measures the financial and operational transparency of businesses in a given country. Market Factors include *Informativeness*, which is the median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country, *Illiquidity*, which is the proportion of zero daily returns across all firms for each country averaged over the month, and *Turnover ratio*, which is the total value of shares traded divided by the average market capitalization. In addition to these factors, the regressions also include firm-specific controls: *Net Income, Cash, market-to-book ratio and Debt. Volatility* refers to the variance of monthly stock returns over the preceding 3 years. *Return* refers to monthly stock returns over the preceding 3 years. *Asset Growth* is the logarithm of the growth rate of assets over the prior year and *Lagged Dividend Yield* is the dividend yield during the previous year. F (Change) statistic is calculated as:

$$F(Change) = \frac{[\ SSE(R) - SSE(F)\ ]\ /\ [\ df(R) - df(F)\ ]}{SSE(F)\ /\ df(F)}$$

SSE(R) and df(R) is the sum of squared errors and degrees of freedom for the restricted model, SSE(F) and df(F) is the sum of squared errors and degrees of freedom for the full model, $***$, $**$, $*$ denote significance at the 1%, 5%, and 10% levels, respectively.

VARIABLE	Change in R-square	F (change)	P-value
Demand Factors	0.019	9.65***	<0.001
Agency Factor	0.025	8.94***	<0.001
Market Factors	0.021	8.27***	<0.001

Table 7
Dividend Payout Policy and Taxes

This table presents OLS regression results for firm dividend payout behavior, estimated over the sample of pooled observations from the 2005 cross sections. Dependent variable is measured 1 year after the firm- and the country-level controls. *Dividend Yield* is the dollar amount of dividends paid out in year divided by end-of-year equity market value. *Dividend Payer* is an indicator variable equal to 0 for nonpayers and 1 for dividend payers. *Dividend Initiation* is an indicator variable equal to 1 for nonpayers at the end of year t-1 who start to pay a dividend in year t, and zero otherwise. Our key independent variables are *Net tax* is the top marginal statutory personal income tax rate imposed on dividend income after taking account imputation systems, tax credits, and tax allowances in each country, *Seniors* is the proportion of population who are 65 years old or older in a given country in which a firm is headquartered, *Government Health Expense* is the proportion of health expenditure funded by government, *FPI* is the total investment in domestic stock markets by foreign investors and is normalized by the stock market capitalization, *IDV* is an index of individualism developed by Hofstede (2001), which measures investor overconfidence and self-attribution bias, *ADRI* is the Antidirector Rights Index that measures shareholder protection, *Business Disclosure,* that measures the financial and operational transparency of businesses in a given country, *Informativeness* is the median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country, *Illiquidity* is the proportion of zero daily returns across all firms for each country averaged over the month, and *Turnover ratio* is the total value of shares traded divided by the average market capitalization. Besides the key variables, the regressions include firm-specific controls: *Net Income, Cash, market-to-book ratio and Debt. Volatility* refers to the variance of monthly stock returns over the preceding 3 years. *Return* refers to monthly stock returns over the preceding 3 years. *Asset Growth* is the logarithm of the growth rate of assets over the prior year and *Lagged Dividend Yield* is the dividend yield during the previous year. Standard errors (shown in parentheses) allow for heteroskedasticity. ∗∗∗, ∗∗, ∗ denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
	Dividend Yield	Dividend Payer	Dividend Initiation
Taxes			
Net Tax	-0.11***	-0.02*	-0.04*
	(0.04)	(0.01)	(0.03)
Dividend Demand Variables			
Seniors	0.02**	0.16***	0.12***
	(0.01)	(0.03)	(0.05)
Government Health Expense	-0.09***	-0.14***	-0.03
	(0.03)	(0.03)	(0.03)
FPI	0.04**	0.05**	0.08***
	(0.02)	(0.02)	(0.03)
IDV	-0.07**	-0.03	-0.05*

	(0.03)	(0.03)	(0.03)
Agency			
ADRI	-0.04*	-0.03*	-0.03*
	(0.03)	(0.02)	(0.02)
Business Disclosure	-0.01	-0.01	-0.04*
	(0.02)	(0.03)	(0.03)
Market Quality			
Informativeness	-0.10***	-0.02*	-0.02*
	(0.03)	(0.01)	(0.01)
Illiquidity	0.03*	0.01*	0.13***
	(0.02)	(0.01)	(0.04)
Turnover Ratio	-0.03	-0.11***	-0.05
	(0.03)	(0.03)	(0.04)
Control Variables			
Return	0.06***	0.13***	0.07**
	(0.02)	(0.02)	(0.03)
Return Volatility	-0.01*	-0.02***	-0.01
	(0.01)	(0.00)	(0.00)
Net Income	0.01	0.05***	0.01
	(0.02)	(0.01)	(0.01)
Cash	-0.01	-0.02	-0.01
	(0.03)	(0.03)	(0.01)
Market-to-book	-0.03***	-0.01	-0.01
	(0.01)	(0.02)	(0.01)
Debt	-0.01	-0.05*	-0.01
	(0.03)	(0.03)	(0.02)
Log of Market Value	0.10***	0.25***	0.01
	(0.03)	(0.04)	(0.04)
Log of Assets	0.14***	0.19***	0.08*
	(0.04)	(0.04)	(0.04)
Asset Growth	-0.02	-0.03	-0.04*
	(0.02)	(0.02)	(0.02)
Lag Dividend Yield	0.40*	0.23*	0.20***
	(0.22)	(0.12)	(0.04)
Adjusted R^2	0.31	0.37	0.06

Table 8
Table 8

Dividend Payout Policy re-examined using Tobit, Probit and Logit regression models

This table presents regression results for firm dividend payout behavior, estimated over the sample of pooled observations from 2005 cross-sections. The regressions and all the variables mirror those from Table 5. Instead of OLS, in this table a Tobit model is employed for the regression results reported in the column (1), a Probit specification is employed for the results reported in the columns (2) and (4), and a Logit specification is employed for the results reported in the columns (3) and (5). Standard errors (shown in parentheses) allow for heteroskedasticity. ∗∗∗, ∗∗, ∗ denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
	Dividend Yield	Dividend Payer		Dividend Initiation	
	Tobit	Probit	Logit	Probit	Logit
Dividend Demand Variables					
Seniors	0.48***	0.50***	0.39***	0.09**	0.10**
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Government Health Expense	-0.31***	-0.31***	-0.23***	-0.07	-0.07
	(-0.01)	(0.01)	(0.01)	(0.07)	(0.11)
FPI	0.10**	0.07**	0.05**	0.05**	0.04*
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
IDV	-0.18***	-0.11**	-0.03*	-0.14**	-0.18**
	(-0.02)	(0.02)	(0.01)	(0.03)	(0.04)
Agency					
ADRI	-0.19***	-0.09**	-0.06***	-0.02*	-0.03*
	(-0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Business Disclosure	-0.17***	-0.04**	-0.02*	-0.09*	-0.13*
	(-0.01)	(0.01)	(0.01)	(0.03)	(0.04)
Market Quality					
Informativeness	-0.14***	-0.07***	-0.06**	-0.04*	-0.04*
	(-0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Illiquidity	0.33***	0.05**	0.05**	0.03*	0.03*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Turnover ratio	-0.21***	-0.06*	-0.10**	0.00	0.00
	(-0.01)	(0.02)	(0.02)	(0.01)	(2.02)
Control Variables					
Return	0.11***	0.38***	0.40***	0.17***	0.22***
	(0.02)	(0.00)	(0.00)	(0.02)	(0.02)
Return Volatility	-0.07*	-1.84***	-1.83***	-0.45**	-0.57*
	(-0.03)	(0.02)	(0.02)	(0.08)	(0.11)
Net Income	0.13*	0.10	0.11	-0.04	-0.05
	(0.04)	(0.26)	(0.26)	(0.87)	(1.04)
Cash	0.14***	0.06	0.04	0.03	0.04
	(0.02)	(0.06)	(0.14)	(0.37)	(0.43)

Market-to-book	-0.08**	-0.05	-0.07	0.01	0.01
	(-0.02)	(0.04)	(0.11)	(0.37)	(0.52)
Debt	-0.05	-0.01	-0.00	-0.01	-0.02
	(-0.11)	(0.77)	(0.00)	(1.08)	(0.92)
Log of Market Value	0.39***	0.35***	0.29***	0.11	0.13
	(0.01)	(0.01)	(0.01)	(0.08)	(0.10)
Log of Assets	0.19***	0.26***	0.21***	0.18*	0.22*
	(0.03)	(0.01)	(0.02)	(0.05)	(0.06)
Asset Growth	-0.04	-0.06	-0.00	-0.13***	-0.14***
	(-0.04)	(0.03)	(1.34)	(0.01)	(0.01)
Lag Dividend Yield	1.07***	0.44***	1.38***	0.15***	0.15***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Pseudo R^2	0.30	0.53	0.60	0.08	0.08

Appendix A.

Variable	Description	Source
Payout policy variables		
Dividend Yield	Dollar amount of dividends paid out in year divided by end-of-year equity market value.	DataStream
Dividend Payer	An indicator variable equal to 0 for nonpayers and 1 for dividend payers.	DataStream
Dividend Initiation	An indicator variable equal to 1 for nonpayers at the end of year t-1 who start paying dividend in year t and zero otherwise.	DataStream
Dividend Demand Variables		
Seniors	Proportion of population who are 65 years old or older in a given country where the sample firm is headquartered	World Bank
Government Health Expense	Proportion of health expenditure funded by government in a given country where the sample firm is headquartered	World Bank
FPI	Total investment in domestic stock markets by foreign investors divided by the stock market capitalization of the country where the sample firm is headquartered	World Bank
IDV	Index developed by Hofstede (2001) and measures overconfidence and self-attribution bias of investors from the country where the sample firm is headquartered	Hofstede (2001)
Agency		
Antidirector Rights Index (ADRI)	The index is constructed by Spamann (2010) and measures the level of shareholder protection in a given country. It was constructed as in LLSV (1998) but a reexamination of the legal data leads to corrections for thirty-three out of forty-six countries analyzed.	Spamann (2010)
Business Disclosure	Measure of the financial and operational transparency of businesses in a given country. Based on a survey conducted by the World Bank and the scores vary between one and ten	World Bank

Market Quality

Informativeness	The median logistic transformed relative firm-specific over market-wide stock return variation estimated using an international two-factor model for U.S. dollar excess returns across all firms for each country over the previous 3 years	DataStream
Illiquidity	Proportion of zero daily returns across all firms for each country averaged over the month over the previous 3 years	DataStream
Turnover Ratio	Total value of shares traded divided by the average stock market capitalization of the country	World Bank

Control Variables

Return	Monthly stock returns over the preceding 3 years	DataStream
Return Volatility	Variance of the monthly stock returns over the preceding 3 years	DataStream
Net Income	Net income of the sample firm divided by its market value of equity	DataStream
Cash	Net cash held by the sample firm divided by its market value of equity	DataStream
Market-to-book	Market to book ratio of the sample firm's equity	DataStream
Debt	Net debt of the sample firm divided by its market value of equity	DataStream
Log of Market Value	Logarithm of the market value of equity of the sample firm	DataStream
Log of Assets	Logarithm of the total assets of the sample firm	DataStream
Asset Growth	Logarithm of the growth rate of assets over the prior year	DataStream
Lag Dividend Yield	Dividend yield during the previous year	DataStream
Net Tax	Top marginal statutory personal income tax rate imposed on dividend income after taking account imputation systems, tax credits, and tax allowances in each country	OECD database