Investor Income and Dividends: Income-Based Local Dividend Clienteles

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Abstract: This paper investigates the impact of local investors' need for income on dividend demand and payout policy. I examine geographically-varying investor need for income by using two novel measures—local debt and local drought—and investigate how local investor income affects the propensity to pay dividends and dividend yields for U.S. firms. Firms located in areas with a greater increase in local investor debt are more likely to be dividend payers and have higher dividend yields. Similarly, firms located in areas whose local income is affected by drought conditions are more likely to be dividend payers and have higher dividend yields. This paper shows a new geographically-varying dividend clientele effect based on investor income. This effect is consistent with investors' greater need for income due to an increase in personal debt or a decrease in income after disasters like drought. In addition, the empirical findings are more pronounced for firms largely held by local investors and this finding highlights the role of local investors for corporate payout policies.

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1. Introduction

Since Miller and Modigliani (1961), the dividend clientele effect has attracted attention in the finance literature. This effect emphasizes the demand side of dividend policy and argues that some investor characteristics lead investors to prefer dividend income and firms catering to this demand through their dividend payouts. Black and Scholes (1974) highlight the role of some factors like taxes and transaction costs in determining investor preferences and dividend clienteles. Miller and Modigliani (1961) suggest that there can be dividend clienteles induced by investor age or income. This paper focuses on the impact of local demand for dividends. I examine the role of local investor's need for current income in determining their dividend demand and corporate dividend policies of firms that cater to this demand. The prior literature highlights the role of need for current income in dividend demand. For example, Shefrin and Thaler (1988) suggest that life cycle considerations affect investor's dividend demand. Graham and Kumar (2006) report that "older investors, or any investor with a greater need for a regular income stream, may prefer high-yield stocks if they use dividend income to finance consumption." Miller and Modiagliani (1961) highlight the role of income for dividend clienteles and give an example of retirees. They suggest that retired investors can have a higher preference for dividend income and therefore dividend paying stocks for their consumption needs. Prior literature highlights the role of investors' need for income in determining their dividend demand and forming income based dividend clienteles. This paper uses local investors' need for income, as proxied by two novel measures, and conjectures that this need has an impact on geographically-varying dividend demand and corporate dividend policies.

First, I use investor debt to measure need for income and investigate how investor income affects preference for investors' dividend paying stocks and how firms cater to this demand. In particular, I use change in local personal debt-to-income levels as a proxy for change in local investors' debt. This way provides a good way to measure local investors' need for current income. After an increase in people's debt levels, it is expected to see an increase in their needs for income. As earlier studies suggest (i.e. Gordon (1963), Lintner (1962), and Ucar (2015)), dividends are considered as safe available income streams compared future risky capital gains. Consistent with this notion, it is expected to observe a greater demand for dividend income when investors have some budget constraints and see an income decline following an increase in investor debt. Therefore, using local debt levels helps to identify investors' demand for dividend income at local level. It also helps to see the geographical variation in income based dividend clienteles. This paper empirically examines whether geographical variations in investor need for income, as proxied by local investor debt, affects propensity to pay dividends as well as dividend yields for U.S. firms. I show that firms located in areas with a higher increase in local personal debt levels are more likely to pay dividends and have higher dividend yields. The findings demonstrate a geographically-varying dividend clientele effect induced by local investor debt. This effect is consistent with dividend clientele argument based on investor income.

Local droughts can work as a shock to investor income. Therefore, I use local droughts as a second measure to identify investors' need for income and examine how this need affects investors' demand for dividend paying stocks and how firms adjust their payout policies to satisfy this dividend demand. Specifically, I use a lagged drought measure—local drought from the prior year—as a proxy for local investors' need for current income. After disasters like

drought, abnormally dry conditions, and etc. in an area, it is expected to see some damage on local income as well as local economy. This economic damage can go up to more severe levels when income of an important fraction of local population is affected. In other words, after higher levels of drought conditions, it is expected see greater declines in local income levels. Therefore, using local drought helps to identify local investors' demand for dividend due to drought related income needs at local level. In this paper, I empirically investigate whether geographical variations in investor need for income, as proxied by local drought, have an impact on propensity to pay dividends as well as dividend yields for U.S. firms. My paper demonstrates that firms are more likely to pay dividends and have higher dividend yields after some local drought conditions. This finding shows income based local dividend clienteles induced by drought conditions affecting local investors' income levels.

In particular, this paper demonstrates that one standard deviation higher value in the change in local debt leads to a 10.2% higher likelihood in the odds that a firm pays dividends compared to another firm located in an areas where local investors have a lower increase in debt. This result suggests that a greater local investor debt, as proxied by change in local investor debt, plays an important role in shaping geographically varying corporate dividend policies. Similarly, the empirical findings show the local income based- dividend clientele effect by using local drought as a measure of local need for income. A one standard deviation higher value in drought conditions observed in a firm location in the prior year is associated with 3.7% higher likelihood in the odds that a firm pays dividends compared to another firm located in a county enjoying no drought conditions.

Furthermore, the empirical results remain robust after a series of robustness tests. The results hold after controlling for local economic and demographic factors. The empirical findings are also robust when I use the Compact Disclosure dataset which considers address information changes due to any headquarter relocations. The results also hold after using an alternative set of control variables used in the related literature. In addition, I present some tests that highlight the role of local shareholders for the dividend clientele effect demonstrated in this paper. I examine the different local ownership measures and demonstrate that the results are stronger for firms largely held by local investors. These tests suggest that the geographically-varying income based dividend clientele effect measured by local debt or local drought emerges through local investor channel. Furthermore, this paper also demonstrates that firms have a higher dividend yield when there is an increase in debt levels of local investors or after some severe drought conditions. Additional tests show that local drought has a strong and long lasting effect. The effect has an important role in determining local dividend demand and corporate dividend policies in, up to, three years, after local drought conditions. All these additional tests and robustness checks support the main empirical findings and underline the role of local investors' income needs, as proxied by local debt or local, for corporate dividend policies and income based local dividend clienteles.

The finance literature has investigated the determinants of dividend and corporate payout policies for a long time. Miller and Modiagliani (1961) state the irrelevance theory as suggesting that dividend policies are irrelevant because both dividend-paying and non-dividend paying firms will have the same value, everything else equal. Black (1976) suggests that why companies pay dividends forms a puzzle considering theoretical explanations. Easterbrook (1984) suggests

some explanations for this puzzle. He argues that agency-costs can help us to understand why firms pay dividends because dividends can be a method of reducing agency costs, monitoring costs in particular. On the other hand, some studies suggest that investors' perceptions and preferences play an important role in explaining dividend demands and accordingly dividend payouts (i.e. Gordon (1963) and Lintner (1962)). The dividend clientele argument states that some investors' characteristics and preferences lead to variation in dividend demand and form dividend clienteles. Some of these factors are taxes, transaction costs, age and income etc. (i.e. Black and Scholes (1974) Miller and Modiagliani (1961).) In this paper, I focus on investor income and its role in shaping dividend demand and dividend clienteles. My paper is closely related to the major body of literature investigating the demand side of dividend policies. Baker and Wurgler (2004a and 2004b) examine the catering theory and suggest that some investors have higher preference for dividend-paying stocks because they see those stocks as more valuable and firms cater to these preferences. My paper contributes to this literature by suggesting that investors' need for income, as proxied by local debt or local drought, plays an important role for geographical variations in dividend demand and corporate dividend policies.

My paper is also related to the literature on local bias. Ivkovic and Weisbenner (2005) finds retail investors' greater propensity to invest in stocks of local firms. Pirinsky and Wang (2006) demonstrate that there is a higher level of comovement in stock returns for firms located in the same area. Hong, Kubik and Stein (2008) demonstrate that there is a greater local bias effect in areas hosting relatively few firms. My paper contributes to this literature by demonstrating that local investor debt or local drought affecting local shareholders leads to a variation in attitudes towards dividend income across local investor bases and affect dividend

demand. My paper also underlines the role that local investors play for corporate policies by showing a stronger income based local dividend clientele effect for firms largely held by local shareholders.

My paper is also closely related to some recent studies. In the recent literature, Becker et al. (2011) show local dividend clienteles based on age, as proxied by fraction of local seniors, and Ucar (2015) demonstrate a local dividend clientele effect induced by local culture, as proxied by local religion. In this paper, I use an empirical model similar to Becker et al. (2011) and Ucar (2015) and demonstrate that local investors' need for income, as proxied by local debt or local drought, leads to a geographically-varying dividend demand and corporate dividend polices. My paper examines dividend clienteles based on a different factor—income—and introduces a new local dividend clientele effect. My paper shows income based local dividend clienteles by using local investor debt and local as proxies for local investors' need for a current income. Furthermore, my results remain robust to investor age and local culture used in Becker et al. (2011) and Ucar (2015), respectively, after using an empirical model similar to theirs.

The remainder of the paper is organized as follows. The next section provides a short summary of the data and the sample selection method along with the summary statistics. Section 3 presents the main empirical tests that use local debt. Section 4 reports the main empirical tests that include local drought. Section 5 demonstrates the results of additional tests and robustness checks. Section 6 provides a conclusion.

2. Data, Sample Selection, and Summary Statistics

2.1.Data and Sample Selection

I follow the sample selection criteria used by recent studies (i.e. Ucar (2015) and Grullon et al. (2011)) in the related literature. I exclude the firms in the utilities and financials categories (SIC codes 4900-4999 and 6000-6999) and require sample firms to have issue codes of 10 or 11. My sample requires firms to have accounting and stock price information from the COMPUSTAT and CRSP databases, respectively. My paper uses the firm address information from COMPUSTAT in the main tests. I use lagged and leading year firm information for some variables and therefore, my sample requires the sample firms to have to both lagged and leading year information. The empirical tests focus on the years between 2001 and 2010. I use two measures as a proxy for local investors' need for income. Therefore, the empirical tests have different sample periods for each measure due to data availability of each measure.

The first measure focuses on local investors' debt and uses county level debt-to-income information. The first measure is *Change in Local Leverage* which measures change in county level debt-to-income ratio. It is calculated as the difference between current and lagged local debt-to-income divided by lagged local debt-to-income. This is a proxy for change in local personal debt for local investors. County level debt-to-income ratios are only available for the years between 2001 and 2007[1]. Therefore, *Change in Local Leverage* is available for the years between 2002 and 2007. The final sample for the empirical tests using local debt has 20,279

[1] County level debt to income ratio is provided by Amir Sufi's website (http://faculty.chicagobooth.edu/amir.sufi/data.html). This is "the public version of the county-level debt to income ratio" used by Mian, Rao, and Sufi (2013). As Mian, Rao, and Sufi (2013) and Mian, and Sufi (2014) state, the original dataset employed in their research uses "total debt in a county measured by consumer credit bureau data from Equifax and income measured by total wages and salary in a county according to the IRS". They report that this public version uses the Federal Reserve Bank of New York data and IRS data for income.

firm-year observations with available headquarters location information for the years between 2002 and 2007.

The second measure focuses on local drought. When there are drought conditions in an area, this situation leads to negative impacts on income of local population as well as local economy. The economic damage can even be more severe when income of an important fraction of local population is affected. The US Drought Monitor's website[2] provides weekly drought statistics of the entire US and local areas. I use county level drought statistics from this website to measure local drought. The website provides weekly observations of percentage of total county area which is affected by abnormally dry or drought conditions. I take annual average of these weekly observations for a given county provided by the US Drought Monitor website and called this variable as *Drought*. *Drought* is available for the years after 2000. After an area is affected by a drought, local people's incomes will be negatively affected and it is expected to see a greater need for income among local people. Therefore, local drought can help to determine local investor's need for income. The empirical tests include *Lagged Drought*, which is *Drought* in the prior year for a given firm county, as a proxy for this need for income. The higher *Lagged Drought* values indicate drought or abnormally dry conditions and therefore, it is expected to see a greater need for income in local investor bases. *Lagged Drought* is available for 2001 and the following years. Therefore, the final sample for empirical tests using local drought has 32,445 firm-year observations with available headquarters location information for the years between 2001 and 2010.

[2] http://droughtmonitor.unl.edu/

I use an empirical model similar to the one used in Becker et al. (2011) and Ucar (2015). The dividend policy and firm characteristics variables used in the empirical tests have definitions following the prior literature (Ucar (2015), Becker et al. (2011) and Grullon et al. (2011)). The main dividend policy variable is *Dividend payer*. *Dividend payer* is a dummy variable that takes a value of one if the total amount of dividends is greater than zero for a given year, and zero otherwise. I also use *Dividend yield* in some tests. It is defined as the ratio of total dividends to lagged market value. The key independent variable of the tests that use local debt is *Change in Local Leverage* whereas the key independent variable of the tests that use local drought is *Lagged Drought.*

This paper also uses local control variables in the empirical tests. Becker et al (2011) shows that the fraction of local seniors has a role in determining dividend policy and forms local dividend clienteles. Therefore, this study controls for *Local seniors* which is the proportion of individuals who are 65 years old or older within a county where a firm is headquartered. Similarly, Ucar (2015) demonstrates the impact of religion on dividend policy and suggests a local dividend clientele effect induced by local religion. Therefore, this paper controls for *Cpratio* which is the ratio of Catholics to Protestants in the county where a firm is located.[3] Other local control variables are defined as follows. *Income* is the median household income in the given county where a firm is headquartered. *Median house value* is the median house value in the given county where a firm is headquartered. *Education* is the proportion of the population holding college degrees in the given county where a firm is headquartered. This paper also controls for the logarithm of population of firm headquarters county.

[3] I define *Cpratio* by following Kumar et al. (2011) and Ucar (2015) and using the ARDA datasets.

The empirical tests use the following the firm control variables by following Ucar (2015) and Becker et al. (2011). *Net income* is the net income divided by total assets for a given year. *Cash* is the cash divided by total assets for a given year. *Q* is the sum of the market value of equity and the book value of liabilities divided by total assets for a given year. I define *Debt* as the long-term debt divided by total assets for a given year. *Log of MV* is the logarithm of a firm's market value for a given year. *Log of assets* is the logarithm of total assets. *Volatility* is the standard deviation of monthly stock returns for the previous two-year period. *Lagged return* is the monthly stock returns for the previous two-year period[4]. *Asset growth* is the logarithm of the total assets growth rate calculated using both the current and previous year's figures. This paper defines firm age based on the time between the date that a firm is listed on the CRSP and the current year and uses the following firm age-group indicator variables: Age 1-5, Age 6-10, Age 11-15, and Age 16-20. Age 21 and over is the dropped category in the empirical tests. The main empirical tests also control for state, industry[5], and year dummy variables.

Similar to Ucar (2015), I also use an alternative set of control variables in some robustness tests. These variables are defined by following Grullon et al. (2011). These variable definitions are as follows: *NYE* is the measure of firm size based on the NYSE equity percentiles for the corresponding period. *M/B* is the ratio of the market to book value of assets in which market value of assets is calculated as the market value of equity plus total assets minus total equity. *ROA* is the return on assets as calculated by income before depreciation divided by the total assets for a given year. *Sales growth* is the sales growth rate calculated as the change in the previous and current year's figures.

[4] *Volatility* and *Lagged return* require the stock return information for at least the previous 12 months be non-missing for firm with stock return available less than for 24 months by following Ucar (2015).
[5] The empirical tests include Fama-French (1997) 48 industry classifications.

2.2.Summary Statistics

Table 1 presents the summary statistics for dividend policy variables in addition to some important local control variables and firm characteristics. Panel A provides the results for the sample of observations that are used for the empirical tests with local debt. Panel B reports the results for the sample of observations that are used for the empirical tests with local drought. In Panel A1, on average, 26% of the sample firms are dividend payer firms during a given year. On average, the dividend yield is 0.50% for all sample firms. The dividend policy variables are consistent A2. On average, local debt-to-income ratio for a given firm headquarter county is 1.87, local senior citizen fraction is about 11.5%, local median household income is U.S. $55,240, the fraction of population with a college degree is about 31.6%, and the CP Ratio (Catholic to Protestant ratio) is 2.19 for a given firm county. Local characteristics have values consistent with the prior literature. Summary statistics for some firm characteristics are reported in Panel A3. The average sample firm has an equity value that is equal to the 26th percentile of the NYSE equity size distribution for a given year. On average, market-to-book ratio is about 2.2, ROA is about 0.03, sales growth is about 16.9%, total asset value is about $2.7 billion, and firm age is about 16.2. These firm characteristics have values in line with the earlier studies. Panel B provides summary statistics very similar to Panel A for the sample used in tests with local drought. Both Panel A and Panel B have values consistent with prior literature.

[Please insert Table 1 here]

3. Local Debt and Dividend Payout: Empirical Results

3.1.Main Tests

This section focuses on the first measure of local investor need for income and uses change in local investors' debt levels as a proxy for local investors' need for income in the empirical tests. When analyzing the impact of local debt on dividend policy, this paper uses an empirical model similar to the one used in earlier studies (Becker et al. (2011) and Ucar (2015) and controls for *Net income, Cash, Q, Debt, Volatility, Lagged return, Log of MV, Log of Assets, Asset growth*, firm age, along with as state, industry, and year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level in the empirical tests. The main dependent variable is *Dividend payer* which measures a firm's propensity to pay dividends. I use a Logit regression model in the empirical tests. The variable of interest is change in *Change in Local Leverage*.

Table 2 presents the impact of local investors' need for a current income, proxied by local debt, on local firms' propensity to pay dividends. The coefficient of *Change in Local Leverage* is approximately 0.45. This result indicates a positive relation between the likelihood of being a dividend payer and firm locations with higher increase in local debt. In Logit regressions, coefficient magnitudes can be misleading and they do not directly help to interpret economic importance. Therefore, it is better to highlight economic significance instead of coefficient values. I present this interpretation by using the change in odds for the dependent variable using a one standard deviation change in an independent variable. Therefore, I focus on this way to highlight economic significance of *Change in Local Leverage*. I present and emphasize economic significance in this table as well as in the other tables later in the paper. In Table 2, a one standard deviation higher value in the change in local debt is associated with 10.2% higher likelihood in the odds that a firm pays dividends compared to another firm located in a county

where local investors have a lower increase in debt. This table demonstrates that change in local debt-to-income ratio plays an important role in determining corporate dividend policies. An increase in local debt-to-income ratio indicates a greater need for current for local investors. This table suggests a higher propensity to pay dividends for firms when local investor bases have a higher demand for current income. This table also suggests a geographically-varying clientele effect induced by local investors' need for current income, proxied by higher local debt levels. This is consistent with the dividend clientele effect associated with low income investors or investor with a greater need for current and/or regular income stream in the prior literature.

[Please insert Table 2 here]

Now, I investigate whether local control variables have any effect on my results. In particular, I re-examine the main test after controlling for demographic and economic variables. The recent literature suggests an age-based local dividend clientele effect (Becker et al. (2011)) or local dividend clientele induced by local culture, measured by religion, (Ucar (2015). Therefore, I include the proportion of local seniors and local Catholic to Protestant ratio by following the previous studies. I also control for other important local characteristics—median household income, education, median house price, population—in the following table. In other words, I examine the impact of local debt on geographically-varying dividend demand and dividend policies across locations in the U.S. after controlling for local factors. Table 3 reports empirical results which are very similar to the ones reported by Table 2. A one standard deviation increase in the change in local debt suggests a 12.6% increase in the odds that a firm

pays dividends. Table 3 suggests a stronger increase in a firm's likelihood to pay dividends when there is an increase in local investor's debt after controlling for local factors.

[Please insert Table 3 here]

3.2.Local Debt and Dividend Yield

Next, I focus on the effect of dividend yield. I use an OLS regression model with an empirical model and control variables similar to the ones used in the earlier tables and report the results in Table 4. The coefficient of *Change in Local Leverage* is 0.0014 and it is statistically significant. After controlling for the main and local control variables, there is a positive relationship between *Change in Local Leverage* and *Dividend yield*. A one standard deviation higher value in *Change in Local Leverage* in a county where a firm is located leads to a 0.027 standard deviation increase in *Dividend yield*. This result provides a support to the earlier results and highlights the positive relationship between increase in local investor's debt and dividend payout. Firms have a higher dividend yield when there is an increase in local investors' debt levels. This is consistent with the notion that investors are expected to have a higher demand for a current stable income stream when they have higher levels of debt. A greater need of income for local investors leads to an increase in their demand for dividend income. Therefore, local firms that have sizeable local ownership component are expected to satisfy this investor demand by providing higher dividend yields. The results of Table 4 are in line with this conjecture. Overall, Table 4 and the earlier tables suggest that some investors demand dividends because of

their preference and/or need for safe income[6] for current consumption compared to capital gains. Firms cater to this demand by providing dividends or higher dividend yields.

[Please insert Table 4 here]

4. Local Drought and Dividend Payout: Empirical Results

4.1.Main Tests

Now, I use local drought as a proxy for local investors' need for in the empirical tests. I use an empirical model similar to the one in the earlier section. I use a Logit regression model in which the dependent variable is *Dividend payer* and the key independent variable is *Lagged Drought*. After a drought affects an area, it is expected to observe some economic damage in the area and a decline in local people's income. Therefore, the periods following drought times can be the times with a greater need for income among local investors. *Lagged Drought* demonstrates percentage of a local area that is affected by drought in the prior year for a given firm county. Higher levels of *Lagged Drought* indicate more severe drought conditions and thereby a greater need for income for local investor bases.

Panel A of Table 5 demonstrates the impact of local investors' need for a current income, proxied by local drought, on local firms' propensity to pay dividends. The coefficient of *Lagged Drought* has a positive value as expected. When there is a more severe drought in an area, there is a greater need for income in the following periods in the areas. Consistent with that local need for income, there is a higher likelihood of paying dividends among local firms. In particular, Column 1 demonstrates that a one standard deviation higher value in *Lagged Drought* is

[6] See the related literature (i.e. Baker and Wurgler (2004a) among others.)

associated with 3.7% higher likelihood in the odds that a firm pays dividends compared to another firm located in a county where local investors had a less severe drought in the prior year.

Local drought can affect the firms that produce and/or sell agricultural or food products negatively as well as local investors. One might argue that this impact on firms from agricultural or food related industries might be the main driver of the dividend payout effect reported in Column 1. In order to shed light on this argument, I exclude the sample firms from agricultural or food related industries.[7] After excluding these industries, Column 2 of Panel A has results very similar to the ones in Column 1. Column 2 reports that a one standard deviation higher value in *Lagged Drought* is associated with 3.6% higher likelihood in the odds that a firm becomes a dividend payer. Therefore, this finding supports the notion that local dividend demand emerges after a greater need for income, as proxied by local drought, is the main driver of the dividend payout effect shown in Table 5.

Next, I investigate whether local control variables have any effect on my results. I re-run the main regression after controlling for demographic and economic variables. These are the local control variables used and discussed in the previous section. Column 3 of Panel A presents the impact of local drought on geographically-varying dividend demand and dividend policies across the U.S. after controlling for local factors. Column 3 provides empirical findings very similar to the ones in the other columns of Table 5. A one standard deviation increase in the change in *Lagged Drought* suggests a 3.1% increase in the odds that a firm pays dividends.

[7] In particular, I exclude the industries 1-5 from the Fama-French 48 industry classifications. These industries produce or sell agricultural or food products or these industries have products that mainly need and use agricultural products in their products.

Column 3 provides additional evidence on the impact of local investors' need for income on local firms' likelihood to pay after controlling for local factors.

The impact of severe drought conditions on an area can be observed for a long time. For example, economic damage in an areas caused by severe drought conditions can have a long lasting effects on local income. Therefore, the impact of drought happened in an areas two or three years ago might still have an influence on local income. In addition, the recent studies show that firms might change their corporate policies in somewhat longer times (i.e.Becker et al. (2011) and Ucar (2015).) One might argue that payout policy changes consistent with local demand for dividend income can emerge in two or three years after local droughts. In order to investigate this argument, in Panel B, I include *Lagged-2 year Drought* and *Lagged-3 year Drought* which measure local drought from two and three years prior to the current year, respectively and repeat the main tests. Column 1 of Panel B presents empirical results very similar to the ones in Panel A. A one standard deviation increase in the change in *Lagged-2year Drought* leads to a 4.4% increase in the odds that a firm becomes a dividend payer. This result is even slightly stronger than the ones in Panel A. Similarly, Column 2 of Panel B suggests that a one standard deviation increase in the change in *Lagged-3year Drought* leads to a 3.7% increase in the odds that a firm pays dividends. Overall, Panel B provides additional support to the results in Panel A. Local drought has a strong impact on payout policies of local firms. This impact has a role even in determining the corporate payout policies in, up to, three years following local drought conditions.

Local investor bases are expected to have a greater need for a current income provided through dividends when local economy and thereby local income are affected negatively by disasters like drought. Therefore, local firms largely held by local shareholders are expected to cater to this investor demand for dividends. Table 5 presents empirical findings consistent with this notion by demonstrating the impact of local investors' need for income, as proxied by local drought, on corporate payout polices. Table 5, as well as the earlier tables, provides evidence on income based local dividend clienteles by showing the effect of local investors' demand for income on dividend demand and corporate dividend policies.

4.2.Local Drought and Dividend Yield

Now, as an additional test, I investigate the impact of investors' need for income induced by local drought on dividend yield in Table 6. I use an OLS regression model and an empirical model similar to the ones used in the earlier tables. As expected, the coefficient of *Lagged Drought* has a positive value. This indicates a higher dividend yield for local firms after severe drought conditions in a firm location. A one standard deviation higher value in *Lagged Drought* in a firm location leads to almost 0.01 standard deviation increase in *Dividend yield.* Table 6 provides additional support to the earlier dividend payout findings. Firms provide a higher dividend yield after an increase in need for income among local people after drought conditions that affect firm locations. When there is a greater need of income among local investors, it is expected to see that local firms, especially the ones largely held by local shareholders, to cater this investor demand by paying dividends or providing higher dividend yields. Both Table 5 and Table 6 provide results consistent with this notion.

[Please insert Table 6 here]

5. Additional Tests and Robustness Checks

5.1.Use of Alternative Control Variables

Now, I provide some additional tests in order to see whether my results hold after some robustness tests. This section presents additional evidence that suggests that local debt is the main driver for my results. Some recent studies use different control variable definitions in examining dividend policy variables (i.e. Fama and French (2001) and Grullon et al. (2011)). Now, I re-examine whether my results remain robust after controlling for an alternative set of firm control variables. In particular, I use the control variables used in Fama and French (2001) and Grullon et al. (2011) and re-run the main regressions of local debt and local drought tests in Panel A and Panel B of Table 7, respectively. This table includes market-to-book ratio, ROA, sales growth, and NYSE equity percentiles for the corresponding periods. Table 7 also controls for the local control variables used in the earlier tests.

[Please insert Table 7 here]

The results in Panel A are consistent with the earlier findings. *Change in Local Leverage* is positive and statistically significant. Panel A demonstrates that a one standard deviation increase in *Change in Local Leverage* leads to a 6.7% increase in the odds that a firm becomes a dividend payer. Firms have a higher likelihood to become dividend payers when there is an increase in their local investors' debt. Panel B provides similar results. In particular, Panel B shows that a one standard deviation increase in *Lagged Drought* is associated with a 3.6% increase in the odds that a firm pays dividends. After local investors having a greater need for

income due a local drought, local firms have a higher likelihood to become dividend payers to cater investor's demand for (dividend) income. Overall, Table 7 demonstrates that the empirical findings are robust to an alternative set of firm characteristics and provides additional support to the geographically-varying dividend demand and local dividend clienteles induced by investor income.

5.2.Use of the Compact Disclosure Address Information

Next, I use the Compact Disclosure address information and re-examine the empirical results. The earlier tests use the COMPUSTAT firm address information and the COMPUSTAT location information provides the most recent address information for all sample years. The prior literature suggests that some firms may relocate and COMPUSTAT does not include these address changes for earlier firm-years. One might argue that these relocations which are not included in the COMPUSTAT address information can affect my empirical tests. On the other hand, the prior literature also demonstrates that there is a small number of headquarter relocations (i.e. Pirinsky and Wang (2006)). In addition, recent studies also show similar results when they use the Compact Disclosure address information instead of the COMPUSTAT address information (i.e. Ucar (2015).) Nevertheless, I re-run the main regressions by using the Compact Disclosure firm headquarters information in order to see whether my earlier results are robust to any potential firm relocation cases that are not included in COMPUSTAT. The Compact Disclosure dataset is available until 2006 and therefore Table 8's regression sample periods end in 2006. Table 8 repeats the main tests with local debt and local drought in Panel A and Panel B, respectively

[Please insert Table 8 here]

Although the number of observations in this test is smaller than the number of observations in the earlier tests, *Change in Local Leverage* is still statistically significant and positive in Panel A as expected. The statistical significance is smaller compared to earlier tests but this might come from the small sample size in this panel. On the other hand, the economic significance is similar to the earlier tests. A one standard deviation increase in in the change in local debt is associated with a 9.4% increase in the odds that a firm pays dividends. Panel A indicates an increase in a firm's propensity to pay dividends when there is an increase in local investor's debt.

Panel B also provides findings very similar to the earlier findings. Panel B demonstrates that a one standard deviation increase in *Lagged Drought* is leads to a 4.4% increase in the odds that a firm pays dividends. This finding is even more pronounced than the main tests reported before in the paper. Panel B shows that the impact of local drought on local investor income and local corporate dividend policies are robust to the Compact Disclosure address information. Overall, the test with the Compact Disclosure address information supports the earlier findings and supports the income based geographically-varying dividend clientele effect. Table 8 provides additional evidence on the notion that local investors have a higher demand for dividend paying stocks when they have a greater need for income after an increase in their debt levels or a decline in their incomes due to local a drought. Therefore, Table 8 confirms income based local dividend clienteles and suggests that firms whose local investor bases have a greater demand for dividend income are more likely to become dividend payers to cater to dividend demand.

5.3.Role of Local Investors

The empirical findings demonstrate a geographically-varying dividend clientele effect induced by local need for current income, proxied by local debt and local drought. The earlier findings suggest that this effect comes through local investor bases. In order to shed additional light on the channel through which this effect emerges, I focus on the role of local investors by employing different measures of local ownership and re-examine the empirical results. By doing so provides a better way to identify the main drive of the dividend effect shown in this paper. In this section, first, I examine the role of local ownership for the tests with local debt and ,next, the tests with local drought.

Now, I focus on the differences between metropolitan areas and other smaller areas. Prior literature highlights the differences between firms headquartered in big cities and the ones located in smaller cities. Loughran and Schultz (2005) and Loughran (2008) suggest that big city firms have an advantage to access information and a better information environment compared to firms located in smaller areas. Furthermore, the only-game-in-town effect demonstrated by Hong et al. (2008) is expected to be stronger in small areas compared to firms from big metropolitan areas because big metropolitan areas have large numbers of firms whereas there are small numbers of firms located in other smaller areas. Therefore, one might expect a greater only-game-in-town effect or a greater local ownership for firms located in smaller areas because there is a lower level of competition for local investors among small area firms. In order to investigate

this point, I divide my sample into two subsamples as metropolitan area firms and firms located in other areas[8] and re-examine the main tests for these subsamples in Table 9.

[Please insert Table 9 here]

Change in Local Leverage is positive for both metropolitan area and other small area firms. However, it is not statistically significant for the sample firms located in big metropolitan areas in Column 2 of Table 9. On the other hand, it is statistically significant for the sample firms located in other small areas in Column 1. Furthermore, its economic significance in Column 1 is stronger than the earlier main findings. A one standard deviation increase in the change in local debt leads to a 14.9% increase in the odds that a firm to pay dividends. This finding provides additional support to the earlier findings and demonstrates that the dividend effect is stronger for firms largely held by local investors. Therefore, Table 9 suggests that local investors play a big role for the impact of local debt on dividend policies.

A better way to focus on the only-game-in-town effect and to measure local stock ownership is using the number of firms per capita. Hong et al. (2008) find that firms located in areas with relatively small number of firms have a greater local ownership due to reduced level of competition that those firms experience in attracting local investors. Therefore, firms located in areas with a small number of firms per capita are expected to have a greater local investor base. Following Ucar (2015), I construct a variable measuring the number of local firms per

[8] Specifically, I focus on the three largest metropolitan areas (New York, Chicago, and Los Angeles). One subsample includes the sample firms located in the three largest metropolitan areas (New York, Chicago, and Los Angeles). The other subsample has the sample firms located in areas excluding the three largest metropolitan areas.

capita[9] and divide my sample into terciles based on this variable. The lowest tercile of the number of firms per capita variable represents the areas with a small number of firms which are associated with a greater the only-game-in-town-effect. The highest tercile of this variable represents the areas with a big number of firms which are associated with a smaller the only-game-in-town-effect. In other words, firms in the lowest (highest) tercile are associated with a greater (smaller) local ownership. I re-examine my empirical findings for these two subsamples in Table 9

[Please insert Table 8 here]

Change in Local Leverage is positive for both subsamples in Table 9 for both subsamples but it is only statistically significant in Column 1 for the firms located in areas with a small number of local firms per capita. This result is consistent with a greater the only-game-in-town-effect or local ownership associated with this subsample in Column 1. The coefficient in Column 1 has also a highly pronounced coefficient value. Consistent with this point, economic significance in Column 1 is much stronger than Column 2 and the earlier main findings. A one standard deviation increase in the change in local debt is associated with a 21.6% increase in the odds that a firm becomes dividend payer. This table presents additional evidence and highlights the notion that the dividend effect is stronger for firms with a large local stock component. The evidence demonstrated in this table also indicates the dividend effect presented in this paper comes through local shareholder channel.

[9] Ucar (2015) uses the Census data and calculates this variable by dividing the number of local firms located in a firm's headquarters county by the county's population. By following Ucar (2015), I use interpolations of the Census for the years without available Census data.

Next, I examine the role of local investors on the dividend payout by analyzing the impact of local debt on dividend policies for firms with different levels of institutional ownership. Earlier studies find that firms with a smaller institutional ownership have a greater retail and local ownership. Furthermore, prior literature demonstrates retail investors hold higher fractions of local stocks in their portfolios compared to institutional investors (Coval and Moskowitz (1999)). Following Ucar (2015), I use institutional ownership ratios from 13F filings, calculate average annual institutional ownership for each firm, and divide my sample into terciles based on average annual institutional ownership. I focus on the lowest and highest terciles of this institutional ownership measure. Subsample of firms in the lowest tercile of institutional ownership is expected to have a greater local ownership whereas the sample firms in the highest tercile of institutional ownership are expected to a smaller local ownership. I repeat my main test for these two subsamples in Table 9.

[Please insert Table 9 here]

Change in Local Leverage is positive and statistically significant for both subsamples in Table 9. This pattern is consistent with the earlier results. In addition, *Change in Local Leverage* has a greater coefficient value and economic significance for the firms with a smaller institutional ownership in Column 1. Economic significance in Column 1 is stronger than Column 2 and the earlier results. A one standard deviation increase in the change in local debt leads to a 21.2% increase in the odds that a firm pays dividend. On the other hand, economic significance of the coefficient in Column 2 is smaller. A one standard deviation increase in the

change in local debt only leads to a 13.1% increase in the odds that a firm pays dividend in Column 2. Therefore, there is a stronger dividend effect for the firms with a greater local ownership measured by institutional ownership. Table 9 also provides additional support to the earlier findings. It underlines the role that local investors play for geographically-varying income based dividend clienteles, as proxied by local debt. The evidence demonstrated in this table demonstrates that the dividend effect presented in this paper comes through local shareholder channel.

Similarly, I examine the role of local ownership for the tests with local drought in Table 10. Although *Lagged Drought* is positive for both metropolitan area and other small area firms, it only statistically significant for the sample firms located in other small areas in Column 1 of Panel A. Its economic significance in Column 1 is similar to the earlier findings. A one standard deviation increase in *Lagged Drought* leads to a 3.4% increase in the odds that a firm to pay dividends. This finding provides additional support to the earlier findings and demonstrates the role of local shareholders for the local dividend clientele effect, as proxied by local drought.

[Please insert Table 10 here]

Lagged Drought is positive for both subsamples in Panel B consistent with the earlier findings. However, it is statistically insignificant for subsamples of firms located in areas with both small and big numbers of local firms per capita. Panel B has subsamples with a smaller number of observations compared to the main tests reported earlier in the paper and this result might be due to the small number of observations used in Panel B. In Panel C, *Lagged Drought*

is positive and statistically significant in Column 1 whereas it is negative and statistically insignificant in Column 2. As expected, the results in Column 1 are more pronounced for the firms with greater local ownerships, as proxied by smaller institutional ownerships. Furthermore, *Lagged Drought* has a strong economic significance for the firms with a smaller institutional ownership in Column 1. In particular economic significance of Column 1 is stronger than the main results. A one standard deviation increase in *Lagged Drought* is associated with a 7.1% increase in the odds that a firm pays dividend. Table 10 also provides support to the earlier findings and highlights the role that local shareholders play for income based local dividend clienteles, as proxied by local drought. Overall, both Table 9 and Table 10 demonstrate that the income based local dividend clientele effect emerges through local investor channel. When local investors have a decline in their income levels, as proxied by two novel measures used in this paper, they have a greater need for a current and safe available income stream. This explains the main motivation of local investors' demand for dividend income of the local firms that largely held by local shareholders. In addition, consistent with this motivation, both table of this section suggests that local firms cater to local investors' dividend demand induced by income motivation by becoming dividend payers and providing dividend income.

6. Conclusion

The demand side of dividend policy and dividend clienteles has attracted attention of many studies since Miller and Modigliani (1961). The dividend clientele argument suggests that investor characteristics or preferences are important in determining variations in dividend demand and shaping dividend clienteles. Recent studies have examined geographical variations in dividend demand by focusing dividend clienteles based on some local factors such as local age

or religion characteristics (Becker et al. (2011) and Ucar (2015).) I contribute to this literature by examining dividend clienteles based on a different characteristic—income or investor' need for current income—at local level. After using two novel measures—local personal debt level and local drought—as proxies for local investors' need for income, I demonstrate a positive relation between dividend payout and local investor's demand for income.

My paper demonstrates that firms located in areas with an increase in local personal debt levels are more likely to pay dividends and offer higher dividend yields. Similarly, firms located in areas whose local income is affected by drought conditions are more likely to pay dividends and offer higher dividend yields. My results show the local dividend clientele effect based on income. Investors are expected to have a greater need for current and stable income when there is an increase in their debt levels or when there is a decline in their incomes after some severe drought conditions. Consistent with dividend clientele effect based on income, the empirical results suggest a geographically-varying demand for dividend income when local investors have a greater need for income, as proxied by increase in local debt or local drought. The empirical results also suggest that firms cater to this geographically-varying dividend demand. Local debt is an important determinant of corporate dividend policies. Similarly, local disasters like drought affecting investors play an important role for local dividend demand and also dividend policies of local firms. My paper also demonstrates that the dividend clientele effect is more pronounced for firms largely held by local stockholders and this finding highlights the role of local investors in determining corporate policies.

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Table 1: Summary Statistics

Dividend payer is an indicator variable that takes the value of one if the total amount of dividends is greater than zero for a given year and the value of zero otherwise. Dividend yield is the ratio total dividends to lagged market value. Local variables in this table are as follows: Debt to income ratio is provided by Amir Sufi's website and it shows county-level debt to income ratio for a county where a given firm is located. Drought indicates percentage of total county area which is affected by abnormally dry or drought conditions. This variable shows annual average of weekly observations for a given county from The US Drought Monitor website. (http://droughtmonitor.unl.edu/) Local seniors variable shows the proportion of people who are 65 years old or older in the firm's headquarter county. Income is the median household income in the county in which a firm is located. Education is the proportion of the population with college degree in the county in which a firm is located. Firm characteristics in this table are as follows: NYE is measure of firm size based on the NYSE equity percentiles for the corresponding period. NYE is the NYSE equity percentile that NYSE firms with similar size belong to. M/B is the ratio of market value of assets to book value of assets. Total assets in million dollars. ROA is the return on assets as measured by income before depreciation divided by total assets for a given year. Sales growth is the growth rate of the sales calculated by using the current and previous year figures. Firm age is based on the number of years between the date a firm listed initially listed on CRSP and current year. Panel A presents summary statistics of the sample observations used in the regressions in which local debt-to-income is used. Panel B presents summary statistics of the sample observations used in the regressions in which local drought is used.

Panel A: Local Leverage sample					
Panel A1: Payout policy variables (in %)					
	Mean	25th percentile	Median	75th percentile	Standard deviation
Dividend payer	25.54%	0%	0%	100%	43.61%
Dividend yield	0.50%	0%	0%	0.17%	1.13%
Panel A2: County level variables					
	Mean	25th percentile	Median	75th percentile	Standard deviation
Debt to Income	1.872	1.396	1.769	2.237	0.632
Local Seniors (%)	11.44%	10.00%	11.19%	12.82%	2.66%
Income ($)	55,240	43,930	53,201	64,377	13,602
Education (%)	31.58%	27.70%	34.10%	43.22%	9.94%
CP Ratio	2.19	0.66	1.79	3.08	1.88
Panel A3: Firm characteristics					
	Mean	25th percentile	Median	75th percentile	Standard deviation
NYE	25.69	2	13	42	28.25
M/B	2.19	1.19	1.62	2.44	1.68
ROA	0.03	0.01	0.10	0.16	0.26
Sales growth	16.89%	-2.03%	9.85%	15.81%	57.14%
Total assets ($ mil)	2,705.13	64.33	257.42	1,076.87	17,621.28
Firm age	16.17	6.44	11.16	20.91	14.92
Panel B: Local Drought Sample					
Panel B1: Payout policy variables (in %)					
	Mean	25th percentile	Median	75th percentile	Standard deviation
Dividend payer	25.62%	0%	0%	100%	43.66%
Dividend yield	0.54%	0%	0%	0.20%	1.21%
Panel B2: County level variables					
	Mean	25th percentile	Median	75th percentile	Standard deviation
Drought	34.01%	4.28%	23.39%	55.93%	32.72%
Local Seniors (%)	11.56%	10.04%	11.37%	13.03%	2.68%
Income ($)	56,780	45,119	54,054	66,760	14,484
Education (%)	35.63%	27.80%	34.30%	43.60%	10.06%
CP Ratio	2.15	0.65	1.74	3.08	1.87
Panel B3 Firm characteristics					
	Mean	25th percentile	Median	75th percentile	Standard deviation
NYE	26.47	3	14	44	28.32
M/B	2.05	1.13	1.52	2.31	1.66
ROA	0.02	0.00	0.10	0.16	0.27
Sales growth	15.14%	-5.22%	6.76%	20.46%	59.00%
Total assets ($ mil)	2,886.13	64.33	257.42	1,076.87	18,158.84
Firm age	16.48	6.18	11.63	21.51	15.24

Table 2: Local Debt and Dividend Payout

Dependent variable is *Dividend payer*. *Dividend payer* is an indicator variable that takes the value of one if the total amount of dividends is greater than zero for a given year and the value of zero otherwise. *Change in Local Leverage* measures change in local debt-to-income and it is a proxy for debt level of local retail investors. *Net income* is the net income divided by total assets for a given year. *Cash* is the cash divided by total assets for a given year. I define *Q* as the sum of the market value of equity and the book value of liabilities divided by total assets for a given year. Debt is the long-term debt divided by total assets for a given year. *Volatility* is the standard deviation of monthly stock returns for the previous two years period. *Lagged return* is monthly stock returns for the previous two years period. *Log of Assets* is the logarithm of total assets. *Log of MV* is the logarithm of a firm's market value for a given year. *Asset growth* is the logarithm of the growth rate of total assets calculated by using the current and previous year figures. All the tests include the following firm age group indicator variables: *Age 1-5*, *Age 6-10*, *Age 11-15*, *Age 16-20*. *Age 21 and over* is the dropped category in regressions. All the tests include state, industry, and year dummy variables. Intercept, firm age indicators, state, industry, and year dummy variables are not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1 %.)

Dependent Variable:	Dividend payer
Change in Local Leverage	0.4511
	(0.036)**
Net income	4.4503
	(0.000)***
Cash	-0.7407
	(0.010)***
Q	-0.0782
	(0.175)
Debt	-1.1489
	(0.000)***
Volatility	-14.8824
	(0.000)***
Lagged return	0.0605
	(0.094)*
Log of MV	0.1975
	(0.029)**
Log of Assets	0.1422
	(0.129)
Asset growth	-0.7243
	(0.000)***
Firm age indicators	Yes
State, industry, year fixed effects	Yes
Number of Observations	20279
R square	0.403

Table 3: Local Debt, Dividend Payout, and Local Factors

Dependent variable is *Dividend payer*. *Dividend payer i*s an indicator variable that takes the value of one if the total amount of dividends is greater than zero for a given year and the value of zero otherwise. *Change in Local Leverage* measures change in local debt-to-income and it is a proxy for debt level of local retail investors. County-level local control variables are defined as in the following: Local seniors, CP Ratio, Income, Median house value, Education, and Log of population. Local seniors variable is the proportion of people who are 65 years old or older in a firm's headquarter county. Cpratio is the ratio of Catholics to Protestants in in the county where a firm is located. Income is the median household income in the county in which a firm is located. Median house value is the median house value in the county in which a firm is located. Education is the proportion of the population with college degree in the county in which a firm is located. Log of population is the logarithm of county population. All the other variable definitions are provided in Table 2. All the tests include the following firm age group indicator variables: Age 1-5, Age 6-10, Age 11-15, Age 16-20. Age 21 and over is the dropped category in regressions. All the tests include state, industry, and year dummy variables. In this table, In this table, intercept is not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Dependent Variable:	Dividend payer
Change in Local Leverage	0.5551
	(0.007)***
Net income	4.4544
	(0.000)***
Cash	-0.6153
	(0.033)**
Q	-0.0724
	(0.213)
Debt	-1.1593
	(0.000)***
Volatility	-14.6951
	(0.000)***
Lagged return	0.0554
	(0.127)
Log of MV	0.1923
	(0.035)**
Log of Assets	0.1616
	(0.087)*
Asset growth	-0.7248
	(0.000)***
Firm age indicators	Yes
State, industry, year fixed effects	Yes
Local Controls	Yes
Number of Observations	20279
R square	0.411

Table 4: Local Debt and Dividend Yield

Dependent variable is *Dividend yield*. *Dividend yield* is the ratio total dividends to lagged market value. *Change in Local Leverage* measures change in local debt-to-income and it is a proxy for debt level of local retail investors. The following local control variables are also included in the regression: Local seniors, CP Ratio, Income, Median house value, Education, and Log of population. The local control variables are defined in Table 3.The local control variables are not displayed for brevity. All the other variable definitions are provided in Table 2. All the tests include the following firm age group indicator variables: Age 1-5, Age 6-10, Age 11-15, Age 16-20. Age 21 and over is the dropped category in regressions. All the tests include state, industry, and year dummy variables. In this table, intercept is not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Dependent Variable:	Dividend yield
Change in Local Leverage	0.0014
	(0.047)**
Net income	0.0001
	(0.754)
Cash	0.0006
	(0.330)
Q	-0.0003
	(0.003)***
Debt	-0.0017
	(0.023)**
Volatility	-0.0177
	(0.000)***
Lagged return	0.0003
	(0.002)***
Log of MV	0.0007
	(0.003)***
Log of Assets	-0.0000
	(0.937)
Asset growth	-0.0014
	(0.000)***
Firm age indicators	Yes
State, industry, year fixed effects	Yes
Local Controls	Yes
Number of Observations	20279
R square	0.214

Table 5: Local Drought and Dividend Payout

Column 1 of Panel A reports empirical results for all firms whereas Column 2 of Panel A reports results for a sample of firms excluding industries that produce or sell agricultural and/or food products. Column 3 of Panel A presents empirical results with local control variables. Dependent variable is Dividend payer. Dividend payer is an indicator variable that takes the value of one if the total amount of dividends is greater than zero for a given year and the value of zero otherwise. Lagged Drought demonstrates Drought in the prior year for a given firm. Drought indicates percentage of total county area which is affected by abnormally dry or drought conditions. In Panel B, Lagged-2year Drought (Lagged-3year Drought) demonstrates Drought from two (three) years before the current year for a given firm. This variable shows annual average of weekly observations for a given county from .The US Drought Monitor website. (http://droughtmonitor.unl.edu/) The following local control variables are also included in some tests: Local seniors, CP Ratio, Income, Median house value, Education, and Log of population. The local control variables are defined in Table 3.The local control variables are not displayed for brevity. All the other variable definitions are provided in Table 2. All the tests include the following firm age group indicator variables: Age 1-5, Age 6-10, Age 11-15, Age 16-20. Age 21 and over is the dropped category in regressions. All the tests include state, industry, and year dummy variables. In this table, intercept is not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Panel A

	(1)	(2)	(3)
Dependent Variable:		Dividend payer	
Lagged Drought	0.0011	0.0011	0.0009
	(0.025)**	(0.030)**	(0.059)*
Net income	3.6100	3.6819	3.6155
	(0.000)***	(0.000)***	(0.000)***
Cash	-0.9259	-0.9613	-0.7928
	(0.000)***	(0.000)***	(0.002)***
Q	-0.0318	-0.0209	-0.0276
	(0.512)	(0.668)	(0.569)
Debt	-0.8089	-0.7568	-0.8141
	(0.000)***	(0.001)***	(0.000)***
Volatility	-12.3823	-12.3604	-12.3493
	(0.000)***	(0.000)***	(0.000)***
Lagged return	0.0059	0.0052	0.0049
	(0.840)	(0.860)	(0.866)
Log of MV	0.2184	0.2027	0.2135
	(0.002)***	(0.004)***	(0.002)***
Log of Assets	0.1295	0.1324	0.1457
	(0.080)*	(0.075)*	(0.049)**
Asset growth	-0.9158	-0.9217	-0.9210
	(0.000)***	(0.000)***	(0.000)***
Firm age indicators	Yes	Yes	Yes
State, industry, year fixed effects	Yes	Yes	Yes
Local Controls			Yes
Number of Observations	32445	31555	32445
R square	0.396	0.390	0.399

Table 5 cont.

Panel B

	(1)	(2)
Dependent Variable:	Dividend payer	
Lagged-2year Drought	0.0013	
	(0.008)***	
Lagged-3year Drought		0.0011
		(0.024)**
Net income	3.7853	3.8545
	(0.000)***	(0.000)***
Cash	-0.8953	-0.8476
	(0.001)***	(0.001)***
Q	-0.0230	-0.0077
	(0.646)	(0.878)
Debt	-0.7935	-0.7678
	(0.001)***	(0.002)***
Volatility	-12.2910	-11.9368
	(0.000)***	(0.000)***
Lagged return	0.0006	-0.0034
	(0.985)	(0.916)
Log of MV	0.2035	0.1896
	(0.007)***	(0.016)**
Log of Assets	0.1310	0.1372
	(0.094)*	(0.094)*
Asset growth	-0.9233	-0.9476
	(0.000)***	(0.000)***
Firm age indicators	Yes	Yes
State, industry, year fixed effects	Yes	Yes
Number of Observations	28390	24635
R square	0.386	0.374

Table 6: Local Drought and Dividend Yield

Dependent variable is *Dividend yield*. *Dividend yield* is the ratio total dividends to lagged market value. *Lagged Drought* demonstrates *Drought* in the prior year for a given firm. *Drought* indicates percentage of total county area which is affected by abnormally dry or drought conditions. This variable shows annual average of weekly observations for a given county from The US Drought Monitor website. (http://droughtmonitor.unl.edu/) All the other variable definitions are provided in Table 2. All the tests include the following firm age group indicator variables: Age 1-5, Age 6-10, Age 11-15, Age 16-20. Age 21 and over is the dropped category in regressions. All the tests include state, industry, and year dummy variables. In this table, intercept is not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Dependent Variable:	Dividend yield
Lagged Drought	0.0000
	(0.086)*
Net income	0.0003
	(0.251)
Cash	0.0002
	(0.745)
Q	-0.0003
	(0.000)***
Debt	-0.0008
	(0.252)
Volatility	-0.0188
	(0.000)***
Lagged return	0.0001
	(0.330)
Log of MV	0.0011
	(0.000)***
Log of Assets	-0.0004
	(0.049)**
Asset growth	-0.0015
	(0.000)***
Firm age indicators	Yes
State, industry, year fixed effects	Yes
Number of Observations	32445
R square	0.204

Table 7: Tests with Alternative Control Variables

Panel A reports empirical results for the local debt sample whereas Panel B provides empirical results for the local drought sample. Dependent variable is Dividend payer. Dividend payer is an indicator variable that takes the value of one if the total amount of dividends is greater than zero for a given year and the value of zero otherwise. In Panel A, *Change in Local Leverage* measures change in local debt-to-income and it is a proxy for debt level of local retail investors. In Panel B, *Lagged Drought* demonstrates *Drought* in the prior year for a given firm. *Drought* indicates percentage of total county area which is not affected by abnormally dry or drought conditions. This variable shows annual average of weekly observations for a given county from The US Drought Monitor website. (http://droughtmonitor.unl.edu/) Control variables are NYE, M/B, ROA, and Sales growth. NYE is measure of firm size based on the NYSE equity percentiles for the corresponding period. NYE is the NYSE equity percentile that NYSE firms with similar size belong to. M/B is the ratio of market value of assets to book value of assets. Market value of assets is measured as market value of equity plus total assets minus total equity in M/B definition. ROA is the return on assets as measured by income before depreciation divided by total assets for a given year. Sales growth is the growth rate of the sales calculated by using the current and previous year figures. County level local control variables are the following: Local seniors, CP Ratio, Income, Median house value, Education, and Log of population. Local control variable definitions are provided in Table 3. All the tests include state, industry, and year dummy variables. Intercept, state, industry, and year dummy variables are not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Panel A: Local Debt and Dividend Payout

Dependent Variable:	Dividend payer
Change in Local Leverage	0.3014
	(0.081)*
NYE	0.0311
	(0.000)***
M/B	-0.3189
	(0.000)***
ROA	6.3781
	(0.000)***
Sales growth	-1.0986
	(0.000)***
State, industry, year fixed effects	Yes
Local Controls	Yes
Number of Observations	20279
R square	0.425

Panel B: Local Drought and Dividend Payout

Dependent Variable:	Dividend payer
Lagged Drought	0.0011
	(0.018)**
NYE	0.0307
	(0.000)***
M/B	-0.2747
	(0.000)***
ROA	5.9008
	(0.000)***
Sales growth	-1.2924
	(0.000)***
State, industry, year fixed effects	Yes
Local Controls	Yes
Number of Observations	31941
R square	0.315

Table 8: Tests with Compact Disclosure Address Information

Panel A reports empirical results for the local debt sample whereas Panel B provides empirical results for the local drought sample. Dependent variable is Dividend payer. Dividend payer is an indicator variable that takes the value of one if the total amount of dividends is greater than zero for a given year and the value of zero otherwise. In Panel A, *Change in Local Leverage* measures change in local debt-to-income and it is a proxy for debt level of local retail investors. In Panel B, *Lagged Drought* demonstrates *Drought* in the prior year for a given firm. *Drought* indicates percentage of total county area which is not affected by abnormally dry or drought conditions. This variable shows annual average of weekly observations for a given county from The US Drought Monitor website. (http://droughtmonitor.unl.edu/) Main regression control variables are Net income, Cash, Q, Debt, Volatility, Lagged return, Log of Assets, and Asset growth. Main control variables are not displayed for brevity. All the variable definitions are provided in Table 2. Local control variables are Local seniors, CP Ratio, Income, Median house value, Education, and Log of population. Local control variables definitions are provided in Table 3. Local control variables are not displayed for brevity. All the tests include the following firm age group indicator variables: Age 1-5, Age 6-10, Age 11-15, Age 16-20. Age 21 and over is the dropped category in regressions. All the tests include state, industry, and year dummy variables. In this table, intercept is not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

Panel A: Local Debt and Dividend Payout	
Dependent Variable:	Dividend payer
Change in Local Leverage	0.3875
	(0.068)*
Main Controls	Yes
Firm age indicators	Yes
State, industry, year fixed effects	Yes
Local Controls	Yes
Number of Observations	20279
R square	0.425
Panel B: Local Drought and Dividend Payout	
Dependent Variable:	Dividend payer
Local Drought	0.0014
	(0.041)**
Main Controls	Yes
Firm age indicators	Yes
State, industry, year fixed effects	Yes
Local Controls	Yes
Number of Observations	16281
R square	0.439

Table 9: Local Debt and Dividend Payout: Role of Local Ownership

Dependent variable is *Dividend payer*. *Dividend payer i*s an indicator variable that takes the value of one if the total amount of dividends is greater than zero for a given year and the value of zero otherwise. *Change in Local Leverage* measures change in local debt-to-income and it is a proxy for debt level of local retail investors. This table repeats the main test for local debt sample. In Panel A, empirical tests are repeated for firms located in areas excluding the three largest metropolitan areas (New York, Chicago, and Los Angeles) in column 1 and for firms located in the three largest metropolitan areas in column 2. In Panel B, number of local firms per capita is used as a proxy for the only-game-in-town effect of Hong et al. (2008). Panel B repeats the main test for firms located in areas with a small number of local firms per capita in column 1 and firms that are located in areas with a big number of local firms per capita in column 2. Panel C uses institutional ownership as a local (retail) ownership measure and repeats the main test for firms with low institutional ownership and in column 1 and firms with high institutional ownership in column 2. Main regression control variables are Net income, Cash, Q, Debt, Volatility, Lagged return, Log of Assets, and Asset growth. All the variable definitions are provided in Table 2. Local control variables are Local seniors, CP Ratio, Income, Median house value, Education, and Log of population. Local control variables definitions are provided in Table 3. All the tests include the following firm age group indicator variables: Age 1-5, Age 6-10, Age 11-15, Age 16-20. Age 21 and over is the dropped category in regressions. All the tests include state, industry, and year dummy variables. In this table, In this table, intercept as well as other control variables are not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

	(1)	(2)
Local Panel A: Area	Other	Metropolitan
Dependent Variable:	Dividend payer	
Change in Local Leverage	0.6435	0.5912
	(0.003)***	(0.327)
Main Controls	Yes	Yes
Firm age indicators	Yes	Yes
State, industry, year fixed effects	Yes	Yes
Local Controls	Yes	Yes
Number of Observations	18280	1834
R square	0.41	0.479
Panel B: Number of firms per capita	Small	Big
Dependent Variable:	Dividend payer	
Change in Local Leverage	0.9617	0.5305
	(0.007)***	(0.232)
Main Controls	Yes	Yes
Firm age indicators	Yes	Yes
State, industry, year fixed effects	Yes	Yes
Local Controls	Yes	Yes
Number of Observations	6674	6567
R square	0.434	0.421
Panel C: Institutional Ownership	Low	High
Dependent Variable:	Dividend payer	
Change in Local Leverage	0.8754	0.5813
	(0.086)*	(0.057)*
Main Controls	Yes	Yes
Firm age indicators	Yes	Yes
State, industry, year fixed effects	Yes	Yes
Local Controls	Yes	Yes
Number of Observations	6633	6688
R square	0.392	0.352

Table 10: Local Drought and Dividend Payout: Role of Local Ownership

Dependent variable is *Dividend payer*. *Dividend payer i*s an indicator variable that takes the value of one if the total amount of dividends is greater than zero for a given year and the value of zero otherwise. *Lagged Drought d*emonstrates *Drought* in the prior year for a given firm. *Drought* indicates percentage of total county area which is affected by abnormally dry or drought conditions. This variable shows annual average of weekly observations for a given county from The US Drought Monitor website. (http://droughtmonitor.unl.edu/) This table repeats the main test for local drought sample. In Panel A, empirical tests are repeated for firms located in areas excluding the three largest metropolitan areas (New York, Chicago, and Los Angeles) in column 1 and for firms located in the three largest metropolitan areas in column 2. In Panel B, number of local firms per capita is used as a proxy for the only-game-in-town effect of Hong et al. (2008). Panel B repeats the main test for firms located in areas with a small number of local firms per capita in column 1 and firms that are located in areas with a big number of local firms per capita in column 2. Panel C uses institutional ownership as a local (retail) ownership measure and repeats the main test for firms with low institutional ownership and in column 1 and firms with high institutional ownership in column 2. Main regression control variables are Net income, Cash, Q, Debt, Volatility, Lagged return, Log of Assets, and Asset growth. All the variable definitions are provided in Table 2. Local control variables are Local seniors, CP Ratio, Income, Median house value, Education, and Log of population. Local control variables definitions are provided in Table 3. All the tests include the following firm age group indicator variables: Age 1-5, Age 6-10, Age 11-15, Age 16-20. Age 21 and over is the dropped category in regressions. All the tests include state, industry, and year dummy variables. In this table, In this table, intercept as well as other control variables are not displayed for brevity. Standard errors are adjusted for heteroskedasticity and clustered at firm level. Robust p-values are in parentheses (* significant at 10%; ** significant at 5%; *** significant at 1%).

	(1)	(2)
Local Panel A: Area	Other	Metropolitan
Dependent Variable:	Dividend payer	
Lagged Drought	0.0010	0.0011
	(0.050)**	(0.452)
Main Controls	Yes	Yes
Firm age indicators	Yes	Yes
State, industry, year fixed effects	Yes	Yes
Local Controls	Yes	Yes
Number of Observations	29148	3155
R square	0.400	0.448
Panel B: Number of firms per capita	Small	Big
Dependent Variable:	Dividend payer	
Lagged Drought	0.0004	0.0005
	(0.702)	(0.629)
Main Controls	Yes	Yes
Firm age indicators	Yes	Yes
State, industry, year fixed effects	Yes	Yes
Local Controls	Yes	Yes
Number of Observations	10689	10611
R square	0.434	0.389
Panel C: Institutional Ownership	Low	High
Dependent Variable:	Dividend payer	
Local Drought	0.0021	-0.0006
	(0.082)*	(0.395)
Main Controls	Yes	Yes
Firm age indicators	Yes	Yes
State, industry, year fixed effects	Yes	Yes
Local Controls	Yes	Yes
Number of Observations	10389	11096
R square	0.391	0.322