Dividends and Trust*

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Abstract

I present new evidence on the importance of trust in financial decision-making. Specifically, I predict that less trusting individuals will have a preference for dividend-paying as opposed to non-dividend paying stocks, and that, in less trusting geographic regions, dividend-paying stocks will trade at a higher premium than non-payers. I find support for these predictions in the data: in a cross-section of households, those who are less trusting of others tilt their portfolios toward dividend-paying stocks; and in countries and in regions of the U.S. where people are less trusting, locally-headquartered firms that pay dividends are valued more highly than locally-headquartered firms that do not.

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1 Introduction

In recent years, there has been growing interest in the role that trust plays in economic outcomes. Guiso, Sapienza, and Zingales (2006) summarize evidence that shows that countries where people are more trusting of others exhibit a range of positive economic outcomes – they have more entrepreneurs; they trade more with other countries; there are more large organizations, and these organizations function better; the government is less bureaucratic; and, more generally, economic growth is higher. In the financial context, Guiso, Sapienza, and Zingales (2008) show that more trusting individuals are more likely to participate in the stock market.

In this paper, I present new evidence that trust plays an important role in financial decision-making. Specifically, I argue that trust affects the way households allocate their wealth across stocks – in particular, in how they choose between dividend-paying and non-dividend paying stocks. My evidence suggests that these portfolio effects may be so strong as to affect the relative prices of dividend-paying and non-paying stocks, and even to influence managerial decisions as to whether to pay dividends.

The idea behind my framework is this. When investors allocate money to a stock, they are often concerned that the manager of the underlying firm may expropriate the firm's assets, or may take on unprofitable investment opportunities in an effort to secure private benefits. It is natural to think that an individual who is less trusting of other people in general is likely to also be less trusting of firm managers in particular, and hence to be especially worried about expropriation and other bad managerial behaviors. I suggest that such an individual is likely to have a preference for dividend-paying stocks rather than non-dividend paying stocks.

There are several reasons why someone who is mistrustful of others might prefer dividend-paying stocks. On one level, if a manager pays dividends, this reduces his ability to expropriate his firm's assets or to invest in unprofitable projects, thereby putting the mistrustful investor at ease. But there may also

be deeper psychological forces at work. Psychologists have argued that, in any relationship where trust plays a role, a mistrustful individual's behavior depends on how vulnerable he feels, and on the extent to which the other person in the relationship makes sacrifices for his benefit (Simpson, 2007). By paying a dividend, managers may make investors feel less vulnerable; and investors may see the act of paying dividends as a sacrifice on the part of managers. For all of these reasons, then, mistrustful individuals are likely to prefer dividend-paying stocks.

I conduct several tests of the hypothesis outlined above – namely that less trusting individuals will prefer dividend-paying stocks, and that this preference will affect prices. To test my predictions, I need a measure of how trusting an individual is of other people. To obtain this measure, I make use of the extensive survey data on trust. For example, a typical survey question asks people to respond to a question such as: "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?"

My first test makes use of data on 2,000 Dutch households who answered survey questions about the extent to which they trust others, and about their financial holdings. As described above, my prediction is that households that indicate that they do not trust others will tilt their stock holdings toward dividend-paying stocks.

My second prediction is that, in countries where people indicate that they are less trusting of others, dividend-paying firms should be valued at a premium relative to non-dividend paying firms. Countries where people are less trusting of others in general are also likely to be countries where investors are more concerned about expropriation by managers. As a result, residents of these countries will gravitate to dividend-paying firms, where they believe the risk of expropriation to be smaller, pushing up the value of these firms.

My third prediction is a within-country analog of the second prediction. Specifically, I use survey data from U.S. households to identify regions of the United States where people are more trusting of others, and regions where they are less trusting. I then predict that the valuation of dividend-paying stocks rel-

ative to non-dividend paying stocks will be higher among stocks headquartered in less trusting regions than it is among firms headquartered in more trusting regions. In other words, it is likely that, in less trusting regions of the U.S., people are particularly worried about bad behavior by managers; as a result, they pay a premium for dividend-paying firms. In more trusting regions, people are less worried that managers will behave poorly, and are less willing to pay a premium for a dividend-paying firm.

In the data, I find significant empirical support for these three predictions about the demand for dividends. Specifically, I confirm that, among the 2,000 Dutch households, those who are less trusting of others tilt their portfolios toward dividend-paying stocks. In my cross-country analysis, I find that the relative valuation of dividend-paying firms to non-dividend-paying firms is indeed higher in less trusting countries than in more trusting countries. Similarly, in my within-U.S. analysis, I find that the relative valuation of dividend-paying firms to non-dividend paying firms is higher in less trusting regions of the U.S. than in more trusting regions of the U.S.

The three predictions I have described so far are about investor demand for dividends. My fourth and final prediction is about the supply of dividends by managers. My prediction is that, if, in some region of the United States, people become more trusting of others over time, then managers of firms headquartered in that region are more likely to stop paying dividends, and less likely to initiate dividends: if people are more trusting, they are also likely to be less concerned about bad behavior by managers; managers therefore do not need to mitigate this concern by paying dividends. I find mixed support for this prediction: if investors in some region of the U.S. become more trusting, managers of firms headquartered in that region are indeed more likely to stop paying dividends; there is no evidence, however, that they are less likely to initiate a dividend.

The framework I have described above is related to the agency view of dividends, under which firms pay dividends in order to appease investors who are concerned about agency problems – specifically, that managers will expropriate assets or invest suboptimally. The trust measure that I use in my analysis can

be thought of as a measure of how concerned a given individual is about agency problems in firms. In this sense, my analyses can even be interpreted as tests of the agency view of dividends.

Section II describes the data. Section III presents the empirical analysis from the demand side and Section IV examines the behavior of managers on the supply side. Section V concludes the paper.

2 Data

I use data from CentER Savings Surveys to examine the connection between trust and dividends. These surveys (now known as the Dutch National Bank Household Survey) were used to collect economic and psychological data from a panel of 2000 Dutch households each year since 1993. This panel "reflects the composition of the Dutch-speaking population". Respondents answer questions at their convenience when their relevant documents (such as their bank balance statement) are accessible. I use annual data from the period 1997-2003 due to the availability and consistency of the appropriate data.[1] I exclude individuals who list themselves as older than 150 or younger than 16. Dividend information is gathered from responses to the question: "Did you, in "year", have any income through dividends from shares, stocks, investment accounts or investments funds?" I create a dummy variable "Received Dividends" that equals one if the individual responds "Yes". The trust measure I use is a self-reported measure. Survey participants are asked to rate themselves on a scale of 1-7 where 1 indicates "trusting, credulous" and 7 represents "suspicious". I create a dummy variable that equals one if the participant rates herself as less than a five. Risk tolerance is measured similarly. Subjects are asked how much they agree with the statement, "I am prepared to take risk to lose money, when there is also a chance to gain money," on a scale of 1-7 where 1 represents "totally disagree" and 7 represents "totally agree". To determine total assets, I sum the self-reported valuations for the main

[1] After 2003, there is no trust data available. Prior to 1997, the questions pertaining to dividends received are different and in 1996 the question measuring one's trust level is missing. Additionally, the trust measure I have for 2003 is different.

asset categories that appear in every survey from 1997-2002. This includes the self-reported valuations of the individual's automobiles, savings account, checking account, etc..[2] To mitigate concerns about outliers and to normalize total assets across years, I form total asset deciles for each year.

To proxy for the trust level of the investing base. I use a trust measure for the region where a firm's headquarters are located. To develop a trust measure for each country, I use data from the World Value Survey (WVS) and the European Values Study (EVS). This data includes responses to six waves of surveys administered over the following periods: 1981-1984, 1989-1993, 1994-1999, 1999-2004, 2005-2006, and 2008-2010. Combined, the WVS and EVS count over 400,000 respondents from over 100 countries. The overlap between the two surveys is very small.[3] But, for overlapping country-year pairs, I only consider survey responses from the World Value Survey. The list of countries surveyed in each wave differs. I use survey responses to the question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" The fraction of a country's respondents that respond "most people can be trusted" is the trust measure for that country.[4]

I conduct a within-United States analysis to avoid problems associated with a cross-country comparison. To generate a trust measure for the investor base in this case, I use data from the General Social Survey, which has interviewed Americans since 1972. The survey breaks the United States into nine different regions. I define a firm's investor base as individuals from the region where the firm is headquartered. The survey was administered most years from 1972-1994.[5] The target sample during those years was 1500 respondents. Starting in 1994 the survey began to be administered biannually and the total sample size almost doubled, increasing to about 4500 in 2006. Additionally, 2006 marked a change in the survey's design from a repeating cross-sectional design to a rolling panel design. I assign respondents to a region based on the location of the interview.

[2]Specifically, I sum items 1-4, 6, 7, 8, 11-18, 19Og, 19Hy, and 20-25. For survey years 1997-1999, I also include item 5 to better capture total savings.

[3]Four country-year pairs have survey responses from both the WVS and EVS.

[4]I exclude "I don't know" answers.

[5]Some years are missing due to funding issues.

The trust measure equals the fraction of survey respondants in the corresponding region-year that answer "most people can be trusted" to the question: "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?"[6]

To evaluate the impact of trust and dividends on firm valuation, I need data on firms' characteristics to control for other determinants of firm valuation. To determine information for foreign firms, I use Compustat Global Fundamentals Annual and Compustat Global Security Daily. With annual data dating back to 1987, Compustat Global Fundamental Annual overlaps with the last five waves of the WVS and EVS. I only consider observations that are unique by international security id number, month and year. I consider a firm to be a dividend payer if the quantity of dividends paid to common shares is greater than zero in the associated year. The associated year is not the calendar year, but the fiscal year referred to in the annual report that was released in the associated calendar year. I look to control for previously documented determinants of the market-to-book ratio. Following Connolly and Hirschey ('05), I collect data on a firm's profitability, measured as net income divided by sales, and on leverage, measured as total assets minus common equity divided by total assets. I drop all observations where leverage is negative or profitability is greater than one. I use common equity for common shareholders to measure book value. I collect price per share data from Compustat Global Security Daily. Market value is calculated by using the closing price at the end of the associated month times the number of common shares outstanding.[7] I use data from La Porta et al. (1998) to control for differences in legal institutions. That is, I use dummy variables that indicate whether a country has an English, French, German or Scandinavian legal origin.

I use a different data set, Compustat North America, to obtain firm-level information for American firms. Market-to-book is calculated by dividing price per share by book value per share. I use the closing price at the end of the fiscal year. Firms with a book value of less than 250,000 dollars are dropped from the sample. Again, I calculate a firm's profitability and leverage; both of these are possible

[6] I ignore "I don't know" answers.

[7] The associated month is the month of the data date for the fundamental data.

determinants of the market-to-book ratio. I drop all observations with a negative leverage value or a profitability measure greater than one. I consider a firm to be a dividend payer in a given year if the firm's annual report shows a positive number of total cash dividends paid out. To control for industry effects, I use SIC codes to create industry dummies. I look at total cash dividends paid out in a fiscal year to determine whether a firm changed its dividend-paying status. To control for changes in the economic conditions in a region, I collect region-level GDP data by aggregating state-level GDP data from the Bureau of Economic Analysis website.

I also look at the interaction between share repurchases and trust. I use SDC Platinum to determine if a firm announced a repurchase program in a particular year. If the firm announced an open-market share repurchase program in a particular year then the firm is considered a share-repurchaser in that year.[8] I collect data from the U.S. part of the Mergers and Acquisitions section of SDC Platinum. Data is available from 1979-2013. I merge this data with firm-level information from Compustat North America and trust data from the General Social Survey to conduct my analysis.[9]

3 Dividend Demand

3.1 Individual-Level Evidence

I argue that consistently paying a dividend makes a firm trustworthy to the investing base. Additionally, paying a dividend should lower the requisite trust level needed for investment due to decreased agency concerns. As such, my prediction is that less trusting people, conditional on investing, should be more likely to invest in dividend-paying firms.

To address these questions, I use data from CentER Savings Surveys. The survey asks investors if they received dividends in the past year. I compare an individual's response to this question with their self-reported trust measure. To

[8] I identify observations flagged as repurchases.

[9] I eliminate all observations that are duplicates by six digit cusip and year.

better capture the timing of the decision, I use self-reported trust measures from the previous year. Therefore, I limit my sample to individuals that have two consecutive years of data. I also limit my sample to individuals who invested directly in stocks, growth funds, or mutual funds in the past year. Finally, I further restrict my sample to heads of households.

Figure 1 shows the fraction of observations at each trust level that receive dividends. The graph suggests that more trusting individuals are less likely to receive dividends. To explicitly test this, I estimate the following model for individual i at time t:

$$\begin{aligned}\text{Received Dividends}_{i,t} = \beta_0 + \beta_1 &\text{Total Assets Decile}_{i,t} + \beta_2 \text{HS}_{i,t} + \beta_3 \text{University}_{i,t} \\ &+ \beta_4 \text{Employee}_{i,t} + \beta_5 \text{Risk Tolerance}_{i,t} + \beta_6 \text{Income}_{i,t} + \beta_7 \text{Age}_{i,t} + \\ &\beta_8 \text{Age Squared}_{i,t} + \beta_9 \text{Female}_{i,t} + \beta_{10} \text{Number in the Household}_{i,t} + \\ &\beta_{11} \text{Number of Children}_{i,t} + \beta_{12} \text{Level of Suspicion}_{i,t} + \epsilon_{i,t}. \end{aligned} \tag{1}$$

Table 1 presents the results of estimating two linear probability models using data from 1997-2003.[10]

The dependent variable is a dummy variable that equals one if the individual reports receiving dividends in the previous year. To better capture the timing of the decision, all the right-hand-side variables are from the previous year's survey. I am left with 671 individual-year observations. I form deciles for total assets each year. The dummy variables, *University and HS*, equal one if the participant's highest level of education achieved is university or high school, respectively. These serve as controls for a participant's level of education. I include *Age* and *Age Squared* as controls due to the existing literature that suggests age plays a role in the receipt of dividends; for example, Becker et al. (2011) suggest that older investors prefer dividend-payers. I also control for gender and the number of people/children in the household. *Risk-tolerance* is an important control as dividend-paying stocks may be viewed as less risky than non-payers and trust may be correlated with *Risk-tolerance*. Subjects are asked how much they agree with

[10]Probit models yield similar results.

the statement, "I am prepared to take the risk to lose money, when there is also a chance to gain money," on a scale of 1-7 where 1 represents "totally disagree" and 7 represents "totally agree". I use the self-reported answer as a control for risk-tolerance. The coefficient of interest is β_{12}. Trust is measured on a self-reported scale of 1-7 where "trusting, credulous" represents 1 and "suspicious" represents 7. *Level of suspicion* is equal to this self-reported measure. To ease interpretation, I estimate the model by replacing *Level of Suspicion* with *Trust Dummy*. *Trust Dummy* equals one if the self-reported level of suspicion is less than or equal to four.

The results are presented in Table 1. I cluster standard errors by individual. This is important as some individuals likely have correlated error terms. For example, an individual may view dividends as a stable source of income. This is not captured by the model and leads to correlated errors within subject. The coefficient on each trust variable is statistically and economically significant. I find that an increase of one in the level of suspicion is associated with an increase in the probability of receiving dividends of more than four percent. By comparison, an increase of one in the total assets decile is associated with an increase of about five percent in the probability of receiving dividends. Similarly, falling into the trustworthy category is associated with nearly a ten percent decline in the probability of receiving dividends.

3.2 Market Impact

3.2.1 Identification

In addition to the examination of individual investment decisions, I test my hypothesis by studying asset prices. Market-to-book ratios are determined by investor demand for stocks. It is well-known that investors exhibit both a home bias and a local bias. Therefore, by looking at the market-to-book ratios of firms headquartered in a particular area, I get a sense of the demand for these stocks by investors in that particular area. I look at the market-to-book ratios of dividend-payers in a particular region relative to the market-to-book ratio of non-dividend-payers to get a sense of the differential demand for dividend payers

relative to non-dividend-payers in a particular region. I expect this differential demand to be higher in less-trusting regions. That is, I expect to see less-trusting investors differentially demand dividend payers more.

Explicitly, I will examine whether the impact of being a dividend-payer on a firm's market-to-book ratio in different based on how trusting the investor base is. I will examine this across countries and across regions within the United States.

3.2.2 Cross-Country Market Impact

I first examine whether the impact of dividend payments on a firm's market-to-book ratio is different in more-trusting countries relative to less-trusting countries. I estimate the following equation for firm i in country j at time t:[11]

$$\begin{aligned}\log(M/B)_{i,t} = \beta_0 + \beta_1 \text{Trust}_{j,t} + \beta_2 \text{DivPayer}_{i,t} + \beta_3 \text{Divpayer}_i \text{Trust}_{j,t} + \\ \beta_4 \text{Profit}_{i,t} + \beta_5 \text{Leverage}_{i,t} + \text{Country}_j + \text{Year}_t + \epsilon_{i,t}.\end{aligned} \tag{2}$$

The trust measure is derived from responses to the World Value Survey (WVS) and European Values Study (EVS); it equals the fraction of respondents from the associated country that think most people can be trusted.[12] The dependent variable is the log market-to-book value of the firm. The coefficient of interest is β_3. This coefficient can be interpreted as the differential impact of trust on the market-to-book ratio for dividend payers relative to non-dividend payers. My hypothesis is that this coefficient will be negative and significant: as the trust level of the investor base increases (i.e. as the trust level of the country where the firm is headquartered increases), the demand for dividend payers will decrease, resulting in lower market-to-book valuations for dividend payers. I include country dummies to account for country-specific effects. For example, the taxation of dividends may have an effect on the market-to-book ratio of all dividend-payers. I also include time dummies to ensure that the result is not a consequence of

[11] I only consider firms that have a profitability measure, equal to net income divided by sales, in the closed set of [0,1].

[12] I use the trust measure for Great Britain for firms that are headquartered in the United Kingdom.

correlated trends in the trust level and dividend premium. Following Connolly and Hirschey ('05), I control for profits and leverage as they are commonly-cited determinants of the market-to-book ratio. In other specifications that I estimate, I replace country fixed effects with dummies that account for the countries' legal origins. A country's legal origin proxies for the strength of investor protection in that country. Countries with an English origin, common-law countries, tend to have the strongest investor protections. Legal systems with a French origin tend to have the weakest investor protections (LaPorta et al., 1998). Following Petersen (2009), I use standard errors clustered by firm (gvkey) and time (fiscal year). It is important to cluster by year as error terms in a particular year are often correlated (e.g. because of market-wide sentiment). It is also plausible that a firm's accounting practices will result in correlated errors within-firm across time. I also report results using standard errors clustered by country and by year. It may be better to cluster by country as there may be country-wide sentiment that results in correlated errors within a country.

I present the results in Table 2. As predicted, the coefficient β_3 is negative and statistically significant in all specifications. It is also economically significant. A decrease of ten percent in the fraction of respondents who think that most people can be trusted is associated with an expected increase in the market to book ratio of dividend payers by around ten percent more than the expected change in the market to book ratio of non-dividend payers.

3.2.3 Cross-Region Within-United States Market Impact

Cross-country comparisons present a host of concerns. One such concern is that country fixed effects may be inadequate controls for cross-country differences in investor protection/legal structures. To mitigate these concerns, I run within-country tests. An added advantage of considering cross-region within-United States regressions is that there is a longer time series of trust data. This enables the use of more granular fixed effects (e.g. firm fixed effects).

Exploiting the regional granularity of the Social Science Surveys, I separate the United States into nine regions. The nine regions are the Northeast (1), Mid-

Atlantic (2), Northeast Central (3), Northwest Central (4), South Atlantic (5), Southeast Central (6), Southwest Central (7), Mountain (8), and Pacific (9). All regions in the United States are subject to the same federal laws. As such, concerns regarding investor protection laws should be mitigated. I use cross-sectional and time-series variation in the trust level of these regions to identify the differential impact of trust on the valuation of dividend-payers relative to the valuation of non-dividend-payers. I follow the same identification strategy as in the previous section except that I consider regions instead of countries.

The trust measure from each region, or the fraction of respondents in each region that believe most people can be trusted, should proxy for the trust level of each region's investing population. Therefore, assuming a local bias (Seasholes and Zhu '10), I can proxy for the trust level of the investor base of a firm by looking at the trust level of the region where the firm is headquartered. I run regressions using this trust measure to estimate the impact of the interaction of trust and dividends on asset prices. I estimate the following model for firm i in region j at time t:

$$\begin{aligned}\log(M/B)_{i,t} = \beta_0 + \beta_1 \text{Trust}_{j,t} + \beta_2 \text{DivPayer}_{i,t} + \beta_3 \text{Divpayer}_i * \text{Trust}_{j,t} \\ + \beta_4 \text{Profit}_{i,t} + \beta_5 \text{Leverage}_{i,t} + \text{Firm}_i + \text{Fiscal Year}_t + \epsilon_{i,t}.\end{aligned} \tag{3}$$

Again, the dependent variable is the log of the market-to-book ratio. The coefficient of interest is β_3. This coefficient can be interpreted as the differential impact of trust on the market-to-book ratio for dividend payers relative to non-dividend payers. I predict that this coefficient will be negative and significant.

Table 3 presents the results. I use firm fixed effects in the third column. In all other columns, I use industry fixed-effects. This use of fixed effects controls for unobservable firm/industry-level determinants of the market-to-book ratio. For example, different industries may have different investment opportunity sets. Fiscal year dummies are also included in each regression. These dummies control for market-wide sentiment within a particular year. I control for leverage and profitability as observable determinants of the market-to-book ratio. The second

column restricts the sample to observations where the profitability measure is negative. All other columns only consider observations where the firm's profitability measure lies in the closed set $[0, 1]$.

Again, the variable of interest is the interaction term between *Div Payer*, the dividend-payer dummy, and *Trust*. The coefficient on this variable is economically and statistically significant in the first three columns. In the first and third regressions, a decrease of ten percent in the fraction of respondents who think that most people can be trusted is associated with an expected increase in the market-to-book ratio of dividend payers that is four percent higher than the expected change in the market-to-book ratio of non-dividend payers. When the set of observations is restricted to those for which the firm is unprofitable, the economic significance is much larger. In the second column, a decrease of ten percent in the fraction of respondents who think that most people can be trusted is associated with an expected increase in the market-to-book ratio of dividend payers that is nine percent higher than the expected change in the market-to-book ratio for non-dividend payers. This result suggests that trust is even more important in situations where the firm had an unprofitable year.

Another interesting coefficient is the coefficient on *Trust*. Given the results of Guiso et al. ('08), one would expect greater stock market participation in regions with higher levels of trust. This trust-participation connection, in combination with local bias and limits to arbitrage, predicts a positive coefficient on *Trust*; that is, one should expect excess demand for stocks headquartered in a more trusting area. The within-United States regressions support this hypothesis. The coefficient on trust is positive and significant.

In the fourth column of Table 3, I add to the regression a dummy variable, *Consistent Dividend*, that equals one if the firm paid dividends in each of the past three years. As such, I restrict my sample to firms that have three years of dividend data. I also include a term that interacts *Consistent Dividend* with *Trust*. I add these variables as trust is defined as the "confidence that [one] will find what is desired [from another] rather than what is feared". I hypothesize that, if a firm has consistently paid dividends, the confidence that the firm will continue to pay

dividends, will operate a good business in the future, increases as the firm builds a history of paying dividends. Therefore, I expect the coefficient on the interaction term between *Consistent Dividend* and *Trust* to be negative and statistically significant. I find that an increase of ten percent in the trust level of the investing base is associated with a decrease in the market-to-book ratio of a consistent dividend payer of about 3.6 percent more than the change in the market-to-book ratio of a non-consistent dividend payer. This result supports the hypothesis that trust in a firm grows as the firm continues to pay dividends. Interestingly the coefficient on the interaction term between dividend payer and trust is no longer significant. This suggests that the immediate benefits to initiating a dividend at a time of low trust may be limited.

In earlier regressions, I considered a dividend dummy that equals one if a firm is a dividend payer and zero otherwise. I also consider dividend yields. All else equal, increased dividend yields should lower the requisite trust needed for investment. Again, this is due to reasoning stemming from Jensen (1986). Increased dividend yields increase the likelihood that management will be subject to the oversight of the debt market if they choose to make additional investments. Increased dividend yields should also engender trust. Management is releasing a greater fraction of its cash holdings. As such, the manager makes a sacrifice to lessen feelings of vulnerability among investors.[13] As such, management passes a strain test and builds the relationship. Thus, I expect decreases in trust to be associated with larger increases in the market-to-book ratios for high-yield dividend-payers relative to the increase in the market-to-book ratio for low-yield dividend payers. I sort all non-zero dividend yields into deciles and then create a variable called *DivYieldDecile* that equals the decile of the firm's dividend yield or zero if the firm did not pay a dividend. I add *DivYieldDecile* and its interaction term with *Trust* to the regression. The coefficient on the interaction term is $-.1065$. Consistent with my hypothesis, following increases in the trust level of the investing base, firms with higher dividend yields see larger decreases in their market-to-book ratios relative to firms with lower dividend yields.

[13]Many managers would prefer to have more financial flexibility.

3.2.4 Repurchases

Share repurchases are another vehicle used by management to give capital back to investors. Returning capital may engender trust across the investor base.[14] Therefore, share repurchases may be more valuable as the trust level of the investor base decreases. I expect the valuation of share repurchasers relative to firms that do not repurchase shares to be higher in less trusting regions compared to the relative valuation in more trusting regions.

I consider the following regression for firm i in region j at time t:

$$\begin{aligned}\log(M/B)_{i,t} = \beta_0 + \beta_1 \text{Trust}_{j,t} + \beta_2 \text{Repurchase}_{i,t} + \beta_3 \text{Repurchase}_i * \text{Trust}_{j,t} \\ \beta_4 \text{Profit}_{i,t} + \beta_5 \text{Leverage}_{i,t} + \text{Firm}_i + \text{Fiscal Year}_t + \epsilon_{i,t}.\end{aligned} \tag{4}$$

Again, the dependent variable is the log market-to-book ratio. I only consider observations where the profitability measure lies in the closed set [0,1] and leverage is non-negative. *Repurchase* is a dummy that equals one if the firm announced a share repurchase plan in the associated calendar year. *Trust*, again, is the fraction of respondents from the associated region that believe most people can be trusted. Time dummies help control for time trends in the variables. I use industry fixed effects/firm fixed effects to control for industry/firm level, time-invariant determinants of the market-to-book ratio. Following Petersen ('09), the first column uses standard errors clustered by firm (six digit cusip) and time (year). Error terms in a particular year could be correlated due to sentiment and a firm's accounting practices could result in correlated errors across time within-firm. The second column clusters the standard errors by firm. The coefficient of interest is β_3, the coefficient on the interaction term between *Repurchase* and *Trust*. Agency theory predicts that this coefficient will be negative as it restricts the manager's budget set.

Table 4 presents the results. As predicted, the coefficient of interest, β_3, is negative. However, it is not significant and the economic magnitude is smaller than

[14] By repurchasing shares, management is doing something that may not be in their best interest in the absence of a relationship with investors. Management passes a strain test.

the economic magnitude of the analagous coefficient in the dividend regressions. For example, a decline of ten percent in the fraction of people who think that most people can be trusted is associated with an increase of about one and a half percent more in the market to book ratio for share repurchasers compared to non-share repurchasers. The coefficient on the analogous interaction term in Table 3 has a magnitude almost three times as large. I attribute this finding to the salience of dividends, relative to share repurchases. Share repurchases are not as noticeable nor as consistent as dividend payments. As such, share repurchases likely do not engender as much trust as consistent dividend payments. As such, trust can be seen as a partial explanation of the dividend puzzle (Black, 1976).

4 Dividend Supply

Baker and Wurgler (2004) theorize that there is a time-varying uninformed demand for dividend-paying firms, that limits to arbitrage permit mispricing, and that management responds by catering to this demand. I hypothesize that part of the time-varying uninformed demand for dividend-paying firms stems from the trust level of the investing base. Therefore, it is natural to examine the dividend initiation and omission decisions of firms in response to changes in the trust level of the investing base. I use time series and cross-sectional variation in the regional trust measure within the United States to identify the impact of trust on the decision to pay dividends. Specifically, for firm i at time t, I estimate the following linear probability model to investigate the impact of changes in the trust level of the investor base on the decision to omit dividend payments:

$$\begin{aligned}\text{Stop}_{i,t} =&\beta_0 + \beta_1 \text{Change in Log Book Value}_{i,t-1} + \beta_2 \text{Trust Change}_{i,t-1} + \\ &\beta_3 \text{Became Unprofitable}_{i,t-1} + \beta_4 \text{RegionGDPGrowth}_{i,t-1} + \\ &\text{Firm}_i + \text{Fiscal Year}_t + \epsilon_{i,t}.\end{aligned} \tag{5}$$

To determine whether a firm started paying a dividend or stopped paying a dividend, I look at changes in total cash dividends paid out each fiscal year. I use lagged regressors to account for the time it takes the firm to react to changes

in the trust level of the investing base.[15] I control for changes in the book value of the firm by using the lagged change in the log book value. That is, I look at the change in the log book value of the firm from time $t-2$ to time $t-1$.[16] *Trust Change* indicates the change in the regional trust level over the same period. Finally, I control for the profitability of the firm by creating dummy variables that equal one if the firm became profitable, or unprofitable, from time $t-2$ to time $t-1$. I use industry fixed effects and control for time effects by using fiscal-year dummies. I only consider firms that were (not) dividend payers at time $t-2$ in the stop (start) linear probability regression.

The coefficient of interest is β_2. I have demonstrated that less trusting investors prefer dividend-paying stocks to non-dividend paying stocks. As a result, one might expect management, looking to increase the demand for their stock, to initiate or omit dividends in response to changes in the trust level of the investing base. Specifically, one might expect β_2 to be negative (postive) when the dependent variable is *Start* (*Stop*). However, in Section 3.2.3, I provided evidence that trust in a firm grows as the firm continues to pay dividends. This suggests that the immediate benefits to initiating a dividend at a time of low trust may be limited. As such, it is unclear whether there is a strong incentive to initiate a dividend after a fall in the trust level. Therefore, I do not have a clear prediction for β_2 when the dependent variable is *Start*. However, a rise in the trust level should increase the incentive to omit dividends.[17] Therefore, I expect β_2 to be positive when the dependent variable is *Stop*.

Table 5 presents the results. The first column presents the results of the regression where the decision to stop paying dividends is the dependent variable. The coefficient on lagged trust change is as expected and significant. An increase in the fraction of people that trust by ten percent is associated with an increase in the probability that the firm will stop paying dividends of about 0.4 percent. By comparison a fall of 10 percent in the book value of the firm is associated with

[15] In contrast, Tables 2 and 3 have contemporaneous regressors because the market presumably responds much faster.

[16] A lagged time period is often a year before, but, due to data availability, it can be different. In my regressions, I consider the lagged data to be the last data point in my set.

[17] Implicit in this discussion is that dividends are costly.

an increase in the probability that the firm will stop paying dividends of around 0.5 percent. Concerning the decision to initiate dividends, the coefficient on β_2 is unexpectedly positive although not significant. As such, trust cannot be seen as the underlying driver behind managements decision to initiate dividends.

5 Conclusion

In this paper, I argue that trust is helpful for understanding the demand for and the payment of dividends. Using a data set on financial decision-making by Dutch households, I provide direct evidence that less trusting investors have a stronger demand for dividends. By documenting the effect of trust and dividends on asset prices, I show that this behavior has relevance in the aggregate. My cross-country and cross-region tests suggest that a decrease in the general trust level of the investor base results in increased demand for dividend-paying firms relative to non-dividend-paying firms. I show that this differential change in demand is larger than the differential change in demand for firms that announce share repurchases relative to firms that do not announce share repurchases. I attribute this to the consistency of dividend payments relative to share repurchases. As such, trust and the consistency of dividend payments serve as a partial explanation of the dividend puzzle. Finally, I examine the catering behavior of management in response to changes in the trust level of the investing base. I find that management is more likely to omit a dividend following an increase in the trust level of the investing base, but do not find any evidence to suggest that management initiates dividends in response to changes in trust. One possible explanation of the last finding is that it takes time to build trust. A firm cannot become trustworthy overnight. Thus, trust should not be seen as an underlying driver of the catering behavior documented by Baker and Wurgler (2004). Nevertheless, trust can be seen as an important determinant of the demand for dividend-paying firms and as a partial explanation of the dividend puzzle.

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6 Tables and Figures

Table 1: Trust and Dividends for Dutch Individuals

	Received Dividends	Received Dividends
Total Assets Decile	0.0583***	0.0590***
	(6.51)	(6.55)
HS	-0.0112	-0.0041
	(-0.20)	(-0.08)
College	0.103	0.104
	(1.91)	(1.93)
Employee	-0.0459	-0.0505
	(-0.72)	(-0.79)
Risk Tolerance	0.0185	0.0178
	(1.55)	(1.48)
Income	0.0430	0.0447
	(1.86)	(1.93)
Age	0.00824	0.00790
	(0.75)	(0.72)
Age Squared	-0.0224	-0.0181
	(-0.22)	(-0.18)
Female	-0.0521	-0.0458
	(-0.75)	(-0.66)
Number in the Household	-0.0803	-0.0820
	(-1.53)	(-1.57)
Number of Children	0.0806	0.0818
	(1.30)	(1.33)
Level of Suspicion	0.0449**	
	(2.94)	
Trust Dummy		-0.0983*
		(-2.42)
Constant	-0.565*	-0.319
	(-1.98)	(-1.14)
N	671	671

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The two columns present the results of a linear probability model where *Received Dividends* equals one if the associated individual reported receiving dividends in the past year. All right hand side variables are from the previous year's survey. I restrict my sample to only include heads of the household. *College (HS)* is a dummy variable that equals one if the highest degree attained is a university (high school) degree. *Age Squared* is in thousands. Income is a categorical variable that is increasing in income. Survey participants are asked to rate themselves on a scale of 1-7 where 1 indicates "trusting, credulous" and 7 represents "suspicious". The first trust measure, *Level of Suspicion* is equal to this measure. *Trust Dummy* equals one when the individual self-reports a trust score less than or equal to 4. Standard errors are clustered by individual.

Table 2: Cross-Country Regressions

	Log(M/B)	Log(M/B)	Log(M/B)	Log(M/B)
Trust	-3.255	-1.635	1.457	1.457
	(-1.19)	(-0.63)	(1.85)	(1.75)
Dividend Payer	0.277	0.601*	0.492*	0.492*
	(1.60)	(2.08)	(2.31)	(2.36)
Dividend Payer*Trust	-1.385*	-2.390*	-0.905*	-0.905*
	(-1.98)	(-2.21)	(-2.12)	(-2.23)
Profitability		2.524***	2.718***	2.718***
		(12.93)	(10.29)	(5.66)
Leverage		1.101***	1.187***	1.187***
		(5.07)	(4.86)	(3.63)
English			-0.0962	-0.0962
			(-0.58)	(-0.45)
German			-0.171	-0.171
			(-1.08)	(-0.78)
French			-0.174	-0.174
			(-0.54)	(-0.48)
Constant	14.77***	13.77***	12.79***	12.79***
	(32.20)	(28.78)	(23.42)	(21.32)
Year Dummies	Y	Y	Y	Y
Country Fixed Effects	Y	Y	N	N
Standard Errors	2-D (Firm, Year)	2-D (Firm, Year)	2-D (Firm, Year)	2-D (Country, Year)
N	19892	13925	12257	12257

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Trust is the fraction of survey respondents that are trusting. *Dividend Payer* is a dummy that indicates whether the firm paid dividends in the associated year. *Profitability* is defined as net income over sales and leverage is defined as total assets minus common equity over total assets. *English*, *German*, and *French* are dummy variables that equal one if the country is of an English, German, or French legal origin, respectively. Standard errors are clustered in two dimensions.

Table 3: Cross-Region Regressions

	Log(M/B)	Log(M/B)	Log(M/B)	Log(M/B)	Log(M/B)
Trust	0.328**	0.388*	0.340***	0.370 *	0.248 *
	(2.68)	(2.29)	(4.90)	(2.40)	(2.05)
DivPayer	0.252***	0.129	0.275***	0.142	0.265 **
	(4.05)	(1.12)	(7.89)	(1.63)	(2.87)
DivPayer*Trust	-0.447**	-0.985***	-0.485***	-0.271	0.328
	(-2.88)	(-3.57)	(-6.18)	(-1.31)	(1.41)
Profitability	1.556***	-0.000204**	1.614***	1.091 ***	1.602 ***
	(13.62)	(-2.78)	(21.30)	(5.58)	(15.18)
Leverage	0.619***	0.968***	0.837***	0.301 ***	0.600 ***
	(11.36)	(16.39)	(22.67)	(3.89)	(10.61)
Consistent Dividend				0.139	
				(1.95)	
Consistent Dividend *Trust				-0.358 *	
				(-2.19)	
DivYieldDecile					-0.0322 **
					(-2.69)
DivYieldDecile *Trust					-0.1065 ***
					(-3.51)
Industry FE	Y	Y	N	Y	Y
Firm FE	N	N	Y	N	N
FY Dummies	Y	Y	Y	Y	Y
Standard Errors	2-Dim	2-Dim	Cluster by Firm	2-Dim	2-Dim
Constant	-0.146	0.372***	0.267***	-0.429 *	-0.151
	(-0.67)	(5.15)	(5.38)	(-2.23)	(-0.58)
N	84220	31176	84220	16575	84220

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Trust is the fraction of survey respondents that are trusting. *Dividend Payer* is a dummy that indicates whether the firm paid dividends in the associated year. *Consistent Dividend* indicates whether the firm paid dividends for each of the past three years. I determine the dividend yield by computing dividends per share divided by the share price. *Profitability* is defined as net income over sales and *Leverage* is defined as total assets minus common equity over total assets. Standard errors are clustered in two dimensions in the first two columns and by firm in the third column.

Table 4: Repurchases

	Log(M/B)	Log(M/B)
Trust	0.103	-0.0642
	(1.32)	(-1.19)
Repurchase	0.0725	0.0111
	(1.82)	(0.32)
Repurchase*Trust	-0.151	-0.139
	(-1.63)	(-1.63)
Profitability	1.451***	1.477***
	(14.41)	(19.28)
Leverage	0.697***	0.917***
	(12.53)	(22.69)
Firm Fixed Effects	N	Y
Industry Dummies	Y	N
Year Dummies	Y	Y
Standard Errors	2-D Cluster (Firm, Year)	Cluster by Firm
Constant	-0.0184	-0.233***
	(-0.10)	(-6.02)
N	68841	68841

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Trust is the fraction of survey respondents that are trusting in the associated region-year. *Repurchase* is a dummy that indicates whether a firm announced a share-repurchase program in the associated year. *Profitability* is defined as net income over sales and *Leverage* is defined as total assets minus common equity over total assets. Standard errors are clustered in two dimensions in the first column and by firm in the second column.

Table 5: Changes in Dividend Policy

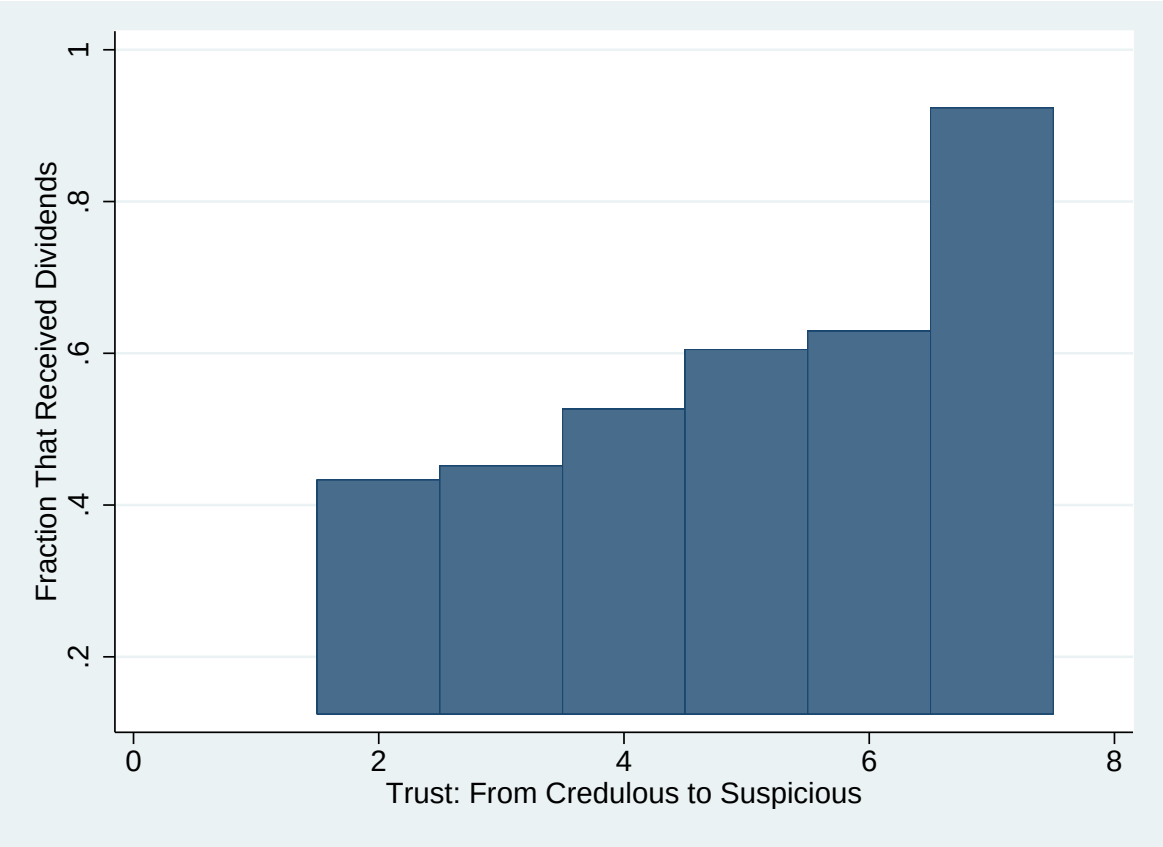
	Stop	Start
Lagged Change in Log Book Value	-.0488 ***	0.00823***
	(-5.03)	(4.37)
Lagged Trust Change	.0402 *	.0227
	(2.25)	(1.32)
Became Unprofitable	.2008 ***	
	(16.79)	
Became Profitable		.00179
		(0.58)
RegionGDPGrowth Lag	-.0679	.0037
	(-1.76)	(0.07)
Constant	.0694 ***	-.0022 ***
	(11.66)	(-0.40)
FY Time Dummies	Y	Y
Industry FE	Y	Y
Standard Errors	2-Dimensions	2-Dimensions
N	40646	51140

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Trust change indicates the change in the fraction of investors that are trusting. *Profitability* is defined as net income over sales. Standard errors are clustered by firm and year.

Figure 1: Dutch Trust Levels

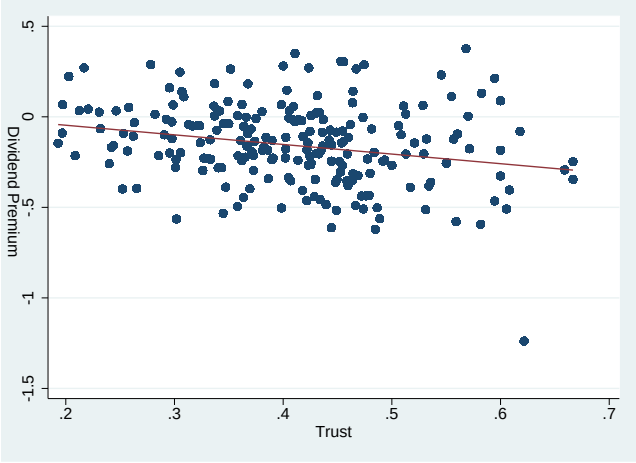


This plots the fraction of person-year observations that report having received dividends in a particular year.

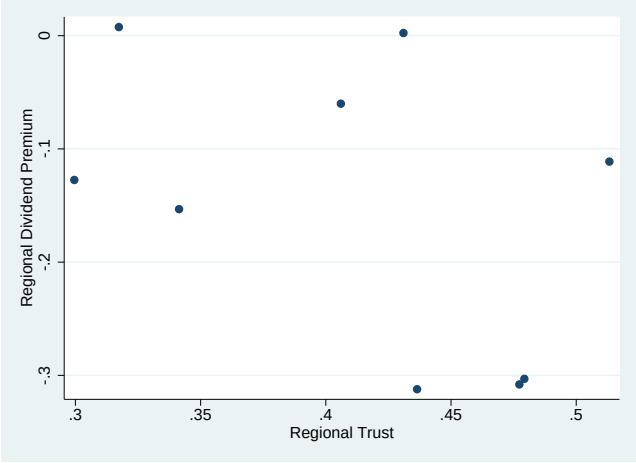
Figure 2: U.S. Trust and Dividend Premiums

(a) Evolution Across Time

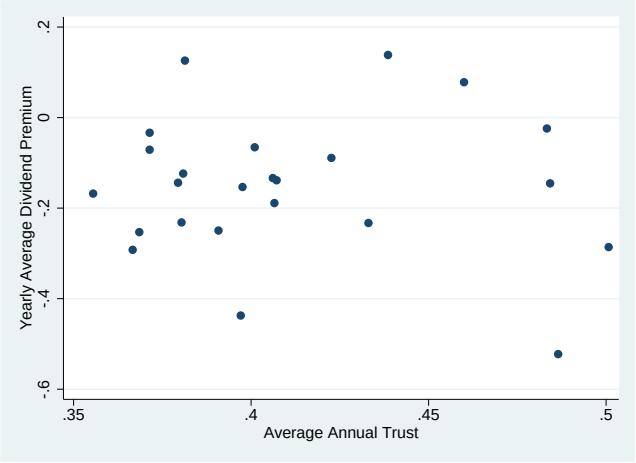
(b) All Values



(c) Mean Values for Each Region



(d) Mean Values for Each Year



I associate a firm with the region where its headquarters are located. I divide the U.S. into nine regions: the Northeast (1), Mid-Atlantic (2), Northeast Central (3), Northwest Central (4), South Atlantic (5), Southeast Central (6), Southwest Central (7), Mountain (8), Pacific (9). I calculate a region's dividend premium by taking the average log market-to-book value of non-dividend payers and subtracting it from the average log market-to-book value of dividend payers. Trust is measured as the fraction of respondents in the associated region that think most people can be trusted. Figure (a) depicts how the dividend premium and trust change over time. The dividend premium and trust measures displayed in this figure are averaged across regions. Figure (b) displays all data points. That is, every regional dividend premium and regional trust measure is plotted, along with a best-fit line. Figure (c) plots a region's average dividend premium against its average trust level. The average is computed across all years. Figure (d) plots the average regional dividend premium each year against that year's average regional trust measure.