Local Clientele, Gender Difference and Firm Risk

Xiaoran Huang, Jun-Koo Kang and Lei Zhang*

ABSTRACT

We analyse the importance of investor risk preferences in shaping corporate risk taking. We exploit the male-female ratio among local residents to capture the variations in the risk preferences of firms' investor base. We find strong evidence that firms headquartered in counties with higher male-female ratio adopt higher leverage, more capital expenditure and less cash holding. They have higher idiosyncratic return volatility, initiate more M&A bids, and are less likely to engage in corporate hedging. As a result of higher risk taking, such firms face higher loan spreads and more stringent loan covenants. These effects are much stronger among smaller firms and firms with less institutional ownership. We further establish causality by using the minimum drinking age in the 1970s across different states as an instrument for the local male-female ratio and find consistent results in the instrumental variables estimation. Overall, our results support the argument that firms cater to investor preferences by taking higher risks in the regions with higher male-female ratio.

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Keywords: Corporate risk taking, Corporate financial/investment policies, Interest rate hedging, Bank holding company, gender difference, demographic characteristics

* Huang, Kang and Zhang are from the Division of Banking and Finance, Nanyang Business School, Nanyang Technological University, Singapore 639798 (E-mail: jkkang@ntu.edu.sg, huan0236@e.ntu.edu.sg, Zhangl@ntu.edu.sg respectively). All errors are our own.

This paper exploits the heterogeneity in local retail investors' gender difference to identify the relation between investor risk preference and corporate risk-taking. Gender difference has been explored by growing literature in the setting for firm managers and directors, such as insider trading of executives (Narayanan, and Seyhun (2009)), trading behaviour of retail investors (Barber and Odean(2001)) and mutual fund managers (Atkinson, Baird and Frye (2003)), corporate governance (Adams and Ferreira (2009)) by board directors and in more recent studies, corporate risk taking investment or policies of CEO (Graham, Harvey, and Puri (2013), Huang and Kisgen (2013), Mara, Marchica and Mura (2015) and Levi, Li and Zhang (2015)). However, limit link are set to relate investor gender difference with corporate risk taking and firm policies. In this study we attempt to fill this gap by investigating role of gender difference of investors in shaping firm risk taking and corporate policies.

In this paper, we exploit local demographic variation in a firm's local male-female ratio to measure investor demand for stock risk for two reasons. First, previous literature suggests that female tend to invest in less risky assets (Sundén and Surette (1998), Bernasek and Shwiff (2001) and Agnew, Balduzzi, and Sundén (2003)). Surveys and experimental studies have documented that females are more risk adverse than males (Barsky, et al (1997), Prince (1993)). In stock trading behavior, Barber and Odean (2001) show that male investors hold more volatile stocks than female investors. Dorn and Huberman (2010) further document that individual investors' portfolio is undiversified and concentrated with stocks with certain risk level which commensurate with their risk attitude. Due to difference in gender psychologically traits and preferred risk habitat, stocks selected in male investors' portfolios are more likely to be concentrated in risky stocks than their female counterparty. Grounded on strong empirical evidence that male individual investors are more likely to hold risky

stocks, we employ demographic variation in male-female ratio across counties of United States as our proxy for shareholder preference for corporate risk.

The second reason for using local male-female ratio as investor demand measure derives from the well documented local bias effect in individual stock portfolio, both shown by market of United States (Huberman (2001) and Ivković and Weisbenner (2005)) and other countries (Grinblatt and Keloharju (2001) and Massa and Simonov (2006)), thus companies which locate in areas with higher male-female areas would imprint higher shareholder appetite of firm risk.

The identification is structured as follows. Starting by directly showing the effect of local male-female ratio on firm risk, measured by realized stock return volatility and option implied volatility, we first establish the relationship between local male-female ratio and expost corporate financing / investment policies, including market leverage ratio, book leverage ratio and capital expenditure, cash holding policies. Typically, we explore the influence of local male-female ratio on hedging policies for industrial and bank holding companies, respectively and firm's M&A activities. Second, we examine the value implication of local gender difference by ex-ante loan contract terms (borrowing cost, collateral requirement and capital expenditure restrictions), as well as M&A announcement return. We then employ several tiers of robustness checks. First, we conduct interaction analysis to ascertain the effect of local male-female ratio is decrease with firm size and institutional ownership, due to the fact that firms of larger size and institutional ownership are less likely subject to local individual investors' risk preference. Moreover, using a difference-in-differences empirical framework, within the subsample of firms which reallocate the headquarters, we examine the subsequent change in firm's risk taking with regard to change in local male-female ratio, which facilitate addressing endogeneity concern that our finding on shareholder gender effect on corporate risk taking is driven by time invariant omitted firm

characteristics. Thirdly, we exploit the local minimum limit drinking age (MLDA) as instrumental variable in 2SLS regressions for all dependent variables to address the causality concern. Finally, we add additional controls to ascertain that our findings are not explained by omitted variables, which basically reflect management layer's gender difference and corporate governance. For the former aspect, we consider female board fraction, dummy for more than one female director on the board and dummy for female CEO. Also, we controls for various corporate governance variables, including G-index, outside director fraction and local institutional ownership.

We find provide strong empirical support for clientele effect in shaping corporate risk taking and financial/investment policies. One standard-deviation increase in local male-female ratio would increase firms realized stock volatility by approximately 5% considering the sample mean of stock return volatility. We show that firms which headquarters locate in counties of higher faction of male relative to female are associated with higher market leverage/ book leverage, higher capital expenditure, lower cash holding. One standard-deviation increase of local male-female ratio will enhance the firm's market leverage ratio, book leverage ratio and cash expenditure by approximately 6.0%, 5.5% and 7.6% with regards to the sample average of market leverage, book leverage and cash expenditure, respectively and will decrease firms' cash holding by about 7.1 % according to the sample mean of cash holding. Firms locates in areas with one standard deviation higher local male-female ratio would boost the number of bids by 0.026, indicating almost 11% change with regard to average bid number of M&A initiations. We also find that CAR (-1, 1) announcement return around M&A for firms with higher local male-female ratio. One standard-deviation of local male-female ratio would lower the announcement return by 0.52%, representing 43.2% change to sample average of CAR (-1, 1). For firms' interest rate hedging policies, we find consistent evidence that higher local male-female ratio would depress the

likelihood that firm employ interest rate hedging derivatives. For industrial firms, one standard-deviation of local male-female ratio will decrease the interest rate hedging activities by 12.2% of the sample mean. For bank holding companies which report the exact level of interest rate hedging, we find that one standard-deviation of local male-female ratio will decrease the bank interest rate hedging sample mean by 12.2%. These results suggest economically significant impact of local male-female ratio on firms' ex-post risk taking.

Consistent with the notion that gender difference will shape firm ex-post risk taking, we also find evidence from ex-ante loan contract terms. We examine the impact of local male-female ratio on loan spread, likelihood of collateral requirement and capital expenditure restriction and find supporting evidences that firms' with higher local male-female ratio have higher borrowing cost, are more likely to be required for collateral and imposed of capital expenditure restrictions. One standard-deviation increase in local male-female ratio would boost loan spread by about 5.24 basis point, an increase in the likelihood of the loan being secured by 6.9 percentage points, evaluated at the respective means, the one standard-deviation increase accounts for 3.5% of increase in the loan spread and 7.0% increase in the incidence of collateral requirement. The effect of local male-female ratio on the likelihood of being imposed of having a capital expenditure restriction is also statistically significant and economically meaningful. One standard-deviation increase in local male-female ratio will translates to a 16% increase in the likelihood, evaluated at the mean. We also show ex-post benefit of having lower local male-female ratio is that it would reduce the likelihood that firms conduct covenant violation. One standard-deviation decrease in local male female ratio would lower the likelihood of covenant violation by 2 percentage points, which accounts for approximately 13% of the sample mean of likelihood of covenant violation.

As the first tier of robustness check, we do interaction term analysis to exploit the multipliers that are associated with the extent of market segmentation, which subsequently

influence the effect of local male-female ratio on corporate risk taking, basically the firm size and institutional ownership, respectively. As the market friction is expected to be dampened for firms of larger size and institutional ownership, we expect our findings of local male-female ratio effect to be weakened as the increase of firm size and institution ownership. Consistent with our hypothesis, we find supportive evidences that for all the dependent variables shown above, firms with larger firm size and institutional ownership are of lower sensitivity to the local male-female ratio.

As the second tier of robustness check, we do 2SLS regressions in which the instrument is an indicator which takes the value of one if the firm's headquarter is located in a state where the minimum limit drinking age (MLDA) is above 18 in 1976 (18 is the median age). The instrument approach ascertains our finding above, for most of the dependent variables indicated above (except the likelihood of collateral requirement).

Thirdly, we examine how firm would adapts risk taking to the change in the local demographic scenario due to the company's moving of headquarters. For most regression with panel data (except cash holding), we find consistent evidences that the increase in local male-female ratio would boost firms' risk.

Finally, our results are robust with additional controls of management layer gender variables, including percentage of female board, indicator of exactly one female director on the board and indicator of female CEO. We also controls for governance variables (G-index, outside director percentage and local institutional ownership). Although sample sizes shrink, our findings remain unchanged for most of the regressions (except book leverage, collateral requirement and capital restriction). Our results are also robust after controlling for range of local demographic and economic characteristics, including high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction.

Overall, our results suggest that gender difference in local clientele have influence on firm risk. Our results are robust to a bunch of robustness checks.

Our study contributes to the literature in the several ways. Our study contributes to the literature on determinants of corporate risk-taking. One branch of literature investigates the economic environment, such as corporate taxes (Djankov et al. (2010)) and litigation (John, Litov, and Yeung (2008)) impact on corporate risk-taking. Conditioning on managerial risk aversion, a branch of literature has focused on impact of managerial reputational concerns (Holmstrom and Costa (1986), Hirshleifer and Thakor (1992)) or to their employment risk (Amihud and Lev (1981), Agrawal and Mandelker (1987), Kempf, Ruenzi, and Thiele (2009)) on corporate risk taking investment. Those papers explore managers' incentives to curb risk and conflict of interests between managers and shareholders. Also, grounded on shareholder risk adversion, Faccio, Marchica and Mura (2015) explore large shareholders' portfolio diversification on corporate risk taking. However, whether shareholder risk preference can influence the consequence of corporate financial decisions has little academic attention and our paper fill this gap by showing that shareholder risk preference is an important predictor of corporate risk taking.

Secondly, our paper adds to the literature of gender difference in corporate decision making and value implication. To our best knowledge, this paper is the first to examine investor gender difference in corporate setting. A relative new and growing literature has gradually examine gender difference influence on corporate governance (Adams and Ferreira (2009)) by board directors and in more recent studies, corporate risk taking investment or policies of CEO (Graham, Harvey, and Puri (2013), Huang and Kisgen (2013), Mara, Marchica and Mura (2015) and Levi, Li and Zhang (2015)). However, these literatures mainly deal with gender difference of management or director, but seldom focus on the corporate policies and firm value implication of shareholder gender difference. Our results

indicate that female shareholders' stronger risk aversion relative to their male counterparties are associated with more conservative corporate financial and investment polies, as well as higher M&A accouchement return.

Thirdly, this paper extends the literature which examines shareholder preference implication on corporate policies, including dividend pay-out policies (Becker, Ivković and Weisbenner (2011), Desai and Jin (2011), Bodnaruk and Östberg (2012)), bid premium accepted by target firms (Gaspar, Massa and Matos (2005)). However, this paper provides empirical evidences which relate shareholder preference to financial/investment/management policies with regards to corporate risk taking.

Finally, our paper adds to the existing literature about segmented financial markets (Jayaratne and Strahan (1996), Guiso, Sapienza, and Zingales (2004), Becker (2007), and Hong, Kubik, and Stein (2008)), by showing that there is geographical variation of gender difference in risk habitat which would be an important predictor of corporate policies.

The rest of the paper is organized as follows. Section I discusses the data, the construction of our key variables, and the sample characteristics. In Section II we test how local male-female ratio affects corporate risk, financial/investment policies, as well as hedging policies. In section III we test the value implication of local male-female ratio, by examine M&As announcement return, bank loan cost/capital expenditure requirement/collateral requirement. In Section IV, we conduct several robustness checks. In Section V, we conclude.

I. Data and Summary Statistics

A. Data

Our data comes from multiple sources. The sample varies according to each dependent variable due to data availability. We first collect geographically demographic information from the US Census Bureau county population estimates datasets from 1991 to 2008. The county year level control variables include local male-female ratio, our main variable in interest, also a bunch of other county level characteristics such as local high education fraction, local population, local household income, local unemployment rate, local senior fraction. Detail definitions of variables are provided in appendix.

To obtain our initial sample for corporate policies and firm risk, we compile the data set of US Census Bureau local demographic characteristics with Compustat and daily stock return information with University of Chicago's Center for Research in Security Prices (CRSP). We then delete observations with missing financial information in Compustat or CRSP. Our final sample consists of 63,610 firm-year observations.

To access our corporate interest rate hedging information, we extensively search each firm Form 10-K annual reports in SEC's Electronic Data Gathering and Retrieval (Edgar) database from 1996-2009, for the keywords related to interest rate derivative using. A firm is considered to be an interest rate hedger in a specific year if the employing of interest rate derivative is indicated in the 10-K filing. We then merge the dataset of interest rate hedging with US Census Bureau local demographic characteristics to obtain 49,747 firm year observations.

For bank holding companies interest rate hedging, we construct measures from quarterly Federal ReserveY-9C filings from 1995-2009 based on Bank Regulatory Database, which contains information for bank holding companies with total assets of $150 million or more. We focus on interest rate derivatives rather than other contracts as 90% of bank holding company hedging is concentrated in interest rate derivative transactions and interest rate

exposure is data availability of interest rate exposure (Bonaimé, Hankins and Harford(2014)). Moreover, the reported non-trading (hedging) purposes enable us to identify interest rate derivatives holdings for risk management purposes. Combining US Census Bureau local demographic characteristics with Bank Regulatory renders 11,749 bank-quarter observations.

We retrieve M&A bids initiation information from the Thomson Financial's SDC database from 1992-2009. Following Masulis, Wang and Xie (2007), we require the M&As to be included in the sample meeting the following five criteria: (1) the transaction is completed (2) the deal value disclosed in SDC is larger than $1million, (3) the acquirer holds less than 50% of the target's shares before the announcement and owns 100% of the target's shares after the transaction, (4) the acquirer is publicly traded and has stock return available from CRSP and Returns file and financial data from Compustat, (5) the acquirer has its local county characteristics available from US Census Bureau. These restrictions result in a final sample of 16,530 successful transactions made by 5,248 firms. We set the residual firm-year observations which are covered in Compustat and CRSP as of zero M&As initiations. The sample yields 61,252 sample observations.

We merge our initial sample with LPC's DealScan Database to attain information of loan spread and collateral requirement, as well as loan specific information including facilitate amount, loan maturity, loan type and loan purposes. This results in 10,844 loan level observations from 1992-2007. We then combine LPC with the dataset used in Nini, Smith and Sufi (2009) for information on capital expenditure restriction, leading to 2,772 sample observations from 1996-2005.

For robustness check analysis, we add in controls of female board fraction, corporate governance variables (G-index (Gompers, Ishii, and Metrick (2003)) and the proportion of

outside directors on the boards) from Investor Responsibility Research Center (IRRC). CEO gender information is accessed from ExecuComp.

B. Summary statistics

Panel A of Table 1 presents the summary characteristics for the county demographical characteristics, firm characteristics, bank characteristics, loan characteristics and M&A deal characteristics. We find that the mean local male-female ratio is 93.14 for our sample of corporate hedging. On average, local population is 1.319 Million, about 31.22 percent of which have at least college degrees, 11.74 percent are above 65 years old and have mean household income as 49.09 thousands U.S. dollars.

In sample firms for corporate hedging, the mean book value of equity and market leverage ratio (total debt / market assets) is 2.14 billion U.S. dollars and 12.7%, respectively. Free cash flow, cash holding and capital expenditure, on average, accounts for -16.3%, 16.9% and 5.5% of total assets, respectively. The dividend yield is about 0.8% and the mean sale growth is 17.4%. With respect to firm performance, the sample has a mean Tobin's q of 1.655 and probability of 4.3%.

For test of bank holding companies' interest rate hedging, on average, bank holding companies' mean market capitalization and book assets is 1.68 billion U.S. dollars and 2.42 billion U.S. dollars, respectively, with average bank market to book ratio as 0.618. Bank interest rate hedging takes up about 16.4% of market capitalization, with a mean average bank interest rate exposure of 0.551. Bank commercial loan, bank income and bank securities accounts for 93.9%, 48.2% and 170.8% of market capitalization, respectively. Mean bank federal funds and bank tier 1 capital is 14.6% and 73.9% of market capitalization.

In terms of loan spread, the sample has a mean cost of capital of 156.7 basis points and average loan maturity of 42.726 months.

In the sample for firm's M&A, the average number of acquisition bids initiated in a firm year is 0.239. In the sample for bid premium, on average, the mean of the bid premium is 46.6%. In 42 percent of the acquisitions in our sample, the bidder pays the target with cash only. On average, about 30.1% deals are between two high technological firms, 65.7% M&A deals are diversifying, 29.4% of the takeovers are denoted by SDC as tender offer and 0.02% deals are hostile. Overall, most characteristics of the M&A deal sample are in line with those documented by recent studies (Chen, Harford, and Li (2007), and Matvos and Ostrovsky (2008)).

II. Local male-female ratio and Firm Risk

This section explore the impact of local male-female ratio on corporate risk management, in terms of interest rate hedging for all publicly traded firms and bank holding companies only, merger and acquisition activities, corporate policies (market leverage, capital expenditure and cash holding), likelihood of covenant violation and stock volatility. We explore likelihood of corporate interest rate hedging because hedging using derivatives is a direct way to smooth cash flow and interest rate derivatives are most common using derivatives (Guay (1999), Graham and Rogers (2002) and Allayannis and Weston (2001)). We also examine bank holding companies' value of interest rate hedging derivatives due to the fact that 90% of bank holding company hedging is concentrated in interest rate derivatives' transactions and the data availability of the measurement of exposure to risk of interest rate volatility (Bonaimé, Kristine and Harford (2014)). Also, unlike other publicly traded firms, bank holding companies provide level of derivatives for hedging rather than trading. We also examine policies that corporate utilize to curb risk, including investment conservatism (capital expenditure) and financial conservatism (market leverage and cash holding). To directly and accurately measure corporate risk, we use stock return volatility

(Low (2009)), and option implied return volatility which capture the net effect of corporate risk taking activities, including some that are hard to be measured.

A. Impact of Local male-female ratio on Firm Risk

After examine local male-female ratio on corporate risk taking policies, we then investigate the outcome Table II reports the results from our investigation of the relation between firm risk and local male-female ratio. We employ two variables as our measures for corporate risk, realized stock volatility and option implied stock volatility. The results are based on the OLS specification. The standard errors are cluster by firm (White (1980)).

Our measure for return volatility is defined as the standard-deviation of daily CRSP stock returns for a given calendar year adjusted by industry median in the same year. In Table II regression (1), we control for firm characteristics, other local demographic and economic variables as illustrated in previous analysis. Our tests indicate that indicates that local male-female ratio is positively and significantly correlated with firm's realized stock return volatility. The coefficient of local male-female ratio is 0.033 and is significantly positive at the 1% level. Considering the unconditional mean of realized return volatility is 3.6%, this coefficient indicates that one standard-deviation increase in local male-female ratio would increase firms' stock volatility by approximately 5% (=0.033*5.24/3.6). In regression (2), we add in state fixed effect and find that the impact of local male-female ratio on firm realized return volatility does not change.

In regression (3) and (4), we use OLS regression whereas the dependent variable is 182 days option implied volatility. We employ the same control variables as used for realized stock return volatility. Similarly, the coefficient of local male-female ratio is positively and significantly related to firm option implied stock volatility. One standard-deviation increase in local male-female ratio will boost option implied stock volatility by 1.782(=0.34*5.24).

Provided unconditional mean of implied option volatility is 46.5%, the impact of local male-female ratio represents 4% increase according to sample mean of option implied return volatility.

Overall, the results in this section suggest that local male-female ratio has significant positive impact on firms' risk measured by stock return volatility and option implied stock volatility.

B. Impact of Local male-female ratio on Corporate Policies

To provide further evidence on the importance of local male-female ration in affecting firms' investment and financial conservatism, this subsection estimates using OLS regressions in which the dependent variable is firms' market leverage, capital expenditure and cash holding respectively. The interested variable is the local male-female ratio.

Table III Regression (1) to (4) shows the OLS regression results in which the dependent variable is market leverage and book leverage, cash expenditure and cash holding, respectively. We include county demographical characteristics, firm characteristics, as well as state fixed effects throughout regression (1) to (4). The coefficient estimate of local male-female ratio is positively significant at 1% level in regression (1) to (3), one standard-deviation increase of local male-female ratio will enhance the firm's market leverage ratio, book leverage ratio and cash expenditure by approximately 6.0 % (=0.147*5.24/ 12.9), 5.5 % (=0.177*5.24/ 17) and 7.6% (=0.078*5.24 / 5.4) with regards to the sample average of market leverage, book leverage and cash expenditure, respectively, indicating both statistical and economic significance.

For cash holding in regression (4), we find consistent evidence that local male-female ratio is negatively and significantly associated with firms' cash holding. In terms of economic

significance, one standard-deviation increase of local male-female ratio equals the decrease firms' cash holding by about 7.1 % (=0.22*5.4/16.8) with regard to the sample mean.

The results in this subsection are consistent with the view that the increase in the local male-female ratio would engage firms to adopt more risky financial and investment policies.

C. Impact of Male-female ratio on M&A Bid Initiation

Another aspect of firm risk management we examine is the firm's bidding activity in merger and acquisition. We posit that in areas with more risk adverse female investors, firm are more inclined to risky M&A bidding.

We employ negative binomial model to identify the impact of our key interested variable on the dependent variable, the number of bids that the firm initiates in a specific year. As discuss in the introduction, the acquisition bid is counted in form of a merger, acquisition of assets or acquisition of majority interest. Also, the bidder gain 100% toehold after the transaction. We include year and industry fixed effects (two digits siccd industry dummies) and present results with standard errors clustered by firm.

Our sample consists of US mergers from 1992 and 2009. The initial sample of M&As comes from Thomson Financial's Securities Data Company (SDC) Platinum database. Our final sample includes all M&As that meet the following five selection criteria: (1) the transaction is completed, (2) the deal value disclosed in SDC is larger than $1million, (3) the acquirer holds less than 50% of the target's shares before the announcement and owns 100% of the target's shares after the transaction, (4) the acquirer is publicly traded and has stock return available from the University of Chicago's Center for Research in Security Prices (CRSP) Daily Stock Price and Returns file and financial data from Compustat, (5) the acquirer has its local county characteristics available from US Census Bureau. These restrictions result in a final sample of 16,530 successful transactions made by 5,248 firms.

We present the result in table IV. In Regression (1), we control for firm characteristics. Our main interested variable is significant related to numbers of bid initiations with expected positive sign. The marginal effect of local male-female ratio is 0.005, suggesting that one standard-deviation increase in local male-female ratio would boost the number of bids by 0.026. Considering the unconditional mean of firm's bid initiations each year is 0.24, a 0.026 increase in local male-female ratio represents an increase in the average bid number initiated of almost 11%. For other firm level controls, we control for market-to-book ratio, tangibility, natural logarithm of firm book size, dividend yield, profitability and sales growth. Consistent with findings in previous research, the coefficient estimates on log of book value and asset tangibility are positive.

In Regression (2), we add industry fixed effect and county characteristics. Regression (3) controls for state fixed effects. Across all specifications, the coefficient of local male-female ratio is consistently positive significant, indicating a firm which locates in areas with higher male-female ratio is associated with larger propensity to pursue M&As.

If male investors' risk preference leads to M&A transactions that are of negative net present value to be undertaken, we would expect firms located in more local male-female ratio areas to have worse market reactions during around M&A announcement. We explore the announcement returns associated with these M&A transactions in regression (4) to (6) in Table IV.

Regression (4) to (6) presents OLS regression in which the dependent variable is the cumulative announcement return (-1, 1) around M&A announcements. The coefficient estimate of local male-female ratio is economically significant. According to regression (4), one standard-deviation of local male-female ratio would lower the announcement return by 0.52%. Considering that the sample average of CAR (-1, 1) is 1.21%, thus the effect local

male-female ratio represent 43.2% of the sample mean. The results indicate that the market react more favorable to acquisitions made by firms with more female investors base than firms with less female investors.

D. Impact of Local male-female ratio on Interest Rate Hedging Probability

Earlier empirical studies lay strong foundation in support of risk-reducing effects of derivatives on various measures of a firm's risk. Guay (1999) documents the reduction in earnings volatility and stock price volatility for firms' initiation of derivatives contracts. Hentschel and Kothari (2001) show no evidence that derivatives are used for speculative purposes. Allayannis and Weston (2001) and Graham and Rogers (2002) show derivative instruments exert significant impact on firm value and the firm's debt capacity. These researches indicate the importance of the importance of derivatives for the firm's risk-management intention. Moreover, interest rate derivatives are most common instrument for hedging purse. Therefore, we exploit the utilization of interest rate derivatives to proxy for the tendency the firm need to curb risk for hedging purposes. We include only industrial firms since the motivation of whether to hold interest rate derivatives for risk hedging or trade for bank holding companies cannot be clarified through the SEC filings.

Panel A of Table V shows the results of the regressions that examine the relation between local male-female ratio and the likelihood that the firm employs interest rate derivatives. The dependent variable is an indicator that equals to one if a firm reports the use of interest rate derivatives in annual report and zero otherwise. Regressions in Panel A of Table V are estimated with probit model. Year fixed effects and industry fixed effects at two-digit SIC level are included in each regression.

We use local male-female ratio as our key interested variable to proxy for local preference for corporate risk. For other firm level controls, we control for market to book

ratio, natural logarithm of firm book size, dividend yield, profitability, free cash flow and sales growth as common control.

Regression (1) of Panel A illustrates the impact of local male-female ratio which firm characteristics as controls. The marginal effect of local male-female ratio is -0.006, indicating that a one-standard-deviation increase in local male-female ratio (5.235) boosts the likelihood of corporate interest rate hedging by 3.1%, a 12% increase relative to the sample average of interest rate hedging of 26.5%. Thus our results are both statistically and economically significant. The coefficient and significance of other control variables are in line with traditional expectations. Larger, more mature and profitable firm are associated with higher probability of interest rate hedging.

It is possible that some omitted county level characteristics, correlated with local male-female ratios, and might be real reason for the firm that employs interest rate hedging policy to curb risk, such as other local demographic and economic conditions. Therefore, in Regression (2) we include other local demographical characteristics such as local population fraction, local high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction. In regression (3), we add industry fixed effects. The significantly negative coefficient estimate of local male-female ratio in regression (3) is consistent with that of regression (1) and regression (2).

Regression (4) controls for state fixed effects. The inclusion of state fixed effects makes sure that the results are not driven by time invariant state level characteristics that both impact the local male-female ratio and the likelihood of firm employing interest rate hedging. Therefore, in such specification, we pursue variation of local male-female ratio across counties in each state rather than differences across different states. The regression coefficients are similar in each specification, in terms of both magnitude and significance.

For regression (4), a one standard-deviation increase in local male-female ratio will reduce about 10% of the sample mean of the likelihood that a firm utilizes interest rate derivatives.

E. Impact of Local male-female ratio on Bank Interest Rate Hedging

After examining the effect of local male-female ratio on common public traded firm, we then focus on bank holding company sample. The reason is bank holding companies' Y-9C filings enable us to exploit exact amount rather than indicator of interest rate derivatives reported by bank holding companies. Moreover, banking holding companies are required to report derivative using separately on trading and hedging positions. Further, bank holding companies' reports allow us to control for risk exposures using interest rate exposure.

Panel B of Table V presents the OLS regression exploring the relation between local male-female ratio and bank interest rate hedging. Following Bonaimé, Hankins and Harford (2014), our main dependent variable is bank interest rate hedging measured as the gross notional amount of non-trading interest rate derivatives use scaled by market capitalization. We construct bank level characteristics measures as control variables in regression (1), including logarithm of total book asset, capital structure (market to book ratio), securities, federal funds, commercial loans, cash, fixed assets (premises), all are nominalized by market capitalization. In regression (2), includes other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. In regression (3), we add in underlying interest rate exposure and tier 1 capital ratio as additional controls. One standard-deviation of local male-female ratio will decrease the bank interest rate hedging by 12.2% (=0.381*5.24/0.164) with regard to the sample mean. In regression (4), we add in state fixed effects. Again, the regression coefficients are similar across each specification, in terms of both magnitude and significance.

III. Benefit of Satisfying Local Gender Risk Preference

In the preceding section we have document consistent evidences that firms located in a high male female fraction areas will be more likely to adopt risky corporate policies and have higher firm risk, we proceed in this section to investigate the why managers might wish to respond to local seniors' demand for dividends, whether there are benefits to such demand-induced payouts, as well as the mechanisms through which individual investor demand may affect corporate policy. We consider two possible channels and offer suggestive evidence. At the outset, we remark that the channels we discuss in this section are not mutually exclusive. Moreover, none of these channels require that managers be explicitly informed about local retail investors' age, or that they should feel goodwill toward local investors in general or local seniors in particular.

A. Impact of Local male-female ratio on Loan Spread

We then relate firms' cost of capital by adapting corporate policies to the local risk preference, proxy by local male female fraction. By adopting lower firm risk, firms that located in an area that female population prevails should have lower cost of capital.

We estimate an OLS regression in which the dependent variable is the loan spread charged by the bank over LIBOR, estimated in percentage points. The main independent variable in interest is local male female fraction. Following Graham, Li and Qiu (2008), Lin et al. (2011) and Lin et al. (2013), we control for a set of firm characteristics that are associated with firms' cost of capital, including book size, market leverage ratio, tangibility, market to book ratio, free cash flow and credit rating fixed effects. Loan specific characteristics (loan facility amount, loan maturity, loan type fixed effects and loan purpose fixed effects) are also controlled in each regressions.

Regression (1) to (4) of table VI presents the results. In regression (1), we regress loan spread on firms' local county's male-female ratio, as well as firm- and loan- specific characteristics. The estimated coefficient for local male-female ratio is statistically significant at the 1% level with positive sign, suggesting that the net effect of local male-female ratio on firms cost of bank loan is positive and significant.

We include other local demographical characteristic (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction as well as board female fraction) as additional controls in regression (2). We controls for industry fixed effects at two-digit SIC level in regression (2). We add state fixed effects in regression (4). A one standard-deviation increase in local male-female ratio is related with an increase in the loan spread by 0.0524 (=5.235*0.010), which is about 3.5% of the sample average of the loan spread which is 156.7 basis points. Throughout regression (1) to regression (4), we find consistent evidence that the increase in local male-female ratio will enhance the loan spread the banks charge on the firm.

B. Impact of Local male-female ratio on Collateral Requirement

Previous literature has related collateral requirement with riskier borrowers (Berger and Udell (1990), John, Lynch and Puri (2003)). Another potential benefit that firms can gain by adapting to local higher risk aversion, proxy by lower male-female ratio, by curb firms' risk is to have lower probability of collateral requirement in loan contracts. In this subsection, we investigate with Probit regression in which the dependent variable is an indicator that takes the value of one if the bank loan is secured and zero otherwise. The control variables are the same as of Table VIII.

Regression (5) to (8) of table VI presents the results. In regression (5), we controls for local male female fraction with firm- and loan- specific characteristics. The coefficient

estimate of local male-female ratio is positive significant consistent with the hypothesis that firms that located in lower male-female ratio areas will have lower likelihood to be required for collateral in the loan contracts. The marginal effect of local male-female ratio is 0.005, indicating that one standard-deviation increase decrease in the local male-female ratio will lower the likelihood that bank include collateral requirement in the loan contracts by about 6%, considering the sample average of collateral requirement is approximately 38.1%.

In regression (6) includes other local demographical characteristic (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction as well as board female fraction) as additional controls. In regression (7) we add industry fixed effects. Regression (8) adds state fixed effects. Our main findings do not change in neither qualitative nor quantitative sense.

C. Impact of Local male-female ratio on Capital Expenditure Restriction

As Nini, Smith and Sufi (2009) argue that capital expenditure restriction has an essential association with firms' credit risk, in the section we examine the possible benefit firms which are located in female prevail areas curbing firms risks. Due to the reduced firm risk, we would expect firm would have lower likelihood of capital expenditure restrictions in the bank loan contracts.

We perform probit regressions in which the dependent variable is an indicator that takes the value of one if the bank loan contains capital expenditure restriction and zero otherwise. Control variables are the same with regard to loan spread and collateral requirement.

The regression results are presented in regression (9) to (12) of Panel A in Table VI. In regression (9), we control for local male-female ratio, as well as firm- and loan- specific characteristics. In regression (10), we controls for other local demographical characteristic (high education fraction, Ln (local population), Ln (house hold income), unemployment rate

and local senior fraction as well as board female fraction) as additional controls. In regression (11), industry fixed effects are added in. In regression (12), the industry fixed effects are controlled for. Throughout regression (9) to regression (12), we find consistently positive sign of local male-female ratio, significant at 5% significance level. As in regression (12), the marginal effect of local male-female ratio is 0.009, thus one standard-deviation of local male-female ratio will contribute to the probability of capital expenditure restriction by 4.71% (=0.009*5.235). Given that the sample average of capital expenditure restriction is 29.4%, the effect of local male-female ratio take up 16% according to the sample mean.

D. Impact of Local male-female ratio on Covenant Violation

To provide further evidence on the role of local male-female ratio in affecting corporate risk taking, we examine firms' likelihood of covenant violation. To the extent equity holders of a firm take excessive risk and perform risk shifting, it is more likely that the firm would violate covenant of creditors (Jensen and Meckling (1976)).

Regression (1) to (4) of table Panel B in Table VI presents the estimates by probit regressions in which the dependent variable is an indicator that equals one if the firm violate covenant in a specific year. The key independent variable is local male-female ratio as preceding sections.

In regression (1), we control for local male-female ratio and firm characteristics. Consistent with the hypothesis, the coefficient estimate of local male-female ratio is negatively significant. The marginal effect of local male-female ratio is 0.003, suggesting that one standard-deviation decrease in the male-female ratio will lower the likelihood of covenant violation by 0.02, which accounts for approximately 13% of the sample mean of likelihood of covenant violation (0.13).

In regression (2), we include other county level demographical characteristics as controls. The results are not quantitatively and qualitatively changed. In regression (3), we add in industry fixed effects. In regression (4), we control for state fixed effects. The coefficient estimate of local male-female ratio is still significant both statistically and economically. One standard-deviation decrease in the local male-female ratio reduces the likelihood of firm's covenant violation by about 8% of sample mean of violation likelihood.

Overall, in this section, throughout all specifications, we show that local male and female ratio is positively and significantly associated with the likelihood that firms violate covenants.

IV. Interaction Analysis

As hypotheses discussed in the introduction, the correlation between corporate risk management and the risk preference of the local population should be stronger in firms which are smaller in size and have lower institutional ownership. To examine this hypothesis, tests in this section condition the gender-risk relation on the extent of firms' size and institutional ownership. All else equal, a larger size of firm is expected to decrease the likelihood that the firm subjects the risk management policies to the risk preference of the local population. Similarly, a firm with larger institutional ownership is less likely to follow local population's risk preference.

Table VII shows the regression result using the interaction term between local male-female ration and firms' book size in Panel A, as well as the interaction term between local male-female ratio and firms' institutional ownership in Panel B. We present regression analysis in which the dependent variable is realized stock return volatility (regression (1)), option implied stock return volatility (regression (2)), book leverage (regression (3)), capital expenditure (regression (4)), cash holding (regression (5)), numbers of bid initiations

(regression (6)), CAR (-1,1) around M&A announcements (regression (7)), indicator for interest rate hedging for industrial firm (regression (8)), level of interest rate hedging by bank holding companies (regression (9)), loan spread (regression (10)), indicator for collateral requirement (regression (11)), indicator for cash expenditure restriction (regression (12)), and indicator for covenant violation (regression (13)), respectively. The control variables are corresponding to preceding tables. We use OLS regressions for continuous dependent variables and probit model otherwise. In each regression, we control for state fixed effects and other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. Industry fixed effects at two-digit SIC level, year fixed effects as well as state fixed effects are also included in each regression.

The results presented in panel line up with the hypothesis in that the effect of local male-female ratio is concentrated among small companies in that the coefficient estimate of the interaction term between local male-female ratio and firms' book size are in the opposite sign of the local male female ratio, and significant at least at 10% significance level (except for number of bids in column (6)), indicating firms of larger book size are exposed to sensitivity of lower local male-female ratio. Similarly, for all dependent variables, we find significant coefficient estimates of the interaction term between local male-female ratio and firms' institutional ownership. Also the interaction term are of the opposite sign of local male-female ratio, demonstrating firms with higher institutional ownership are of weaker link between local male-female ratio and firm risk.

V. Robustness Check

In previous sections, we document a strong correlation between local male-female ratio and firm risk. However, the association is subject to endogeneity concern, in the form of omitted variable bias and reverse causality running from firm risk to local male-female ratio, resulting biased and inconsistent coefficient estimates. To address omitted variable concern, we use the instrumental variable approach to alleviate residual endogeneity concerns. The results of the instrumental variable approach are tabulated in Table VIII. We also use subsample of firms that move headquarters to mitigate the concern that the established correlation is driven by some time invariant firm characteristics of the firm in Table IX. We also add potential omitted variables and present the result in table X.

A. Endogeneity Concerns

In this section, we employ instrumental variable method to address the endogeneity concern that local male-female ratio is an endogenous variable that is related with omitted variables that would affect firm risk taking. We need an instrument variable that is correlated with local male-female ratio but of no other link with firm risk except through the channel of local male-female ratio. Specifically, we exploit state variation in regulation of minimum drinking age. The instrument is an indicator which takes the value of one if the firm's headquarter is located in a state where the minimum limit drinking age (MLDA) is above 18 in 1976 (18 is the median age). The higher minimum drinking age leads to more motor vehicle accidents, alcohol overdoses, alcohol-related deaths and suicide, especially to white male population at an early age (Carpenter, Dobkin, 2007), thus cause higher local morality ratio of male. If the state adopts MLDA at a higher age, then the ratio of local male-female ratio is expected to be higher (we provide test below). We refer to the year 1976 because before 1970s, most states set their drinking ages at 21, during 1969-1976, over 30 states set the drinking age lower than 21, and most of these limits remained constant after 1976. The state/county mean male-female ratio is referred to 2000 US Census Bureau. However, the

MLDA that the state adopts is believed to have no relationship with firms risk taking financial/investment policies, thus MLDA is satisfied the relevance requirement and is uncorrelated with the right hand side variables.

Table VIII present the 2SLS IV regression results. Panel A shows the univariate result establish the correlation between local male-female ratio and MLDA that the state adopts. We find that in 1976, there are 28 states set the MLDA to be 18, whereas 7 states set the control limit to be 19 and 14 states above 20. The *t* test shows 1% significance level for the difference between states mean male-female ratio of states that adopt below 18 MLDA versus states that are of above 18 MLDA. Wilcoxon *z* test shows similar significance. These results suggest that the states which control drinking age to be above 18 would have higher male female ratio.

We present multivariate evidence in Panel B regression (1). From the first-stage regression, it is evident that MLDA is positively with local male-female ratio. This effect is significant at lower than the 1% significance level and the *F*-statistic for weak identification test is 49.24, indicating MLDA survives relevant test. Most of tests are robust to the second stage regression. Regression (2) to (14) presents the result for second stage regression. Except in test for loan spread, capital expenditure restriction and cash holding, the significance of local male-female ratio is at 10%, 10% and 5% level respectively, local male-female ratio is of 1% significance in the remaining tests.

The conclusion we draw from Table VIII is that the positive correlation between firm risk and local demographic male-female ratio shown in prior literature is robust to instrumental variable approach.

B. Corporate Moving Headquarters

As a further source of identification, we examine a subsample of firms whose variation of local male-female ratio comes from two different counties that the firms' headquarter located in. Specifically, we examine the extent that the firm adjust its tendency to risk management according to the change in the local demographical condition, substantially to the change of local male ratio between the original county and the new county that the firms' headquarter moves to.

Historical information of firm locations comes from Compact Disclosure. A firm is denoted as moving headquarter if the location of headquarter in year t is in different counties from its location in year *t*-1. We perform OLS regression for continuous dependent variables through regression (1) to regression (6). In table IX, we examine the effect of change in local male-female ratio on change in firms' risk management related corporate policies and corporate risk for firms that reallocate headquarter. Both the changes of dependent as well as the changes of independent variables are measured as the difference of between year *t*-1 before moving headquarters and year *t*+1 after moving. The main independent variable in interest is the change in the local male-female ratio. We control for the change in other county characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction), as well as change in firm characteristics.

In regression (1) and regression (2), the dependent variable is change in firm's realized return volatility and option implied volatility, respectively. We find consistent evidence that a firm moving to a county in which local male-female ratio is higher than it was at its original county has significantly higher firm risk. There is a positive relation between the change in local male-female ratio and the change in firm realized stock performance which is significant at 1% level. A firm that moves to a new county for one year in which local male-female ratio is one standard-deviation (5.325) higher than it was at original county will

increase the firm realized return volatility by 0.002. Similar evidence is found for firm's change in option implied volatility.

With regard to corporate policies, two key results stand out in change in market leverage and capital expenditure. In regression (3) and (4), the dependent variable is the change in the book leverage ratio and capital expenditure. Consistent with the hypothesis, the coefficient estimate of the change in local male-female ratio is positively significant at 1% level for change in market leverage and at 10% for change in capital expenditure. One standard-deviation increase in the local male-female ratio will add to the firms' book leverage by 0.00524 (=5.235*0.001). For firms' investment policies in M&As behaviour, we find that one standard increase in local male-female ratio would increase the number of bid initiations by 0.047, which is statistically significant at 5% level.

We adopt probit model for indicator dependent variable in regression (7) and (8), which is an indicator which an indicator that equals to zero if a firm's likelihood of employing interest rate derivatives decrease after headquarter moving and one otherwise and an indicator that equals to zero if a firm's likelihood of covenant violation decrease after headquarter moving and one otherwise, respectively. Due to both corporate interest rate hedging policy is relatively stable, we set the indicator equal to one if the mean likelihood of adopting interest rate derivatives from *t*-4 to *t*-1 before headquarter moving is smaller than the mean likelihood from *t*+1 to *t*+4 after moving, and zero otherwise. The main interested independent variable is the change in local male-female ratio between *t*-1 before headquarter moving and *t*+1 after moving. As presented in regression (7), we find negative coefficient estimation of local male-female ratio that is significant at 1% level. The marginal effect of change in local male-female ratio is 0.005, suggesting a one standard increase in local male-female ratio the county a firm located after headquarter move relative to the original county, would lower the likelihood of adopting interest rate hedging by 2.62%.

C. Additional Controls

In this section, we perform a number of additional tests to ensure that our main findings are robust to adding in additional controls. For brevity, we only tabulate the coefficients of key variables in Table X.

In this section, we perform a number of additional tests to ensure that our main findings are robust to adding in additional controls. For brevity, we only tabulate the coefficients of key variables in Table X. First of all, female directors are shown to be less over-confident in financial and investment decisions (Huang and Kisgen (2013), corporate governance (Adams and Ferreira (2009)) and M&A initiations (Levi, Li and Zhang (2015)). Following these literature, we construct two measures on female director. We control for female board fraction, estimated as the number of female directors divided by the board size, as well as an indicator variable that takes the value of one if there are exactly one female director on the board, and zero otherwise. Also, female CEO is associated with firms' risk taking (Faccio, Marchica and Mura (2015)). Therefore we include an indicator for female CEO. Secondly, previous literature has shown that corporate governance has significant impact on firm cash holding and the value of cash holding (Dittmar and Mahrt-Smith (2007)), thus we control for G-index (Gompers, Ishii, and Metrick (2003)) and the proportion of outside directors on the boards in the regressions. In case that our findings for local demographic characteristics of individual investors are affected by local institutional ownership, following Gasspa and Massa (2007), we also add firms' local institutional ownership as additional control, which is calculated as ownership hold by institutions that are located within in a 100km radius of the firm's headquarters.

We present the result for inclusion of management layer gender variables in Panel A, which includes female board fraction, an indicator that takes the value of one if the board has exactly one female director and an indicator which takes the value of one if the firm's CEO is

female. In Panel B, we control for local institutional ownership, as well as G-index (Gompers, Ishii, and Metrick (2003)) and the proportion of outside directors on the boards in the regressions. In each regression, we control for all the county characteristics in this paper and firms specific characteristics. Industry fixed effects are included in each regression.

We find that the results hold in most of main regressions, except for book leverage, likelihood of collateral requirement and covenant violation. With different bunch of controls variables in Panel A and B, we find similar coefficient estimate of local male-female ratio, indicating that it is reduction of sample size (due to availability of additional controls) rather than the control variables themselves has a stronger impact on the effect of local male-female ratio.

VI. Conclusion

This paper explores effect of gender difference in investors risk preference in shaping corporate risk taking and policies. The strong empirical evidences of female stronger risk aversion in stock trading joined with individual investors local bias lay foundation for higher investor risk aversion for companies located in areas with more female. Thus we employ geographic demographic variation in male-female ratio to proxy for risk aversion of corporate investor base.

Consistent with these hypotheses, we find that corporate's local male-female ratio is positive related to firms risk taking. Firms which are located in counties where local male-female ratio is higher, have higher stock realized return volatility, higher option implied volatility, employ higher market/book leverage ratio, higher capital expenditure, lower cash holding policies, are more likely to make acquisitions. Investors react less favourably to acquisition by firms of higher local male-female ratio. Also, we find that bank enhance the

borrowing charged on firms of higher local male-female ration, in forms of higher loan spread, higher likelihood of collateral requirement and capital expenditure restriction as well.

Our results are robust to interaction analysis (effects are more prominent for firms with smaller size and institutional ownership) and subsample of corporate headquarter moving, also survive adding executive/CEO level gender characteristics as well as various corporate governance controls. Overall, these results suggest that investors' gender difference is an important predictor of corporate risk taking.

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Appendix

This appendix provides detailed descriptions of all the variables used in the tables.

Variable	Definition
County characteristics:	
Local high education fraction	Percentage of population that has college degree in each county. The data comes from the county population estimates datasets from 1991 to 2008
Ln (local household income)	Logarithm of the median household income in each county. The data come from the US Census Bureau SAIPE (Small Area Income and Poverty Estimates) datasets from 1991 to 2008
Ln (local population)	Logarithm of the size of county population. The data comes from the o county population estimates datasets from 1991 to 2008
Local male-female ratio	Ratio of male population divided by female population in each county. The data comes from the US Census Bureau county population estimates datasets from 1991 to 2008
Local senior fraction	Percentage of population more than 65 years old in each county. The data comes from the US Census Bureau county population estimates datasets from 1991 to 2008
Local unemployment rate	Annual rate of unemployment in each county. The data comes from the Bureau of Labor Statistics
Firm characteristics:	
Book value of assets	Logarithm of book assets (data6)
Book leverage	Long term debt (data9) / book assets (data6)
Capital expenditure	Capital expenditure (data128) / book assets (data6)
Cash holding	Cash and short term investments (data1) / book assets (data6)
Interest rate hedging	Indicator that equals to one if a firm reports the use of interest rate derivatives in annual report and zero other wise
Dividend yield	Cash dividends per share (data26) / stock price (data199)
Free cash flow	(Operating income before depreciations (data13) – interest and related expense (data15) – total income taxes (data16) – total dividends common / ordinary (data21)) / book assets (data6)
Market leverage	Long term debt (data9) / (total debt (data6 - data60) + market value of equity(data199 * data 25))
Market to book	(Book asset + market value of equity – book value of equity) / book asset (data6), where the book value of equity is calculated as (total stockholders' equity (data216) + deferred taxes (data74) + investment tax credit (data208) – preferred stock (coalescing data216, data 10, and data 130)) and the market value of equity is calculated as price per share (data 24) * common shares outstanding (data25)
Option implied volatility	Will you please help?
Profitability	Operating income before depreciation (data13) / book assets (data6)
Sales growth	Annual percentage change in sales (data12)
Stock return volatility	Volatility of daily stock return over the year
Tangibility	Net PPE (data8) / book assets (data6)
Board and governance characteristics:	
Female director fraction	Number of female board members divided by board size
One female director	An indicator that takes the value of one for firm with exactly one female director on the board and zero otherwise
Female CEO	An indicator that takes the value of one for firm with female CEO and zero otherwise

% of outside directors	Percentage of outside directors on the board
Local institutional ownership	Sum of ownership held by institutions that are located within in a 100km radius of the firm's headquarters
G-index	Governance index constructed according to Gompers, Ishii, and Metrick (2003)
Bank Characteristics	
Bank commercial loan	Commercial loan divided by market capitalization
Bank fed funds	Federal funds divided by market capitalization
Bank income	Cash flow minus cash flow from derivatives divided by market capitalization
Bank interest rate exposure	Interest rate exposure (one-year maturity gap following Flannery and James 1984) divided by market capitalization
Bank interest rate hedge	Dollar value spent on interest rate hedging divided by market capitalization
Bank market to book	Bank holding company's market capitalization divided by book assets
Bank securities	Securities dividend by market capitalization
Bank tier 1 capital	Tier 1 capital divided by market capitalization
Ln (bank book value)	Logarithm of bank book assets
Loan Characteristics	
Ln (loan amount)	Logarithm of loan deal (facility) amount
Ln (loan maturity)	Logarithm of loan maturity
Loan spread	All-in-drawn spread over LIBOR charged by the bank for the loan facility
Collateral Requirement	An indicator that takes the value of one if the loan is secured by collateral and zero otherwise (for missing information in LPC, we set the indicator equals to zero)
Capital Expenditure Restriction	An indicator that takes the value of one if the bank loan contains capital expenditure restriction in the and zero otherwise
M&A Characteristics	
Bid numbers	The number of bids initiated by a firm within a fiscal year. The bid shall take the form of a merger (SDC deal form M), acquisition of majority interest (AM), or acquisition of assets (AA)
Relative size	Deal value (reported in SDC) over bidder market value of equity defined above
High Tech	An indicator that takes the value of one bidder and target are both from high tech industries defined by Loughran and Ritter (2004) and zero otherwise
Tender offer	An indicator that takes the value of one for tender offer bids deals (reported in SDC) and zero otherwise
All cash	An indicator that takes the value of one for purely cash-financed deals and zero otherwise
Hostile	An indicator that takes the value of one for hostile bids and zero otherwise
Diversified	An indicator that takes the value of one if the target and the bidder do not share a SIC two digit industry and zero otherwise

Table I
Panel A: Summary Statistics

Sample size varies across regressions used in the analyses. Panel A presents summary statistics and data sources for the main regression variables. Panel B presents presents the summary statistics of local male female ratio by states. We report the state abbreviations, the mean, the median, the min, the max and the standard deviation, in the descending order of the number of firm-year observations in each state.

	N	Mean	Minimum	Maximum	Std.Dev	Source
County Characteristics						
Local high education fraction	63,610	0.303	0.118	0.536	0.910	US Census Bureau
local household income (In thousand U.S. dollars)	63,610	46.021	23.357	82.648	12.640	US Census Bureau
Local male-female ratio	63,610	0.929	0.760	1.619	0.052	US Census Bureau
Local population (Million)	63,610	1.173	0.027	9.519	1.513	US Census Bureau
Local senior fraction	63,610	0.117	0.050	0.255	0.370	US Census Bureau
Local unemployment rate	63,610	0.051	0.021	0.100	0.017	US Census Bureau
Firm Characteristics						
Book value (In billion U.S. dollars)	63,610	1.841	0.004	40.197	5.658	Compustat
Book leverage	63,610	0.170	0.000	0.701	0.177	Compustat
Capital expenditure	63,610	0.054	0.000	0.340	0.061	Compustat
Cash holding	63,610	0.168	0.000	0.890	0.209	Compustat
Dividend yield	63,610	0.009	0.000	0.114	0.020	Compustat
Free cash flow	63,610	-0.130	-1.448	0.146	0.241	Compustat
Interest rate hedging (Industrial)	45,830	0.262	0.000	1.000	0.442	Edgar
Stock return volatility	63,233	0.036	0.010	0.089	0.021	CRSP
Market leverage	63,610	0.129	0.000	0.656	0.155	Compustat
Option implied volatility	19,479	0.465	0.143	1.27	0.215	Compustat
Profitability	63,610	0.062	-0.917	0.410	0.203	Compustat
Sales growth	63,610	0.200	-0.796	4.255	0.606	Compustat
Tangibility	63,610	0.265	0.000	0.898	0.236	Compustat
Market to book	63,610	1.704	0.211	10.515	1.682	Compustat
Bank Characteristics						
Bank book value (In billion U.S. dollars)	11,749	2.425	0.048	69.338	8.843	Bank Regulatory
Bank commercial loan	11,749	0.939	0.000	9.108	1.099	Bank Regulatory
Bank fed funds	11,749	0.146	0.000	3.045	0.311	Bank Regulatory
Bank income	11,749	0.482	0.073	3.181	0.458	Bank Regulatory
Bank interest rate exposure	11,749	0.551	-5.013	11.694	1.756	Bank Regulatory
Bank interest rate hedge	11,749	0.164	0.000	1.296	0.328	Bank Regulatory
Bank market capitalization (In billion U.S. dollars)	11,749	1.682	0.014	39.221	5.716	Bank Regulatory
Bank market to book	11,749	0.618	0.061	1.614	0.279	Bank Regulatory
Bank securities	11,749	1.708	0.127	12.749	1.565	Bank Regulatory
Bank tier 1 capital	11,749	0.739	0.197	3.993	0.557	Bank Regulatory
Loan Characteristics						
Loan spread	10,844	1.567	0.175	6.050	1.169	LPC's DealScan
Ln (loan facility amount)	10,844	4.859	0.693	8.007	1.590	LPC's DealScan
Collateral Requirement	10,844	0.381	0	1	0	LPC's DealScan
Loan Maturity	10,844	42.726	3.000	101.200	23.060	LPC's DealScan
Capital Expenditure Restriction	2,772	0.294	0	1	0	LPC's DealScan
M&A Characteristics						
Number of Bids	61,552	0.239	0.000	34.000	0.682	SDC
Relative Size	16,530	0.208	0.003	1.166	0.310	SDC, CRSP
High Tech	16,530	0.239	0.000	1.000	0.427	SDC
Tender Offer	16,530	0.038	0.000	1.000	0.191	SDC
All Cash	16,530	0.285	0.000	1.000	0.451	SDC
Hostile	16,530	0.003	0.000	1.000	0.054	SDC
Diversified	16,530	0.656	0.000	1.000	0.475	SDC

State	Num	Mean	Median	Min	Max	Std. Dev
DC	18	0.856	0.860	0.842	0.861	0.007
MS	1476	0.893	0.881	0.749	1.410	0.086
AL	1206	0.897	0.896	0.759	1.134	0.066
MA	252	0.899	0.892	0.839	1.050	0.042
RI	90	0.901	0.896	0.869	0.971	0.022
DE	54	0.911	0.908	0.896	0.928	0.011
SC	828	0.914	0.899	0.772	1.210	0.079
NJ	378	0.916	0.909	0.855	1.035	0.035
AR	1350	0.922	0.915	0.760	1.604	0.089
ME	288	0.923	0.924	0.883	0.996	0.018
WV	990	0.926	0.927	0.738	1.036	0.048
NC	1800	0.928	0.923	0.785	1.639	0.077
PA	1188	0.928	0.918	0.818	1.285	0.061
CT	144	0.928	0.923	0.887	1.014	0.038
IA	1782	0.929	0.924	0.850	1.116	0.037
VA	2394	0.933	0.927	0.734	1.433	0.102
NH	180	0.934	0.935	0.899	0.965	0.015
GA	2826	0.935	0.916	0.656	2.552	0.141
MD	432	0.935	0.929	0.829	1.191	0.071
MO	2070	0.936	0.919	0.787	1.681	0.094
KY	2160	0.937	0.926	0.784	1.381	0.067
OH	1584	0.938	0.926	0.818	1.405	0.072
IN	1602	0.942	0.937	0.849	1.163	0.043
TN	1710	0.942	0.922	0.820	1.634	0.090
VT	252	0.943	0.945	0.879	0.990	0.028
NE	1674	0.944	0.939	0.848	1.074	0.042
KS	1890	0.945	0.930	0.824	1.277	0.062
IL	1818	0.946	0.929	0.828	1.602	0.088
LA	1152	0.947	0.909	0.804	2.554	0.191
NY	1116	0.949	0.938	0.799	1.266	0.075
OK	1386	0.951	0.929	0.842	1.420	0.086
TX	4428	0.959	0.933	0.744	1.734	0.106
NM	576	0.966	0.945	0.893	1.263	0.060
MN	1566	0.967	0.962	0.875	1.246	0.046
SD	1188	0.969	0.963	0.873	1.264	0.051
OR	648	0.971	0.967	0.886	1.212	0.049
WI	1296	0.972	0.968	0.860	1.237	0.047
MI	1494	0.973	0.954	0.859	1.328	0.078
WA	702	0.976	0.967	0.863	1.093	0.043
ND	954	0.987	0.982	0.881	1.170	0.056
UT	522	0.989	0.978	0.908	1.326	0.066
WY	414	0.990	0.970	0.819	1.181	0.069
MT	1008	0.992	0.971	0.899	1.514	0.083
HI	54	0.992	0.991	0.975	1.026	0.015
AZ	270	0.993	0.972	0.853	1.170	0.076
ID	792	1.010	0.994	0.816	1.306	0.073
CA	1044	1.018	0.975	0.860	1.922	0.146
FL	1188	1.034	0.948	0.847	2.152	0.204
CO	1116	1.045	0.999	0.880	1.449	0.120
NV	288	1.083	1.055	0.982	1.385	0.097

Table II
Local Male Female Fraction and Realized Stock Volatility / Option Implied Volatility

This table reports OLS regression in which the dependent variable is firms' realized stock volatility and implied option volatility, the independent variable of interest is local male-female ratio. The dependent variables are multiplied by 100. In regression (1) and regression (2), the main dependent variable is firms' stock return volatility, calculated as firm's one year average of daily stock return volatility. The sample consists of 63,233 firm year observations of realized volatility covered in RiskMetrics, CRSP and Compustat from 1992-2009. In regression (3) and regression (4), the main dependent variable is firm's industry adjusted implied option volatility, estimated as 182 days forward looking option implied volatility. The sample consists of 19,479 observations firm year observations of implied option volatility which are covered in (…), RiskMetrics, CRSP and Compustat during the period from 1992-2009. Regression (2) and Regression (4) controls for state fixed effects. All regressions include other local population characteristic (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior) as additional controls. Industry fixed effects at two-digit SIC level and year fixed effects are included in each regression. The Appendix provides detailed descriptions of the variables. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

	Realized Volatility		Implied Option Volatility	
	(1)	(2)	(3)	(4)
Local male-female ratio	0.033***	0.009**	0.025***	0.015***
	(10.49)	(2.12)	(7.53)	(2.90)
County Characteristics				
Local high education fraction	0.009***	0.007***	0.004**	0.004*
	(5.04)	(3.82)	(2.12)	(1.81)
Ln (local population)	0.001***	0.000*	0.000**	0.000
	(4.53)	(1.67)	(2.53)	(1.47)
Ln (local household income)	0.002***	0.003***	0.002	0.003**
	(2.69)	(2.91)	(1.60)	(2.24)
Unemployment rate	0.019**	0.012	0.005	0.007
	(2.20)	(1.26)	(0.46)	(0.55)
Local senior fraction	0.014***	0.004	0.009**	0.011*
	(3.21)	(0.71)	(2.23)	(1.88)
Firm Characteristics				
Tangibility	-0.005***	-0.006***	-0.006***	-0.005***
	(-6.46)	(-6.45)	(-6.28)	(-5.94)
Ln (Book size)	-0.006***	-0.005***	-0.004***	-0.004***
	(-57.34)	(-20.96)	(-34.77)	(-34.56)
Market leverage	0.003***	0.003**	0.015***	0.015***
	(4.37)	(2.01)	(18.56)	(18.78)
Free cash flow	-0.005***	-0.016***	-0.004***	-0.004***
	(-2.75)	(-12.05)	(-4.49)	(-4.52)
Dividend yield	-0.001**	-0.001***	-0.023***	-0.021***
	(-2.42)	(-2.68)	(-2.98)	(-2.90)
Market to book	0.001***	0.001***	0.000***	0.000***
	(7.28)	(7.87)	(6.29)	(6.34)
Profitability	-0.002	-0.003***	-0.019***	-0.019***
	(-1.14)	(-2.89)	(-10.21)	(-9.95)
Sales growth	0.000	0.000	0.000	0.000
	(0.12)	(0.20)	(1.40)	(1.47)
Industry effects	Yes	Yes	Yes	Yes
State fixed effects	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Clustering	Firm	Firm	Firm	Firm
Observations	63,233	63,233	19,479	19,479
Adjusted R^2	0.525	0.556	0.620	0.626

Table III
Local Male Female Fraction and Corporate Policies

This table reports OLS regression in which the dependent variable is firms' corporate financial/investment policies. In regression (1), (2), (3) and (4) the dependent variable is firm's market leverage, book leverage capital expenditure and cash holding respectively. All the dependent variables have been multiplied by 100. The main independent variable of interest is local male-female ratio. The sample consists of 63,259, 63,610, 62,483 and 61,430 firm year observations in regression (1), regression (2) and regression (3), respectively, covered in Compustat from 1992-2009. All regressions include other local population characteristic (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. Industry fixed effects at two-digit SIC level and year fixed effects are included in each regression. The Appendix provides detailed descriptions of the variables. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

	Market Leverage	Book Leverage	Capital Expenditure	Cash Holding
	(1)	(2)	(3)	(4)
Local male-female ratio	0.148***	0.176***	0.078***	-0.218***
	(4.88)	(4.19)	(3.56)	(-3.29)
County Characteristics				
Local high education fraction	-0.002	-0.005	-0.001	0.188***
	(-0.17)	(-0.31)	(-0.10)	(6.01)
Ln (local population)	0.000	0.001	-0.001	-0.008***
	(0.28)	(0.75)	(-1.51)	(-4.02)
Ln (local household income)	-0.002	-0.009	-0.011***	0.075***
	(-0.39)	(-1.08)	(-3.12)	(4.64)
Unemployment rate	-0.108*	-0.245***	-0.202***	0.464***
	(-1.71)	(-2.91)	(-4.27)	(3.61)
Local senior fraction	0.100**	0.089	0.069**	0.040
	(2.22)	(1.47)	(2.27)	(0.44)
Firm Characteristics				
Tangibility	0.008***	0.016***	0.000*	-0.012***
	(17.80)	(27.03)	(1.76)	(-12.21)
Ln (Book size)	0.466***	0.467***	-0.023***	-0.217***
	(84.81)	(75.65)	(-10.23)	(-31.79)
Market leverage	0.003	-0.037***	-0.044***	0.004
	(1.03)	(-7.82)	(-11.73)	(0.36)
Free cash flow	0.002***	0.001**	-0.331***	-0.299***
	(8.77)	(2.14)	(-12.23)	(-3.09)
Dividend yield	0.002***	0.008***	0.001***	0.014***
	(6.84)	(15.44)	(4.55)	(11.24)
Market to book	0.012***	0.039***	0.105***	-0.138***
	(3.79)	(7.70)	(20.98)	(-8.44)
Profitability	0.000	0.000	0.000	0.000
	(0.01)	(0.34)	(0.44)	(0.20)
Sales growth	0.000	0.000	0.000	0.000
	(0.00)	(0.38)	(0.41)	(0.20)
Year fixed effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes
Observations	63,259	63,610	62,483	61,430
Adjusted R^2	0.601	0.513	0.222	0.411

Table IV
Local Male Female Fraction and Mergers and Acquisitions (M&As) Bid Initiation

This table presents negative binomial regression in which the dependent variable is the number of bids that the firm initiates in a specific year (regression (1) to (4)) and the cumulative abnormal return (-1, 1) around the bidders' announcement of M&As (regression (5) to (8)). The sample consists of 61,252 firm year observations from 1992-2009 covered in Thomson Reuters SDC database and Compustat (regression (1) to (3)). The sample consists of 16,530 firm-year observations covered in the Compustat, CRSP and SDC from 1992 to 2009 (regression (4) to (6)). The main independent variable of interest is local male-female ratio. Regression (2) and (5) controls for industry fixed effects at two-digit SIC level and other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. Regression (3) and (6) adds state fixed effects. All independent variables are measured as of the fiscal year-end that immediately precedes the dependent variable. Year fixed effects are included in each regression. The Appendix provides detailed descriptions of the variables. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

	Number of Bids			CAR (-1, 1) M&A Announcement		
	(1)	(2)	(3)	(4)	(5)	(6)
Local male-female ratio	1.761***	0.918**	1.130**	-0.056***	-0.051**	-0.071**
	(5.02)	(2.42)	(1.98)	(-2.82)	(-2.28)	(-2.08)
County Characteristics						
Local high education fraction		0.522**	0.239		-0.019	-0.032**
		(2.23)	(0.85)		(-1.60)	(-2.22)
Ln (local population)		-0.010	0.001		0.001	0.001
		(-0.54)	(0.06)		(0.87)	(0.43)
Ln (local household income)		-0.084	0.107		0.003	-0.001
		(-0.76)	(0.75)		(0.62)	(-0.07)
Unemployment rate		-0.505	1.009		-0.011	-0.041
		(-0.38)	(0.61)		(-0.17)	(-0.53)
Local senior fraction		-0.862	-1.008		-0.031	-0.067
		(-1.64)	(-1.42)		(-0.86)	(-1.39)
Bidder Characteristics						
Tangibility	-0.713***	-0.892***	-0.955***	0.004	0.003	0.004
	(-7.69)	(-8.87)	(-9.17)	(0.93)	(0.48)	(0.54)
Ln (Book size)	0.225***	0.235***	0.252***	-0.004***	-0.005***	-0.005***
	(23.34)	(25.42)	(25.66)	(-9.17)	(-8.44)	(-8.51)
Market leverage	0.077	0.047	0.049	-0.004	-0.001	-0.002
	(0.91)	(0.59)	(0.58)	(-0.70)	(-0.16)	(-0.33)
Free cash flow	-0.202*	0.030	-0.062	-0.002	-0.001	-0.002
	(-1.75)	(0.27)	(-0.53)	(-0.10)	(-0.06)	(-0.10)
Dividend yield	-4.529**	-3.527	-3.873	0.061	0.065	0.065
	(-2.09)	(-1.57)	(-1.55)	(1.07)	(0.81)	(0.80)
Market to book	0.080***	0.069***	0.065***	-0.001***	-0.001**	-0.001**
	(6.90)	(6.84)	(5.65)	(-2.63)	(-2.39)	(-2.30)
Profitability	1.254***	0.962***	1.126***	-0.027	-0.031	-0.031
	(9.62)	(7.46)	(8.36)	(-1.42)	(-1.59)	(-1.58)
Sales growth	-0.000	-0.000	-0.000	0.000	0.000	0.000
	(-1.27)	(-1.35)	(-1.52)	(0.11)	(0.36)	(0.26)
Bid Characteristics						
Relative size				0.025***	0.026***	0.025***
				(5.55)	(5.60)	(5.57)
High Tech				-0.005**	-0.002	-0.002
				(-2.26)	(-0.59)	(-0.68)
Tender offer				0.008**	0.009***	0.009***
				(2.50)	(2.70)	(2.58)
All cash				0.005***	0.005***	0.005***
				(3.76)	(3.37)	(3.37)
Hostile				-0.027***	-0.027***	-0.027***
				(-3.13)	(-3.00)	(-2.97)
Diversified				-0.001	-0.001	-0.001
				(-0.42)	(-0.59)	(-0.71)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	No	Yes	Yes	No	Yes	Yes
State fixed effects	No	No	Yes	No	No	Yes
Observations	61,252	61,252	61,252	16,530	16,530	16,530
Adjusted R^2	-	-	-	0.037	0.045	0.048

Table V
Local Male Female Fraction and Firm Interest Rate Hedging

Panel A of Table V presents estimates of Probit regressions in which the dependent variable is an indicator that equals to one if a firm reports the use of interest rate derivatives in annual report and zero otherwise. In Panle A, we obtain the indicator for firms' interest rate hedging by extensively searching each firm Form 10-K annual reports in SEC's Electronic Data Gathering and Retrieval (Edgar) database. In regression (1) to (4), the sample consists of 49,747 firm-year observations covered in the Compustat and CRSP databases from 1996 to 2009 and we include only industrial firms (exclude SIC codes between 6000 and 6999). The main independent variable of interest is local male-female ratio. Regression (2) includes other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. Panel B. Regression (3) adds controls for industry fixed effects at two-digit SIC level. Regression (4) adds state fixed effects. All independent variables are measured as of the fiscal year-end that immediately precedes the dependent variable. Year fixed effects are included in each regression. The Appendix provides detailed descriptions of the variables. The *t*-statistics in parentheses are based on standard errors adjusted for heteroscedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Industrial Firms

	(1)	(2)	(3)	(4)
Local male-female ratio	-2.123***	-2.244***	-2.147***	-1.669***
	(-6.81)	(-5.81)	(-5.53)	(-3.26)
County Characteristics				
Local high education fraction		-0.153	0.018	0.023
		(-0.65)	(0.07)	(0.07)
Ln (local population)		-0.021	-0.021	-0.023
		(-1.40)	(-1.39)	(-1.11)
Ln (local household income)		-0.092	-0.154	0.579
		(-0.87)	(-1.41)	(1.45)
Unemployment rate		-3.749***	-4.110***	-4.048***
		(-2.96)	(-3.25)	(-2.72)
Local senior fraction		-0.504	-0.623	0.003
		(-0.75)	(-0.92)	(0.38)
Firm Characteristics				
Tangibility	-0.037	-0.068	-0.004	-0.001
	(-0.54)	(-0.96)	(-0.04)	(-0.01)
Ln (Market size)	0.297***	0.300***	0.310***	0.312***
	(33.75)	(33.81)	(33.71)	(33.77)
Market leverage	1.823***	1.826***	1.892***	1.875***
	(27.94)	(27.87)	(27.88)	(27.56)
Free cash flow	-0.024	-0.031	-0.025	-0.020
	(-0.52)	(-0.68)	(-0.52)	(-0.41)
Dividend yield	0.338	0.208	0.744	0.419
	(0.43)	(0.27)	(0.94)	(0.51)
Market to book	-0.157***	-0.156***	-0.163***	-0.159***
	(-10.18)	(-10.19)	(-10.22)	(-10.09)
Profitability	1.347***	1.310***	1.260***	1.183***
	(10.23)	(9.95)	(9.29)	(8.81)
Sales growth	0.000***	0.000***	0.000***	0.000***
	(4.72)	(4.65)	(4.27)	(4.47)
Year fixed effects	Yes	Yes	Yes	Yes
Industry effects	No	No	Yes	Yes
State fixed effects	No	No	No	Yes
Observations	45,830	45,830	45,830	45,830
Pseudo R^2	0.269	0.270	0.281	0.290

Table V
Local Male Female Fraction and Firm Interest Rate Hedging

In Panel B of Table V, the dependent variable is bank interest rate hedging calculated as dollar value of bank interest rate hedging scaled by bank holding company's market value. The sample consists of 11,749 bank year quarter observations from 1995-2009 are covered in Bank Regulatory and Compustat. The main independent variable of interest is local male-female ratio. Regression (2) includes other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. Regression (3) adds controls for interest rate exposure and tier 1 capital ratio. Regression (4) adds state fixed effects. All independent variables are measured as of the fiscal year-end that immediately precedes the dependent variable. Year fixed effects are included in each regression. The Appendix provides detailed descriptions of the variables. The t-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Bank Holding Companies

	(1)	(2)	(3)	(4)
Local male female ratio	-0.321***	-0.357***	-0.381***	-0.307***
	(-3.12)	(-3.25)	(-3.47)	(-2.65)
County Characteristics				
Local high education fraction		0.147*	0.146*	0.106
		(1.75)	(1.73)	(1.34)
Ln(local population)		-0.005	-0.006	0.004
		(-1.04)	(-1.42)	(0.86)
Ln(local household income)		-0.038	-0.031	0.018
		(-1.19)	(-0.99)	(0.54)
Unemployment rate		-0.161	-0.142	0.626*
		(-0.42)	(-0.38)	(1.77)
Local senior fraction		-0.121	-0.102	0.136
		(-0.86)	(-0.74)	(0.82)
Bank Characteristics				
Ln(Market size)	5.525***	5.466***	5.338***	5.480***
	(10.71)	(10.36)	(10.16)	(10.63)
Market to book	-3.172***	-3.147***	-2.923***	-2.730***
	(-4.21)	(-4.15)	(-3.75)	(-4.26)
Commercial Loans	3.747***	3.834***	3.558***	3.319***
	(4.72)	(4.77)	(4.57)	(3.85)
Securities	0.269	0.233	0.418	0.827**
	(0.63)	(0.55)	(0.96)	(1.99)
Cash	2.070	2.139	2.011	1.004
	(1.55)	(1.59)	(1.34)	(0.91)
Fed funds	-3.131*	-3.264*	-4.184**	-3.609**
	(-1.87)	(-1.89)	(-2.29)	(-2.05)
Exposure			0.976***	0.858***
			(2.98)	(2.82)
Tier 1 capital ratio			-0.021	-0.026
			(-1.18)	(-1.48)
State fixed effects	No	No	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	11,749	11,749	11,749	11,749
Adjusted R^2	0.200	0.205	0.210	0.263

Table VI
Local Male Female Fraction and Loan Spread/Collateral Requirement/Capital Expenditure Restriction/Covenant Violation

Panel A of table VI reports OLS regression in which the dependent variable is the loan spread charged by the bank over LIBOR (regression (1) to (4)), an indicator that takes the value of one if the bank loan is secured and zero otherwise (regression (5) to (8)) and an indicator that takes the value of one if the bank loan contains capital expenditure restriction and zero otherwise (regression (9) to (12)). The sample consists of 10,844 firm-year observations covered in the Compustat and LPC's DearlScan databases from 1992 to 2008 (regression (1) to (8)). We then combine the data with the dataset used in Nini, Smith and Sufi (2009) from 1996 to 2005 to obtain 2,772 observations of the sample for capital expenditure restriction. Regression (2), (6) and (10) controls for industry fixed effects at two-digit SIC level. Regression (3), (7) and (11) includes other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior) as additional controls. Regression (4), (8) and (12) adds state fixed effects. Loan type, loan purpose and credit rating fixed effects are included in each regression throughout regression (1) to (12). Year fixed effects are controlled for in each of the regression. All independent variables are measured as of the fiscal year-end that immediately precedes the loan active date (regression (1) to (12) or event of covenant violation. The Appendix provides detailed descriptions of the variables. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Local Male Female Fraction and Ex-ante Contract Terms

	Loan Spread				Collateral Requirement				Capital Expenditure Restriction			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Local male-female ratio	0.931***	0.895***	0.971***	0.970***	1.539***	1.702***	1.812***	1.865***	1.610**	1.855**	2.305**	2.589**
	(5.81)	(4.46)	(4.29)	(3.13)	(4.12)	(3.77)	(4.02)	(3.09)	(2.23)	(2.09)	(2.43)	(2.19)
County Characteristics										-0.361	-0.313	0.002
Local high education		0.368**	0.405**	0.388*		0.368	0.381	0.015		(-0.66)	(-0.56)	(0.00)
fraction		(2.23)	(2.43)	(1.74)		(1.08)	(1.12)	(0.04)		0.063*	0.073**	0.060
Ln (local population)		-0.001	-0.008	-0.007		0.018	0.007	0.048*		(1.91)	(2.09)	(1.25)
		(-0.10)	(-0.72)	(-0.39)		(0.97)	(0.40)	(1.87)		0.173	0.083	0.143
Ln (local household		-0.080	-0.134*	-0.128		-0.102	-0.039	0.280*		(0.67)	(0.31)	(0.41)
income)		(-1.17)	(-1.90)	(-1.63)		(-0.80)	(-0.30)	(1.68)		0.762	2.162	0.363
Unemployment rate		1.850**	1.669**	1.630*		-0.075	0.108	1.984		(0.23)	(0.66)	(0.09)
		(2.28)	(2.00)	(1.70)		(-0.05)	(0.07)	(0.92)		1.684	-0.364	0.471
Local senior fraction		-0.252	-0.110	0.088		0.378	0.556	0.915		(1.17)	(-0.24)	(0.21)
		(-0.84)	(-0.32)	(0.22)		(0.55)	(0.85)	(0.98)		(1.17)	(-0.24)	(0.33)
Firm Characteristics												
Tangibility	-0.256***	-0.268***	-0.394***	-0.393***	-0.109	-0.088	-0.444***	-0.450***	-0.460***	-0.432***	-0.301	-0.371
	(-3.96)	(-3.76)	(-5.66)	(-5.73)	(-1.24)	(-0.93)	(-3.54)	(-3.62)	(-2.87)	(-2.61)	(-1.33)	(-1.63)
Ln (Book size)	-0.163***	-0.190***	-0.153***	-0.152***	-0.244***	-0.245***	-0.242***	-0.245***	-0.230***	-0.237***	-0.299***	-0.298***
	(-5.97)	(-8.10)	(-5.80)	(-5.85)	(-6.06)	(-5.93)	(-5.51)	(-5.81)	(-4.37)	(-4.45)	(-5.29)	(-5.35)
Market Leverage	0.961***	0.977***	1.231***	1.235***	0.905***	0.917***	1.076***	1.016***	0.572**	0.573**	0.727***	0.770***
	(11.94)	(12.03)	(12.56)	(12.45)	(8.91)	(9.17)	(9.60)	(9.06)	(2.53)	(2.54)	(3.10)	(3.23)
Free cash flow	-2.484***	-2.519***	-2.397***	-2.379***	-1.771***	-1.717***	-1.517***	-1.622***	-0.189	-0.233	-0.715	-0.565
	(-8.46)	(-8.21)	(-9.19)	(-9.09)	(-5.53)	(-5.20)	(-4.95)	(-5.12)	(-0.34)	(-0.42)	(-1.20)	(-0.96)

Dividend yield	-0.944*	-1.016*	-0.945*	-0.911*	-0.961*	-0.941*	-0.550	-0.453	-0.473	-0.414	-0.109	-0.182
	(-1.78)	(-1.87)	(-1.85)	(-1.87)	(-1.91)	(-1.86)	(-1.35)	(-1.14)	(-0.20)	(-0.18)	(-0.04)	(-0.08)
Market to book	-0.005	-0.005	0.006	0.006	-0.017	-0.018	-0.018	-0.018	-0.082	-0.084	-0.086	-0.071
	(-0.62)	(-0.57)	(0.50)	(0.44)	(-1.10)	(-1.12)	(-1.14)	(-1.19)	(-1.28)	(-1.31)	(-1.38)	(-1.12)
Profit	-1.023***	-0.998***	-1.244***	-1.232***	-0.925***	-0.925***	-0.911***	-0.905***	-1.410***	-1.376***	-1.482**	-1.600***
	(-6.00)	(-5.94)	(-9.99)	(-9.47)	(-2.86)	(-2.86)	(-2.93)	(-3.02)	(-2.72)	(-2.66)	(-2.51)	(-2.73)
Sales growth	0.002**	0.002**	0.002	0.002*	0.052*	0.051*	0.043	0.035	-0.012	-0.013	-0.017	-0.017
	(2.22)	(2.27)	(1.56)	(1.70)	(1.75)	(1.75)	(1.58)	(1.44)	(-1.25)	(-1.29)	(-1.33)	(-1.29)
Ln (facility amount)	-0.122***	-0.126***	-0.172***	-0.172***	-0.025	-0.028	-0.043	-0.049	0.040	0.049	0.107**	0.105**
	(-7.45)	(-7.55)	(-9.06)	(-9.16)	(-0.71)	(-0.79)	(-1.15)	(-1.33)	(0.88)	(1.09)	(2.20)	(2.11)
Ln (maturity)	-0.172***	-0.171***	-0.015	-0.014	-0.015	-0.012	-0.008	-0.010	-0.011	-0.011	-0.017	-0.019
	(-6.80)	(-6.94)	(-0.46)	(-0.47)	(-0.43)	(-0.35)	(-0.22)	(-0.28)	(-0.11)	(-0.12)	(-0.19)	(-0.19)
Loan type fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Credit rating fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
State fixed effects	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	10,844	10,844	10,844	10,844	10,844	10,844	10,844	10,844	2772	2772	2772	2772
Adjusted/Pseudo R^2	0.613	0.610	0.590	0.593	0.354	0.354	0.371	0.378	0.246	0.247	0.309	0.329

Panel B: Local Male Female Fraction and Ex-post Covenant Violation

Panel A of table VI reports OLS regression in which the dependent variable is an indicator that equals one if the firm violate covenant in a specific year (regression (13) to (16)). We obtain 48,345 observations of covenant violations from Nini and Sufi's (2009) and Compustat from 1996 to 2008. Regression (2) controls for industry fixed effects at two-digit SIC level. Regression (3) includes other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior) as additional controls. Regression (4) adds state fixed effects. Year fixed effects are controlled for in each of the regression. All independent variables are measured as of the fiscal year-end that immediately precedes the loan active date (regression (1) to (12) or event of covenant violation. The Appendix provides detailed descriptions of the variables. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Local male-female ratio	1.762***	1.632***	1.585***	0.811**
	(7.27)	(5.70)	(5.49)	(2.09)
County Characteristics				
Local high education fraction		0.150	0.129	0.011
		(0.90)	(0.76)	(0.06)
Ln (local population)		0.023*	0.027*	0.005
		(1.66)	(1.88)	(0.26)
Ln (local household income)		0.211**	0.175**	0.226***
		(2.51)	(2.05)	(2.64)
Unemployment rate		-0.254	-0.494	-0.791
		(-0.28)	(-0.54)	(-0.71)
Local senior fraction		0.221	0.246	0.059
		(0.63)	(0.70)	(0.14)
Firm Characteristics				
Tangibility	-0.546***	-0.494***	-0.381***	-0.378***
	(-10.83)	(-9.62)	(-5.98)	(-5.46)
Ln (Book size)	-0.142***	-0.144***	-0.135***	-0.135***
	(-22.77)	(-22.94)	(-20.86)	(-23.62)
Market Leverage	1.205***	1.208***	1.264***	1.290***
	(25.75)	(25.71)	(26.52)	(27.75)
Free cash flow	-0.458***	-0.443***	-0.428***	-0.361***
	(-8.08)	(-7.79)	(-6.99)	(-5.68)
Dividend yield	-1.576**	-1.517**	-1.132**	-1.040**
	(-2.34)	(-2.33)	(-2.14)	(-2.32)
Market to book	-0.047***	-0.048***	-0.046***	-0.047***
	(-5.36)	(-5.41)	(-5.22)	(-3.74)
Profit	0.254***	0.257***	0.130**	0.211***
	(6.90)	(6.95)	(2.40)	(5.58)
Sales growth	0.000**	0.000**	0.000**	0.000**
	(2.17)	(2.18)	(2.25)	(2.38)
Loan type fixed effects	Yes	Yes	Yes	Yes
Loan purpose fixed effects	Yes	Yes	Yes	Yes
Credit rating fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	Yes
State fixed effects	No	No	No	Yes
Observations	48,345	48,345	48,345	48,345
Adjusted/Pseudo R^2	0.126	0.127	0.135	0.140

Table VII
Local Male Female Fraction, Interactions with Firm Size and Institutional Ownership

This table presents estimates of interaction analysis, where the dependent variables and independent variables are corresponding to preceding tables. In panel A, the independent variable in interest is the interaction term of local male-female ratio and firms' book size. In panel B, the independent variable in interest is the interaction term of local male-female ratio and firms' institutional ownership.In regression (1) to (13), the dependent variable is firms' realized stock volatility (regression (1)), firms' implied option volatility (regression (2)), firms' book leverage ratio (regression (3)), capital expenditure (regression (4)), cash holding (regression (5)), the number of bids that the firm initiates in a specific year (regression (6)), the cumulative abnormal return (-1, 1) around the bidders' announcement of mergers (regression (7)), an indicator that equals to one if a firm reports the use of interest rate derivatives in annual report and zero otherwise (regression (8)), bank interest rate hedging calculated as dollar value of bank interest rate hedging scaled by bank holding company's market value (regression (9)) the loan spread charged by the bank over LIBOR (regression (10)), an indicator that takes the value of one if the bank loan is secured and zero otherwise (regression (11)), an indicator that takes the value of one if the bank loan contains capital expenditure restriction and zero otherwise (regression (12)) and an indicator that equals one if the firm violate covenant in a specific year (regression (13)), respectively. The maximum sample period is from 1992 to 2009. The sample period and the sample size vary depending on the availability of data sources for the dependent variables. In each regression, we control for state fixed effects and other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. Industry fixed effects at two-digit SIC level and year fixed effects are also included in each regression. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Local Male Female Fraction, Interactions with Firm Size

	Realized Return Volatility	Option Implied Volatility	Book Leverage	Capital Expenditure	Cash Holding	Number of Bids	CAR (-1,1) around M&A Announcement	Interest Rate Hedging (Industrial firms)	Interest Rate Hedging (Bank Holding Companies)	Loan Spread	Collateral Requirement	Capital Expenditure Requirement	Covenant Violation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Local male-female ratio	0.027***	0.056***	0.321***	0.100***	-0.370***	0.653	-0.144***	-3.009***	-1.761***	1.769***	5.164***	6.666***	1.768***
	(4.04)	(4.33)	(6.94)	(4.41)	(-4.02)	(0.65)	(-2.75)	(-4.84)	(-4.92)	(3.65)	(4.42)	(3.94)	(3.50)
Local male-female ratio * Ln (Book size)	-0.004***	-0.006***	-0.027***	-0.008***	0.032***	0.063	0.011*	0.233***	0.120***	-0.147**	-0.536***	-0.595***	-0.198***
	(-4.66)	(-3.46)	(-6.45)	(-2.92)	(2.76)	(0.49)	(1.81)	(4.22)	(4.36)	(-2.28)	(-3.29)	(-3.61)	(-3.39)
Ln (Book size)	-0.002**	0.001	0.042***	0.006**	-0.045***	0.193	-0.014***	0.054	-0.057**	-0.016	0.202	0.249*	0.061
	(-2.57)	(0.90)	(10.29)	(2.54)	(-4.20)	(1.63)	(-2.59)	(1.00)	(-2.21)	(-0.32)	(1.25)	(1.74)	(1.20)
County characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bid Characteristics	-	-	-	-	-	-	Yes	-	-	-	-	-	-
Loan type fixed effects	-	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Loan purpose fixed effects	-	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Credit rating fixed	-	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-

effects													
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	63,233	19,479	63,610	62,483	61,430	61,252	11,749	49,746	11,749	10,844	10,844	2,772	45,830
Adjusted /Pseudo R^2	0.561	0.627	0.514	0.225	0.420	-	0.074	-	-	0.594	0.382	0.330	-

Panel B: Local Male Female Fraction, Interactions with Institutional Ownership

	Realized Return Volatility	Option Implied Volatility	Book Leverage	Capital Expenditure	Cash Holding	Number of Bids	CAR (-1,1) around M&A Announcement	Interest rate Hedging (Industrial firms)	Interest rate Hedging (Bank Holding Companies)	Loan Spread	Collateral Requirement	Capital Expenditure Requirement	Covenant Violation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Local male-female ratio	0.014***	0.037***	0.202***	0.110***	-0.356***	1.970***	-0.082**	-1.864***	-0.363***	1.092***	4.252***	4.501***	0.967**
	(2.63)	(4.38)	(4.69)	(4.65)	(-4.47)	(3.10)	(-2.14)	(-3.48)	(-3.26)	(3.64)	(4.64)	(2.96)	(2.40)
Local male-female ratio	-0.014***	-0.036***	-0.051**	-0.011*	0.392***	-2.123***	0.015	0.558**	0.180**	-0.743**	-4.527***	-3.234**	-0.559***
* Institutional ownership	(-3.44)	(-3.51)	(-2.21)	(-1.74)	(3.95)	(-3.00)	(0.58)	(1.99)	(2.24)	(-2.44)	(-3.59)	(-2.56)	(-2.58)
Institutional ownership	0.009**	0.026***	0.072***	0.020***	-0.301***	2.532***	-0.025	-0.262	-0.260***	0.295	4.186***	2.835**	0.069
	(2.24)	(2.73)	(3.55)	(2.86)	(-3.26)	(3.76)	(-1.01)	(-1.10)	(-2.80)	(1.14)	(3.57)	(2.53)	(0.37)
County characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bid Characteristics	-	-	-	-	-	-	Yes	-	-	-	-	-	-
Loan type fixed effects	-	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Loan purpose fixed effects	-	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Credit rating fixed effects	-	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	63,233	19,479	63,610	62,483	61,430	61,252	11,749	49,746	11,749	10,844	10,844	2,772	45,830
Adjusted /Pseudo R^2	0.561	0.636	0.518	0.231	0.448	-	0.074	-	-	0.594	0.382	0.330	-

Table VIII
Endogeneity Test

Panel A of Table VIII presents the summary statistics for the instrument variables. We adopt an indicator which takes the value of one if the firm's headquarter is located in a state where the minimum drinking age is above 18 in 1976 as our instrument variable. We refer to the year 1976 because before 1970s, most states set their drinking ages at 21, during 1969-1976, over 30 states set the drinking age lower than 21, and most of these limits remained constant after 1976. The state/county mean male-female ratio is referred to 2000 US Census Bureau.

Panel B of Table VIII presents the 2SLS regression results. Regression (1) shows the first stage regression in which the dependent variable is local male-female ratio. Regression (2) to (11) is the second stage regression result in which the dependent variable is realized stock return volatility (regression (2)), option implied volatility (regression (3)), book leverage (regression (4)), capital expenditure (regression (5)), cash holding (regression (6)), the number of bids that the firm initiates in a specific year (regression (7)), the cumulative abnormal return (-1, 1) around the bidders' announcement of mergers (regression (8)), an indicator that equals to one if a firm reports the use of interest rate derivatives in annual report and zero otherwise (regression (9)), bank interest rate hedging calculated as dollar value of bank interest rate hedging scaled by bank holding company's market value (regression (10)), the loan spread charged by the bank over LIBOR (regression (11)), an indicator that takes the value of one if the bank loan is secured and zero otherwise (regression (12)), an indicator that takes the value of one if the bank loan contains capital expenditure restriction and zero otherwise (regression (13)) and an indicator that equals one if the firm violate covenant in a specific year (regression (14)), respectively. We use the same set of control variables as in receding table analysis. We control for other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. For common firms, we also controls for firm specific characteristics including tangibility, book size, market leverage, free cash flow, dividend yield, market to book ratio, profitability, firm age, cash holding, and sales growth. All the independent variables are as of the preceding year before the dependent variables. We report the *F*-statistic of the weak-identification test to test the presence of weak instrument. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Summary Statistics for Instrument Variables

	State Minimum Drinking Age	State Mean (1)	State Median (2)	T-test of (A-B) for sates	Wilcoxon z test (A-B) for states
A(<=18):	18	0.930	0.930		
			(28)		
	19	0.946	0.942	-3.01***	-2.57***
B(>18):			(7)	(0.00)	(0.01)
	21	0.964	0.967		
			(14)		

VARIABLES	(1) Y_1970	(2) Y_2000
d_iv	0.986	1.679**
	(1.37)	(2.20)
Population_1970	-1.164***	
	(-2.73)	
Age65_1970	-0.431***	
	(-2.87)	
Population _2000		-0.449
		(-0.92)
Age65_2000		-0.619**
		(-2.66)
Constant	116.629***	110.247***
	(16.45)	(12.36)
Observations	48	48
R-squared	0.341	0.263

Panel B: 2SLS Regressions of Main Dependent Variables in Previous Tables on Explanatory Variables

	Local male female ratio	Realized Stock Return Volatility	Option Implied Volatility	Book Leverage	Capital Expenditure	Cash Holding	Number of Bids	CAR (-1,1) around M&A Announcement	Interest rate Hedging (Industrial firms)	Interest rate Hedging (Bank Holding Companies)	Loan Spread	Collateral Requirement	Capital Expenditure Restriction	Covenant Violation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Instrument: Indicator of MLDA>18	0.005*** (4.55)													
Local male-female ratio		0.043*** (4.37)	0.041*** (4.43)	0.724*** (3.27)	0.452*** (3.58)	-0.967** (-2.40)	2.545*** (2.60)	-0.071* (-1.91)	-5.310*** (-4.86)	-1.678*** (-3.03)	1.526* (1.66)	-0.344 (-0.21)	6.331* (1.82)	2.837*** (3.91)
Relative Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
All relevant controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weak identification test: *F*-statistic	49.24													
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes
Observations	63,610	63,233	19,479	63,610	62,483	61,430	61,252	16,530	45,830	11,749	10,844	10,844	2,772	48,345
Adjusted R^2	0.386	0.480	0.619	0.479	0.177	0.333	-	0.03	-	0.123	0.595	0.337	-	-

Table IX
Local Male Female Fraction and Corporate Risk Management: Firms Moving Headquarters

This table reports the correlation of change of corporate financial/investment/hedging policies with regards to the change of local male-female ratio for firms that re-allocate headquarters. Historical information of firm locations is obtained from Compact Disclosure. A firm is denoted as moving headquarter in year *t* if the location of headquarter in year *t* is in different counties from its location in year *t*-1.

We use OLS regression in which the dependent variable is change in stock realized return volatility (regression (1)) and change in option implied volatility (regression (2)),change in book leverage (regression (3)), change in capital expenditure (regression (4)), change in cash holding (regression (5)), change in bid initiations (regression (6)) between year t+1 and year t-1, respectively. Regression (7) presents the results of probit model in which the dependent variable is an indicator that equals to zero if a firm's likelihood of employing interest rate derivatives decrease after headquarter moving and one otherwise. Regression (8) presents the results of probit model in which the dependent variable is an indicator that equals to zero if a firm's likelihood of covenant violation decrease after headquarter moving and one otherwise. The change of dependent variables is measured as the difference of each dependent variable between year *t*-1 before moving headquarters and year *t*+1 after moving. The independent variable in interest is the change in local male-female ratio, measured as the difference of local male-female ratio between year t-1 before moving headquarters and year *t*+1 after moving. Change in other local demographical characteristics (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction), changes in the firm characteristics are also included in each regression, as well as year fixed effects are included in each regression. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

	Change in Stock Return Volatility	Change in Option Implied Volatility	Change in Book Leverage	Change in Capital Expenditure	Change in Cash Holding	Change in Number of Bids	Change in Interest Rate Hedging (Industrial firms)	Change in Covenant Violation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Change in local male-female ratio	0.034***	0.020*	0.111**	0.084**	-0.059	0.729*	-2.690***	1.150*
	(3.16)	(1.66)	(2.39)	(2.14)	(-0.46)	(1.75)	(-2.64)	(1.83)
County Characteristics								
Change in local high education fraction	0.001	0.012	-0.001	-0.013	0.087	0.081	0.042	0.126
	(0.11)	(1.15)	(-0.04)	(-0.73)	(1.53)	(0.30)	(0.08)	(0.24)
Change in Ln (local population)	-0.001	-0.001	-0.003	0.002**	-0.001	-0.023	-0.006	-0.008
	(-1.51)	(-0.88)	(-1.07)	(2.02)	(-0.26)	(-1.44)	(-0.15)	(-0.23)
Change in Ln (local household income)	-0.008**	-0.008	-0.013	-0.019**	0.010	0.037	-0.170	0.192
	(-2.23)	(-1.02)	(-0.71)	(-2.18)	(0.32)	(0.33)	(-0.60)	(1.33)
Change in unemployment rate	-0.052	0.010	-0.208**	-0.269*	0.184	2.053	0.781	5.188*
	(-0.96)	(0.11)	(-1.97)	(-1.88)	(0.52)	(1.43)	(0.22)	(1.80)
Change in local senior fraction	-0.020	-0.017	0.073	0.041	-0.078	-0.002	-3.476**	0.002
	(-1.11)	(-0.87)	(0.83)	(0.81)	(-0.69)	(-0.35)	(-2.03)	(0.18)
Firm Characteristics								
Change in Tangibility	0.004	0.007	0.033	0.231***	-0.655***	-0.275	0.684**	0.261
	(0.35)	(0.31)	(1.41)	(7.18)	(-8.66)	(-1.36)	(1.98)	(0.58)
Change in Ln (Book size)	-0.012***	-0.001	0.004	0.007*	0.003	0.019	0.400***	0.046
	(-6.43)	(-0.20)	(0.49)	(1.80)	(0.32)	(1.00)	(5.39)	(0.61)

Change in Market	0.035***	0.012	1.231***	0.007	-0.133***	-0.259**	0.188	0.812***
leverage	(4.84)	(1.20)	(32.01)	(0.33)	(-3.44)	(-2.36)	(0.75)	(2.74)
Change in free cash flow	-0.009*	-0.007*	-0.003	0.016	0.023	-0.025	0.033	-0.146
	(-1.69)	(-1.75)	(-0.39)	(1.63)	(1.04)	(-0.45)	(0.13)	(-0.56)
Change in dividend yield	-0.010*	-0.167	0.012	0.061	0.108**	1.458***	0.402	-0.138
	(-1.71)	(-1.52)	(0.39)	(0.91)	(2.13)	(3.52)	(0.76)	(-0.19)
Change in market to book	-0.001***	0.000	0.001	0.001*	0.005***	0.014	0.008	0.002
	(-3.04)	(0.44)	(0.40)	(1.81)	(3.30)	(1.51)	(0.72)	(0.15)
Change in profitability	0.009	-0.012	0.009	-0.029***	-0.029	0.156*	-0.048	0.020
	(1.50)	(-0.87)	(0.86)	(-2.66)	(-0.86)	(1.77)	(-0.44)	(0.17)
Change in sales growth	-0.000	-0.000	-0.000	0.000	-0.001	0.001***	-0.029	-0.045
	(-1.18)	(-0.03)	(-0.06)	(0.60)	(-1.12)	(2.76)	(-1.52)	(-0.46)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1067	286	1067	1067	1067	1067	892	911
Adjusted R^2	0.269	0.668	0.720	0.208	0.201	0.140	0.142	-

Table X
Robustness Check: Local Male Female Fraction with Additional Controls

This table reports robustness tests with additional controls, including director/CEO gender controls (Panel A) and other corporate governance variables (Panel B). OLS/Probit regression in which the dependent variable is firms' realized stock volatility (regression (1)) and implied option volatility (regression (2)), capital expenditure (regression (3)), cash holding (regression (4)), an indicator that equals to one if a firm reports the use of interest rate derivatives in annual report and zero otherwise (regression (5)), the number of bids that the firm initiates in a specific year (regression (6)), loan spread charged by the bank over LIBOR (regression (7)) and an indicator that takes the value of one if the bank loan contains capital expenditure restriction and zero otherwise (regression (8)) and CAR (-1, 1) around M&A announcement, respectively. The dependent variables and independent variables are corresponding to preceding analysis. For continuous dependent variable, we use OLS regression for analysis whereas we use probit model for analysis when dependent variable is an indicator. The independent variable of interest is local male-female ratio. In Panel A, we control for the female board fraction, an indicator that takes the value of one if the board has exactly one female director and an indicator which takes the value of one if the firm's CEO is female. In Panel B, we control for local institutional ownership which is calculated as the firm's ownership hold by the institutions that are located within 100km radius around the firm's headquarter, as well as G-index (Gompers, Ishii, and Metrick (2003)) and the proportion of outside directors on the boards in the regressions. All regressions include other local population characteristic (high education fraction, Ln (local population), Ln (house hold income), unemployment rate and local senior fraction) as additional controls. Industry fixed effects at two-digit SIC level, year fixed effects and state fixed effects are included in each regression. The Appendix provides detailed descriptions of the variables. The *t*-statistics in parentheses are based on standard errors adjusted for heteroskedasticity (White 1980) and allow for clustering within firms. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

	Realized Return Volatility	Option Implied Volatility	Book Leverage	Capital Expenditure	Cash Holding	Number of Bids	CAR(-1,1) around M&A Announcement	Interest Rate Hedging (Industrial firms)	Loan Spread	Collateral Requirement	Capital Expenditure Restriction	Covenant Violation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(`11)	(12)
Local male-female ratio	0.018***	0.258***	0.025	0.109***	-0.163*	0.022**	-0.001*	-0.031***	0.011**	0.003	0.056**	0.004
	(3.08)	(3.02)	(0.31)	(3.09)	(-1.69)	(2.05)	(-1.67)	(-2.73)	(2.00)	(0.20)	(2.01)	(0.30)
Other Controls												
Female director fraction	-0.514***	-11.318***	0.937	-0.433	-2.504	-0.043	-0.006	0.581*	0.045	-0.213	-0.600	0.172
	(-2.79)	(-4.37)	(0.41)	(-0.58)	(-0.82)	(-0.13)	(-0.42)	(1.77)	(0.23)	(-0.43)	(-0.60)	(0.48)
One female director	-0.086***	-1.176***	-0.434	0.089	-0.429	0.016	0.005	0.021	-0.047*	-0.210***	0.184	-0.157***
	(-3.37)	(-3.41)	(-1.35)	(0.76)	(-1.05)	(0.33)	(1.25)	(0.44)	(-1.84)	(-2.90)	(1.27)	(-2.86)
Female CEO	-0.027	3.020*	-2.654**	-0.366	0.536	-0.091	-0.003	0.050	0.313*	0.351	-0.955	0.161
	(-0.20)	(1.94)	(-2.52)	(-0.73)	(0.20)	(-0.56)	(-0.27)	(0.26)	(1.74)	(1.34)	(-1.49)	(1.01)
County characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bid Characteristics	-	-	-	-	-	-	Yes	-	-	-	-	Yes
Loan type fixed effects	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Loan purpose fixed effects	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Credit rating fixed effects	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,008	8,612	11,857	10,185	11,757	9,793	4,170	9,784	3,598	3,598	1,117	10,004

Adjusted/Pseudo R^2	0.572	0.624	0.561	0.465	0.475	-	0.057	0.215	0.588	0.427	0.482	0.178

	Realized Return Volatility	Option Implied Volatility	Book Leverage	Capital Expenditure	Cash Holding	M&A Initiations	CAR(-1,1) around M&A Announcement	Interest Rate Hedging (Industrial firms)	Loan Spread	Collateral Requirement	Capital Expenditure Restriction	Covenant Violation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(7)	(11)	(8)	(9)
Local male-female ratio	0.016***	0.248***	0.028	0.106***	-0.199**	0.022**	-0.001**	-0.029***	0.011**	0.004	0.056**	0.011
	(2.64)	(3.00)	(0.33)	(3.15)	(-2.08)	(2.01)	(-2.06)	(-2.68)	(1.97)	(0.30)	(2.13)	(0.88)
Other Controls												
Local institutional	-0.054	-5.695***	1.533	0.048	-0.163	0.575**	-0.004	-0.007	0.021	-0.227	-0.172	-0.332
ownership	(-0.45)	(-3.70)	(1.02)	(0.13)	(-0.07)	(2.47)	(-0.58)	(-0.02)	(0.26)	(-0.65)	(-0.35)	(-1.48)
G-index	-0.028***	-0.520***	0.055	-0.031	-0.256***	-0.003	-0.000	0.034***	-0.019***	-0.038***	-0.016	-0.034***
	(-4.75)	(-7.19)	(0.78)	(-1.11)	(-2.81)	(-0.25)	(-0.36)	(2.98)	(-3.62)	(-2.67)	(-0.55)	(-3.52)
% of independent	-0.157*	-1.365	0.228	0.588	1.354	-0.003	-0.003	0.043	0.025	-0.113	1.049**	0.272**
directors	(-1.85)	(-1.26)	(0.22)	(1.43)	(0.98)	(-0.02)	(-0.45)	(0.28)	(0.32)	(-0.55)	(2.41)	(1.98)
County characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bid Characteristics	-	-	-	-	-	-	Yes	-	-	-	-	Yes
Loan type fixed effects	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Loan purpose fixed effects	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Credit rating fixed effects	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,008	8,612	11,857	10,185	11,757	9,793	4,170	9,784	3,598	3,598	1,117	10,004
Adjusted/Pseudo R^2	0.555	0.606	0.561	0.455	0.460	-	0.058	0.211	0.583	0.422	0.483	0.183