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# Does board gender diversity influence dividend policy? Evidence from France

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## Abstract

Prior research shows that board gender diversity helps improve board quality and effectiveness. Using a sample of French companies, we find that board gender diversity leads to a stronger probability for firm to pay dividends as well as to larger dividends. Our results are consistent with the notion that female directors improve the monitoring function of the board, thereby forcing managers to disgorge more cash out in the form of larger dividends. The free cash flow problem is mitigated as larger dividends reduce the free cash flow left inside the firm that could be exploited by opportunistic managers.

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## Abstract

Prior research shows that board gender diversity helps improve board quality and effectiveness. Using a sample of French companies, we find that board gender diversity leads to a stronger probability for firm to pay dividends as well as to larger dividends. Our results are consistent with the notion that female directors improve the monitoring function of the board, thereby forcing managers to disgorge more cash out in the form of larger dividends. The free cash flow problem is mitigated as larger dividends reduce the free cash flow left inside the firm that could be exploited by opportunistic managers.



***JEL Classification:*** *G32, G34*
***Keywords:*** *board gender diversity, female directors, dividends, dividend policy, corporate governance*.

# 1. Introduction

The purpose of this paper is to investigate the effect of board gender diversity on dividend payments in the French stock market. To the best of our knowledge, this paper is the first study on the subject for the country. The data are selected for the 2008-2016 period for all firms listed on the SBF 120 index for which data are available. Although prior studies investigate the association of other corporate governance characteristics with the propensity to distribute dividends to shareholders (see, e.g., Abdelsalam *et al.*, 2008; Jiraporn *et al.*, 2011), studies on the link between board gender diversity and dividend policy are relatively scant and applied in different contexts and time periods. Ye *et al.* (2019) conduct a cross-country study including France as well for the years between 2000 and 2013, whereas Chen *et al.* (2017) sample US companies for the years between 1997 and 2011, and Saeed and Sameer (2017) realize their study on prominent emerging countries including India, Russia, and China over the period between 2007 and 2014. Although these studies suggest very useful insights on the topic, our study is different in three ways and makes a significant contribution to the literature by investigating the link between board gender diversity and dividend in French firms for the years between 2008 to 2016. First, while cross-country studies provide global and holistic implications (Ye *et al.*, 2019), they do not address specific gaps or implications particular for the contexts. Second, French context is quite different than US or emerging countries with respect to board gender diversity as it is far ahead of those countries[1] (Chen *et al.*, 2017; Saeed and Sameer, 2017). Third, compared to prior studies, we provide more recent evidence on the association between gender diversity and dividend payouts as there is an increasing trend and pressure worldwide for the appointment of more female directors to boards (see, e.g., Adams and Ferreira, 2009; Ye *et al.*, 2019); thus, changing board structures, in this respect, justify up-to-date studies.

According to a study published by the European commission in 2018 the employment levels of women in French companies are 7.6% lower than those of men[2]. To promote gender equality, the French parliament has passed the Cope-Zimmermann law of January 2011. The quota mandated by France required a minimum of 20% of corporate board seats to be filled with women by 2014, with the percentage rising to 40% by 2017 (Benkraiem *et al.*, 2018). France is among the strictest European countries that has implemented quota with sanctions: non-compliance with the rules on gender diversity in boards of directors (or supervisory boards) is sanctioned by the suspension of the compensation paid to board members as long as the composition of the board is not law-compliant (The Cope-Zimmermann law, 2011). Therefore, French companies are more and more demanding in terms of women appointment on boards and France becomes one of the countries with the highest women board representation worldwide. In 2018, European Gender Diversity Index analyzed the data of 200 European companies from the STOXX Europe® 600 index by incorporating 9 countries[3]. According to the index, among those 9 European countries, France occupies the first position with 44.2% women on boards.

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[1] For the board diversity proportion of corporate boards across countries, please see "Gender Parity on Boards Around the World" retrieved from https://corpgov.law.harvard.edu/2017/01/05/gender-parity-on-boards-around-the-world/ (accessed 23 September, 2019).

[2] The employment rate of males is 75.2% compared to 67.6% the employment rate of women. For more statistics see Eurostat's "Employment rate by sex" report on: https://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tesem010&language=en

[3] For the full study, see the fact sheet published by the organization of "European Women on Boards" in the website: https://europeanwomenonboards.eu/wp-content/uploads/2018/11/ewob_facsheet.pdf

In terms of dividend growth, Janus Henderson Global Dividend Index (JHGDI)[4] of 2019 shows that France is the unique European Country that broke all-time records with Japan, Canada and Indonesia. It argues that France is ahead of the European average in that respect. It is Europe's largest dividend payer, and saw underlying growth of 5.1%, with the total paid reaching a new $ 51.0 Billion record in the second quarter of 2019. According to the JHGDI, three quarters of French companies raised their dividends year-on-year, and only EDF made a cut[5]. Hence, the growth of dividend and high proportion of women on boards make France an exceptional and interesting context to examine the relationship between board gender diversity and dividend payout.

Board gender diversity is an important dimension of corporate governance, which enhances the monitoring role of boards (Adams and Ferreira, 2009). Women on boards enhance financial reporting quality, stimulate good corporate citizenship, and improve firm performance (see, e.g., Pucheta-Martínez and Bel-Oms, 2015), ensure greater social equality and enrich the director talent pool (Bernile *et al.*, 2018). They are assumed to alleviate agency conflicts between managers and shareholders arising from the allocation of the free cash flow (see, e.g., Byoun *et al.*, 2016; Saeed and Sameer, 2017). Female directors on boards are likely to enhance the decision-making and monitoring functions of the board, which in turn reduces agency conflicts, in several ways by; taking a role in board sub-committees (Adams and Ferreira, 2009), providing different perspectives, skills, and experiences in boardrooms (Saeed and Sameer, 2017), disciplining management (Saeed and Sameer, 2017), attending more board meetings as well as influencing the meeting attendance rate of their male counterparts (Adams and Ferreira, 2009).

However, despite plenty of studies on how board gender diversity is associated with other dimensions of corporate decision-making and business practices, the effect of board gender diversity on dividend policy remains largely unexplored with a few recent exceptions. Those recent studies find a positive association between board gender diversity and dividend payouts (see, e.g., Pucheta-Martínez and Bel-Oms, 2015; Byoun *et al.*, 2016; Al-Rahahleh, 2017; Chen *et al.*, 2017; Ye *et al.*, 2019). Bernile *et al.* (2018) report similar results for overall board diversity including gender along with other diversity characteristics. On the contrary, Saeed and Sameer, (2017) show just the contrary, in emerging countries including India, China, and Russia; board gender diversity is adversely related to dividend payments to shareholders. Hence, while the empirical evidence is inconclusive, following the majority of the cited studies, we expect a positive relationship between board gender diversity and dividend payments in French corporations.

The empirical results corroborate our hypothesis. In particular, we find that French firms with a higher percentage of female directors are more likely to pay dividends and, for those that pay dividends, pay significantly larger dividends. Thus, our results are consistent with the notion that female directors force managers to disgorge more cash out to shareholders in the form of larger dividend payments, thereby reducing what is left for opportunistic appropriation by managers. To mitigate endogeneity, we execute several robustness checks. In particular, we employ Oster's (2019) method for testing coefficient stability, an approach that alleviates concerns for unobserved

[4] Janus Henderson Global Dividend Index (JHGDI) is a long-term study into global dividend trends. It measures the progress that global firms are making in paying their investors an income on their capital, using 2009 as a base year--index value 100.

[5] For more details, see the Janus Henderson Global Dividend Index, Edition 23, August 2019 available on https://az768132.vo.msecnd.net/documents/122816_2019_08_15_02_20_46_813.gzip.pdf. EDF is abbreviation of the company "Electricité de France".

heterogeneity. In addition, we employ an instrumental-variable analysis and obtain consistent results. It does not appear that our results are unduly driven by endogeneity.

In the following sections, we describe our research methodology including sampling and the variable definitions, followed by the results, and then the conclusions.

# 2. Sample and data description

## 2.1. Sample construction

Our initial sample consists of all French listed firms belonging to the SBF 120 index from 2008 to 2016. We focus on the SFB120 firms because they represent the 120 most actively traded stocks listed in Paris and are more likely to adopt good governance practices. In addition, they have experienced a significant increase in dividends distributed to their stockholders (Henderson, 2019). We exclude financial and regulated utilities firms (Standard Industrial Classification, or SIC, codes 4900–4999 and 6000–6999) since they are subject to specific governance practices and accounting rules. Thus, initially, there were 621 firm-year observations (i.e. 9 years x 69 firms). Furthermore, we discard all firms with missing data and exclude outliers where appropriate. We obtain a final sample of 69 companies totaling 602 firm-year observations.

## 2.2. Data description

We utilize a variety of sources in order to collect our data. The data on boardroom attributes are from INSEAD OEE Data Services (IODS) and the "Board of Directors" and/or "Corporate Governance Report" sections of the companies' annual reports. The financial and accounting variables are from the FactSet database. The variables which are integrated into the model are in line with the previous research studying the association of governance and financial variables with the dividend payment.

### a. Dependent variables

We consider four different measures to proxy for dividend payouts: (i) *Div_dum* is a binary variable that takes the value of one if the firm pays dividend at year *t*, and zero otherwise. (ii) *DIVPR* is the dividend payout ratio that is calculated as dividends over net income. (iii) *DIVSALES* is dividends over net sales, and finally (iv) *DIVYLD* is dividend yield as measured by the ratio of the dividend per share to price per share.

### b. Governance and ownership variables

We use various measures of boardroom attributes including board gender diversity, size, independence and diligence, respectively[6]. The proportion of women on the board as a measure of board gender diversity is equal to the ratio of female directors to the total number of directors on the board. Board size is the total number of directors on the board as presented in the descriptive statistics; however, all the major studies on board size employ log (see, e.g., Yermack, 1996; Carter *et al.*, 2003; Nakano and Nguyen, 2012). To be consistent with the literature, we adopt the natural logarithm form in the analyses as well. We use four variables to measure board independence: (i) the proportion of independent directors on the board, (ii) the average age of independent directors,

[6] Even through the paper only focuses on the effect of gender diversity on dividend policy, we have included various boardroom attributes. It appears relevant to include these attributes in line with previous studies that have demonstrated that boardroom size, independence and diligence monitor firm's policies and play a pivotal role in its strategic decision-making.

(iii) the average length of independent directors' mandate, and (iv) the average number of independent directors' mandates. Board diligence is measured by using the total number of board meetings during the fiscal year and the average directors' participation rate. CEO duality (*DUA*) is represented by using a binary variable equal to one if the CEO is also the chair of the board and zero otherwise.

We include three variables for ownership structure: (i) ownership concentration is measured by a binary variable equal to one if the blockholder holds more than 20% of shares and zero otherwise, (ii) family ownership is measured by using a binary variable of one if the firm is controlled by a family and zero otherwise, and (iii) managerial ownership is proxied by a binary variable equal to one if the CEO holds shares of the company and zero otherwise.

### c. Financial variables

To account for the impact of firm characteristics on dividend payouts, we also include the following financial variables. Firm size is measured by the natural logarithm of total assets. Leverage is the ratio of total debt to total assets. Return on assets, a proxy for profitability, is defined as the ratio of net income to total assets. Return volatility, a proxy for firm's risk, is measured by the standard deviation of the ROA over the past five years. *GROWTH* is growth opportunities and represents the annual change rate of total assets. Cash holdings are defined as cash[7] reserves and calculated as cash divided by net assets (total assets minus cash). *PPE*, a proxy for asset tangibility, is measured as net property, plant and equipment over total assets. *R&D*, a proxy for financial distress costs, is calculated as the ratio of R&D to total sales. *TOBINQ*, a financial market-based indicator of firm performance, is measured as market value of equity plus book value of debt divided by total assets. *CAPEX* is calculated as capital expenditures over total assets. *ZIP* is the postal code of each company. Table I in Appendix shows the summary statistics for firm and board characteristics as well as for our dividend measures.

## 3. Results

### 3.1. Main regression results

Before running the regressions, we have calculated the variance inflation factor (VIF) for each variable. None of the VIF's is greater than 2.5, suggesting that multi-collinearity is not a problem. Table II in Appendix shows the results of the regression analysis. The standard errors are clustered by firm. Model 1 is a logistic regression where the dividend-paying dummy is the dependent variable. The coefficient of the percentage of female directors is positive and significant, suggesting that higher board gender diversity leads to a higher propensity to pay dividends. We estimate the marginal effect of female directors by calculating the slope of the logistic model at the mean and find the marginal effect to be 5.86%.

We now switch our attention to the magnitude of the dividend payment. We employ Tobit regressions as dividend payouts can be viewed as a variable censored below zero. Model 2 has the dividend payout ratio as the dependent variable, which is defined as total dividends divided by net income.[8] We exclude cases where net income is negative. The percentage of female directors carries a positive and significant coefficient, indicating that board gender diversity not only leads to a higher propensity to pay dividends, but also significantly larger dividends. In terms of economic magnitude, a rise in board gender diversity by one standard deviation increases the dividend payout ratio by 38.22%. This is estimated as follows. One standard deviation of board

[7] Cash represents all cash items, on hand and in bank, that are readily available for use. This includes cash equivalents that can easily be converted into cash.

[8] The number of observations in Model 2 is slightly lower because we exclude cases where net income is negative.

gender diversity is 0.1277. The coefficient of board gender diversity in Model 2 is 2.143. Thus, a rise in board gender diversity by one standard deviation raises the dividend payout ratio by 0.1277*2.143 = 0.274. Given that the average payout ratio is 0.716, an increase by 0.274 represents a rise by 38.22% of the average.

To corroborate the results, we employ two alternative measure of dividends, i.e. the ratio of dividends over sales and the dividend yield. The results are shown in Model 3 and Model 4. Similarly, we find that higher board gender diversity motivates firms to pay larger dividends.

## 3.2. Addressing endogeneity

One critical challenge in drawing a causal inference for the effect of board gender diversity on dividend policy is that our results might be driven by unobserved heterogeneity, where both board gender diversity and dividend payouts are both determined by unobservable characteristics. One way to alleviate this problem is to employ a fixed-effects regression, which controls for unobservable time-invariant characteristics. However, because dividend payouts and board gender diversity are both sticky, only slowly changing over time, a fixed-effects regression is not appropriate in our context. Corroborating this argument is the fact that fixed-effects regressions produce insignificant results due to insufficient variation in the variables over time.

Therefore, we employ an alternative approach that mitigates our concerns for unobserved heterogeneity. We adopt Oster's (2019) approach to estimate how much the effect of the unobservables would have to be to overwhelm the effect of the observables and thus render our results invalid. We apply Oster's (2019) method to the regression in Model 1 of Table II and find that the effect of the unobservables would have to be 4.15 times stronger than the effect of the observables to explain away our results, a very unlikely probability.[9] Similarly, we apply the same test to the regression in Model 2 Table II and find that the corresponding ratio is 2.41, again an unlikely probability. So, our conclusion does not appear to be principally driven by unobserved heterogeneity.

To further ensure that our results are not unduly influenced by endogeneity, we execute additional analysis using an instrumental-variable approach. In selecting our instrumental variable, we rely on the insight in a recent study by Knyazeva *et al.* (2013), who find that firms tend to recruit directors locally. Board composition is significantly influenced by the local director pool. Based on this insight, it can be argued that firms located in an area with a larger pool of female directors tend to have higher board gender diversity. We focus on the average degree of board gender diversity of all firms in the same zip code (the average percentage of female directors of all firms in the same zip code). Firms located nearby are exposed to the same pool of female directors and thus should exhibit a similar degree of board gender diversity. We rely on zip codes because zip codes are assigned to maximize efficiency in mail delivery. Consequently, zip code assignments are unlikely related to corporate policies or outcomes and are thus plausibly exogenous to firm characteristics.

Moreover, to minimize reverse causality, we employ the average degree of board gender diversity of all firms in the same zip code in the earliest year for each zip code. The logic is that board gender diversity in the earliest year in each zip code could not have resulted from board gender diversity in any firm in any of the subsequent years, thereby reducing possible reverse causality. This approach has been adopted in the recent literature (see, e.g., Jiraporn *et al.*, 2014; Chintrakarn *et al.*, 2017; Chintrakarn *et al.*, 2015).

[9] We assume that the maximum $R^2$ is 1.3 times the regular $R^2$. We use different assumptions about the maximum $R^2$, ranging from 100% to 150% of the regular $R^2$ and obtain consistent results.

The results of our instrumental-variable analysis are shown in Table III in Appendix. Model 1 is the first-stage logistic regression where board gender diversity is the dependent variable. The coefficient of the average degree of board gender diversity of all firms in the same zip code in the earliest year is positive and significant, as expected. Model 2 is the second-stage logistic regression where the dependent variable is the dividend-paying dummy. The coefficient of board gender diversity instrumented from the first stage is positive and significant, suggesting that more female directors lead to a stronger propensity to pay dividends. Models 3, 4, and 5 are second-stage tobit regressions censored below zero. The coefficients of board gender diversity instrumented from the first stage are positive and significant in Model 4 and 5, although not significant in Model 3. Overall, our instrumental-variable analysis generally demonstrates that board gender diversity leads to larger dividend payouts.

To assess the validity of our instrumental-variable analysis, we look at the following statistics. First, Shea' partial $R^2$ is 17.46, suggesting that our instrument is not weak. To further confirm the validity of our instrument, we run a test for weak identification. The Crag-Danald Wald F-statistic is 120.41, allowing us to reject the null hypothesis that the instrument is weak. Finally, we report the Wald Chi-squared and F-statistics for Models 2-5. All of the statistics are significant, suggesting that the models are well-specified.

# 4. Conclusions

Several prior studies show that board gender diversity improves board quality and efficiency. We contribute to the literature by investigating the effect of board gender diversity on a crucial corporate policy, i.e. dividend policy. Our study is the first to explore this issue in France, which is a vital economy in Europe. Our results demonstrate that more female directors lead to a stronger probability to pay dividends as well as to larger dividend payouts. This is consistent with the notion that board gender diversity enhances corporate governance quality and thus forces managers to disgorge more cash to shareholders, reducing the free cash flow that could be exploited by opportunistic managers. The results provide implications for companies operating in the contexts characterized by weak diversity on corporate boards; women on boards play a significant role in reducing agency conflicts by supporting the dividend payout decision and the amount. Considering the results of our study, shareholders, particularly those for whom dividend policy is important, can formulate their investment strategies accordingly. In addition, the French case might encourage policy-makers of other countries in adopting stricter regulations in reducing agency conflicts by regulating board structures in favor of females. To mitigate endogeneity, we execute several additional tests, including Oster's (2019) method for testing coefficient stability and performing an instrumental-variable analysis. All results are consistent, suggesting that our conclusion is not driven by endogeneity.

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# Appendix

**Table I:** Summary statistics

| | No. | Mean | Median | Std. Dev. | 25th | 75th |
|---|---|---|---|---|---|---|
| Firm and board characteristics | | | | | | |
| Board gender diversity | 602 | 0.2042 | 0.2000 | 0.1277 | 0.1000 | 0.3000 |
| Board size | 602 | 12.9183 | 13.0000 | 3.1274 | 11.0000 | 15.0000 |
| % Independent directors | 602 | 0.5020 | 0.4667 | 0.1934 | 0.3889 | 0.6364 |
| Average age of Independent directors | 602 | 62.6726 | 63.0000 | 4.9721 | 59.8907 | 66.0000 |
| Average tenure of Independent directors | 602 | 22.4002 | 22.4546 | 7.4384 | 19.5000 | 25.7273 |
| Average number of mandated independent directors | 602 | 2.1570 | 1.7500 | 1.1794 | 1.2500 | 2.7500 |
| Number of board meetings | 602 | 7.8857 | 8.0000 | 2.7873 | 6.0000 | 10.0000 |
| Average % of directors present in board meeting | 602 | 0.8931 | 0.9067 | 0.0917 | 0.8600 | 0.9400 |
| CEO duality (binary) | 602 | 0.5556 | - | - | - | - |
| Blockholding (binary) | 602 | 0.5797 | - | - | - | - |
| Family control (binary) | 602 | 0.2899 | - | - | - | - |
| CEO ownership (binary) | 602 | 0.8986 | - | - | - | - |
| Ln (total assets) | 602 | 4.0379 | 4.0190 | 0.5916 | 3.5698 | 4.4492 |
| Total debt/Total assets | 602 | 0.2793 | 0.2459 | 0.2500 | 0.1540 | 0.3572 |
| ROA | 602 | 0.0390 | 0.0382 | 0.0429 | 0.0165 | 0.0591 |
| Return volatility | 602 | 0.0207 | 0.0137 | 0.0259 | 0.0083 | 0.0236 |
| Growth in total assets | 602 | 0.0618 | 0.0348 | 0.1866 | -0.0124 | 0.0946 |
| Cash/Total assets | 602 | 0.0978 | 0.0744 | 0.0858 | 0.0430 | 0.1230 |
| PPE/Total assets | 602 | 0.2036 | 0.1336 | 0.1907 | 0.0715 | 0.2832 |
| R&D/Sales | 602 | 0.0204 | 0.0021 | 0.0397 | 0.0000 | 0.0301 |
| TOBINQ | 602 | 1.0652 | 0.8722 | 0.6096 | 0.6434 | 1.3341 |
| CAPEX | 602 | 0.0436 | 0.0350 | 0.0391 | 0.0211 | 0.0519 |
| Dividend Variables | | | | | | |
| Dividend-paying dummy (binary) | 602 | 0.907 | - | - | - | - |
| Dividend payout ratio | 602 | 0.7161 | 0.4358 | 1.8514 | 0.229 | 0.705 |
| Dividends/Sales | 602 | 0.0372 | 0.0215 | 0.0477 | 0.0103 | 0.0485 |
| Dividend Yield | 602 | 0.0291 | 0.0259 | 0.0204 | 0.0168 | 0.0381 |

**Table II:** The effect of board gender diversity on dividend policy

| | (1) Dividend-paying Dummy | (2) Dividend Payout Ratio | (3) Dividends/Sales | (4) Dividend Yield |
|---|---|---|---|---|
| **Board gender diversity** | 3.952* | 2.143*** | 0.024* | 0.021*** |
| | (1.723) | (2.692) | (1.781) | (2.820) |
| Ln (Board size) | 0.265** | 0.057 | 0.000 | 0.001** |
| | (2.178) | (1.392) | (0.701) | (2.125) |
| % of independent directors | 1.246 | 0.635 | -0.003 | 0.005 |
| | (0.889) | (0.944) | (-0.323) | (0.909) |
| Average age of independent directors | -0.054 | 0.045** | -0.001** | 0.000 |
| | (-1.003) | (2.028) | (-2.558) | (1.645) |
| Average tenure of independent directors | 0.037 | -0.011 | -0.000 | -0.000* |
| | (1.010) | (-1.400) | (-1.535) | (-1.804) |
| Average number of mandated independent directors | -0.201 | 0.019 | -0.001 | 0.000 |
| | (-0.922) | (0.296) | (-0.331) | (0.209) |
| Ln (board meeting frequency) | -0.195** | 0.004 | -0.000 | 0.000 |
| | (-2.407) | (0.087) | (-0.924) | (0.483) |
| Average percentage of directors present in board meeting | -21.501*** | -0.560 | -0.031** | -0.024*** |
| | (-4.641) | (-0.690) | (-2.312) | (-4.010) |
| CEO Duality | 0.661 | -0.089 | -0.006* | -0.002 |
| | (1.409) | (-0.621) | (-1.932) | (-1.155) |
| Blockholding | 0.694 | -0.287* | -0.011*** | -0.006*** |
| | (1.240) | (-1.657) | (-3.208) | (-3.514) |
| Family control (1 if family-controlled) | -1.244** | -0.356*** | -0.017*** | -0.005*** |
| | (-2.084) | (-2.691) | (-6.867) | (-3.085) |
| CEO ownership (1 if the CEO has ownership) | -3.933* | 0.850*** | -0.008 | 0.005** |
| | (-1.726) | (2.609) | (-0.928) | (2.020) |
| Ln (total assets) | 0.923* | -0.326 | 0.002 | 0.005*** |
| | (1.749) | (-1.641) | (0.800) | (2.751) |
| Total debt/Total assets | -5.573*** | -1.537* | -0.027*** | 0.000 |
| | (-3.313) | (-1.725) | (-3.528) | (0.047) |
| ROA | -5.522 | -33.282** | 0.162*** | 0.156*** |
| | (-0.584) | (-2.427) | (2.806) | (5.024) |
| Return volatility | -27.336*** | 17.442** | -0.200*** | -0.146*** |
| | (-2.739) | (2.169) | (-3.159) | (-5.098) |
| Growth in total assets | 4.444** | -0.682** | -0.021** | -0.011*** |
| | (2.333) | (-1.999) | (-2.008) | (-3.203) |
| Cash/Total assets | -9.067*** | -0.595 | 0.057* | 0.009 |
| | (-3.193) | (-0.504) | (1.848) | (0.848) |
| PPE/Total assets | 0.320 | 0.247 | 0.056*** | 0.015*** |
| | (0.192) | (0.455) | (4.289) | (3.432) |
| R&D/Sales | -7.769 | -1.837 | -0.070 | -0.035* |
| | (-1.115) | (-1.253) | (-1.640) | (-1.959) |
| Tobin's Q | 4.933*** | 0.846* | 0.020*** | -0.012*** |
| | (4.324) | (1.804) | (4.707) | (-6.385) |
| Capital Expenditures/Total Assets | -10.280* | 0.702 | -0.101* | -0.021 |
| | (-1.664) | (0.430) | (-1.674) | (-1.082) |
| Constant | 21.261*** | -0.553 | 0.128*** | 0.022 |
| | (3.673) | (-0.548) | (3.762) | (1.506) |
| Industry Fixed Effects | Yes | Yes | Yes | Yes |

| | | | | |
|---|---|---|---|---|
| Year Fixed Effects | Yes | Yes | Yes | Yes |
| Observations | 602 | 566 | 602 | 602 |
| Adjusted/Pseudo R-squared | 0.508 | 0.165 | 0.271 | 0.310 |
| Chi-squared | 105.86*** | | | |
| % Correctly Classified | 93.02% | | | |

Robust z-statistics in parentheses

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

**Table III:** Instrumental-variable analysis using board gender diversity of firms in the same zip code as instrument

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Board Gender Diversity | Dividend-paying Dummy | Dividend Payout Ratio | Dividends/ Sales | Dividend Yield |
| **Board gender diversity (Zip code-average, earliest)** | 0.669*** | | | | |
| | (10.098) | | | | |
| **Board gender diversity (Instrumented)** | | 6.749*** | 2.055 | 0.182*** | 0.031* |
| | | (3.008) | (1.045) | (4.679) | (1.721) |
| Ln (Board size) | 0.002* | 0.103** | 0.056* | -0.000 | 0.001* |
| | (1.821) | (1.990) | (1.777) | (-0.610) | (1.883) |
| % of independent directors | 0.092*** | 0.272 | 0.394 | -0.019* | 0.004 |
| | (4.204) | (0.368) | (0.768) | (-1.823) | (0.765) |
| Average age of independent directors | -0.002*** | -0.006 | 0.031* | -0.000 | 0.000* |
| | (-2.802) | (-0.217) | (1.809) | (-0.893) | (1.660) |
| Average tenure of independent directors | 0.001* | -0.005 | -0.008 | -0.001*** | -0.000 |
| | (1.807) | (-0.224) | (-0.639) | (-2.707) | (-1.615) |
| Average number of mandated independent directors | 0.002 | -0.153 | -0.085 | -0.002 | 0.000 |
| | (0.462) | (-1.230) | (-0.952) | (-0.987) | (0.138) |
| Ln (board meeting frequency) | 0.002 | -0.083** | -0.007 | -0.000 | 0.000 |
| | (1.157) | (-2.116) | (-0.244) | (-0.723) | (0.533) |
| Average percentage of directors present in board meeting | -0.058 | -10.910*** | -1.044 | -0.037** | -0.025*** |
| | (-1.216) | (-4.510) | (-1.305) | (-2.297) | (-3.277) |
| CEO Duality | -0.007 | 0.318 | -0.069 | -0.004 | -0.002 |
| | (-0.964) | (1.427) | (-0.448) | (-1.242) | (-1.116) |
| Blockholding | 0.000 | 0.310 | -0.179 | -0.012*** | -0.006*** |
| | (0.020) | (1.020) | (-1.028) | (-3.498) | (-3.685) |
| Family control (1 if family-controlled) | 0.022*** | -0.548** | -0.267 | -0.020*** | -0.005*** |
| | (2.599) | (-2.040) | (-1.474) | (-5.545) | (-2.997) |
| CEO ownership (1 if the CEO has ownership) | -0.005 | -1.416* | 0.663** | -0.001 | 0.006** |
| | (-0.335) | (-1.771) | (2.171) | (-0.216) | (1.986) |
| Ln (total assets) | -0.001 | 0.390 | -0.109 | -0.000 | 0.005*** |
| | (-0.076) | (1.457) | (-0.603) | (-0.018) | (2.789) |
| Total debt/Total assets | 0.029 | -2.764*** | -0.821* | -0.027*** | 0.000 |
| | (1.183) | (-3.336) | (-1.878) | (-3.048) | (0.054) |
| ROA | 0.206* | -2.008 | -15.106*** | 0.149*** | 0.155*** |
| | (1.676) | (-0.700) | (-4.366) | (2.681) | (6.021) |
| Return volatility | -0.435** | -9.885* | 6.839** | -0.158** | -0.143*** |
| | (-2.440) | (-1.760) | (2.014) | (-2.324) | (-4.569) |
| Growth in total assets | -0.023 | 1.992** | -0.528 | -0.017** | -0.011*** |
| | (-1.436) | (2.083) | (-1.315) | (-2.160) | (-2.894) |
| Cash/Total assets | 0.102** | -5.288*** | -0.638 | 0.033 | 0.007 |
| | (2.136) | (-3.249) | (-0.635) | (1.608) | (0.759) |
| PPE/Total assets | 0.032 | -0.308 | 0.749 | 0.048*** | 0.014*** |
| | (1.367) | (-0.361) | (1.383) | (4.451) | (2.844) |
| R&D/Sales | -0.115 | -1.475 | -2.466 | -0.014 | -0.031 |
| | (-1.186) | (-0.338) | (-1.102) | (-0.313) | (-1.486) |
| Tobin's Q | 0.005 | 2.246*** | 0.437** | 0.017*** | -0.012*** |
| | (0.494) | (3.633) | (1.988) | (3.984) | (-6.329) |
| Capital Expenditures/Total Assets | -0.071 | -4.766 | -1.478 | -0.105** | -0.021 |
| | (-0.587) | (-1.191) | (-0.640) | (-2.245) | (-0.969) |
| Constant | 0.141* | 9.494*** | -0.433 | 0.100*** | 0.020 |

| | | | | | |
|---|---|---|---|---|---|
| | (1.925) | (2.803) | (-0.284) | (3.250) | (1.407) |
| Industry Fixed Effects | Yes | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes | Yes |
| Observations | 602 | 602 | 566 | 602 | 602 |
| Adjusted R-squared | 0.620 | 0.517 | 0.129 | 0.183 | 0.346 |
| Shea' Partial $R^2$ | 17.46 | | | | |
| Wald $Chi^2$ | | 97.71*** | | | |
| F statistic | | | 7.12*** | 28.04*** | 9.03*** |

Robust t-statistics in parentheses

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