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ETHNIC DIVERSITY OF THE BOARD

AND FIRM-SPECIFIC INFORMATION

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Ph.D

The Hong Kong Polytechnic University

2017

The Hong Kong Polytechnic University

School of Accounting and Finance

Ethnic Diversity of the Board and Firm-specific Information

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A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

May 2017

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WONG Suet Fan, Josephine (Name of Student)

Ethnic diversity of the board and firm-specific information

Abstract

Many institutional investors expressed a preference for board diversity by increasing female and non-Caucasian directors on corporate boards (Bloxhan, 2016). In this study, I contribute to this line of literature by exploring the followings: 1) the correlation between ethnic diversity of corporate boards and firm-specific information; 2) the relationship between ethnic diversity of corporate boards, firms' characteristics and firm-specific information; and 3) the interrelation between ethnic diversity of corporate boards, institutional investors and firm-specific information.

Firstly, I find that share prices of firms with ethnic-diversified boards reflect more firm-specific information after controlling for gender diversity and age diversity of corporate boards, corporate governance, institutional investors' ownership, accruals quality, merger and acquisition activities and several characteristics of firms like size, firm age, profitability, profit volatility, leverage and business diversification.

Secondly, I split the sample and find that such relationship exists in the subsample of firms with merger activities / firms with high profit volatility / high growth firms / high leverage firms but not in the subsample of firms without merger activities / firms with low profit volatility / low growth firms / low leverage firms.

High growth firms, firms with merger activities and firms with high profit volatility tend to be in businesses with more complexity and facing a fast changing environment. These firms may have a more complex structure and need experts with specialized skills. Non-Caucasians may have specialized skills or have

higher education achievements in order to be board directors. An ethnic-diversified board of a firm implies better corporate governance. Boards with more valuable human resources may in turn provide better performance. I argue that firms that engage directors with specialized skills and firms with better corporate governance will lead to higher, stable cash flows and it is more likely that institutional investors tend to select those firms for long-term investments.

Literature shows that long-term institutional investors are widely believed to intervene in the corporate governance of firms more intensively and reach target companies for governance issue (Carleton et al., 1998; Rose and Bielby, 2011). In this study, I find that the relative volume of trading by institutional investors are lower for firms with ethnic-diversified boards and it is more likely that institutional investors hold shares of these firms for long-term purposes.

Moreover, I find that the firms with ethnic-diversified boards attract more institutional investors. Trading activities of these long-term investors lead to the transmission of firm-specific information into share prices.

Keywords: Ethnic Diversity, firm-specific information, institutional investors, firms' characteristics

Acknowledgements

Writing a significant doctoral thesis is hard for a part-time student and it would be impossible without support from the kind people and talents around me, to only some of whom it is possible to give a particular mention here.

I would like to express my deepest gratitude for my chief supervisors, Professor CS Agnes Cheng, Professor Ferdinand Akthar Gul and Professor Simon Fung for their constant inspiration, encouragement and invaluable supervision during different stages of my doctoral studies.

Words cannot express how deeply privileged and deeply lucky I have Professor CS Agnes Cheng as my chief supervisor in the final stage of my Ph.D journey. She is a faultless mentor: intelligent, passionate, and energetic and is always genuinely interested in her students and colleagues. She is a mentor who can initiate students' and colleagues' self-motivation and aspiration. I am impressed by her passion and generosity in providing help to students. I do not see any other way I would have possibly completed this research without her help.

I am especially indebted to Professor Simon Fung, who has the attitude and caliber of a genius: he continually and convincingly conveys a spirit of adventure in the research route. He provides me with the training of reading and constructively commenting others' working papers. He encouraged me to submit and present my confirmation paper, of the same title with this thesis, in the conference of American Accounting Association in order to build up my interest and confidence in research. He spent tremendous amount of time to evaluate critically my work done and drove me to overcome all kinds of difficulties in order to meet the stringent requirements

of a doctoral thesis. Without his emotional intelligence to tolerate the limitation of a part-time student, guidance and persistent help, this thesis would have not been possible.

I would like to express my sincere appreciation to Professor Ferdinand Akthar Gul for introducing and encouraging me to start my Ph.D journey. Without his encouragement, I would have never started my doctoral studies. I thank him for his comments and suggestions for my confirmation paper and reiterate the importance of the underlying structure of a research.

A special thank goes to Professor Bin Srinidhi for his comments and suggestions for my confirmation paper, the foundation of this thesis. His advice contributed a lot to my research ideas for this thesis. I am truly grateful for Professor Chan Koon Hung and Professor Wayne Yu who graciously agreed to be my external examiners, and their feedback during the final stage of my Ph.D journey was invaluable.

My sincere thanks also go to the faculty at the School of Accounting and Finance for their guidance and support and especially Professor Ji-Chai Lin, Professor Wilson Tong, Dr Anthony Ng, Dr Karen Lai, Dr Steven Wei and Dr Wan Kam Ming for their helpful suggestions and discussions.

My thanks are also due to Dr Lai Huiwen, Mr Roger Lui and Ms Angel Sung who helped me with SAS programming, the essential data analysis tool underpinning this thesis.

I would also like to thank fellow students, colleagues and friends at the School of Accounting and Finance; and School of Professional Education and Executive Development; and my other friends for their encouragement and moral support.

Last but not the least, I would like to thank my mum and dad, three brothers and sisters-in-law, my beloved husband and my wonderful daughter who provided a happy home environment and support for me throughout all these years to make room for me to complete this program. I am very grateful to my family for their support and uninterrupted love.

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Ethnic Diversity of the Board and Firm-specific Information

Chapter 1 Introduction

1.1 Motivations and objectives

According to Alesina and Ferrara (2005), ethnic diversity can be a "good" or a "bad" which depends on the needs of the firms. Conflict of preferences, racism and prejudice often lead to suboptimal policies from the point of society as a whole. In order to prevent making suboptimal decisions in a corporation, many corporations prefer to have board members from the same ethnic group in order to avoid the conflicts.

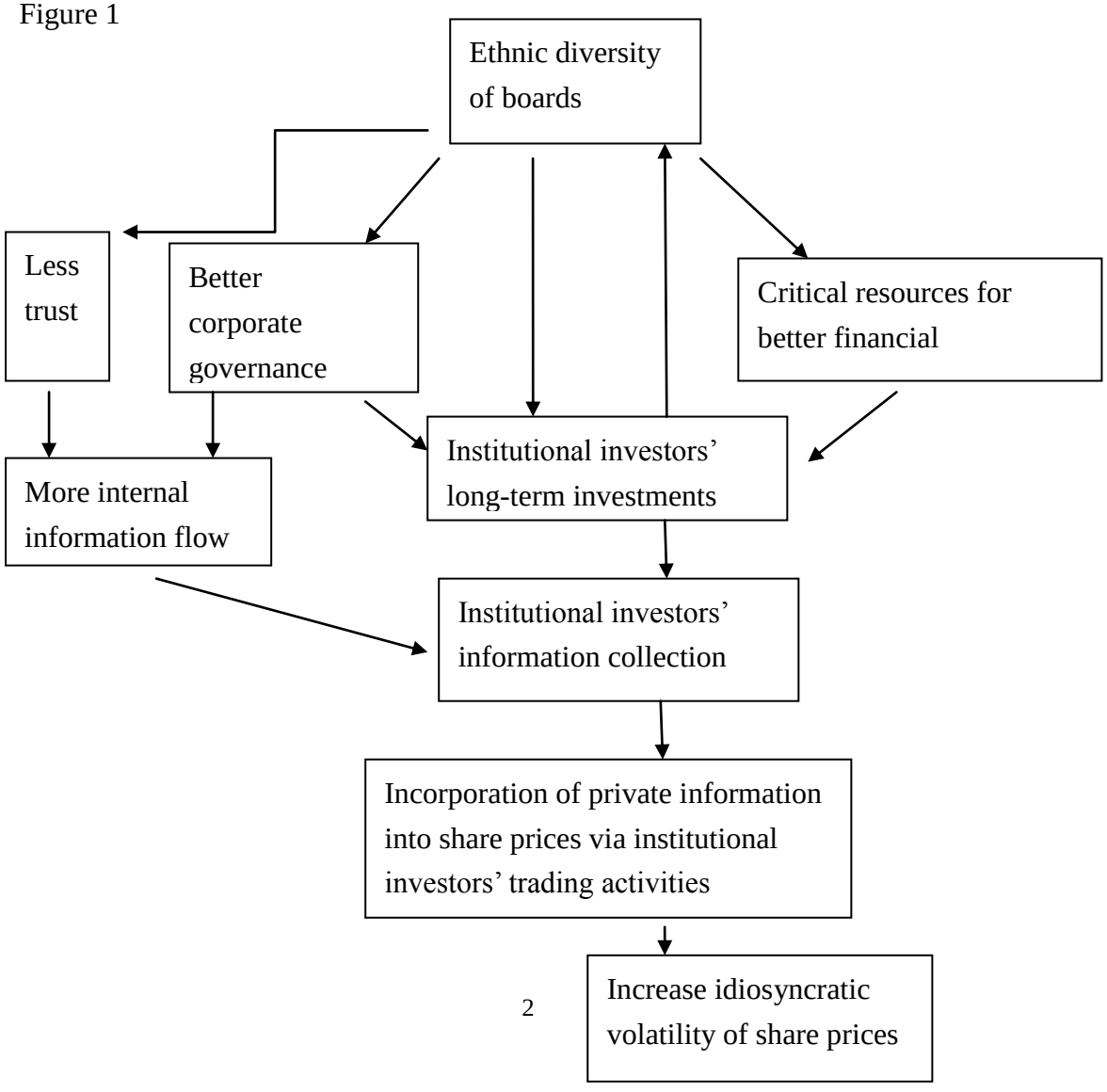
However, there are benefits of an ethnic-diversified board. An ethnic-diversified board brings about people with varieties in abilities, expertise, experience and cultures for enhancing the productivity and creativity of a firm.

Previous literature shows that the effect of ethnic diversity of boards on firms' performance is either positive or none (Carter et al., 2003; Erhardt et al., 2003; Kochan et al., 2003; Carter et al., 2010). Hillman and Dalziel (2003) argue that board capital affects both monitoring and the provision of resources and their impact on firm financial performance is uncertain due to the contradictory effect of board dependence on these two aspects. Although the impact on firm financial performance is uncertain, institutional investors may still desire to invest in firms with an ethnic-diversified board because of the expectation of lower investment risk due to better corporate governance and richer information environment. Moreover, institutional investors may also desire to invest in firms that possess the kind of critical human resources that ethnic diversity contributed to the boards. A firm possessing such critical and non-substitutable human resources may be able to

improve its efficiency and create a competitive advantage. Whether the returns from the competitive advantages outweigh the costs of conflict of preferences, racism and prejudice is a piece of information that is not publicly available and is important for investors. The expected positive returns from information collection of identifying better potential financial performance firms with ethnic-diversified boards may induce more institutional investors to collect private information.

This study addresses the potential role of ethnic-diversified boards in attracting the investors for the collection of firm-specific information and creating a better information environment for firms because of: 1) the ethnic diversity of the boards improves the corporate governance of firms; and 2) and the ethnic diversity of the boards provides critical human resources to firms.

Figure 1



The directors of corporate boards carry out four important functions, namely: 1) overseeing and exerting control over managers; 2) supplying information and providing advice to managers; 3) ensuring firms' compliance with relevant laws and regulations and 4) connecting the firms to the external market environment (Mallin 2004; Monks and Minow 2004; Carter et al., 2010). By carrying out these functions, there is information exchange between the managers and the boards as well as between the boards and the external environment, such as other firms and the institutional investors. The information environment of firms with ethnic-diversified boards is improved.

Ethnic diversity of corporate boards could improve the quality of firms' decisions by monitoring and controlling managers as well as by supplying information and providing advice to managers. There may be more questions raised by an ethnic-diversified board with varieties in abilities, expertise, experience and cultures. Consequently, there is greater demand and exchange of information for decision-making and therefore speeds up the diffusion of information from the firm to investors as well as the external environment. As a result, ethnic diversity of a board may improve the information environment of a firm and the information content of the share price via institutional investors' trading activities. There are three reasons to support this prediction.

Firstly, Peterson et al. (2007) find that non-Caucasian directors and Caucasian directors assume different roles on the board. Groups of non-Caucasian directors may bring in diverse perspectives with their unique human capital. It is not easy for non-Caucasian directors entering the boardroom since Caucasian males dominate in boardrooms. According to Hillman et al. (2000), the resource dependence theory suggests that non-Caucasian directors provide unique beneficial

resources to the firm (Carter et al., 2010). If non-Caucasians are included in the corporate board, they may either have specialized skills, information, higher education achievements, potential linkages to other external constituencies or have connections with institutional investors. Consequently, a more ethnic-diversified corporate board will produce better firm performance by having more valuable human resources. Non-Caucasians directors with specialized skills or higher education achievements may look at things more critically and raise more questions for decision-making. An ethnic-diversified corporate board tends to raise more questions. More information is generated internally and better decisions can be made. One important function of the directors is to connect the corporation to the external environment and hence, more information is conveyed to the external environment via the institutional investors and other stakeholders when the directors carry out this function. Moreover, the average number of corporate board seats for African Americans is greater than Caucasians (Rose and Bielby, 2011). Researchers find that multiple directors assume a significant role in the transmission of information across firms (Burt, 1980; Palmer, 1983).

Secondly, another possible benefit of maintaining a corporate board with ethnic diversity is to attract and maintain institutional investors. Felton et al. (1996) find that investors with lower turnover ratios in their portfolios value governance most. The function of the corporate board to oversee and control the management is a fundamental concept from agency theory (Jensen & Meckling, 1976). Corporate governance theory proposes that corporate board composition has a significant impact on the actions of the corporate board and top management (Kim et al., 2009). The global desire for better corporate governance raises the interests in the corporate boards' demographic diversity (Carleton et al., 1998; Carter et al., 2010).

All institutional investors have a strong preference for investing in firms with good corporate governance (Ferreira and Matos, 2008). Institutional investors may desire to gather more information for firms with ethnic-diversified boards because of their expectations of good corporate governance of the firms will help improve its performances in the long run. They expect investment gains from identifying outstanding financial performance firms with good corporate governance.

Institutional investors demand racial composition of corporate boards. Bushee (1998a) suggests institutional investors with substantial long-term investments in firms to be quasi-insiders. Many institutional investors, especially pension funds expressed a preference for corporate board diversity. According to Carleton et al., 1998, the Teachers Insurance Annuity Association-College Retirement Equities Fund ("TIAA-CREF") Asset Management, a global asset manager with institutional and individual investors as their clients, often gets involved in behind-the-scenes talks with portfolio companies covering a broad range of issues. TIAA-CREF views board diversity as a corporate governance practice since non-Caucasian directors are less likely to be beholden to Caucasian management. TIAA-CREF has been involved in corporate governance activism during the period 1992-1996 through negotiations with firms that TIAA-CREF has a substantial position in these investments. TIAA-CREF reached corporate board diversity agreements with those target firms. Piotroski and Roulstone (2004) find that insiders' and institutional investors' trading activities speed up the transmission of firm-specific earnings news into share prices.

Thirdly, diversifying a corporate board is costly. An ethnic-diversified corporate board may potentially increase friction between members, and members with different backgrounds may split themselves into subgroups, which reduces group

cohesiveness and impairs trust among members, leading to reluctance to communicate informally within the corporate board.

According to Hooghe et al. 2009, social psychological research suggests that trust should increase in a homogeneous group and deteriorate in the heterogeneous setting. Trust seems easier to foster when people are familiar with each other, and particularly so when others seem similar to themselves (Abrams et al. 2005; Uslaner, 2002). Ethnic or racial differences make it more difficult to rely on the future behavior of one's colleagues (Messick and Kramer, 2001). Ethnic diversity may reduce trust within a team and therefore diminish the capacity for cooperation and/ or collective actions. Ray (2005) argues that directors of a more ethnic-diversified corporate board tend to evaluate critically each other's opinions because they bring different and sometimes opposing views and perspectives. In addition, they examine conflicting-arguments and resolve differences by discussion rather than by compromise. According to Carter et al. (2010), directors are risk adverse and their most valuable asset, reputation, is dependent on the company not being the subject of a scandal. Association with a failing firm or scandal could be disastrous for a director's career. The lower level of trust between directors from an ethnic-diversified corporate board may lead to more internal reports requested by corporate board members, resulting in richer information environment as more firm-specific information is available to the corporate board members in a tenable manner. Such information may be conveyed to the external environment when directors are linked to the environment for promoting the success of the corporation. The rich information environment of the firms with ethnic-diversified corporate board reduces the information collection cost and therefore encourages investors to collect more firm-specific private information (Gul et al., 2011).

Gul et al. (2010) find a positive association between gender diversity of a corporate board and firm-specific information and accordingly, suggest that gender-diverse boards increase public disclosures in large firms and the collection of private information of small firms by investors. However, ethnic diversity of a corporate board may not increase the content of firm-specific information in share prices by increasing voluntary public disclosure since non-Caucasian directors such as African Americans are not likely to be finance experts.

The objective of this study is to examine whether ethnic-diversified corporate boards in listed companies in U.S. increase the incentives of investors for the collection of firm information and speed up the transmission of firm-specific information into share prices via the collection of private information by institutional investors.

1.2 Research methods and main findings

1.2.1 Measurement of ethnic diversity

I measure the ethnic diversity of corporate boards in different ways. I apply four measures in the main tests and finally two measures are considered as appropriate for the measurement of ethnic diversity in this study. Although corporate boards may have internal needs for diversity, they may respond to outside pressure to add minority directors. Therefore, the measure of diversity with dummy variable or the measure of diversity by the number of ethnic groups of the directors of the corporate boards are not considered as appropriate measures as firms may simply include minority on corporate boards to build a public image or tokenism.

One measure considered as appropriate for the study is the DINDEX. Following Leigh (2006), ethnic heterogeneity/diversity is measured by, one minus the

Herfindahl-type fractionalization index. The Herfindahl-type fractionalization index measures the concentration of ethnic groups in a corporate board. The other measure considered as appropriate for the study is the proportion of non-Caucasians on corporate boards, NON_Cpercent. I apply these two measures, DINDEX and NON_Cpercent in most parts of this study since there is less impact by tokenism for these two measures.

1.2.2 Measurement of firm-specific private information incorporated in share prices

Information collected by investors transmitted to share prices through their trading activities. Morck et al. (2000) suggest that idiosyncratic price movements reflect the transmission of firm-specific information into share prices.

Following prior literature (Roll, 1988; Morck et al., 2000; Jin and Myers, 2006; Ferreira and Laux, 2007; Gul et al., 2010; Gul et al., 2011), I use idiosyncratic volatility (IV) as a measure of firm-specific information incorporated in share prices. I acknowledge that the validity of my conclusions depends crucially on the extent to which firm-specific information is correctly measured.

Following Ferreira and Laux (2007) and Gul et al. (2011), I also use future earnings incremental explanatory power (FINC) for robustness check in order to mitigate the measurement error.

1.2.3 Main findings

The objective of this study is to examine whether ethnic-diversified corporate boards in listed companies in U.S. increase the incentives of investors for the collection of firm information and accelerate the transmission of firm-specific

information into share prices.

Using a sample of 5,243 firm-year observations from 2002 to 2012 in the U.S. listed firms market, I apply four ethnic diversity measures in the main tests. I find positive association between ethnic diversity, measured by the diversity index and the proportion of non-Caucasians, and firm-specific information, measured by idiosyncratic volatility of return, for U.S. listed firms after controlling for other variables such as corporate governance, other aspects of corporate board diversity including gender diversity and age diversity, corporate board independence, accruals quality and other firm characteristics. There is no association between ethnic diversity, measured by dummy variable, and firm-specific information. Therefore, ethnic diversity does not play a role for improving the information environment for firms that simply include minority on corporate boards as a token to build the public image.

According to Hillman et al. (2002), African American directors are more likely to be support specialists or community influentials rather than business experts. For Asian directors, most of them are information technology experts or are specialized in penetration to the Asian market. Details are discussed in section 2.1.3.2. Fields et al. (2005) argue that organizations employ African Americans to obtain critical human resources. Ortlieb and Sieben (2013) propose a typology of diversity strategies defined by the kind of critical human resources that ethnic diversity provides to organizations. The competencies provided by ethnic background including languages, culture skills, knowledge, networks, contacts and new approaches to work tasks. Firms with more international trade tend to have more ethnic-diversified corporate boards (Anderson et al. 2011). Merger and acquisition activities increase the size and business complexity of firms. Benefits

of an ethnic-diversified corporate board are the varieties in abilities, experience, expertise and cultures that may enhance productivity of firms. However, the costs are conflicts of preferences, racism and communication problem. When firms become increasingly complex, the skills available from a heterogeneous corporate board yield greater overseeing benefits to shareholders and more sophisticated advices to managers than a homogeneous corporate board. The benefits out-weight the costs of heterogeneous corporate board in more technology advanced and complex firms. I find that the ethnic diversity of corporate boards has positive association with firm-specific information in firms with merger activities but not in firms without merger activities.

Private information is more valuable for firms with high profit volatility / growth potential. For firms with high profit volatility / growth potential, the probability of gaining larger expected investment returns based on both private and public information than the expected investment returns conditional just on public information increase. For firms with better corporate governance and critical human resources by having an ethnic-diversified corporate board, the probability of capturing cash flows by managers is smaller. Institutional investors have more incentive to collect information of high profit volatility / high growth firms with an ethnic-diversified corporate board. I find that the ethnic diversity of corporate boards has a positive association with firm-specific information in high profit volatility / high growth firms but not in low profit volatility / low growth firms.

Novaes and Zingales (1995), Zwiebel (1996), Cremers and Nair (2005) have pointed out that higher debt reduces the probability of a takeover since it commits the manager to performance improvements. Debt can increase efficiency because it can prevent managers to take up the unprofitable, or profitable but risky projects.

Debt can prevent managers to pursue personal agenda instead of wealth maximization for shareholders. The probability of performance improvement for a high debt (leverage) firm increases by an ethnic-diversified corporate board as best directors are from a larger pool of talents consisting of different ethnic groups instead of from a single ethnic group. Firms take these affirmative steps to inform their broader talent base of corporate board composition. Therefore, institutional investors will have more incentive to collect private information of high debt firms with ethnic-diversified corporate boards. I find that the ethnic diversity of corporate boards has a positive association with firm-specific information in high debt firms but not in low debt firms.

For the robustness check, I follow Gul et al. (2011) and use future earnings incremental explanatory power, FINC, as a second measure of firm specific information. It measures how well the current share prices predict the future returns and future earnings. The results are consistent in respect of the two independent variables of ethnic diversity, diversity index, DINDEX and the proportion of non-Caucasians, NON_Cpercent. Ethnic diversity has a positive association with the FINC.

Based on the sample of 5192 firm-year observations from 2002 to 2012 in the US market, I find that the ethnic diversity of corporate boards has a positive association with firm-specific information in high institutional investors' concentration firms but not in low institutional investors' concentration firms. I also find that ethnic-diversified corporate boards attract more institutional investors. In addition, the relative portion of trading volume of institutional investors is smaller for firms with ethnic-diversified corporate boards since their holding of shares are more likely for long-term purposes. By categorizing the firms into subsamples according to: 1)

concentration of institutional investors; and 2) the number of institutional investors, such relationship exists for the sample population of firms with high concentration of institutional investors / smaller number of institutional investors but not for sample population of firms with low concentration of institutional investors / larger number of institutional investors. Moreover, I find that the more trading activities carried out by institutional investors, the more firm-specific information is incorporated into share prices. This finding is in line with the findings of Piotroski and Roulstone (2004).

Furthermore, firms with better corporate governance and critical human resources by having an ethnic-diversified corporate board attract more long-term institutional investors. McChahery et al. (2016) find that long-term investors who are less concerned about liquidity of shares intervene in the corporate governance of firms more intensively. Some institutional investors even engage with portfolio firms to form corporate boards with ethnic diversity. Institutional investors have more incentive to collect information for monitoring the performance of their funds if they hold such firms' shares for long-term purposes. I use relative volume of trading by institutional investors as the inverse measurement of institutional investors' long-term investments. I find that ethnic diversity is negatively associated with the relative volume of trading by institutional investors. In addition, I find that the relative volume of trading by institutional investors is negatively associated with the change in percentage of shareholdings by institutional investors. It may imply institutional investors who hold shares for long-term purposes keep on buying more shares over time.

1.3 Contributions

This study provides recent evidence regarding the trend that U.S. firms have increased the number of non-Caucasian directors, and investigates their impact on the capital market. For example, Hillman et al. (2002) based on Directorship's Annual Survey (1999) find that 1.6% of directors are African American directors on Fortune 1000 corporate boards in 1992 and the percentage had grown to 2.7% in 1997. Strauss (2002) finds that 3.38% of directors on Fortune 1000 corporate boards are African Americans in 2002.

Recently, scholars suggest the importance of including non-Caucasian directors in corporate boards. Some scholars argue that corporate board homogeneity, like that embodied by Enron's board which consisted of directors who were virtually all male Caucasians, three non-Caucasians from three ethnic minority groups including the only female member of the board from the 14-member board, may prevent directors from thinking critically with the consideration of alternative views which are essential for a firm's decision-making and may be detrimental to the monitoring role of directors (Fairfax, 2005). Ramirez (2003) even suggests that the inability of Sarbanes Oxley Act 2002 to use board diversity as a tool to improve the monitoring function of the corporate board is a missed opportunity of the government's significant reform efforts.

Carter et al. (2003) suggest that board diversity is one of the most significant governance issues. In some countries, there are cases of quota for female directors. Norway and Spain has legislation requiring quota for the number of women on corporate boards (Rose, 2007; Adams and Ferreira, 2009). There is already public policy for gender diversity of corporate boards, which is regarded as a good corporate governance measure. Ethnic diversity is another potential area for

public policy initiative.

In the past, there is only one research which examined the association between the diversity of the corporate board and firm-specific information. Gul et al. (2011) find that the gender diversity improves firm-specific information incorporated in share prices through the mechanism of increased public disclosure in large firms and by encouraging private information collection in small firms. However, there is no study to date that has examined the role of ethnic diversity of corporate boards in improving the transmission of firm-specific information into share prices.

In this study, I find that the ethnic diversity of corporate boards improves firm-specific information incorporated in share prices through encouraging private information collection by institutional investors. I disentangle the effect of ethnic diversity and gender diversity and find that there is difference of the roles between Caucasian females and non-Caucasian females in improving the transmission of firm-specific information into share prices. Moreover, I find that the ethnic-diversified corporate boards affect the firm-specific information for firms with different characteristics such as, merger activities, profit volatility, growth, debt level (leverage) and institutional investors' concentration differently. The findings of this research provide insights on similarity and difference of the roles of female directors and ethnic minority directors in improving firm-specific information. The results of this study may provide incentive to firms to have an ethnic-diversified corporate board and may provide support for future public policy initiatives for requiring ethnic diversity of corporate boards based on the premise that ethnic diversity will improve the information environment of a firm.

The structure of the remaining parts of this thesis is as follows. Chapter 2 provides background information, literature review and hypothesis development on which

my study is based on. Chapter 3 provides definitions of the variables I use, descriptions of the data and empirical models. Chapter 4 reports additional tests results. Chapter 5 concludes the thesis.

Chapter 2

Background, literature review and hypothesis development

2.1 Ethnic diversity in America and ethnic diversity on corporate boards

2.1.1 Population composition in America

The population of the United States is primarily Caucasians. Caucasians have historically made up the large proportion (usually around eighty to ninety percent) of the total U.S. population. Due to large-scale immigration of people from Latin America and Asia in the past three decades, the racial composition of the population of United States is changing rapidly. The proportion of Caucasians has dropped from 69.1 % at 2000 to 63.7 % at 2010 and further dropped to 62.8% at 2012 of the population (Non-Hispanic White, Wikipedia).

Population statistics from the 2010 Census show that the minorities include the African Americans, American Indians, Asians and Hispanics (12.6%, 0.9%, 4.8% and 16.3% of the total population respectively), make up approximately one-third of the U.S population. United States population became more diverse after 1960, the proportion of ethnic minority groups (non-Caucasian people) in the U.S. population increased from 15.2% (Aguirre, 2003) to 34.6% (Census, 2010) of the population over the past 50 years. As a result, the corporate boards of companies are expected to be more ethnic-diversified due to the change in composition of the population.

In 1620, the African American population does not exist. The population increases significantly with the implementation of trading of slaves in colonial areas after 1620. Such colonial areas subsequently became part of the United States. In 1790, African Americans accounted for almost 20 percent of the U.S. population. The percentage of African Americans in U.S. population declined in almost every

U.S. census until 1930. The percentage of African American population increases gradually from 9.7% at 1930 to 12.3% at 2000. The population rate slightly increases from 12.3% at 2000 to 12.6 % at 2010. Asian American and Pacific Islander together account for only 0.2% of the population of U.S. at 1910 and increases gradually to 0.8% at 1970, and further increases to 3.8% at 2000 and 4.9% at 2010. Hispanics contribute only 0.9% of the population of U.S. at 1910 and increases gradually to 4.4% at 1970, and further increases to 12.5% at 2000 and 16.3% at 2010. The Hispanic population is growing fastest and is the largest non-Caucasian population in the U.S. during the period 2000 - 2010.

2.1.2 Under-representation of minorities in the corporate boards of U.S. S & P 1500 companies

According to Tienda and Mitchell (2006), 30% of Caucasians, 17% of African Americans, 49% of Asian Americans and 11% of Hispanics of who were aged over 25 at 2003 were awarded a bachelor's degree or higher.

I find that all the minority groups are under-represented on the corporate boards of directors of U.S. S & P 1500 companies by comparing the predicted director ratio and the actual director ratio. I calculate the predicted director ratio by comparing the percentage of degree holders of a particular minority group in the population to the percentage of degree holders of Caucasians in the population. I calculate the actual ratio by comparing the percentage of directors of a particular minority group to the percentage of Caucasian directors.

Predicted % of population of highly educated of an ethnic group in 2003

= ((Population % in 2010 – Population % in 2000) x 3/10 + Population % in 2000) x % of obtained degree or higher level of education

Predicted Director Ratio of a minority ethnic group

$$= \frac{\text{Predicted \% of population of highly educated of a minority ethnic group in 2003}}{\text{Predicted \% of population of highly educated of Caucasions in 2003}}$$

Actual % of director of an ethnic group in 2003

$$= \frac{\text{Number of directors of an ethnic group in the Riskmetrics Data Base}}{\text{Number of directors of known ethnicity}}$$

Actual Director Ratio of a minority ethnic group

$$= \frac{\text{Actual \% of directors of a minority ethnic group in 2003}}{\text{Actual \% of directors of Cacausians in 2003}}$$

[Insert Table 1 here]

In 2003, 17% of African Americans were awarded a bachelor's degree or higher. However, there is only 6.1% at 2003 of the directors of corporate boards are African Americans. The predicted African Americans ratio (2.1% to 22.3%=1:10.6) is much greater than the actual ratio in 2003 (618 / 10,210=1:16.5).

In 2003, the Asian Americans are the most highly educated group, 49 percent of which were awarded a bachelor's degree or higher. Predicted Asian American directors ratio (2.0% to 22.3%=1:11.1) is much greater than the actual ratio in 2003 (204/10,210=1:50).

In 2003, Hispanic is the least educated group in U.S. Only 11 % of those aged over 25 were awarded a bachelor's degree in 2003. Predicted Hispanic director ratio (1.5% to 22.3%=1:14.9) is much greater than the actual ratio in 2003 (195 / 10,210 = 1: 52).

The African Americans, Asian Americans and Hispanics do not have equal chance as the Caucasians of entering corporate boards. All the minority ethnic groups are under-represented on the corporate boards of directors of U.S. S & P 1500 companies. From statistics, we can understand the under-representation of minorities on the corporate boards of directors of U.S. S & P 1500 companies in the sample period 2002-2012.

2.1.3 Ethnic Diversity in board composition

According to Rose and Bielby (2011), social pressures are always important to create ethnic diversity at the top of the large U.S. firms. There are very few African Americans and other ethnic groups sitting on the corporate boards of large U.S. firms. They find that racial compositions of the corporate boards of U.S. firms are structured in response to social pressures. They interviewed business leaders, both African Americans and Caucasians. The business leaders suggest that there are only a few firms that have more than two African Americans. Rose and Bielby suggest the inclusion of African Americans in the elite leadership groups is the result of the large U.S. firms managing the racial composition of their boards, especially for the inclusion of African Americans, in response to social pressures instead of the commercial value from ethnic diversity needed by the "business case".

The " business case" consists of three components: 1) best people from the whole population consists of different ethnic groups instead of just from a single segment of Caucasians only; 2) diverse groups brings different perspectives and experience and 3) individuals from different ethnic groups can help the companies to serve more markets and generate higher returns.

The proportion of minorities becomes higher in U.S. Firms are beginning to experience significant changes in ethnic composition of pools of high profile candidates for senior positions (Holton, 1995; Burke, 1997; Conyon and Mallin, 1997; Burke and Nelson, 2002; Erhardt et al., 2003). According to Hillman et al. (2002), one of the important current trends in U.S. boardrooms over the past two decades is the increase of presence of women and non-Caucasians in the corporate boards.

Different countries have established various legislations on the demography diversity of the corporate boards. The Higgs Report (2003), commissioned by the British Department of Trade and Industry, suggests to include more women on the corporate boards in order to increase board effectiveness. Some countries, for example Norway and Spain, have statutory requirement of a quota for the number of female directors (Rose, 2007; Adams & Ferreira, 2009). However, there is still no legislation requiring quota for ethnic minority directors. It will be interesting to look at why people from different non-Caucasian ethnic groups were appointed to the corporate boards of U.S. firms.

2.1.3.1 African American directors

Ethnic diversity might induce lower level of trust in a corporate board. According to Leigh (2006), what matters in ethnic diversity most is not heterogeneity in physical appearance. Kanter (1993) argues that the issues to be faced and environmental context is most uncertain at the top management of a company. Consequently, the need for trust is greatest within and among these leadership groups. According to Rose and Bielby (2011), a CEO suggested that trust is of key importance among the corporate boards as everyone is on the lifeboat together.

There is a strong tendency of homogeneity within the boardroom (Kanter, 1993). The existing directors of a firm tend to choose new directors from the same ethnic group. Caucasians of this elite class have limited contact with individuals of non-Caucasians. Caucasians and non-Caucasians have different ways of living and cultures. To gain comfort with non-Caucasians is a substantial challenge for the Caucasian directors. As a result, non-Caucasian directors are difficult to join the corporate boards and most of non-Caucasians joined the corporate boards with light skin color. In addition, they generally have a high-class position and strong academic credentials (Zweigenhaft and Domhoff, 1998).

After an African American has been appointed as a director, such person may either have specialized skills or have higher education achievements and will have offers more quickly afterwards as compared with Caucasians. In average, each African American director has more directorships as compared with each Caucasian (Rose and Bielby, 2011).

According to Hillman et al. (2002), from a report on African-American directors within the fortune 1000 (1993), over 50% of African American females, African American males and Caucasian females are community influentials. 90% of Caucasian males are business experts and only 5% of them are community influentials.

The majority of minority directors do not come from the traditional career path of business executive. African American and female directors are more likely to be support specialists or community influentials rather than business experts. They do have different perspectives on board discussions and decision-making. Moreover, Hillman et al. find that a greater proportion of African Americans and female directors hold advanced degrees than male Caucasian directors. This result

confirms the status theory that minorities have to signal success and ability by holding advanced degrees because they have to battle stereotypes that portray them as ill-equipped to succeed as corporate directors. The majority of minority directors have high education achievements and significant directorship experience which enable them to have constructive confrontations with other members and set high standards for the verification of management reports.

African Americans have a limited presence among U.S. corporate boards over the period 2002-2012. Sarbanes Oxley Act (2002) increased the demand of individuals with strong accounting or financial background and for retired leaders to be included in corporate boards. Individuals with strong accounting or financial background as well as retired leaders are mainly Caucasian males (Dvorak, 2008). The unintended consequences of such requirements further restricted opportunities for minority ethnic group directors to be included in corporate boards. There are more opportunities for the female to be included in corporate boards as finance experts since females dominate the accounting profession. Some female directors enter boardrooms because of the firms' needs for their finance expertise. Women made up to more than 60 % of all accountants and auditors in the United States according to the Clarion-Ledger in 2006 (Accounting WEB 2 June 2006).

According to Hammond (2003), African Americans were under-represented in most professions in the 19th century. In 1997, only 2.7% of lawyers, 1.2% of doctors and less than 1% of CPAs are African Americans. The CPA profession is the whitest profession.

The reasons behind are: 1) black colleges rarely offer programs in accountancy; and 2) Caucasians would not hire and train an African American to become a CPA and hence the African Americans are unable to acquire the experience for applications

of the CPA license. CPA firms attributed the lack of opportunity for African American CPAs to the unwillingness of their clients to tolerate black auditors reviewing their accounting records. Therefore, the contribution of African American directors to corporate boards is not the same as female directors in respect of their providing the finance expertise. The engagement of African American directors is because of reasons other than their being business experts or finance experts.

The business leaders interviewed by Rose and Bielby (2011), including African Americans and Caucasians, suggest that the optimal number for African American directors is one to two since the Caucasians do not want to have non-Caucasians on corporate boards and only allow a few African Americans to be included in their clubs. A business leader said the change from nil to including one African American in the corporate board makes a huge difference. Rose and Bielby (2011) suggest that firms include African American directors is in response to pressures from institutional investors and from social norms regarding race. Their results suggest that some large U.S. firms manage the ethnic composition of corporate boards in a manner that is inconsistent with the business case. They also find that larger firms appear to include African American directors on their boards in response to institutional pressures. Long established firms are more likely to have African American directors than younger ones. In addition, firms that receive more media attention are having more African American directors.

Diversity in Silicon Valley has become a hot topic lately. In a one-and-a-half years investigation, CNNMoney probed 20 of the most influential technology companies in the U.S. They found that African Americans and women are generally under-represented in management roles of the influential technology firms.

Caucasians and Asian men dominated those roles (Dickey, M.R., 2013). According to Wilder, K. (2014), the iconic companies, Apple, Amazon, Google and Facebook fail to have a single African American in the corporate boards during my study period from 2002 to 2012.

Then what companies tend to have more African American directors on their boards? In our data, those companies with more African American directors tend to be with large market capitalization, with larger board size, with more female directors, longer history, operating in multiple segments, paying dividend, higher leverage ratio and with higher return on equity ratios. Comparison of firm characteristics (means of various variables) of firms with and without African Americans is shown in Table 2.1.

[Insert Table 2.1 here]

Mature firms and larger firms with better financial performance are having more African Americans. This is consistent with the view that there is higher probability that African Americans are included as a response to institutional pressure rather than for the business needs of technical skills.

2.1.3.2 Asian directors

A high percentage of Asian Americans are immigrants. In the late 19th Century, the United States, through a series of laws, essentially curtailed immigration from Asia. During the period of exclusion, the Asian population in United States consisted predominantly of the Chinese, Japanese, and Filipino communities, with smaller numbers of Koreans and South Asians. After the enactment of The

Hart-Celler Act of 1965, there is significant immigration from Asian nations based on their skills and family connections to become U.S. residents. The Act led to dramatic and ongoing changes in the Asian American population.

English is the second language of Asian directors. Linguistic heterogeneity may have larger impact on the communication between the board members if Asians are included in corporate boards.

There is culture heterogeneity and linguistic heterogeneity for engaging Asian directors. USPAACC - The Asian American corporate directors' awards honor Asian Americans who serve as members of the board of directors of Fortune corporations. By looking at the detailed background of the 15 awardees, many of them are having science background, being information technology experts, or are carrying out the responsibility of taking care of the business in or for penetration to the Asian markets. Extracts of the background of the awardees are shown in Appendix 1.

Which companies tend to have Asian American directors on their boards? Those companies in our data set tend to be with small E-index, less likely operate in multiple segments, less likely to distribute dividend, lower borrowing ratio and higher volatility of return on equity ratio and lower accruals quality. Comparison of firm characteristic (means of various variables) of firms with and without Asian Americans is shown in Table 2.2. Such firm characteristics are consistent with the high technology industry.

[Insert Table 2.2 here]

2.1.4 Economic theory on trade-off between costs and benefits of ethnic diversity

An ethnically diversified group possesses greater varieties in cultures, experience, expertise and abilities that may lead to innovation and creativity as well as enhancing productivity. To consider whether ethnic diversity contributes to the economic performance of a corporation, we have to consider the company structure. Ethnic diversity plays a role in the production function. According to Alesina Spolaore and Wacziang (2000), ethnic diversity can be interpreted as having a variety of individual skills which increases overall productivity.

According to the economic production function, more heterogeneity is always better than less when ignoring the cost of heterogeneity.

Lazear (1999 a,b) also discusses how different skills in a production unit may increase total output. He identifies the trade-off between the costs and benefits of heterogeneity. One of the costs is the communication difficulty between people from different ethnic groups. When communication is controlled for, diversity has a positive association with productivity. More diversity leads to more conflict and less communication. A study conducted by O' Reilly Williams and Barsade (1997) provides supportive evidence on the hypothesis that given the nature of a firm and its technology, there is an optimal degree of heterogeneity. Homogeneity has positive effects on productivity for teams carrying out simple tasks. Companies with a simple business structure are economically efficient to appoint a homogenous corporate board. It is unlikely for U.S. firms to engage Asian directors unless there are real business needs for their specialized skills, knowledge or international connection.

Benefits of ethnic diversity are illustrated by the model built by Alesina and Ferrara

in 2005. In a country, with W different types of ethnicity of individuals, a total output produced in the country is given by:

$Y= N f (x; W)$

where x is the fixed amount of input, say labor, equal for every person and type. They assume that $f_x > 0$, $f_{xx} < 0$, where subscripts denote partial derivatives. Variety is "good" then we have $f_w > 0$, $f_{ww}<0$. The benefit captured by variety of production input is the increasing of per capita income in the number of different types in the population. They also assume complementary, i.e. $f_{xw}>0$.

If the cross partial f_{xw} is large enough, the optimal number of groups increases. Ethnic diversity is more likely found in firms that need more advanced technology knowledge and with a more complex business structure.

According to Alesina and Ferrara (2005), ethnic diversity in country may favor trade as well. A Chinese in a U.S. firm serves as a link with China where that Chinese is a majority, therefore facilitating trade between U.S. firms and China firms. According to Anderson et al. (2011), firms with more international trade tend to have a more ethnic-diversified corporate board. For example, large international firms such as Pepsico and Aon Corp indicate ethnic-diversified corporate board plays an important role in developing strategies and new products. Brammer et al. (2007) suggest that the ethnic diversity of a corporate board is influenced by a firm's customer base, as well as the external business environment.

Anderson et al. (2011) find that managerial and firm characteristics have impact on the ethnic diversity of a corporate board, which in turn influences performance. They suggest the ethnic-diversified board enhances shareholders' interest in firms with powerful managers and operationally complex firms.

Anderson et al. (2011) argue that greater firm complexity increases the demand for

people with varying perspectives and talents. They argue that ethnic-diversified board provides problem-solving skills, new ideas and perspectives for decision-making. Ethnic heterogeneity in the U.S. is defined here as the percentage of minority directors, including Asians, African Americans, Hispanics and Native Americans, serving on a corporate board. When a firm becomes increasingly complex, the skill complementarities arising from ethnic-diversified board yield greater monitoring and controlling benefits to shareholders and provide a stronger supervisory and advisory role to managers than less ethnic-diversified board. The benefits out-weight the costs of ethnic-diversified board. Shareholders derive greater benefits from the oversight and monitoring of an ethnic-diversified board than from a homogeneous board for firms with powerful managers.

2.1.5 Board composition - diversity, diverse perspectives and financial performance

Ethnic diversity may operate as occupational diversity does in small groups. Research on the diversity of perspectives in decision-making suggests that teams with occupational diversity solve problems faster and more effectively (Dobbin, 2011). Mannix & Neale (2005) conclude that surface-level social category differences, such as ethnic, gender, or age diversity tend to be more likely to have negative effects on the ability of groups to function effectively. Ethnic diversity tends to create more difficulties for team process as well as performance (Jackson et al., 2003).

Prior studies investigate the impact of the presence of female directors or non-Caucasians directors on the financial performance of the firm and the results

are mixed. Some studies show that there is positive correlation between demographic diversity of the boards, and financial performance of the firms (Erhardt et al., 2003; Carter et al., 2003). Demographic diversity is measured in terms of ethnic and gender representation on corporate boards (Erhard et al., 2003; Carter et al., 2003). Carter et al. (2010) separate the effect of ethnic diversity and gender diversity and find that there is positive association between gender diversity and return on asset but none for ethnic diversity. In addition, they find that there is no association between board diversities with firms' Tobin's Q. None of the studies to date finds that there is negative impact by diversity of the boards on financial performance of the firms.

However, the push for a diverse board may be driven by social or ethical reasons rather than firm profitability (Agrawal and Knoeber, 2001). Farrell and Hersch (2005) find female directors have no influence on firm performance and argue firms build their public image by having female directors.

Company with a simple business structure is economically efficient to appoint a homogenous corporate board. Larger firms, older firms and firms of good financial performance may include African Americans on board for shaping the racial composition of their boards and thereby building the public image. This does not preclude some of the African Americans are included for the "business cases".

According to Rose and Bielby (2011), the cost of ethnic heterogeneity may pay an opposite role to the "business cases". Kochan et al. (2003) find no impact from ethnic diversity on firms' business performance. There is a striking inconsistency between the ethnic diversity we actually observe in the boardroom than what we expect regarding the ''business case''. The ''business case'' argument indicates

firms need more individuals from Hispanic or Asian in the boardroom and executives suites than African Americans. For example, the Hispanic market is the largest and fastest growing minority market in the U.S. during 2000 – 2010. The market situation suggests that companies should disproportionately seek more Hispanic directors, and yet relatively few are found in U.S boards in 2003 as discussed in section 2.1.1. The Asian directors are mainly included in the corporate board of business with advanced technology and complex structure. Asian Americans have the highest educational achievements among all ethnic groups, measured by the percentage of population who earned advanced degrees. (Moran, 2006). If the key criteria for firms to recruit talent include educational achievements, it is hard to reconcile the explicit desire to have the best people and the low number and proportion of Asian-American leaders on U.S. corporate (Rose and Bielby, 2011).

Financial performance of firms with ethnic-diversified corporate board is determined by contribution of specialized skills from non-Caucasian directors and the costs of heterogeneity. Some firms may have the benefits larger than the costs and some firms do not. Therefore, investors need to collect information continuously in order to keep their investments in successful firms.

2.1.6 Board composition - diversity and corporate governance

Some scholars argue that board homogeneity, like that embodied in Enron's board, which consisted of directors who were virtually all white and all male, may prevent directors critically evaluate business decisions or serve active monitors (Fairfax, 2005).

Carter et al. (2003) suggest that a more diverse corporate board might serve a better

monitoring function because board diversity increases board independence. Their argument is that diversity increases board independence because people with a different cultural, gender and ethnicity background might ask questions different from traditional directors with similar background. In other words, a more ethnic-diversified board will increase board independence since the culture of non-Caucasian directors is different from the culture of the Caucasian group.

Ramirez (2003) points out the basic idea that diversity can add vital and diverse perspectives and suggests that culture diversity in the boardroom would increase board independence and enhance group cognitive function in a way that is inconsistent with the corruption culture.

A corporate board consists solely Caucasian male directors often leads to a boardroom culture that "avoids conflict, avoids impoliteness and as a result does not permit hard questioning," says Rakesh Khurana, a professor at Harvard Business School who studies CEO behavior (Thottam, 2003). No questioning due to avoidance of conflict may lead to less firm-specific information is produced within the firm since fewer reports are requested by the board of directors. No questioning or positive confrontation also reduces the barrier for corruption.

Social identity theory, similar-attraction theory, and social categorization theory suggest that people are drawn to similar others (Tajfel & Turner,1979; Ashforth and Mael,1989; Schneider, 1987). In order to increase ones' self-image, people try to enhance the status of the group to which they belong. Directors of a particular ethnic group may also increase their self-image by discriminating and holding prejudice views against the other ethnic groups.

According to Leigh (2006), ethnic diversity might lead to lower levels of trust. As a result, people of the same ethnic group having similar believes are reluctant to

accept minority new member.

According to New Strategist Editors (2009), the attitudes of Americans differ by race origin. Based on the 2008 General Social Survey, they find that Caucasians are trusting themselves more than either African Americans or Hispanics. African Americans are more likely than Hispanics or Caucasians to identify themselves as more religious. The ethnic heterogeneity creates the communication barriers and reduces the level of trust between board members. In addition, the linguistic heterogeneity reduces the quality of information flow within an organization (Blackwell & Girshik, 1954; Kandori, 1988; Cook & Cooper, 2003). The lower quality of information flow within the firms due to linguistic heterogeneity may affect firms' performance.

Developing the cooperation and trust requires more exchange of information among managers and the corporate boards. In addition, board diversity can also enhance cognitive skills, which in turn may lead to more questions raised. To enhance the quality of information flow within the firms with problems of linguistic heterogeneity, management has to submit more written reports to the corporate board for information exchange. The richer information environment reduces the need for discussions of issues in board meetings. An empirical study by Antonio et al. (2004) shows that board diversity can enhance cognitive skills in a way that can be useful in the battle against wrongdoing (Ramirez, 2003). With more confrontations that are constructive and less wrongdoings, the corporate board will have less incentive and chance to hide information.

According to Ramirez (2003), the Conference Board of Canada conducted a study of differences in corporate governance outcomes between firms with and without female directors. The study finds that boards' gender diversity is positively

associated with compliance rate of internal conflict of interest guidelines and corporate boards with gender diversity are more likely to have code of conduct. These studies provide evidence on the monitoring role of board diversity. Unfortunately, the study conducted by the Conference Board of Canada only focused on gender diversity of corporate boards. Studies on the association of ethnic diversity with corporate governance are still scarce.

2.1.7 Institutional investors, corporate governance and board composition

According to Piotroski and Roulstone (2004), institutional investors can be quasi-insiders or outsiders depending on their ownership stakes and long-term trading behavior. The large shareholdings and sophistication of institutions allow managers to focus on long-term value (Bushee, 1998b). Financial institutions are widely believed to play an important role in corporate governance of firms they invested. Carleton et al. (1998) find that TIAA_CREF is able to reach agreements with targeted companies for governance issues for more than 95 percent of the private negotiations. McCahery et al. (2016) investigates how institutional investors engage with portfolio firms because many of these interactions occur behind the scenes. They find that long-term investors that are less concerned about share liquidity more intensively intervene in a firm's corporate governance. They find that investors with longer holding periods are more likely using direct intervention instead of using the exit threat from dissatisfaction of a portfolio firm to shape the governance of firms. According to Carleton et al. (1998), TIAA-CREF views board diversity can enhance corporate governance because they believe a corporate board with women or minority board members is less beholden to management. They find six out of twenty of the sample firms nominated

women or minority board members subsequent to TIAA-CREF's targeting.

2.2 Firm-specific information

2.2.1 Market information and firm-specific information (idiosyncratic volatility)

Roll (1988) finds out that a large portion of share return variation cannot be explained by systematic economic influences or by the returns on the other shares in the same industry (being a kind of public information). It indicates that a large portion of share return variation comes from transmission of private information to the share prices by the informed traders. For smaller shareholders, the cost of processing is a barrier for them to acquire good information. Therefore, they may free ride on the judgments of larger professional investors. For firms with more institutional investors as quasi-insiders who have more incentive and are in a better position to collect information, more firm-specific information may be incorporated in share prices via institutional investors' trading activities.

2.2.2 Shareholder protection and firm-specific information

Several studies show that shareholder protection can enhance transparency (Gompers et al., 2003; Cremers and Nair, 2005) which in turn improves firm-specific information incorporated in share prices (Morck et al., 2000; Jin and Myers, 2006, Ferreira and Laux, 2007; Gul et al., 2011). Ferreira and Laux (2007) provide evidence on the association between shareholder protection and firm-specific information.

Morck et al. (2000) find that share prices in economies with high GDP (gross domestic product) per capita contain more firm-specific information and move in a

relatively unsynchronized manner. They explain this phenomenon by the measures of private property rights. If the rights of investors are well protected, institutional / professional investors will have stronger incentive to invest in these firms for long-term and to collect information. The information collected by these investors will be incorporated in the share prices. Institutional investors based more on the collected firm-specific information to price the shares rather than the general market information. Firm-specific information reduces the synchronicity and increases the idiosyncratic volatility of the share prices.

Jin and Myers (2006) explain this phenomenon by the measures of opacity. They argue insiders capture more of the firm's cash flows when hidden firm-specific information is positive, and less when it is negative. Therefore, it implies that when less information is released, the higher is the chance cash flow captured by the management, the less incentive of investors to invest and collect firm information. Thus, the ratio of market risk to total risk measured by R^2 is increased by opaqueness. Therefore, there is a negative association between opaqueness and the idiosyncratic volatility of share prices.

Institutional investors tend to collect private specific-information to assess the potential of a takeover for firms with fewer anti-takeover restrictions and therefore increase informed trading activities. Those trading activities transmit their private information into share prices and increases firm-specific information (Gul et al., 2011). Therefore, I proxy corporate governance by shareholder protection as control variable measured (inversely) by the E-index developed by Bebchuk et al. (2009) based on six provisions. The corporate governance of U.S. firms in our database is given a score, from 0 to 6, based on the number of six provisions that the company has in a particular year. The first four components, namely staggered

boards, supermajority provisions, limits to bylaws and limit charter amendments, limit the extent to which a majority of shareholders can impose their wills on management. These four components are discussed in section 2.2.2.1. The two remaining ones, being poison pills and parachutes are the most well-known and salient measures taken in preparation for a hostile offer. These two components are discussed in section 2.2.2.2.

2.2.2.1 Constitutional limitations on shareholders' voting powers

According to Bebchuk et al. (2009), when the firm has a staggered board, directors are divided into two or three classes with only one class of directors coming up for re-election each year, shareholders cannot replace a majority of the members of the corporate board in any given year for such a change in control. This makes staggered corporate boards a powerful defense for the existing directors against removal in proxy contests. The staggered corporate board is a key determinant of whether a target receiving a hostile bid will remain independent (Bebchuk et al. 2002, 2007). In addition to the power to vote to remove directors, shareholders have the power to vote on bylaw amendments, charter amendments, and mergers. The following IRRC (Investor Responsibility Research Center) provisions are constitutional limitations for the majority of shareholders to have votes on such important issues: supermajority requirements on bylaw amendments; supermajority requirements for mergers; and supermajority provisions for charter amendments.

2.2.2.2 Takeover readiness provisions

According to Bebchuk et al. (2009), poison pills are rights that, once issued by the

company, preclude a hostile bidder as a practical matter from buying shares as long as the existing directors remain in office and refuse to redeem the pill. The legal developments that allowed corporate boards to put in place pills are thus widely regarded to have considerably strengthened the protections against replacement that current corporate board of directors have. Having a poison pill in place is not costless for the board because institutional investors look unfavorably on poison pills. Investors are more willing to invest in those firms without poison pills. Golden parachutes are terms in executive compensation agreements that provide executives who are fired or demoted with substantial monetary benefits in the event of a change in control. Golden parachutes protect current board of directors from the prospect of replacement by providing management with a soft and sweet landing in the event of ouster. Thus, a golden parachute provides current board of directors with substantial insulation from the economic costs that they would otherwise bear as a result of losing their control. Golden parachutes may also produce benefits for shareholders by making current board of directors more willing to accept an acquisition and increasing the likelihood of an acquisition (Lambert and Larker, 1985). Bebchuk et al. (2009) find positive associations between golden parachutes with higher acquisition likelihood and higher expected premiums. Bebchuk et al. (2014) find that golden parachutes facilitate some value-increasing acquisitions but have negative effect on shareholder wealth. Their results suggest the effect of golden parachutes on executives' incentives, under which acquisitions become more attractive to managers.

2.2.3 Earnings quality and firm-specific information

Literature suggests that the net effect of earnings quality on private information

collection by investors is ambiguous due to the trade-off of "encouragement" effect and "crowding out" effect. Durnev et al. (2003) suggest that higher earnings quality reduces the cost of information collection and increases the private information collection activity. Prior literature shows that earnings quality also promotes transparency. Morck et al. (2000) provide evidence of higher idiosyncratic firm-specific price variation in countries with better accounting information. Based on these evidences, there is a positive association between the earnings quality and idiosyncratic volatility. However, there is an alternative view that earnings quality as public information crowds out private information. Financial statements are issued periodically which are issued less frequent than other disclosure. High quality financial statements reduce the potential gain of collecting private information.

I control for earnings quality by adopting the accrual quality measure of Francis et al. (2005) but do not propose any directional association of the earnings quality and idiosyncratic volatility which is consistent with Gul et al. (2011).

In prior research, earnings persistence is frequently discussed as a measure of earnings quality. For instance, Penman (2001) finds that there is a positive relationship between accruals quality and earnings persistence.

According to Dechow and Dichev (2002), the accruals quality is measured by the standard deviation of the residuals from firm-specific regressions of changes in working capital on past, present, and future cash flows from operations. A larger standard deviation signifies lower quality. In other words, higher accruals quality implies more earnings persistence and higher earnings quality.

Variation in the precision of accruals estimates can be caused by economic and structural factors or the management interventions in the reporting process. As a

result, a poor mapping between accruals and cash flows in adjacent periods can reflect firms facing uncertain economic environment, managers are less expert at estimation, and/or managers intervene in the process to manipulate accruals, (McNichols, 2002). Therefore, the integrity of the manager is one of the factors affecting the accruals quality.

Firms with poor accruals quality have higher costs of capital than firms with good accruals quality (Francis et al., 2005). It implies people do take into consideration of quality of accounting information for decision-making. Firms with better accruals quality should be more attractive for institutional investors.

Rajgopal and Venkatachalam (2011) also use Dechow-Dichev measure of earnings quality. They find that worsening earnings quality captured by this proxy is positively associated with rising return volatility over the 40 years 1962-2001.

Following Francis et al. (2005), accruals quality is based on the cross-sectional DD model, augmented with the fundamental variables from the modified Jones model, namely, PPE and change in revenues (all variables are scaled by average assets):

$$TCA_{j,t=}\ \psi_{0,,j}+\psi_{1,,j}\ CFO_{j,t-1}+\psi_{2,,j}\ CFO_{j,t}+\psi_{3,,j}\ CFO_{j,t+1}+\psi_{4,,j}\ \Delta REV_{j,t} + \psi_{5,,j}\Delta PPE_{j,t}+\nu_{j,t} \quad (1)$$

where $TCA_{j,t=}\Delta CA_{j,t}$ - $\Delta CL_{j,t}$ - $\Delta Cash_{j,t}$ + $\Delta STDEBT_{j,t}$ = *total current accruals in year t,* $CFOj,t=NIBEj,t-TAj,t$*=firms j's cash flow from operations in year t, NIBE j,t = firm j's net income before extraordinary items in year t.* TAj,t = (ΔCAj,t –ΔCLj,t -ΔCashj,t –ΔSTDEBTj,t – DEPNj,t) = firm j's total accruals in year t, ΔDCAj,t = firm j's change in current assets between accruals in year t, $\Delta CA_{j,t}$ = firm j's change in current assets between year t-1 and year t, $\Delta CL_{j,t}$ = firm j's change in current liabilities between year t-1 and year t, $\Delta Cash_{j,t}$ = firm j's change

in cash between year t-1 and year t, $\Delta STDEBT_{j,t}$ = firm j's change in debt in current liabilities between year t-1 and year t, $DEPN_{j,t}$ = firm j's depreciation and amortization expense in year t, $\Delta Rev_{j,t}$= firm j's change in revenues between year t-1 and year t, $PPE_{j,t}$= firm j's gross value of PPE in year t, McNichols (2002) proposes this combined model, arguing that the change in sales, revenue and PPE are important in forming expectations about current accruals, over and above the effects of operating cash flows. She shows that the explanatory power of the cross-sectional DD regression is enhanced by adding these variables, thus the measurement error is reduced. My intent in using this modified DD model is to obtain a better-specified expectations model, which in turn should lead to a better-specified stream of residuals.

I estimate Eq. (1) for each of Fama and French's (1997) 48 industry groups in year t. Consistent with the prior literature, I winsorize the extreme values of the distribution to the 1 and 99 percentiles. Annual cross-sectional estimations of (1) yield firm- and year-specific residuals, is the standard deviation, $v_{j,t}$ of firm j's residuals which is calculated over years t - 4 through t. Larger standard deviations of residuals indicate poorer accruals quality. In this study, AQMeasure = $v_{j,t}$ times (-1). The smaller the AQMeaure means the larger the standard deviations of residuals and the poorer accruals quality.

2.2.4 Effect of age diversity on firm performance

According to the literature (Milliken and Martins, 1996; Li et al., 2011), age diversity can be defined as the extent of the heterogeneity of a group is with respect to the age of its members.

Based on information and decision-making theories, researchers have argued that

demographic diversity of various aspects should increase creativity and the problem-solving capability of groups or organizations, which in turn should improve firm performance (Cox, 1993; Cox and Blake, 1991; Li et al., 2011).

2.2.5 Effect of gender diversity on firm-specific information incorporated in share prices

Over the past ten years, U.S. firms have more female directors on boards. Prior literature suggests that female leaders have a trust and cooperation leadership style instead of command and competition style as male leaders (Cohen et al., 1998; Klenke, 2003; Trinidad and Normore, 2005). The female leadership style requires greater information exchange across the board and between directors and management. In consequence, there are more informed and extensive discussions of issues in board meetings. Literature also points out female directors are less overconfident and more likely to institute higher standards of verification of managers' reports to satisfy themselves, (Lenney, 1977; Barber and Odean, 2001). Firms with female directors tend to make more disclosures. Gul et al. (2010) find a positive association between gender diversity in the corporate board and firm-specific information and suggests that gender diversity improves firm-specific information by increasing voluntary public disclosures in large firms. However, ethnic diversity in the corporate board may not improve firm-specific information by increasing voluntary public disclosures as ethnic minority directors are not likely to be finance experts.

In addition, Gul et al. (2010) find a positive association between gender diversity in the corporate board and firm-specific information in small firms and suggests the result is caused mainly by facilitating the collection of private information.

2.2.6 Ethnic Diversity, institutional investors and firm-specific information

In the early 1990s, TIAA-CREF, one of the US's largest institutional investors, issued its "Policy Statement on Corporate Governance" that emphasized the desirability of diverse boards. In early 2000s, TIAA-CREF highlighted that it considered diversity in "experience, gender, race and age" as a director qualification. TIAA-CREF believes that more diversity will cause corporate boards to be less beholden to management (Ramirez, 2003). Institutional investors can be quasi-insiders. Prior research suggests institutional investors influence portfolio firms' information environment and they play an active role in the price formation process (Utama and Cready 1997; El-Gazzar 1998; Jiambalvo et al. 2002; Collins et al. 1994). Institutional investors have superior powers as compared with individual investors in identifying investment opportunities in the market. By collection of private information and making investment decisions, their changes in shareholdings of portfolio firms will convey firm-specific information to individual investors in the market (Piotroski and Roulstone 2004).

Upadhyay and Zeng (2014) find that board diversity, one minus a Herfindahl Index based on directors' gender and ethnicity, is negatively associated with corporate opacity. The opacity index is based on four individual proxies (analyst following, analyst forecast errors, bid-ask spread and share turnover).

Board diversity affects investors' information collection behavior. In this study, I examine the association between ethnic diversity of the corporate boards and the firm-specific information incorporated in share prices. The hypothesis is discussed in the section 2.3.

However, the ethnic diversity of the corporate boards may be affected by institutional investors' preferences and their private engagement of the portfolio

firms. Their impacts on the firm-specific information are included in the additional tests in section 4.8.

2.3 Effect of ethnic diversity on firm-specific information incorporated in share prices

The ethnic diversity of corporate boards is associated with better corporate governance and the possession of critical resources. Firms with ethnic-diversified corporate boards attract institutional investors. It is more likely for the institutional investors to hold shares of these firms for long-term purposes. Institutional investors spend more resources to collect private information of these firms. For companies with better corporate governance and more information released and therefore a better information environment, investors based more on the firm-specific information instead of the market information to determine the share prices. The share price movement of a company with more firm-specific information is more deviated from the market return and industry return as compared with companies with less firm-specific information. The association between the ethnic diversity of the corporate boards and idiosyncratic volatility of the share prices indicates that investors are more willing to collect information of companies, with an ethnic-diversified corporate board, in which a better information environment is created.

Therefore, our hypothesis is as follow:

H1

The firm-specific information measured by idiosyncratic volatility is positively associated with the ethnic diversity of the corporate board.

Chapter 3

Measurement of variables and the empirical model and results

3.1 Measurement of firm-specific information - idiosyncratic volatility

The volatility of a stock's return comprises systematic risk and idiosyncratic volatility ("IV"); IV is the component that can be diversified away and is given by the variance of $\varepsilon_{i,t}$. The way to distinguish firm-specific share price movements from market-wide price movements, following French and Roll (1986) and Roll (1988), both of whom use U.S. data only, is to use the Capital Asset Pricing Model as the model of market equilibrium, estimate α_i and β_i by using regression analysis for each year to calculate the R^2s of regressions:

$$r_{i,d} = \alpha_i + \beta_{i,d}\, r_{m,d} + \varepsilon_{i,d} \qquad (2)$$

where $r_{i,d}$ is share *i*'s daily excess return, and $r_{m,d}$ is the daily excess return of the market portfolio. A high $R_{i,t}^2$ in such a regression indicates a high degree of share price synchronicity. A low $R_{i,t}^2$ in such a regression indicates more private information incorporated in the share price. This model assumes β_i captures all systematic risk and $E(\varepsilon_{i,d}) = Cov(r_{m,d}, \varepsilon_{i,d}) = 0$.

The variance of a stock's return is the sum of two variances:

$$Var(r_{i,d}) = \beta_i^2\, Var(r_{m,d}) + Var(\varepsilon_{i,d}) \qquad (3)$$

By definition, $\beta_i = \sigma_{i,m,d} / \sigma^2_{m,d}$, where $\sigma_{i,m,d} = Cov(r_{i,m,d}, r_{m,d})$ and $\sigma^2_{m,d} = Var(r_{m,d})$. The first part of (3) reflects the systematic risk and the second part is the idiosyncratic variance ($\sigma^2_{i,e,d}$). Ratio of idiosyncratic variance to total volatility ($\sigma^2_{i,e,t} / \sigma^2_{i,t}$) for each firm year t reflects the volatility that is not explained by systematic components and equals ($1 - R^2_{i,t}$) from Regression (2)

The share price synchronicity measure, R^2, is not suitable as dependent variable in

regressions because it is bounded within the interval [0, 1]. Therefore, standard econometric remedy and logistic transformations are applied to this variable.

$$\psi_{it} = \log ((1- R^2_{i,t}) / R^2_{i,t}) \quad (4)$$

The variable $\psi_{i,t}$ measures idiosyncratic volatility relative to market-wide variation.

3.2 Measurement of ethnic diversity

The ethnic diversity of the corporate board can be measured in different ways. In this study, four measurements are used for different aspects of diversity.

The first measurement is the DINDEX. Following Leigh (2006), ethnic heterogeneity/diversity is measured by a Herfindahl-type fractionalization index. DINDEX = Diversity index, which is 1 minus the summation of the square of the proportion of each of the five ethnics (Caucasian, Native American, Hispanic, Asian, African American). For example, if a board consist of five board members, and each of them belongs to a different ethnic group, then the DINDEX = $1 - [(1/5)^2 +(1/5)^2 +(1/5)^2 +(1/5)^2+(1/5)^2] = 0.8$. On the other hand if all five members are of the same ethnic group, then DINDEX = $1- (5/5)^2 = 0$.

The larger the index is, the more the heterogeneity/diversity of the corporate board, the less the concentration of ethnic groups. A large DINDEX indicates the firm has a more ethnic-diversified corporate board.

The second measurement is a dummy variable, DIVERSE. In an extreme case, if all the directors belong to the same ethnic group, then DIVERSE=0 which means the firm has only one ethnic group.

The third measurement, LTYPES, ethnic diversity is measured as the natural log of the number of ethnic groups of the directors of the corporate board. The more the number of the ethnic groups the board of directors come from, the more the

diversity of the corporate board.

The fourth measurement, NON_Cpercent, ethnic diversity is measured as the number of non-Caucasian directors of the corporate board. The more the number of the non-Caucasians are engaged in the corporate board, the more the diversity of the board.

3.3 Database

Data relating to returns is obtained through Center for Research in Security Prices (CRSP) for listed firms in US for the period from 2003 – 2013 which is used for this study. Data on director variables for 2002 – 2006 and for 2007 – 2012 is obtained from Directors Legacy database of Riskmetrics and Directors database of Riskmetrics respectively. Accounting data is obtained from Compustat. The data relating to institutional investors is obtained from Thomson Reuters database.

The initial sample of 10,313 firm-year observations on board characteristics including directors' ethnicity is obtained from the database of Riskmetrics. However, the information regarding the ethnic group of some of the directors is missing.

In addition, inconsistencies of the ethnicity of certain directors from year to year and misclassifications of the ethnicity are identified. Therefore, I tried to make amendments for inconsistencies identified in the database by reviewing the names and by searching information in the Notable Names Database "NNDB" and Wikipedia. A summary of amendments done is shown in Table 3.1 and the details of amendments are shown in Table 3.2. For this study, only firm-years with known ethnicity of all directors are included. Table 3.3 illustrates the sample in total and for each of the years for each stage of sample selection.

[Insert Table3.1, 3.2 and 3.3 Here]

Sengupta (1998) and Pittman and Fortin (2004) argue that financial firms and utilities firms that operate in a regulated environment may have different operating characteristics and industry specific debt financing decisions from the industrial firms.

After excluding firms in the utilities (SIC code between 4900 and 4999) and financials (SIC code between 6000 and 6999), there is a sample of 8,044 firm-years for which the board characteristic data is available. The data on investor protection rights (the E-index) is drawn from the IRRC data set. The idiosyncratic volatility of the sample is calculated by using returns from 2003–2013 (one-year lagged independent variables are used in the regressions). After merging with the Compustat database and removing observations with missing control variables, the full sample is reduced to a final sample of 5,243 firm-years. Following Ferreira and Laux (2007), annual idiosyncratic volatility, "IV", is estimated by using daily returns for all 5,243 firm-years during the sample period.

3.4 Empirical model

$$\psi_{i,t} = \alpha + \beta_1 \text{ETHNIC}_{i,t-1} + \beta_2 \text{LDIR}_{i,t-1} + \beta_3 \text{INEDpercent}_{i,t-1}$$
$$+ \beta_4 \text{Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{AgeDiversity}_{i,t-1} + \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1}$$
$$+ \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1} + \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE i,t-1} + \gamma_{11} \text{AQMeasure}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \qquad (5)$$

The main variable of interest is $\text{ETHNIC}_{i,t-1}$ which is measured by the four variables defined in section 3.2:

(1) DINDEX $_{i,t-1}$ (2) DIVERSE $_{i,t-1}$ (3) LTYPES $_{i,t-1}$ (4) NON_Cpercent $_{i,t-1}$

Therefore β_1 should be:

1. positively related to DINDEX
2. positively related to DIVERSE
3. positively related to LTYPES
4. positively related to NON_Cpercent

Control variables

Following Ferreira and Laux (2007) and Gul et al. (2011), similar control variables are included for the main tests. Since the main variable of interest is the ethnic diversity, the number of Caucasian females instead of the number of all females is used as control variable. Some additional control variables are included in the main tests. They are the age diversity of the board of directors and the accruals quality.

Board size

I proxy for board size with LDIR, defined as the natural log of the size of the board at the end of the fiscal year. Yermack (1996) and Eisenberg et al. (1998) demonstrate that smaller boards are associated with better firm performances but Dalton et al. (1999) document a positive and significant relation between board size and financial performance. The evidence on the role of board size on firm performance is inconclusive (Xie et al. 2003). Therefore, I do not predict any impact of board size on investors' information collection behavior or propose any directional association of the board size and idiosyncratic volatility.

Board independence

I proxy the board independence with INEDpercent, defined as the proportion of independent non-executive directors of corporate boards. The proportion of outside directors may suggest better monitoring mechanism as it consists of more people with different expertise. However, theoretical models of board structure developed by Raheja (2005) and Harris and Raviv (2008) suggest that board members offering monitoring services become less effective as a board gets larger because of free-rider problems. Ararat et al. (2010) find that independent directors may play a role in enhancing the monitoring role of corporate boards only when the boards are not homogeneous. Therefore, I do not propose any directional association of board independence and idiosyncratic volatility.

Gender diversity

I proxy for gender diversity with Caucasian_Fem_No, defined as the number of Caucasian females of the corporate board at the end of the fiscal year. Gul et al. (2010) find a positive association between gender diversity of the corporate boards and firm-specific information and suggests that gender diversity improves firm-specific information by increasing voluntary public disclosures in large firms, and increasing the incentives of private information collection for small firms. I thus expect a positive association between Caucasian_Fem_No and idiosyncratic volatility. According to Hammond (2003), only 0.99% of CPAs are African Americans in 1997. The impacts of Caucasian females and non-Caucasian females on the operation of the corporate boards can be very different. The main variable of interest in this study is ethnic diversity. Therefore, the number of non-Caucasian females is excluded from the gender diversity variable.

Age diversity

Age diversity is measured by using a Herfindahl-type fractionalization index. It is defined as 1 minus the summation of the square of the proportion of each of six age groups, using 10 percentile, 25 percentile, 50 percentile, 75 percentile and 90 percentile as partition. The six age groups are age<49, age 49-54, age 55-60, age 61- 65, age 66-71 and age>71. A corporate board with directors from different generations is likely to lead to variation in values and perspectives. Different generations experience different economic environment, social and political events. Directors of different generations contributed differently in the corporate boards. Young directors with more knowledge of the market of young generations and old directors have more business experience. Moreover, some cognitive abilities diminish with aging and so do the willingness to take risks (Vroom and Pahl, 1971). Young directors are more willing to take risk and old directors are more risk adverse. A diversified corporate board of different generations may lead to better business strategies and prevent group-think and lead to better performance. However, Simons et al. (1999) do not find this less job-related type (age diversity) of diversity associated with firms' financial performance, which in turn affect investors' information collection. I do not propose any directional association of the age diversity and idiosyncratic volatility.

Corporate governance

I proxy for corporate governance with the entrenchment index, EINDEX. I control for shareholder protection as measured (inversely) by the E-index developed by Bebchuk et al. (2009) based on six provisions. Each company in our database is given a score, from 0 to 6, based on the number of six provisions that the company

has in the given year. The first four provisions, namely staggered boards, supermajority provisions, limits to bylaws and limit charter amendments, tighten the extent to which a majority of the shareholders can impose their will on management. The two remaining ones, parachutes and poison pills, are the most well-known and salient measures taken in preparation for a hostile offer. These provisions can increase the bargaining power of the current corporate management and restrict the market for corporate control. Fewer restrictions could imply a higher probability of a takeover (Ambrose and Megginson, 1992). The smaller the EINDEX, the fewer takeover restrictions could lead to more private information collection (Ferreira and Laux, 2007). Therefore, I expect a negative association between EINDEX and idiosyncratic volatility.

Firm age

I proxy for firm age with AGE, defined as the natural log of the number of years the firm is included in the Compustat database. The longer the history of the firm, the more is the accumulated knowledge of the firm by the public, the less is the potential gain of private information collection. Therefore, I expect a negative association between firm age and idiosyncratic volatility.

Business segments (industry) diversification

I proxy for business segments diversification with DIVER, defined as the annual dummy variable that equals 1 when a firm operates in multiple segments, and 0 for otherwise. According to Berger and Ofek (1995), there is a trend towards focus or specialization in the 1980s. Firms with diversification associates with lower share return. I expect such relationship reduces the potential gain of information

collection. In addition, Bhushan (1989) suggests a positive association between the number of lines of business and cost of information collection. Bhushan (1989) finds a negative association between the number of analysts following and industry diversification. This result suggests a decrease in the activities of information collection by analysts and institutional investors.

However, Berger and Ofek (1995) find that diversified firms are more likely to be subject to hostile takeover attempts in the 1980s in the market for corporate control. This result suggests an increase in the activities of information collection.

Therefore, I do not predict any impact of industry diversification on investors' information collection behavior and firm-specific information.

Distribution of dividend

I proxy for dividend policy with DD, defined as the annual dummy variable that equals 1 when a firm pays dividend, and 0 for otherwise. In the signaling model of a dividend, a firm's dividend policy is hypothesized to convey the information about fundamental earnings prospects of the firm by its management (John and Williams, 1985; Jeong, 2011) which encourages more private information collection.

The announcement of dividend is a piece of public information, and there is a crowding out effect for private information collection. I expect the impact of dividend policy on firm-specific information is similar to the earnings quality, which depends on the net effect of the trade-off of "encouragement" effect and "crowding out" effect. Therefore, I do not predict any impact of distribution of dividend on investors' information collection behavior nor propose any directional association of the distribution of dividend and idiosyncratic volatility.

Leverage

I use LEV, the ratio of long-term debt to total assets, to proxy for leverage. Novaes and Zingales (1995), Zweibel (1996) and Cremers and Nair (2005) have pointed out that higher debt commits the manager to performance improvements and therefore reduces the probability of a takeover. According to Roe (1987) and Israel (1991), higher level of debt increases the minimal ability required for the acquirer to find an acquisition profitable. As a result, the probability that synergistic acquisition will materialize is lower. Effective takeover vulnerability of high debt firms is low. This may reduce the potential gain and incentive of information collection. However, the manager's commitment to performance improvements may induce institutional investors' incentive of information collection. Therefore, I do not predict any impact of leverage on investors' information collection behavior nor propose any directional association of leverage and idiosyncratic volatility.

Growth opportunity

I use MB (market to book ratio) to proxy for growth opportunity. Growth opportunity in a firm affects the share informativeness in two directions. On one hand, a firm with greater growth opportunity has a good future prospect, which will increase the investors' incentive for information collection. On the other hand, high growth firms have more uncertainty and risk, and investors may not invest in this kind of firms and hence, decrease their incentive for information collection. Therefore, I do not propose any directional association of the growth opportunity and idiosyncratic volatility.

Merger and acquisition

I proxy merger and acquisition with MERGER, a dummy variable which equals 1 if Compustat item AFTNT1="AA", "AB", "AR", "AS", "FA". When there is merger and acquisition, cost of information collection will increase and the net gain as well as the incentive of information collection will decrease. On the other hand, a firm with merger and acquisition activity may imply growth opportunity as well as future prospect, which will increase the investors' incentive for information collection. Therefore, I do not propose any directional association of the merger and acquisition and idiosyncratic volatility.

Firm size

I proxy for firm size with SIZE, defined as the log of annual market capitalisation. Cremers and Nair (2005) suggest that firm size reduces the incentives for takeover. A larger firm size forces the bidder to expend a larger amount of resources. This effect may reduce incentive for information collection. However, prior researches suggest analyst coverage and institutional ownership have a positive correlation with firm size (Bhushan 1989; O'Brien and Bhushan 1990). The institutional ownership relationship suggests a positive association between firm size and firm-specific information. Financial analysts focus their efforts on obtaining and mapping industry- and market- level information into prices, resulting in greater share return synchronicity and less firm-specific information. The analyst coverage relationship suggests a negative association between firm size and firm-specific information. Therefore, I do not propose any directional association of the firm size and idiosyncratic volatility.

Profitability

I proxy for profitability with ROE, defined as the return on equity. Gul et al (2011) show negative association between profitability and idiosyncratic volatility and Ferreira and Laux (2007) show the opposite. I do not propose any directional association of profitability and idiosyncratic volatility.

Profits volatility

I proxy for profits volatility with VROE, defined as the volatility of return on equity. Ferreira and Laux (2007) show no significant association between profits volatility and idiosyncratic volatility and Gul et al (2011) show positive association. Bhushan (1989) find positive association between analysts following and return variability. He suggests that the demand for analyst service is an increasing function of the variability of return because expected trading profits are higher for firms with higher return variability. Analyst service increases share return synchronicity. However, such expected trading profits may attract more institutional investors who may have the ability to influence management of the portfolio firm and will collect private information. I do not propose any directional association of profits volatility and idiosyncratic volatility.

Accruals quality

I proxy for accruals quality with AQMeasure, defined as the standard deviation of a firm's residuals calculated over years 2000 through 2013. Annual cross-sectional estimations of firm- and year-specific residuals form the basis for accruals. Larger standard deviations of residuals (smaller AQmeasures) indicate poorer accruals quality. Literature suggests that the net effect on earnings quality via private

information collection by investors is ambiguous due to the trade-off of "encouragement" effect and "crowding out" effect as discussed in 2.2.3 hereof. I do not propose any directional association of the accruals quality and idiosyncratic volatility.

Comparing the descriptive statistics, Table 4, of the variables with those of Ferreira and Laux (2007), no significant difference is identified. Three more control variables are included in the test. Caucasian_Fem_No, which is the number of Caucasian female directors on corporate board, is included in the main tests for controlling the effect of gender diversity. In addition, two more control variables are included, one for accruals quality and another one for age diversity. For this regression, I control for the year effects and industries effects by including the year dummies and industry dummies as well as clustered by firms and years. Year is the indicator variable for year between 2002 and 2012 with year indicator variable equals 1 if observation is from that year, and 0 for otherwise. The industry variable is classified according to the SIC industry codes. The industry dummy variable has been categorized according to the two-digit SIC industries classification. The descriptive statistics of the variables are shown in Table 4 and the Pearson correlations of variables are shown in Table 5.

[Insert Table 4 and Table 5 Here]

3.5 Sample population and characteristics of different ethnic groups

I perform the tests with the four different main independent variables. The sample distributions of the four main independent variables are shown in Table 6.1, Table

6.2, Table 6.3 and Table 6.4.

There are 2,380 firm years consisting of only one ethnic group and therefore the diversity index is zero. There are 1,159 firm years, 833 firm years, 509 firm years, 269 firm years, 87 firm years and 6 firm years with diversity index of and in the ranges of 0.1 to <0.2, 0.2 to <0.3, 03 to < 0.4, 0.4 to <0.5, 0.5 to <0.6 and 0.6 to <0.7 respectively. The sample distributions of the DINDEX, diversity index are shown in Table 6.1.

There are 2,863 firm years of more than one ethnic group as shown in Table 6.2. There are 2,114 firm years, 663 firm years and 86 firm years with a board of directors consisting of two ethnic groups, three ethnic groups and four ethnic groups respectively. The sample distributions of the number of ethnic groups are shown in Table 6.3.

There are 2,380 firm years, 487 firm years, 1,612 firm years, 554 firm years, 154 firm years, 53 firm years and 3 firm years with non-Caucasians portion in the ranges of 0, >0 to <0.1, 0.1 to <0.2, 0.2 to <0.3, 03 to < 0.4, 0.4 to <0.5 and 0.5 to 0.55 respectively. The sample distributions of the non-Caucasians portion, NON_Cpercent, are shown in Table 6.4.

There are 1,726 firm years, 781 firm years, 254 firm years, 88 firm years, 12 firm years and 2 firm years with a board of directors comprising 1 to 6 non-Caucasians respectively. The sample distributions of the number of non-Caucasians in each board are shown in Table 6.5.

[Insert Table 6.1, 6.2, 6.3, 6.4 and 6.5 here]

In addition, I investigate the composition of the five ethnic groups in the 5,243 firm

years, and there are 48,112 director years. The sample distributions of the five ethnic groups are shown in Table 6.6. Included in this sample director years, 43,638 (90.70%) are Caucasians, 10 (0.02%) are Native Americans, 2,381 (4.95%) are African Americans, 866 (1.80%) are Hispanics and 1,217 (2.53%) are Asians.

[Insert Table 6.6 here]

From the five different ethnic groups, the female percentage of African Americans (26%) is the highest among all the ethnic groups. The female percentage of Asians (13%) and Hispanics (15%) are also higher than that of Caucasians (12%). The sample distributions of the female percentage of different ethnic groups are shown in Table 6.7.

[Insert Table 6.7 here]

From the five different ethnic groups, the percentage of African Americans (66%) and Hispanics (65%) engaged in large size firms (S & P 500) are much higher than the other ethnic groups (40% - 45%). The sample distributions of the five ethnic group directors in S&P 500, S&P 400 and S&P 600 are shown in Table 6.8.

[Insert Table 6.8 here]

The African American directors have the highest percentage (94.46%) of the group engaged as independent directors among all the ethnic groups. The Asian directors have the highest percentage (23.58%) of the group engaged as executive

directors among all the ethnic groups. The sample distributions of the percentages of the five ethnic group directors engaged as executive directors, linked directors and independent directors are shown in Table 6.9.

[Insert Table 6.9 here]

The African American directors are most actively involved in different committees such as the audit committees, corporate governance committees, nomination committees and compensation committees. The average number of committees involved by African Americans is 1.84, which is the highest among all other ethnic groups. The average number of committees involved by directors from different ethnic groups is shown in Table 6.10.

[Insert Table 6.10 here]

Excluding Native Americans, the percentage of African Americans engaged in different committees is highest among all the ethnic groups. The sample distributions of the percentages of the five ethnic group directors involved in different committees are shown in Table 6.11, Table 6.12, Table 6.13 and Table 6.14.

[Insert Table 6.11, 6.12, 6.13 and 6.14 here]

Board seats are more concentrated for African Americans than Caucasians (Rose and Bielby, 2011). In average, African American directors have more

directorships as compared with Caucasian directors. In the sample population, the African American directors have the largest mean number of other major corporate boards' directorships among all the ethnic groups. Consistent with the findings of Peterson et al. (2007), success of African Americans is concentrated in a very small number of people holding a disproportionate number of seats. The sample distributions of the mean number of other major corporate boards' directorships of different ethnic groups are shown in Table 6.15.

[Insert Table 6.15 here]

According to Hammond (2003), in the 19th century, African Americans were under-represented in most professions. In the sample population, the percentage of finance experts in the African American group is the smallest compared with the other three major ethnic groups (Caucasians, Hispanics and Asians). The sample distributions of the proportion of finance experts of different ethnic groups are shown in Table 6.16.

[Insert Table 6.16 here]

Among all ethnic groups, Asian-Americans have the highest proportion of educational achievement and professional experience (Equal Employment Opportunity Commission, 2001; Stoops, 2006). In the sample population, the percentage of directors having CEO background in the Asian American group is the highest compared with all other ethnic groups. The sample distributions of proportion of directors having CEO background of different ethnic groups are shown in Table 6.17.

[Insert Table 6.17 here]

3.6 Summary of the tests of H1

I find that ethnic diversity of the corporate boards has effect on the movement of share prices. Results are shown in Table 7.

[Insert Table 7 here]

Based on the significant (two-tailed) parameter estimates, Table 7 indicates that DINDEX, DIVERSE, LTYPES and NON_Cpercent are positively associated with the idiosyncratic volatility of share prices. The coefficients of DINDEX (coefficient=0.173, t-stat=2.63), LTYPES (coefficient=0.075, t-stat=1.85) and NON_Cpercent (coefficient=0.298, t-stat=2.96) are positive and statistically significant. The results suggest that ethnic diversity of the corporate boards improves firm-specific information. However, the coefficient of DIVERSE (coefficient=0.032, t-stat=1.55) is positive but not statistically significant. A tokenism model is included in the additional tests section 4.1 to explore the potential impact of tokenism on the four main variables of interest in this study. I suggest that the variables, DIVERSE and LTYPES, are more significantly affected by the tokenism issue. I only use two variables, DINDEX and NON_Cpercent in additional tests.

Consistent with Ferreira and Laux (2007) and Gul et al. (2011), the number of Caucasian females on the corporate boards (Caucasian_Fem_No) is positively associated with the idiosyncratic volatility of share prices. The signs of the coefficients of control variables namely firm age (AGE), diversification dummy (DIVER), dividend dummy (DD), market capitalization (SIZE) and return on equity

(ROE) are negative and the coefficients are statistically significant.

The coefficient of the entrenchment index, E-index, is negative and statistically significant at the 0.05 level. For the two additional control variables included in the regression, the age diversity of the corporate boards is positively associated with the idiosyncratic volatility of share prices but is not statistically significant. The accruals quality is negatively associated with the idiosyncratic volatility of share prices and statistically significant at the 0.01 level.

All the results are based on clustering for year and industry effects. The empirical results imply that the ethnic diversity of the corporate board has an impact on the information collection behavior of the investors. Investors rely more on firm-specific information rather than market-wide information to price the shares for those companies with more ethnic-diversified corporate boards.

3.7 Implication of test results

There is positive association between board ethnic diversity and firm-specific information incorporated in share prices after controlling for several variables including corporate governance, gender diversity, earnings quality and age diversity of the corporate board. Investors are encouraged to collect private information for firms with ethnic and gender diverse corporate board.

Gender diversity measured by the number of Caucasian women, the coefficient is positive and statistically significant at the 0.01 level. It indicates gender-diversified corporate board improves firm-specific information which is consistent with the result of Gul et al. (2011).

Board size, board independence and age diversity of the corporate board do not play a significant role in affecting the private information collection behavior since there

is no statistically significant result.

The shareholder protection is measured (inversely) by the E-index. The negative coefficient is statistically significant at the 0.05 level and indicates the lower the index, the higher the shareholder protection, and the more the private information is incorporated into the share prices. My result for the E-index is consistent with the results of Ferreira and Laux (2007) which provide evidence on the association between shareholder protection and firm-specific information. The E-index in firms with fewer antitakeover provisions displays higher levels of idiosyncratic risk.

For firms with greater growth opportunity measured by market to book ratio, share prices incorporate more the private information. The positive coefficient is statistically significant at the 0.01 level and indicates the larger the market to book ratio, the greater the growth opportunity, and the more the private information is incorporated in the share prices. This may imply that the greater growth opportunity increase the investors' incentive for information collection which out-weights the effect of uncertainty and risk on incentive of investors for information collection.

For firms with higher accruals quality, less private information is incorporated in the share prices. This may imply public information crowds out private information in my test sample. High accruals quality may reduce the potential gain of collecting private information over the year because of higher concentration of idiosyncratic return volatility at the time of earnings announcements. The negative association between the idiosyncratic volatility and accruals quality exhibits lower overall idiosyncratic return volatility for the year.

Chapter 4 Additional tests

I address the tokenism issue by eliminating those firm years with only one non-Caucasian and it so happens that he/she is an African American in section 4.1. I address the impact of financial crisis issue by eliminating those firm years of year 2007 and year 2008 in section 4.2. I address the endogeneity issue by the two stages prediction model in section 4.3 as well as the instrumental variable model and change model in section 4.4. In section 4.5, I performed an additional test by controlling the number of non-Caucasian female directors. I explore the relationship between firm characteristics, ethnic minorities and firm-specific information in section 4.6. In section 4.7, I use the future earnings incremental explanatory power (FINC) instead of the idiosyncratic volatility to be the dependent variable, as an alternative measure to examine the association between the ethnic diversity of corporate boards and the firm-specific information environment which affects the information content of the share prices. In section 4.8, I explore the channel through which ethnic diversity affects firm-specific information by classifying the sample into subsamples of institutional investors' shareholdings. I performed an additional test by controlling shareholdings of institutional investors. In addition, I explore how ethnic diversity affects institutional investors' behavior by using the number of institutional investors and the relative volume of institutional investors' trading instead of the idiosyncratic volatility as the dependent variables.

4.1 Tokenism

I eliminate those firm years with only one non-Caucasian who is an African American. The results are reported in Table 8. Regression results indicate that

DINDEX, DIVERSE, LTYPES and NON_Cpercent are positively associated with the idiosyncratic volatility of share prices. The coefficients of DINDEX (coefficient=0.222, t-stat=3.23), DIVERSE (coefficient=0.052, t-stat=2.23), LTYPES (coefficient=0.104, t-stat=2.41) and NON_Cpercent (coefficient=0.367, t-stat=3.52) are all statistically significant and positive. The results in the tokenism model is more economically and statistically significant than the results from the main tests. The coefficients and t-values are larger for all these four variables in the tokenism model as compared with the main tests. They suggest that only one African American as the minority in the corporate board may not play a significant role in improving the firm-specific information incorporated in share prices.

[Insert Table 8 here]

4.2 Financial crisis

My sample period is from 2002 to 2012, which includes the two years of financial crisis. To ensure that the results are not driven by the financial crisis, the main regressions are run twice via including the financial crisis years first and then excluding them in the second run. The results from exclusions are shown in Table 9. When year 2007 is excluded, the coefficients of DINDEX (coefficient=0.180, t-stat=2.60) and NON_Cpercent (coefficient=0.314, t-stat=2.96) are positive and statistically significant. When year 2008 is excluded, the coefficients of DINDEX (coefficient=0.189, t-stat=2.70) and NON_Cpercent (coefficient=0.322, t-stat=3.00) are also positive and statistically significant. When both years 2007 and 2008 are excluded, the coefficients of DINDEX (coefficient=0.198, t-stat=2.66) and NON_Cpercent (coefficient=0.341, t-stat=2.99) are positive and statistically

significant.

[Insert Table 9 here]

4.3 Unexplained ethnic diversity and firm-specific information – prediction model

I address the endogenous issue by following the prediction model built by Gul et al. (2011) which is based on the model developed by Hillman et al. (2007). I use the following model to see whether higher ethnic diversity results in more firm-specific information by first predicting the DINDEX and NON_Cpercent and then examining the association between the unexplained DINDEX / NON_Cpercent and firm-specific information. The rationale is that by construction, the predicted diversity index or the number of ethnic groups is a linear combination of firm characteristics. If firm characteristics are used to predict concentration of non-Caucasians which also explain most of the variations in firm-specific information incorporated in share prices, ethnic diversity simply acts as an aggregate proxy for those firm characteristics. On the other hand, if the unexplained part of ethnic diversity explains most of the variations in firm-specific information incorporated in share prices, then it is more likely that firm-specific information is causally linked to ethnic diversity.

Hillman et al. (2007) argue that firms with more diverse boards have female directors and directors from different ethnic groups, benefiting from linkage with the external environment as well as information and advice from board members. Female directors and non-Caucasian directors presence is predicted for larger, older, more profitable and more visible firms that are under social pressures (Demsetz and Lehn, 1985) as they are scrutinized more by stakeholders. It also suggests that

firms with more business segments (diversification) are in greater need for diverse perspectives. Firms connected with other firms that have non-Caucasians are more likely to have more non-Caucasian directors. Following Gul et al. (2011), I used the total assets (LOGTA, a measure of organizational size), accounting performance (ROA), market performance measure by Tobin's Q (TOBINSQ), firm's share returns (RETURN), value weighted market returns (VWRETD), total risk (TOTALRISK), firm age (AGE), sales growth (SALESGROWTH), number of directorships (DIRECTORSHIPS, to proxy for networking) and diversification (DT, the total diversification measure in Palepu, 1985) as the prediction variables for board diversity. In addition, I included the state diversity (STATE DIVERSITY, concentration of different ethnics groups in the state of the firms' head office according to the 2010 U.S. Census) and accruals quality (AQMeasure) in the prediction model. The population of the state where the head office of the firm is located has impact on the board diversity. If more non-Caucasians are living in the state, there will be higher chance that firms find the appropriate non-Caucasian directors. Participation of non-Caucasians on the corporate board is found more in some industries relative to others. Therefore, industry dummies are included in the regression.

First regression

$$\text{ETHNIC}_{i,t-1} = c_0 + c_1\text{ROA}_{i,t-1} + c_2\text{LOGTA}_{i,t-1} + c_3\text{AGE}_{i,t-1}$$
$$+ c_4\text{SALESGROWTH}_{i,t-1} + c_5\,\text{DIRECTORSHIPS}_{i,t-1} + c_5\,\text{DIRECTORSHIPS}_{i,t-1}$$
$$+ c_6\,\text{DT}_{i,t-1} + c_7\,\text{TOTALRISK}_{i,t-1} + c_8\,\text{TOBINSQ}_{i,t-1} + c_9\,\text{RETURN}_{i,t-1}$$
$$+ c_{10}\,\text{VWRETD}_{i,t-1} + c_{11}\,\text{SHAREHOLDINGS}_{i,t-1} + c_{12}\text{STATE DIVERSITY}_{i,t-1}$$
$$+ c_{13}\text{AQMeasure}_{i,t-1} + \Sigma\ \text{Industry dummies} + \varepsilon_{i,t} \qquad (6)$$

ETHNIC is measured by two variables: (1) DINDEX (2) NON_Cpercent

The residual from the first regression is included in the second regression.

Second regression

$$\psi_{it} = \alpha + \beta_1 \text{Residual_ETHNIC}_{i,t-1} + \beta_2 \text{LDIR}_{i,t-1} + \beta_3 \text{INEDpercent}_{i,t-1}$$
$$+ \beta_4 \text{Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{AgeDiversity}_{i,t-1} + \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1}$$
$$+ \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1} + \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE}_{i,t-1} + \gamma_{11} \text{AQMeasure}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (7)$$

The ETHNIC in the main regression is replaced by the residual of the first regression. Results are significant for the two variables, the coefficients of Residual_ DINDEX (coefficient= 0.210, t-stat= 2.80) and Residual_ Non_Cpercent (coefficient= 0.338, t-stat= 2.95) are positive and statistically significant at the 0.01 level. The results are shown in Table 10.1 and Table 10.2 respectively. To conclude, ethnic diversity is not simply acting as an aggregate proxy for firm characteristics. It is highly likely that firm-specific information incorporated in share prices is causally linked to ethnic diversity of corporate boards. The ethnic diversity of corporate boards and the proportion of non-Caucasians play significant role in affecting the private information collection behavior.

[Insert Table 10.1 and Table 10.2 here]

4.4 Endogeneity

Endogeneity can be a serious concern with evidence of the results presented in the main tests. In particular, there is a possibility of reverse causality in that firms

with higher (lower) idiosyncratic risk may be more likely to choose (avoid) boards with greater ethnic diversity.

4.4.1 Instrumental variable approach

I use the instrumental variable approach to address the endogeneity concern. Knyazeva et al. (2013) find that local availability of qualified prospective directors has an important bearing on a firm's board appointment process. Organizations reflect the society within which they exist and for democratic reasons are increasingly expected to represent that societal diversity in their governance (Walt & Ingley, 2003). If the population in the local state of the head office consists of more non-Caucasians, the probability of engaging non-Caucasian directors is higher. I expect that the diversity of different ethnic groups in the state population have impact on the corporate boards' composition. I adopt the state diversity index, which is the ethnic composition in a firm's headquarter state, and the percentage of non-Caucasians in the state as the instrumental variables (IV).

$$\psi_{it} = \alpha + \beta_1 \textbf{Instrumental Variable}_{i,t-1} + \beta_2 \text{LDIR}_{i,t-1} + \beta_3 \text{INEDpercent}_{i,t-1}$$
$$+ \beta_4 \text{Caucasian_Fem_No}_{i,t-1} + + \beta_5 \text{AgeDiversity}_{i,t-1} + \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1}$$
$$+ \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1} + \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE i,t-1} + \gamma_{11} \text{AQMeasure}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (8)$$

The diversity of different ethnic groups in the population of the state of the head office has impact on the corporate board composition but should not have effect on the firm-specific information. The relevance of local state non-Caucasian

directors' pool for corporate board composition is supported by the first regression of the prediction model in 4.3. Results are significant for the state diversity variable in predicting the corporate boards' diversity and proportion of non-Caucasians on corporate boards, the coefficients of STATE DIVERSITY (coefficient= 0.065, t-stat= 4.07) and percentage of non-Caucasians (coefficient = 0.046, t-stat= 4.39) are positive and significant at the 0.01 level.

I replaced the ethnic diversity variables with the instrumental variables, ethnic diversity of the state of head office, STATE DIVERSITY, and the percentage of non-Caucasians in the state, State_Non_C_percent, to run the main tests.

I find that both instrumental variables, STATE DIVERSITY and State_Non_C_percent have effect on the movement of share prices. Results are shown in Table 11.

[Insert Table 11 here]

Based on the significant (two-tailed) parameter estimates, Table 11 indicates that state diversity and portion of non-Caucasians in the state are positively associated with the idiosyncratic volatility of share prices. The coefficients of STATE DIVERSITY (coefficient=0.215, t-stat=3.03), and State_Non_C_percent (coefficient=0.211, t-stat=3.16) are positive and statistically significant at the 0.01 level. The results are consistent with my expectation that state diversity and the percentage of non-Caucasians in the state have an impact on the ethnic diversity of corporate boards, which is positively associated with firm-specific information.

4.4.2 Change model

To further address endogeneity concern, I examine the change in relative idiosyncratic volatility, IV, subsequent to a change in the number of non-Caucasian directors and to a change in the diversity index. I regress the change of relative idiosyncratic volatility from the year of change to two years after the change on the number of non-Caucasian directors / the ethnic diversity index and the change of all other regressors from one year before to one year after. Moreover, I regress the change of relative idiosyncratic volatility on the increase and decrease of the number of non-Caucasian directors / the ethnic diversity index.

When there is an increase in the number of non-Caucasians or in the ethnic composition (diversity) of a corporate board, the board of directors may be perceived as more trustworthy or can improve companies' performance in future.

The distribution of increase in ethnic minorities events and decrease in ethnic minorities events are shown in Table 12.1 and Table 12.2 respectively.

[Insert Table 12.1 and Table 12.2 here]

I expect that there will be change in the firm-specific information subsequent to the change of the number of Non-Caucasian directors or a change in the ethnic diversity of the corporate board. To examine this possibility, a change model is developed.

The change in ethnic diversity, $\triangle \text{ETHNIC}_{i,(t-1 \text{ to } t)}$ is measured by the change in number of Non_Caucasians ($\triangle$Non_C) and the change in diversity index ($\triangle$ DINDEX).

Change Regression Model (1)

$$\Delta \psi_{i\ (t-1\ to\ t+2)}$$

$$= \alpha + \beta_1 \Delta \text{ETHNIC}_{i,\ (t-1\ to\ t)} + \beta_2 \Delta \text{LDIR}_{i,\ (t-1\ to\ t)} + \beta_3 \Delta \text{INEDpercent}_{(t-3\ to\ t-2)}$$

$$+ \beta_4 \Delta \text{Caucasian_Fem_No}_{i,(t-3\ to\ t-2)} + \beta_5 \Delta \text{AgeDiversity}_{i,\ (t-3\ to\ t-2)}$$

$$+ \gamma_1\ \Delta \text{EINDEX}_{i,\ (t-2\ to\ t+1)} + \gamma_2 \Delta \text{AGE}_{i,(t-2\ to\ t+1)} + \gamma_3 \Delta\ \text{DIVER}_{i,(t-2\ to\ t+1)}$$

$$+ \gamma_4 \Delta\ \text{DD}_{i,\ (t-2\ to\ t+1)} + \gamma_5\ \Delta \text{LEV}_{i,\ (t-2\ to\ t+1)} + \gamma_6 \Delta \text{MB}_{i,\ (t-2\ to\ t+1)}$$

$$+ \gamma_7\ \Delta \text{MERGER}_{i,\ (t-2\ to\ t+1)} + \gamma_8 \Delta \text{SIZE}_{i,\ (t-2\ to\ t+1)} + \gamma_9 \Delta \text{ROE}_{i,\ (t-2\ to\ t+1)}$$

$$+ \gamma_{10} \Delta \text{VROE}_{i,\ (t-2\ to\ t+1)} + \gamma_{11}\ \Delta \text{AQMeasure}_{i,\ (t-2\ to\ t+1)} + \sum \text{Industry Dummies}$$

$$+ \sum \text{Year Dummies} + \varepsilon_{i,t} \qquad (9)$$

In addition to the above model, I run regression models to look at the effects of the increase and decrease in the number of non-Caucasians (Non_C) and the increase and decrease in ethnic diversity (DINDEX).

Change Regression Model (2)

$$\Delta \psi_{i\ (t-1\ to\ t+2)}$$

$$= \alpha + \beta_1 \text{Increase in ETHNIC}_{i,\ (t-1\ to\ t)} + \beta_2 \text{Decrease in ETHNIC}_{i,\ (t-1\ to\ t)}$$

$$+ \beta_3 \Delta \text{LDIR}_{i,\ (t-1\ to\ t)} + \beta_4 \Delta \text{INEDpercent}_{(t-3\ to\ t-2)}$$

$$+ \beta_5 \text{ Increase in Caucasian_Fem_No}_{i,\ (t-1\ to\ t)}$$

$$+ \beta_6 \text{ Decrease in Caucasian_Fem_No}_{i,\ (t-1\ to\ t)} + \beta_7 \Delta \text{AgeDiversity}_{i,\ (t-1\ to\ t)}$$

$$+ \gamma_1\ \Delta \text{EINDEX}_{i,\ (t-2\ to\ t+1)} + \gamma_2 \Delta \text{AGE}_{i,\ (t-2\ to\ t+1)} + \gamma_3 \Delta\ \text{DIVER}_{i,(t-2\ to\ t+1)}$$

$$+ \gamma_4 \Delta \text{DD}_{i,,(t-2\ to\ t+1)} + \gamma_5 \Delta \text{LEV}_{i,\ (t-2\ to\ t+1)} + \gamma_6 \Delta \text{MB}_{i,\ (t-2\ to\ t+1)}$$

$$+ \gamma_7 \Delta \text{MERGER}_{i,\ (t-2\ to\ t+1)} + \gamma_8 \Delta \text{SIZE}_{i,\ (t-2\ to\ t+1)} + \gamma_9 \Delta \text{ROE}_{i,\ (t-2\ to\ t+1)}$$

$$+ \gamma_{10} \Delta \text{VROE}_{i,\ (t-2\ to\ t+1)} + \gamma_{11} \Delta \text{AQMeasure}_{i,\ (t-2\ to\ t+1)} + \sum \text{Industry Dummies}$$

$$+ \sum \text{Year Dummies} + \varepsilon_{i,t} \qquad (10)$$

The results of the above model are shown in Table 12.3 and indicate that the coefficients of the change in the number of non-Caucasians ($\triangle$ NON_C) (coefficient=0.092, t-stat=2.45) and the change in ethnic diversity ($\triangle$DINDEX) (coefficient=0.557, t-stat=1.96) are positively associated with changes in firm-specific information incorporated in share prices and statistically significant at the 0.05 and 0.1 level respectively. In addition, the coefficients of the variable of increase in the number of non-Caucasians (Increase in NON_C) (coefficient=0.129, t-stat=2.81) and the variable of increase in ethnic diversity (Increase in DINDEX) (coefficient=0.942, t-stat=2.58) are also positively associated with change in firm-specific information incorporated in share prices and both are statistically significant at the 0.01 level. There is no statistically significant result for the coefficients of variable of decrease in the number of non-Caucasians (Decrease in NON_C) (coefficient=0.011, t-stat=0.16) and the variable of decrease in ethnic diversity (Increase in DINDEX) (coefficient= - 0.142, t-stat= - 0.28).

In addition, the coefficients of change in other regressors such as the entrenchment index (E-index), firm age (AGE), Market Capitalisation (SIZE), Return on Equity (ROE), are associated with the change in idiosyncratic volatility in the same way (same sign) as the main empirical regression model in section 3.4.

[Insert Table 12.3 here]

4.5 Ethnic diversity and gender diversity

In this section, I address the issue of whether the impact of ethnic diversity on improving the firm-specific information is driven purely by gender diversity. I additionally control for the number of non-Caucasian females on corporate boards and re-examine the effect of ethnic diversity on firm-specific information.

$$\psi_{it} = \alpha + \beta_1 \text{ETHNIC}_{i,t-1} + \beta_2 \text{LDIR}_{i,t-1} + \beta_3 \text{INEDpercent}_{i,t-1}$$
$$+ \beta_4 \text{Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{NON_C_Fem_No}_{i,t-1} + \beta_6 \text{AgeDiversity}_{i,t-1}$$
$$+ \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1} + \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1}$$
$$+ \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1} + \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE}_{i,t-1}$$
$$+ \gamma_{11} \text{AQMeasure}_{i,t-1} + \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (11)$$

Results remain significant for two variables, the coefficients of DINDEX (coefficient= 0.165, t-stat= 2.31) and NON_Cpercent (coefficient= 0.292, t-stat= 2.66) which are positive and statistically significant at the 0.05 and 0.01 level respectively. The coefficients of the number of non-Caucasian females, NON_C_Fem_No are not statistically significant. The results are shown in Table 13. To conclude, ethnic diversity of the corporate boards and the proportion of non-Caucasians play a significant effect on affecting the private information collection behavior, which is not driven by the gender of the minority directors.

[Insert Table 13 here]

4.6 Firm characteristics, ethnic diversity and firm-specific information

In this section, I explore the association between ethnic diversity of corporate boards and firm-specific information with different firm characteristics.

4.6.1 Merger and acquisition activity

Firms may attract more investors if there are activities of merger and acquisition, and there may be more private information collecting activities for these firms. To control for this possibility, I included merger and acquisition (MERGER) in my

original regressions reported earlier. In addition, I split the sample into firms with merger activity and firms without merger activity and repeat the main regression (without control for merger activity). Results remain significant for the two variables, the coefficients of DINDEX (coefficient= 0.390, t-stat= 2.91) and NON_Cpercent (coefficient= 0.609, t-stat= 3.04) are positive and statistically significant both at the 0.01 level for the group of firms with merger activity. The results are consistent with the resource dependence theory, which suggests that ethnic diversity of corporate boards provides talents and different perspectives. When a firm has merger and acquisition activities, it becomes more complex and may need to engage directors with expertise and experience for new business areas. The skill complementarities arising from a heterogeneous board may yield greater monitoring benefits to shareholders and provide a stronger advisory role to managers than less heterogeneous board. The benefits out-weight the costs of heterogeneous board. For firms without merger activities, the coefficients of DINDEX (coefficient=0.090, t-stat=1.19) and NON_Cpercent (coefficient=0.171, t-stat=1.47) are positive but not statistically significant. The results suggest that ethnic-diversified corporate boards play a more important role in those firms with more complexity. Results are shown in Table 14.

[Insert Table 14 here]

4.6.2 Profit (ROE) volatility

According to O'Brien and Bhusan (1990), institutional investors prefer firms with higher profit volatility. I split the sample into firms with high profit volatility (VROE > or =median) and those are stable, with low profit volatility

(VROE<median) and repeat the main regressions. For firms with high profit volatility, results are significant for two variables. The coefficients of DINDEX (coefficient= 0.207, t-stat= 2.24) and NON_Cpercent (coefficient= 0.380, t-stat= 2.67) are positive and statistically significant at the 0.05 and 0.01 level respectively. For firms with low profit volatility, the coefficients of DINDEX (coefficient=0.121, t-stat=1.29) and NON_Cpercent (coefficient=0.181, t-stat=1.25) are positive but not statistically significant. The results suggest that ethnic-diversified corporate boards play a more important role in those firms with high profit volatility. Results are shown in Table 15.

[Insert Table 15 here]

4.6.3 Growth

I split the sample into firms with high growth (MB > median) and those with low growth (MB= or <median) and repeat the main regressions. Results are significant for the two variables for the high growth group, the coefficients of DINDEX (coefficient= 0.174, t-stat= 1.89) and NON_Cpercent (coefficient= 0.288, t-stat= 2.04) are positive and statistically significant at the 0.10 and 0.05 level respectively. For firms of the low growth group, the coefficients of DINDEX (coefficient=0.102, t-stat=1.07) and for NON_Cpercent (coefficient=0.187, t-stat=1.29) are positive but not statistically significant. The results show that idiosyncratic volatility is positively associated with ethnic diversity for high growth firms. The results suggest that ethnic-diversified corporate boards play a more important role in those firms with high growth potential. Results are shown in Table 16.

[Insert Table 16 here]

4.6.4 Leverage

I split the sample into firms with high leverage (LEV> median) and those with low leverage (LEV= or <median) and repeat the main regressions. Results are significant for the two variables for the high leverage group, the coefficients of DINDEX (coefficient= 0.197, t-stat= 2.00) and NON_Cpercent (coefficient= 0.330, t-stat= 2.19) are positive and statistically significant both at the 0.05 level.

For firms of the low leverage group, the coefficients of DINDEX (coefficient=0.106, t-stat=1.16) and for NON_Cpercent (coefficient=0.188, t-stat=1.34) are positive but not statistically significant. The results show that idiosyncratic volatility is positively associated with ethnic diversity for high leverage firms. The results suggest that ethnic-diversified corporate boards play a more important role in influencing information collection by investors for high leverage firms. Results are shown in Table 17.

[Insert Table 17 here]

4.7 Future earnings incremental explanatory power (FINC)

Following Durnev et al. (2003) and Ferreira and Laux (2007) and Gul et al. (2011), I also use FINC as a measurement of share price informativeness. Durnev et al. (2003) find that firms and industries with lower R^2 statistics exhibit higher association between current returns and future earnings, indicating more information regarding future earnings is incorporated in current returns. Such association indicates more market efficiency is achieved. FINC measures how well the current share price predicts the future returns and future earnings. It is defined as the increase in R^2 of the annual regression on each two-digit SIC code

industry, with at least ten firms adopted for the regression (a) relative to regression (b) below:

$$r_{i,t} = b_0^b + b_1^b \Delta E_{i,t} + \sum_{\tau=1}^{3} b_{2,\tau}^b \Delta E_{i,t+\tau} + \sum_{\tau=1}^{3} b_{3,\tau}^b \Delta r_{i,t+\tau} + \varepsilon_{i,t}^b \quad (12a)$$

$$r_{i,t} = b_0^c + b_1^c \Delta E_{i,t} + \varepsilon_{i,t}^c \quad (12b)$$

where $r_{i,t}$ is the annual share return calculated as the fiscal year-end share price plus dividends adjusted by share splits and distributions and $\Delta E_{i,t}$ is the annual change in earnings before interest, tax, depreciation, and amortization scaled by previous fiscal year-end market capitalization. Given the sample period spans only eight years and FINC requires three future returns and three future earnings. The size of sample for this test is severely restricted.

I use the following regression model to examine the effect of ethnic diversity on FINC:

$$FINC_{k,t} = \alpha + \beta_1 \text{ETHNIC}_{k,t-1} + \beta_2 \text{LDIR}_{k,t-1} + \beta_3 \text{INEDpercent}_{k,t-1} + \beta_4 \text{FEMpercent}_{k,t-1} + \beta_5 \text{Age Diversity}_{k,t-1} + \gamma_1 \text{EINDEX}_{k,t-1} + \gamma_2 \text{AGE}_{k,t-1} + \gamma_3 \text{DIVER}_{k,t-1} + \gamma_4 \text{DD}_{k,t-1} + \gamma_5 \text{LEV}_{k,t-1} + \gamma_6 \text{MB}_{k,t-1} + \gamma_7 \text{MERGER}_{k,t-1} + \gamma_8 \text{SIZE}_{k,t-1} + \gamma_9 \text{ROE}_{k,t-1} + \gamma_{10} \text{VROE}_{k,t-1} + \gamma_{11} \text{AQMeasure}_{k,t-1} + \varepsilon \quad (13)$$

where $FINC_{k,t}$ is for industry k at time t and the independent variables are the two-digit SIC code industry averages of the same regressors used for the main regressions. The main variable of interest is $\text{ETHNIC}_{k,t-1}$ which is measured by two variables:

(1) $\text{DINDEX}_{k,t-1}$ (2) $\text{NON_Cpercent}_{k,t-1}$

I find that the coefficients of both variables are significant. The coefficients of DINDEX (coefficient= 0.592, t-stat= 3.98) and NON_Cpercent (coefficient= 0.713,

t-stat= 3.37) are positive and statistically significant both at the 0.01 level. Results of the above model are shown in Table 18.

[Insert Table 18 here]

4.8 Exploratory of the channels through which ethnic diversity affects firm-specific information

Ethnic diversity on boards enhances stock price informativeness through attracting more institutional investors, who have better incentives and resources to gather and analyze private information. How does ethnic diversity on boards affect 1) Number of institutional investors (Number of II); 2) Percentage of shares held by institutional investors (Percentage held by II); 3) Concentration of institutional investors ownership (Concentration of II); 4) Relative trading volume of institutional investors (II_RTV); and 5) Trading volume of institutional investors (II_Trade). I split the sample into high and low ethnic diversity groups to compare the means of these five items. In our data, those companies with higher ethnic diversity tend to be with more institutional investors, with lower percentage of shares held by institutional investors, with lower concentration of institutional investors ownership, smaller relative trading volume of institutional investors and with smaller trading volume of institutional investors. Comparison of institutional investors' investments and trading activities (means of various variables) of firms with high and low ethnic diversity is shown in Table 19.

[Insert Table 19 here]

Institutional investors consider ethnic diversity as an aspect of corporate governance. Therefore, firms with higher ethnic diversity attract more institutional investors and have lower concentration of institutional investors. However, firms with higher ethnic diversity also attract more retail investors. As a result, the percentage of shares held by institutional investors is lower for firms with higher ethnic diversity. Firms with higher ethnic diversity attract institutional investors to hold the shares for long-term purpose and at the same time trade less. In consequence, firms with higher ethnic diversity tend to have smaller relative trading volume of institutional investors and smaller trading volume by institutional investors.

4.8.1 Institutional investors' concentration, ethnic minorities and firm-specific information

Mitra and Cready (2005), institutional investors have become dominant equity holders and an influential factor in U.S. firms since the mid-1980's. The most active investors are pension funds and such institutional investors rely on strong and independent boards to create values for long-term returns (Hawkins, 1997). Institutional investors believe strong corporate boards will help companies correct mistakes and recover from crisis. According to the Financial Economists Roundtable Statement on Institutional Investors and Corporate Governance (1999), the institutional investors' interest in overseeing a firm's management increases with their increase in investments in that firm. Most institutional investors reward portfolio managers on quarterly performance (Hessel and Norman, 1992). This compensation policy motivates portfolio managers to search for private information and analyze the information for improving their performance and to satisfy their fiduciary standards (El-Gazzar, 1998). Hartzell and Starks (2003) find that

institutional investors spend time and effort on information collection, and private information is incorporated into the share price through their trading activities. Piotroski and Roulstone (2004) find that institutional investors' trading is positively associated with idiosyncratic volatility. Institutional investors' trading is an important channel through which firm-specific information is transmitted into share prices. When ownership concentration increases, these large shareholders will have more incentives to put more efforts and resources to acquire firm-specific information and to engage in value-enhancing activities such as direct intervention of the firms' corporate governance (Grossman and Hart, 1980; Grossman and Stiglitz, 1980; Shleifer and Vishny, 1986; Huddart, 1993; Admati et al. 1994; Shleifer and Vishny, 1997). Institutions with large stakes have the potential to enhance firm value through direct or indirect monitoring (Ferreira and Matos, 2008). When a portfolio firm's corporate governance is enhanced, managers are constrained from capturing the firms' cash flows or other resources. It reduces the need for the management to hide the unfavorable information. Transparent information environment reduces the cost of collecting information and facilitates trading with firm-specific information and the transmission of such information into share prices (Jin and Myers, 2006; Ferreira and Laux, 2007).

I split the sample into firms with high concentration of institutional investors' ownership and firms with low concentration of institutional investors' ownership and repeat the main regressions. Results remain significant for two variables. The coefficients of DINDEX (coefficient= 0.318, t-stat= 3.34) and NON_Cpercent (coefficient= 0.533, t-stat= 3.70) for the high concentration of institutional investors' ownership group are positive and statistically significant both at the 0.01 level. The results suggest that ethnic-diversified corporate boards play a more

important role in firms with high institutional investors' ownership concentration. Large shareholders of these firms will have the incentives to put more efforts and resources to acquire firm-specific information. Results are shown in Table 20.

[Insert Table 20 here]

4.8.2 Controlled for the number of institutional investors and institutional investors' holdings

In this section, I additionally control for the number of institutional investors (Number of II), concentration of shares held by institutional investors (Concentration of II) and percentage of firms' shares held among institutional investors (Percentage held by II) and re-examine the effect of ethnic diversity on firm-specific information.

$$\psi_{it} = \alpha + \beta_1 \text{ETHNIC}_{i,t-1} + \beta_2 \text{LDIR}_{i,t-1} + \beta_3 \text{INEDpercent}_{i,t-1}$$
$$+ \beta 4 \text{ Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{AgeDiversity}_{i,t-1} + \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1}$$
$$+ \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1} + \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE i,t-1} + \gamma_{11} \text{AQMeasure}_{i,t-1}$$
$$+ \gamma_{12} \text{Number of II}_{i,t-1} + \gamma_{13} \text{Concentration of II}_{i,t-1} + \gamma_{14} \text{Percentage held by II}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (14)$$

Results remain significant for two variables, the coefficients of DINDEX (coefficient = 0.128, t-stat = 1.97) and NON_Cpercent (coefficient= 0.220, t-stat= 2.22) are positive and statistically significant both at the 0.05 level. The results are shown in Table 21. To conclude, ethnic diversity of corporate boards and the number of non-Caucasians thereof play a significant effect on affecting the private information collection behavior which is not driven purely by the institutional ownership of the firms' shares.

[Insert Table 21 here]

4.8.3 Effect of ethnic diversity on the number of institutional investors

Corporate governance enhanced by an ethnic-diversified corporate board reduces the probability of managers' capturing of firms' cash flows and managing earnings and hence decreases the investment risk for shareholders. A firm with an ethnic-diversified corporate board may be more attractive to institutional investors. I expect that the number of institutional investors, which is measured by the average number of institutional investors in a year, is positively associated with the ethnic diversity of a corporate board. I use the following regression model to examine the effect of ethnic diversity of corporate boards on the number of institutional investors (Number of II):

$$\begin{aligned}\text{Number of II}_{i,t} &= \alpha + \beta_1 \text{ETHNIC}_{i,t} + \beta_2 \text{LDIR}_{i,t} + \beta_3 \text{INEDpercent}_{i,t} \\ &+ \beta_4 \text{Caucasian_Fem_No}_{i,t} + \beta_5 \text{AgeDiversity}_{i,t} + \gamma_1 \text{EINDEX}_{i,t} + \gamma_2 \text{AGE}_{i,t} \\ &+ \gamma_3 \text{DIVER}_{i,t} + \gamma_4 \text{DD}_{i,t} + \gamma_5 \text{LEV}_{i,t} + \gamma_6 \text{MB}_{i,t} + \gamma_7 \text{MERGER}_{i,t} + \gamma_8 \text{SIZE}_{i,t} \\ &+ \gamma_9 \text{ROE}_{i,t} + \gamma_{10} \text{VROE}_{i,t} + \gamma_{11} \text{AQMeasure}_{i,t} + \sum \text{Industry Dummies} \\ &+ \sum \text{Year Dummies} + \varepsilon_{i,t}\end{aligned} \quad (15)$$

ETHNIC: (1) $\text{DINDEX}_{i,t}$ (2) $\text{NON_Cpercent}_{i,t}$

I find that ethnic diversity of corporate boards is positively associated with the number of institutional investors. Results of the above model are shown in Table 22. The coefficients of DINDEX (coefficient = 39.869, t-stat = 3.26) and NON_Cpercent (coefficient= 64.786, t-stat= 3.41) are positive and statistically significant both at the 0.01 level.

[Insert Table 22 here]

4.8.4 Effect of ethnic diversity on relative trading volume of institutional investors

According to McCahery et al (2016), long-term investors and investors that are less concerned about liquidity intervene portfolio firms' corporate governance more intensively. Ethnic diversity of corporate boards enhances corporate governance and is preferred by long-term institutional investors. I expect that the relative volume of trading by institutional investors, which is measured by the summation of the four quarters' change in shareholdings of institutional investors divided by the total trading volume in a year, is negatively associated with the ethnic diversity of corporate boards as more shares are held by institutional investors for long-term purpose. I use the following regression model to examine the effect of ethnic diversity of corporate boards on relative volume of trading by institutional investors (II_RTV):

$$\text{II_RTV}_{it} = \alpha + \beta_1 \text{ETHNIC}_{i,t-1} + \beta_2 \text{LDIR}_{i,t-1} + \beta_3 \text{INEDpercent}_{i,t-1}$$
$$+ \beta_4 \text{Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{AgeDiversity}_{i,t-1} + \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1}$$
$$+ \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1} + \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE}_{i,t-1} + \gamma_{11} \text{AQMeasure}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (16)$$

$$\text{ETHNIC} = (1)\ \text{DINDEX}_{i,t-1} \quad (2)\text{NON_Cpercent}_{i,t-1}$$

I find that ethnic diversity is negatively associated with the relative volume of trading by institutional investors. Results are shown in Table 23.1. The coefficients of DINDEX (coefficient = -6.477, t-stat = 3.39) and NON_Cpercent (coefficient= -9.855, t-stat= -3.38) are negative and statistically significant both at the 0.01 level.

[Insert Table 23.1 here]

I split the sample into firms with high percentage of shares held by institutional investors and firms with low percentage of shares held by institutional investors and repeat the same regressions. Results remain significant for two variables, the coefficients of DINDEX (coefficient= -8.379, t-stat= -3.19) and NON_Cpercent (coefficient= -13.138, t-stat= -3.26) for the high percentage of shares held by institutional investors group are negative and statistically significant both at the 0.01 level. For firms with low percentage of shares held by institutional investors group, the coefficients for NON_Cpercent (coefficient=-7.225, t-stat=-1.65) is negative and statistically significant at 10% level and the coefficient of DINDEX (coefficient=-4.798, t-stat=1.64) is negative but not statistically significant. The results show that the relative volume of trading by institutional investors is more negatively associated with ethnic diversity for high percentage of shares held by institutional investors firms. Results are shown in Table 23.2.

[Insert Table 23.2 here]

Moreover, I split the sample into firms with high concentration of institutional investors' ownership and firms with low concentration of institutional investors' ownership and repeat the same regressions. Results remain significant for the two variables, the coefficients of DINDEX (coefficient= -10.206, t-stat= -3.39) and NON_Cpercent (coefficient= -16.042, t-stat= -3.57) for the high concentration of institutional investors' ownership group are negative and statistically significant at the 0.01 level. No statistically significant result is found for the firms with low concentration of institutional investors' ownership. Results are shown in Table 23.3.

[Insert Table 23.3 here]

Furthermore, I split the sample into firms with more number of institutional investors and firms with smaller number of institutional investors and repeat the same regressions. Results remain significant for the two variables, the coefficients of DINDEX (coefficient= -12.759, t-stat= -4.19) and NON_Cpercent (coefficient= -20.423, t-stat= -4.39) for the smaller number of institutional investors group are negative and statistically significant both at the 0.01 level. No statistically significant result is found for the firms with more number of institutional investors. Results are shown in Table 23.4.

[Insert Table 23.4 here]

The results suggest that ethnic-diversified corporate board affects the relative trading volume of institutional investors for those firms with high percentage of shares held by institutional investors. In addition, ethnic-diversified corporate board affects the relative trading volume of institutional investors for firms with high concentration of institutional investors' ownership since many institutional investors in this group may hold the shares for long-term purpose. Moreover, ethnic-diversified corporate board affects the relative trading volume of institutional investors for those firms with smaller number of institutional investors since these institutional investors may also hold shares for long-term purpose.

Since long-term large shareholders put more efforts and resources to engage in value-enhancing activities through direct or indirect intervention, when the potential to enhance firm value over time increases, it is more likely for the change in

institutional shareholdings to increase when the relative volume of trading by institutional investors is low. I use the following regression model to examine the effect of the relative volume of trading by institutional investors on the change in percentage of shares held by institutional investors (Δ Percentage held by II):

$$\Delta \text{Percentage held by II}_{i,t+1} = \alpha + \Theta_1 \text{II_RTV}_{i,t} + \beta_1 \text{LDIR}_{i,t-1} + \beta_2 \text{INEDpercent}_{i,t-1} + \beta_3 \text{Caucasian_Fem_No}_{i,t-1} + \beta_4 \text{AgeDiversity}_{i,t-1} + \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1} + \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1} + \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1} + \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE}_{i,t-1} + \gamma_{11} \text{AQMeasure}_{i,t-1} + \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (17)$$

I find that the relative volume of trading by institutional investors is negatively associated with change in percentage of shares held by institutional investors. The coefficients of the relative volume of trading by institutional investors, II_RTV, (coefficient = -0.010, t-stat = -2.08) is negative and statistically significant at the 0.05 level. Results are shown in Table 23.5.

[Insert Table 23.5 here]

The results suggest that the lower the relative volume of trading by institutional investors, the higher the chance for the increase in percentage of shares held by institutional investors over time.

4.8.5 Ethnic diversity, trading of institutional investors and firm-specific information

Transparent information environment facilitates informed trading and the transmission of firm-specific information into share prices. Institutional investors have more incentive and resources to collect information as compared with individual investors. I expect that the volume of trading by institutional investors (II_Trade), which is measured by the summation of the four quarters' change in shareholdings scaled by the total number of shares outstanding, is positively associated with the idiosyncratic volatility.

I use the following regression model to examine the effect of volume of trading by institutional investors on firm-specific information.

$$\psi_{it} = \alpha + \beta_1 \text{ETHNIC}_{i,t-1} + \Theta_1 \text{II_Trade} + \beta_2 \text{LDIR}_{i,t-1} + \beta_3 \text{INEDpercent}_{i,t-1}$$
$$+ \beta_4 \text{Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{AgeDiversity}_{i,t-1} + \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1}$$
$$+ \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1} + \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE}_{i,t-1} + \gamma_{11} \text{AQMeasure}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (18)$$
$$\text{ETHNIC} = (1)\ \text{DINDEX}_{i,t-1} \quad (2)\text{NON_Cpercent}_{i,t-1}$$

Results remain significant for the two variables, the coefficients of DINDEX (coefficient= 0.153, t-stat= 2.29) and NON_Cpercent (coefficient= 0.269, t-stat= 2.62) are positive and statistically significant at the 0.05 and 0.01 level respectively. I find that volume of trading by institutional investors is positively associated with the idiosyncratic volatility of return. Results of the above model are shown in Table 24. The coefficients of II_Trade (coefficients = 0.029 and 0.029, t-stat =

9.90 and 9.90) are positive and statistically significant at the 0.01 level.

[Insert Table 24 here]

The ethnic-diversified corporate boards affect the relative trading volume of institutional investors for firms with high concentration of institutional investors' ownership. The concentration of shareholdings of institutional shareholders may imply they hold shares for long-term. Long-term institutional investors may intervene portfolio firms' corporate governance including the ethnic diversity of the boards more intensively. Ethnic diversity of the boards attracts institutional investors to invest. Long-term institutional investors intervene the ethnic diversity of the boards. There are potential endogeneity problems between ethnic diversity of the boards and institutional investors. According to my test results, both ethnic diversity of the boards and institutional investors' trading activities are positively associated with firm-specific information incorporated in share prices. In order to cope with the endogeneity problems, I specify ETHNIC and Concentration of II as endogenous variables and run 2SLS regression for two simultaneous equations as follows:

$$\psi_{it} = \alpha + \beta_1 \text{ETHNIC}_{i,t-1} + \beta_2 \text{LDIR}_{i,t-1} + \beta_3 \text{INEDpercent}_{i,t-1}$$
$$+ \beta 4 \text{ Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{AgeDiversity}_{i,t-1} + \gamma_1 \text{EINDEX}_{i,t-1} + \gamma_2 \text{AGE}_{i,t-1}$$
$$+ \gamma_3 \text{DIVER}_{i,t-1} + \gamma_4 \text{DD}_{i,t-1} + \gamma_5 \text{LEV}_{i,t-1} + \gamma_6 \text{MB}_{i,t-1} + \gamma_7 \text{MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{VROE i,t-1} + \gamma_{11} \text{AQMeasure}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (19)$$

$$\psi_{it} = \alpha + \Theta_1 \text{Concentration of II}_{i,t-1} + \Theta_2 \text{II_Trade}_{i,t-1} + \beta_1 \text{LDIR}_{i,t-1}$$

$$+ \beta_2 \text{ INEDpercent}_{i,t-1} + \beta_3 \text{ Caucasian_Fem_No}_{i,t-1} + \beta_4 \text{ AgeDiversity}_{i,t-1}$$
$$+ \gamma_1 \text{ EINDEX}_{i,t-1} + \gamma_2 \text{ AGE}_{i,t-1} + \gamma_3 \text{ DIVER}_{i,t-1} + \gamma_4 \text{ DD}_{i,t-1} + \gamma_5 \text{ LEV}_{i,t-1}$$
$$+ \gamma_6 \text{ MB}_{i,t-1} + \gamma_7 \text{ MERGER}_{i,t-1} + \gamma_8 \text{ SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{ VROE}_{i,t-1}$$
$$+ \gamma_{11} \text{ AQMeasure}_{i,t-1} + \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \quad (20)$$

For the whole sample, the coefficients for DINDEX and NON_Cpercent are not statistically significant. The coefficients of Concentration of II (coefficient= 0.689, t-stat= 3.14) and II_Trade (coefficient= 0.028, t-stat= 14.78) are positive and statistically significant both at the 0.01 level. Results are shown in Table 25.1.

[Insert Table 25.1 here]

I split the sample by high concentration and low concentration. For the subsample of high concentration, the coefficients of DINDEX are not statistically significant. The coefficients of Concentration of II (coefficient= 0.520, t-stat= 2.14) are positive and statistically significant at the 0.05 level and II_Trade (coefficient= 0.024, t-stat= 9.28) are positive and statistically significant both at the 0.01 level. Results are shown in Table 25.2.

[Insert Table 25.2 here]

For the subsample of low concentration, the coefficients for DINDEX (coefficient= 4.960, t-stat= 2.12) and NON_Cpercent (coefficient= 7.623, t-stat= 2.19) are significant both at the 0.05 level. The coefficients of Concentration of II are not statistically significant. The coefficients of II_Trade (coefficient= 0.039, t-stat=

13.98) are positive and statistically significant at the 0.01 level. Results are shown in Table 25.3.

[Insert Table 25.3 here]

For firms with high concentration of institutional investors, major institutional investors may have impact on ethnic diversity of corporate boards. Those institutional investors play an important role in the collection of firm-specific information. Therefore, there is no association between the ethnic diversity of corporate boards and firm specific information. However, for firms with low concentration of institutional investors, institutional investors do not have impact on the ethnic diversity of the corporate boards. Ethnic diversity of the corporate boards plays a role in attracting more institutional investors to invest and collect firm-specific information. Therefore, there is positive association between ethnic diversity of corporate boards and firm-specific information.

To conclude, ethnic diversity of corporate boards and the percentage of non-Caucasians play a significant effect on attracting institutional investors and in enhancing the content of private firm-specific information collected by institutional investors.

4.8.6 Ethnic diversity, analyst coverage and firm-specific information

According to Chan and Hameed (2006), security analysts frequently issue earnings forecasts for individual firms. In order to make valuable and accurate recommendations, they have to acquire firm-specific information in addition to mapping of market and industry information. If security analysts have more

incentive to produce more firm-specific information, share prices of firms with more analyst coverage tend to incorporate more firm-specific information. On the other hand, if security analysts have more incentive to produce more market-wide information instead of firm-specific information for reducing information collection cost, share prices of those firms with more analyst coverage tend to incorporate more market-wide information. The demand for analyst services is likely to be an increasing function of firm size. The private information for large size firms is more valuable than the private information for small size firms. As a consequence, the larger the firm size, the more the shareholders, so that the greater demand for analyst services and the more incentives for analysts to search for private information. Institutional investors such as pension funds and fund managers demand more analyst services and private information since they use the analyst reports as evidence for their due diligence (O'Brien and Bhushan, 1990).

According to Bhushan (1989), larger firms tend to attract more analysts because of the economies of scale in following a company. The correlation of firm returns and market returns reduces the information collection costs, which in turn lead to increase in supply of analysts services.

The demand for analyst services may increase if the board of directors is more ethnic-diverse and considered as more independent. I expect that ethnic diversity may increase the aggregate demand for analyst services, which is measured by the number of analysts following, and is positively associated with the ethnic diversity of the board. However, if the firm is of a large size one, the demand for analyst services is already high and the effect of ethnic diversity of the board on the number of analysts following will be relatively smaller as compared with the firms of smaller size. Therefore, we expect a negative sign on the interaction term of the

ethnic diversity and firm size (ETHNIC_SIZE).

I then examine the association between the number of analysts following and the ethnic diversity by controlling for firm size and their interaction effects. I use the following regression model to examine the effect of ethnic diversity on the number of analysts following (NA):

$$NA_{i,t} = \alpha + \beta_1 ETHNIC_{i,t} + \beta_2 ETHNIC_SIZE_{i,t} + \beta_3 LDIR_{i,t} + \beta_4 INEDpercent_{i,t} + \beta_5 Caucasian_Fem_No_{i,t} + \beta_6 AgeDiversity_{i,t} + \gamma_1 EINDEX_{i,t} + \gamma_2 AGE_{i,t} + \gamma_3 DIVER_{i,t} + \gamma_4 DD_{i,t} + \gamma_5 LEV_{i,t} + \gamma_6 MB_{i,t} + \gamma_7 MERGER_{i,t} + \gamma_8 SIZE_{i,t} + \gamma_9 ROE_{i,t} + \gamma_{10} VROE_{i,t} + \gamma_{11} AQMeasure_{i,t} + \sum Industry\ Dummies + \sum Year\ Dummies + \varepsilon_{i,t} \quad (21)$$

I find that ethnic diversity is positively associated with the number of analysts following. The coefficients of DINDEX (coefficient= 18.143, t-stat= 6.19) and NON_Cpercent (coefficient= 27.519, t-stat= 6.22) are positive and statistically significant both at the 0.01 level. I find that the interaction of the ethnic diversity and firm size is inversely associated with the number of analysts following. The coefficients of DINDEX _SIZE (coefficient= -2.471, t-stat= 6.61) and NON_Cpercent _SIZE (coefficient= -3.781, t-stat= 6.75) are negative and statistically significant both at the 0.01 level. Results of the above model are shown in Table 26.

[Insert Table 26 here]

Also, I use the number of analysts' following as an additional control variable for the main tests of section 3.4 to examine whether the firm-specific information content of the stock prices is mainly caused by the number of analysts' following. The results of the main tests remain positive and statistically significant after

including the additional control variable, the number of analysts following, Analysts No.

$$\psi_{it} = \alpha + \Theta_1 \text{ Analysts No} + \beta_1 \text{ ETHNIC}_{i,t-1} + \beta_2 \text{ LDIR}_{i,t-1} + \beta_3 \text{ INEDpercent}_{i,t-1}$$
$$+ \beta_4 \text{Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{ AgeDiversity}_{i,t-1} + \gamma_1 \text{ EINDEX}_{i,t-1} + \gamma_2 \text{ AGE}_{i,t-1}$$
$$+ \gamma_3 \text{ DIVER}_{i,t-1} + \gamma_4 \text{ DD}_{i,t-1} + \gamma_5 \text{ LEV}_{i,t-1} + \gamma_6 \text{ MB}_{i,t-1} + \gamma_7 \text{ MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{ SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{ VROE}_{i,t-1} + \gamma_{11} \text{ AQMeasure}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \qquad (22)$$

I find that ethnic diversity is still positively associated with the firm-specific information. The coefficients of DINDEX (coefficient= 0.195, t-stat= 2.98) and NON_Cpercent (coefficient= 0.334, t-stat= 3.33) are positive and statistically significant both at the 0.01 level. I find that the number of analysts following, Analysts No, is positively associated the firm-specific information. The coefficients of Analysts No (coefficient= 0.015 and 0.015, t-stat= 10.18 and 10.21) are positive and statistically significant at the 0.01 level. Results of the above model are shown in Table 27.

[Insert Table 27 here]

4.8.7 Ethnic diversity of different board committees and firm-specific information

In section 3.5, I find that the presence of African Americans in different board committees is relatively high. The other non-Caucasian groups also have presence in different committees. I use the percentage of non-Caucasians in different committees to replace the independent variable ETHNIC for the main tests of section 3.4 to examine whether the non-Caucasians' presence in certain key committees has impact on the firm-specific information incorporated in share prices.

$$\psi_{it} = \alpha + \beta_1 \text{ NONC_COMMITEE_percent}_{i,t-1} + \beta_2 \text{ LDIR}_{i,t-1} + \beta_3 \text{ INEDpercent}_{i,t-1}$$
$$+ \beta_4 \text{ Caucasian_Fem_No}_{i,t-1} + \beta_5 \text{ AgeDiversity}_{i,t-1} + \gamma_1 \text{ EINDEX}_{i,t-1} + \gamma_2 \text{ AGE}_{i,t-1}$$
$$+ \gamma_3 \text{ DIVER}_{i,t-1} + \gamma_4 \text{ DD}_{i,t-1} + \gamma_5 \text{ LEV}_{i,t-1} + \gamma_6 \text{ MB}_{i,t-1} + \gamma_7 \text{ MERGER}_{i,t-1}$$
$$+ \gamma_8 \text{ SIZE}_{i,t-1} + \gamma_9 \text{ROE}_{i,t-1} + \gamma_{10} \text{ VROE}_{i,t-1} + \gamma_{11} \text{ AQMeasure}_{i,t-1}$$
$$+ \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t} \qquad (23)$$

NONC_COMMITEE_percent :

1) NONC_AC_percent, percentage of non-Caucasians in audit committee
2) NONC_CG_percent, percentage of non-Caucasians in corporate governance committee
3) NONC_Nom_percent, percentage of non-Caucasians in nomination committee
4) NONC_Com_percent, percentage of non-Caucasians in compensation committee

No statistically significant result is found for the association between percentage of non-Caucasians in audit committee, NONC_AC_percent, and the firm-specific information. The coefficient of NONC_CG_percent (coefficient= 0.131, t-stat= 2.05) is positive and statistically significant at the 0.05 level. The coefficient of NONC_Nom_percent (coefficient= 0.117, t-stat= 1.88) is positive and statistically significant at the 0.10 level. The coefficient of NONC_Comp_percent (coefficient= 0.122, t-stat= 2.03) is positive and statistically significant at the 0.05 level. Results of the above model are shown in Table 28.

[Insert Table 28 here]

Chapter 5 Conclusion

This study examines the association between ethnic diversity of the corporate board of directors and firm-specific information incorporated in share prices. I summarize the findings in section 5.1. I discuss the implications and limitations of this study and possible future research directions in sections 5.2, 5.3 and 5.4 respectively.

5.1 Summary of the results

This study is to examine whether ethnic-diversified boards in listed firms in U.S. increase the incentives of investors for the collection of firm information and encourage the transmission of more firm-specific information into share prices.

Using a sample of 5,243 firm-year observations from 2002 to 2012 of listed firms in the U.S. capital markets, I find a positive association relationship between ethnic diversity, measured by the diversity index and the number of non-Caucasians, and firm-specific information, measured by idiosyncratic volatility of returns for U.S.-listed firms after controlling for other variables such as corporate governance, board diversity including gender diversity and age diversity, board independence, accruals quality and other firm characteristics.

There is no association between ethnic diversity, measured by dummy variable DIVERSE, and firm-specific information. Therefore, ethnic diversity does not play a role in improving the information environment for firms that simply include an African American on corporate boards for public image or tokenism. I find positive association between all four ethnic diversity variables and the idiosyncratic volatility of return when removing all firm years with one non-Caucasian who is an African American.

I use the prediction model, instrumental variable model and change model to address the endogeneity issue.

I address the issue that minority director presence is predicted for larger and more visible firms that are under pressure to meet social expectations. The prediction model is constructed based on the prediction of gender diversity model of Gul et al. (2011). In the prediction model, I find that there is positive association between the unexplained component of ethnic diversity by firm characteristics and firm-specific information measured by the idiosyncratic volatility of return.

I applied the ethnic diversity as well as the percentage of non-Caucasians of the state of the head office of a firm as the instrumental variables. I find that the extent of presence of non-Caucasians in the population of the state of the head office has a positive association with the idiosyncratic volatility of return.

From the change model, I find that there is a positive association between the change in board diversity in time t-1 to time t and the change of idiosyncratic volatility of return from time t-1 to time t+2.

I disentangle the gender diversity effect and the ethnic diversity effect on firm-specific information by adding one more control variable, the number of non-Caucasian females, to the main regression model. I find that there is no statistically significant association between the number of non-Caucasian females and firm-specific information. The association between ethnic diversity and share price informativness remains positive and statistically significant.

In additional tests, I split sample into subsamples: with merger and without merger activities; high profit volatility and low profit volatility measured by volatility of return on equity; high growth and low growth measured by market to book ratio; and high leverage and low leverage.

By splitting the sample into group with merger and group without merger activity subsamples, I find that the impact of ethnic diversity on them is positively associated with share price informativenss for firms with merger activity. For firms without merger activity, I find no statistically significant association for ethnic diversity and firm-specific information. I also find positive association between ethnic diversity, measured by DINDEX and firm-specific information. However, the coefficient is both economically and statistically less significant than that of the group with merger activity subsample.

By splitting the sample into high profit volatility and low profit volatility subsamples, I find that ethnic diversity is positively associated with share price informativenss for firms with high profit volatility and no statistically significant association is found in the low profit volatility subsample.

By splitting the sample into high growth and low growth measured by market to book ratio subsamples, I find that ethnic diversity is positively associated with share price informativenss for high growth firms and no statistically significant association is found in the low growth subsample.

By splitting the sample into high leverage and low leverage subsamples, I find that ethnic diversity is positively associated with share price informativenss for firms with high leverage and no statistically significant association is found in the low leverage subsample.

For the robustness check, I follow Gul et al. (2011) and use FINC as the independent variables, the results are consistent in respect of the two dependent variables of ethnic diversity, diversity index and the percentge of non-Caucasians.

Based on the sample of 5,192 firm-year observations from 2002 to 2012 in the US market, I split the sample into high institutional investors concentration and low

institutional investors concentration subsamples, and I find that ethnic diversity is positively associated with share price informativenss for firms with high institutional investors concentration and no statistically significant association is found in the low institutional investors concentration subsample. I run a regression by adding three more independent variables relating to the institutional shareholdings: 1) number of institutional investors; 2) the concentration of institutional investors' shareholdings; and 3) the percentage of shares held by institutional investors to the main regression model. I find that there are statistically significant positive associations between the number of institutional investors and the concentration of institutional investors' shareholdings with firm-specific information. The association between ethnic diversity and share price informativness remains positive and statistically significant.

In addition, I find that ethnic-diversified corporate boards attract more institutional investors and the regression results show there is positive association between ethnic diversity, measured by the diversity index and the number of non-Caucasians, and the number of institutional investors. Moreover, the relative trading volume of institutional investors is smaller for firms with ethnic-diversified corporate boards as the holding of shares are more likely for long-term purpose. I split the sample into high percentage of shares held by institutional investors and low percentage of shares held by institutional investors subsamples. I find that ethnic diversity is negatively associated with the relative trading volume of institutional investors for firms with high percentage of shares held by institutional investors and no statistically significant association is found in the low percentage of shares held by institutional investors subsample. I split the sample into high institutional investors concentration and low institutional investors concentration subsamples, I

find that ethnic diversity is negatively associated with the relative trading volume of institutional investors for firms with high institutional investors concentration and no statistically significant association is found in the low institutional investors concentration subsample. Furthermore, I split the sample into a group with a smaller number of institutional investors and a group with a larger number of institutional investors subsamples, and I find that ethnic diversity is negatively associated with the relative trading volume of institutional investors for the group of firms with a smaller number of institutional investors and no statistically significant association is found in the group with a larger number of institutional investors subsample. I also find that there is increase in the percentage of shareholdings on institutional investors for firms with lower relative trading volume of institutional investors. Moreover, I find that the more trading activities are carried out by institutional investors, measured by the summation of the four quarters' absolute change in shareholdings scaled by the number of outstanding shares, the more firm-specific information is incorporated in share prices.

The results of this study have shown the association between the ethnic diversity of the corporate boards and idiosyncratic volatility of the share prices which may indicate that institutional investors are more willing to collect information of a firm, with an ethnic-diversified corporate board, in which a better information environment is created. Such association may provide some evidence to support public policy initiatives for quotas of ethnic minorities on corporate boards.

5.2 Implications

In addition to the diversity of incentives (executive and independent non-executive directors) and board gender diversity (innate or acquired socialization diversity

between male and female directors), I introduce board ethnic diversity which can further enhance the board independence and the linkage with the external environment. The results indicate that ethnic diversity is positively associated firm-specific information after controlling for firm characteristics including accruals quality, gender diversity and age diversity. Within the interpretation of idiosyncratic risk as an index of information flow, the findings imply a tight link between ethnic diversity of the corporate boards for corporate control via some of the board committees and better business potential for attracting more institutional investors. My exploratory analysis suggests that ethnic diversity of the corporate boards improves firm-specific information by attracting more institutional investors to hold their shares for long-term purpose and encouraging more private information collection for monitoring their long-term investment portfolios.

5.3 Limitations

To the best of my knowledge, this study is the first one to examine the effect of board ethnic diversity on firm-specific information incorporated in share prices. However, future research on this and the related issues need to take into consideration of two limitations of this study. Firstly, the shareholder rights index (E-index) is adopted as the sole governance variable rather than other many possible additional controls since the requisite data is not available to my study.

The data of directors' ethnicity for the period 2002-2012 is obtained from database of Riskmetrics, Directors Legacy database (2006-2006) and Directors database (2007-2012). The information regarding the ethnicity of some of the directors is missing. Therefore, only firm-years with known ethnicity of all directors are included. Ethnic diversity is estimated from the available information which is

inevitably incomplete.

5.4 Future research directions

I still do not attempt to touch the black box of how corporate governance is improved and how firm performance is improved by having directors from different ethnic groups. According to Hillman et al. (2002), African American directors are more likely to be support specialists or community influentials rather than business experts. For Asian directors, most of them are information technology experts or are appointed by firms for penetration to the new market. How corporate governance and how a firm's performance are improved by directors of different ethnic groups is an interesting issue for future research.

Gul et al. (2011) find a positive association between the presence of female directors in the corporate boards and firm-specific information and suggests that the presence of female directors increases firm-specific information incorporated in share price by increasing voluntary public disclosures in large firms and by facilitating the collection of private information for small firms. In this study, I suggest ethnic diversity improves firm-specific information incorporated in share price via the collection of private information by those institutional investors holding the shares for long-term purpose. How information environment is improved is another area for future study.

Appendix 1

US Pan Asian American Chamber of Commerce ("USPAACC") - The Asian American corporate directors' awards honor

Name	Company	Education and other background
Jagjeet Bindra	Edison International	M.S. in Chemical Engineering, M.B.A degree
Shumeet Banerji	Condorcet HP	Ph.D from the Kellogg School of Management
Vanessa Chang	EL & EL Investments Edison International	Certified Public Accountant with B.A. degree
John Chen	Wells Fargo and Walt Disney	Bachelor degree in Electrical Engineering Master degree from California Institute of Technology
Lewis Chew	Dolby Laboratories	B.S. degree in Accounting Financial and strategic business management experience
David Ching	The TJX Companies	B.S. in Electrical Engineering M.S. in Computer Sciences
Dinyar Devitre	Altria Group, Western Union and SABMiller	B.A. degree M.B.A. degree Philip Morris International 1)President, Philip Morris Asia (Hong Kong 1980 -1990). 2)Marketing Services Manager, Asia-Pacific (Melbourne 1974 -1975) Godfrey Phillips India Ltd-Managing Director (Bombay 1976 - 1979).
Victor Dzau	Institute of Medicine	Swedish Royal College of Medicine -Gustav Nylin Medal Six honorary doctorates Member of the Institute of Medicine of the National Academy of Sciences

Appendix 1 (Continued)

US Pan Asian American Chamber of Commerce ("USPAACC") - The Asian American corporate directors awards honor

Name	Company	Education and other background
Raj Gupta	Hewlett Packard, Tyco, Delphi Automotive	B.S. degree in Mechanical Engineering M.S. degree in Operations Research M.B.A. in Finance
Rajive Johri	ConAgra Foods	International executive experience of building businesses and executing business strategies : IBM, Citigroup and J.P. Morgan Chase
Sanjay Khosla	Best Buy and Zoetis	Developing Markets in over 60 countries of Kraft Foods (now Mondelez International) President, 2007 – 2013.
Stewart Kwoh	The California Endowment	Honorary doctorates from Williams College and Suffolk School of Law Has American parents teaching in China in Nanjing
Patricia Loui	Export-Import Bank	A full-time member of the Board of Directors of The Export-Import Bank of the United States Nominated by President Obama in May 2011
Khan Thien Tran	Pacific Life	B.A. in Economics and Political science from Whittier College M.B.A degree from UCLA He is a finance expert.
Hatim A. Tyabji	Best Buy Co., Inc.	B.S. and M.S. in Electrical Engineering and M.B.A He has served on a number of other public and private company boards. Specialize in enterprise software, payment processing and wireless technologies.
Carolyn Woo	Catholic Relief Services	B. Econ. with highest distinction and honors, M.S. in Industrial Administration with award as Krannert Scholar Ph.D from Purdue University

Appendix 2

Definition of variables		
Logistic relative idiosyncratic volatility	ψ	=Annual logistic transformed relative idiosyncratic volatility estimated from the market model
Future earnings incremental explanatory power	FINC	=Increase in the coefficient of determination (R^2) from the annual regression of two-digit SIC code industry with at least ten firms
Ethnic diversity index	DINDEX	= Diversity index, summation of the square of the proportion of each of the 5 ethnic groups (Caucasian, Hispanic, Asian, African American, Native American),for example, if a board of 5 members, each of them belongs to a different ethnic group , then the DINDEX=1 - $(1/5)^2$x 5= 0.8
Diversity dummy	Diverse	=Dummy variable which equals 1 if directors belong to different ethnic groups
Number of ethnic groups	TYPES	=Number of ethnic groups of directors on board
Log number of ethnic groups	LTYPES	=Natural log of number of ethnic groups of directors on board
Number of non-Caucasian directors	NON_C	=Number of non-Caucasian directors on board
Proportion of non-Caucasian directors	NON_Cpercent	=Percentage of non-Caucasian directors on board
Number of directors	DIR	=Number of directors on board
Log number of directors	LDIR	=Natural log of number of directors on board
Number of independent non-executive directors	INED	=Number of independent non-executive directors on board
Log number of independent non-executive directors	LINED	=Natural log of number of independent non-executive directors on board
Proportion of independent non-executive directors	INEDpercent	=Percentage of independent non-executive directors on board
Number of female directors	FemaleNo	=Number of female directors on board
Number of Caucasian female directors	Caucasian_Fem_No	=Number of Caucasian female directors on board
Number of non-Caucasian female directors	NON_C_Fem_No	=Number of non-Caucasian female directors on board
Proportion of female directors	FEMpercent	=Percentage of female directors on board
Age diversity of directors	Age Diversity	=1 - summation of the square of the proportion of each of the six age groups (classify the directors under six groups: using 10 percentile, 25 percentile, 50 percentile, 75 percentile and 90 percentile as partition).
Entrenchment Index	EINDEX	= Bebchuk et al (2009), entrenchment index, which is based on six anti-takeover provisions
Firm age	AGE	=Log age defined as the number of years the firm is included in the Compustat database
Diversification dummy	DIVER	=Annual dummy variable that equals 1 when a firm operates in multiple segments, and 0 otherwise
Dividend dummy	DD	=Annual dividend dummy, which equals 1 if the firm pays dividend, and 0 otherwise
Leverage	LEV	=The ratio of long term debt to total assets

Appendix 2 (Continued)

Definition of variables		
Market-to-book	MB	=Log of the market-to-book ratio
Merger dummy	MERGER	=Dummy variable which equals 1 if Compustat item AFTNT1="AA", "AB", "AR", "AS", "FA","FB", "FC", ""FD", "EF", "FF", or "FE", and 0 otherwise
Market capitalization	SIZE	=Log of annual market capitalisation
Return on equity	ROE	=Return on equity calculated as earnings before extraordinary items divided by book value of equity
Volatility of return on equity	VROE	=Sample variance of annual ROE over the last 3 years
Accruals quality	AQMeasure	=Annual cross –sectional estimations of firm- and year- specific residuals, which form the basis for earnings quality metrics: AQMeasure j,t (-1) times the standard deviation of firm j's residuals calculated over years 2000 through 2013. Larger standard deviations of residuals (smaller AQ Measures) indicate poorer accruals quality.

Appendix 2 (to be continued)

Additional variables in change model & prediction model & additional tests		
Residual diversity index	Residual_DINDEX	=Residual of diversity index
Residual proportion of non-Caucasians	Residual_NON_Cpercent	=Residual of percentage of non-Caucasians on board
Return on assets	ROA	=Return on total assets calculated as earnings before extraordinary items divided by total assets
Total asset	LOGTA	=Log of total assets
Salesgrowth	SALESGROWTH	=Average sales growth over prior three fiscal years
Directorships	DIRECTORSHIPS	=Average number of outside directorships for non-executive directors
Total risk	TOTALRISK	=Standard deviations in daily return over fiscal year (standardized to mean=0 and standard deviation of 1)
Tobin's Q	TOBINSQ	=Ratio of total assets minus book value of equity plus market value to total
Return on assets	RETURN	=Annual share return during fiscal year
Value weighted market return	VWRETD	=Annual market return over fiscal year
Estimated institutional shareholdings	SHAREHOLDINGS	=Total of shareholdings reported at the quarter end prior to the year end date
Ethnic diversity of the state of the head office	STATE DIVERSITY	=Diversity index of the state of the head office
Number of institutional investors	Number of II	=Number of 13-F institutional owners
Concentration of institutional investors ownership	Concentration of II	=Ownership concentration-Herfindahl-Hirshman index
Percentage of shares held by institutional investors	Percentage held by II	=Percentage of shares outstanding held by institutional investors
Relative trading volume of institutional investors	II_RTV	=Summation of the four quarters' change in shareholdings of institutional investors divided by the total trading volume in a year
Trading volume of institutional investors	II_Trade	=Summation of the four quarters' change in shareholdings of institutional investors divided by the number of shares outstanding

Table 1 Under-representation of minority directors on board

	Population %	Population %	Predicted Director Population %	Educated %	Predicted % of Highly Educated	Predicted Director Ratio	Number of Directors	% of Directors	Actual Director Ratio
Year	2000	2010	2003				2003	2003	
Asian	3.8	4.9	4.1	49	2.0	1:11.1	204	2.0	1:50
African American	12.3	12.6	12.4	17	2.1	1:10.6	618	6.1	1:16.5
Hispanic	12.5	16.3	13.6	11	1.5	1:14.9	195	1.9	1:52
Casucasian	75.1	72.4	74.3	30	22.3	1:1	10,210	100.0	1:1

Table 2.1

Comparison of means of firm characteristics for firms with and without African Americans

	Without African American N=3312	With African American N=1931	Difference	t - statistics	
Variables	Mean	Mean			
ψ	0.768	0.663	-0.105	4.18	***
LDIR	2.105	2.334	0.229	39.11	***
INEDper	0.751	0.798	0.047	13.25	***
FemaleNo	0.803	1.722	0.919	35.95	***
Age Diversity	0.699	0.710	0.011	5.40	***
EINDEX	2.268	2.260	-0.008	-0.21	
AGE	2.918	3.088	0.170	15.05	***
DIVER	0.505	0.596	0.091	6.41	***
DD	0.471	0.763	0.292	21.64	***
LEV	0.154	0.193	0.039	9.60	***
MB	0.844	0.979	0.135	7.29	***
MERGER	0.268	0.228	-0.040	-3.19	***
SIZE	7.473	8.694	1.221	30.57	***
ROE	0.103	0.157	0.054	8.97	***
VROE	0.128	0.132	0.004	0.19	
AQMeasure	-0.088	-0.075	0.013	10.34	***

Table 2.2

Comparison of means of firm characteristics for firms with and without Asians

	Without Asian N=4239	With Asian N=1004	Difference	t - statistics	
Variables	Mean	Mean			
ψ	0.733	0.717	-0.016	0.52	
LDIR	2.189	2.194	0.000	0.03	
INEDper	0.765	0.783	0.018	4.28	***
FemaleNo	1.132	1.182	0.050	1.45	
Age Diversity	0.701	0.708	0.007	2.66	***
EINDEX	2.315	2.054	-0.261	5.49	***
AGE	2.985	2.963	-0.022	1.57	
DIVER	0.553	0.474	-0.075	4.31	***
DD	0.603	0.474	-0.129	7.50	***
LEV	0.175	0.139	-0.036	7.18	***
MB	0.886	0.929	0.043	1.90	*
MERGER	0.254	0.250	-0.004	0.28	
SIZE	7.864	8.172	0.308	5.81	***
ROE	0.125	0.113	-0.012	1.69	*
VROE	0.120	0.170	0.050	1.80	*
AQMeasure	-0.081	-0.088	-0.007	4.37	***

Table 3.1

Summary of amendments of database

	Original database	Amended database
	Director years	Director years
Caucasian	87,776	122,433
African American	5,836	6,664
Asian	2,040	3,396
Hispanic	1,848	2,398
Native American	31	31
unknown	53,009	15,618
Total	150,540	150,540

Table 3.2

Details of amendments

	Director years
African American classified as Caucasian	263
Asian classified as Caucasian	244
Hispanic classified as Caucasian	238
Native American classified as Caucasian	6
Caucasian classified as African American	100
Asian classified as African American	305
Hispanic classified as African American	7
Caucasian classified as Asian	39
African American classified as Asian	23
Caucasian classified as Native American	17
Caucasian classified as unknown	35,126
African American classified as unknown	933
Asian classified as unknown	864
Hispanic classified as unknown	457
Native American classified as unknown	11

Table 3.3 Sample construction

	All years	2002	2003	2004	2005	2006
Number of observation with board ethnicity information in year t (year 2002-2012)[note1]	10313	634	654	652	666	707
(-) financial institutions (SIC code between 6000 and 6999)	2756	128	136	140	142	149
and utilities (SIC code between 4900 and 4999)						
Initial sample	8044	506	518	512	524	558
(-) majorities are non-Caucasians	53	1	1	1	1	2
(-) observations with missing control variables	2748	162	184	168	175	175
Final sample	5243	343	333	343	348	381

	2007	2008	2009	2010	2011	2012
Number of observation with board ethnicity information in year t (year 2002-2012)[note1]	821	949	1087	1231	1429	1483
(-) financial institutions (SIC code between 6000 and 6999)	140	210	253	279	339	353
and utilities (SIC code between 4900 and 4999)						
Initial sample	681	739	834	952	1090	1130
(-) majorities are non-Caucasians	3	5	6	10	12	11
(-) observations with missing control variables	280	206	332	309	326	431
Final sample	398	528	496	633	752	688

Note 1: The observations are obtained from Riskmetrics. Directors Legacy for 2002 -2006 data and Directors for 2007-2012 data.

Table 4 Descriptive statistics for variables (N=5243)

		Mean	Median	q1	q3	Min	Max
Logistic relative idiosyncratic volatility	ψ	0.730	0.706	0.115	1.266	-1.640	6.749
Ethnic diversity index	DINDEX	0.144	0	0	0	0	1
Diversity Dummy	Diverse	0.546	1	0	1	0	1
Number of ethnic groups	TYPES	1.705	2	1	2	1	4
Log number of ethnic groups	LTYPES	0.959	1	1	1	1	2
Number of non-Caucasian directors	NON_C	0.853	1	0	1	0	6
Proportion of non-Caucasian directors	NON_Cpercent	0.087	0.091	0	0	0	1
Number of directors	DIR	9.176	9	8	11	4	18
Log number of directors	LDIR	2.189	2.197	2.079	2.398	1.609	2.639
Number of independent non-executive directors	INED	7.083	7.000	6.000	9.000	1.000	16.000
Log number of independent non-executive directors	LINED	2.054	2.079	1.946	2.303	1.386	2.565
Proportion of independent non-executive directors	INEDpercent	0.768	0.800	0.700	0.875	0.375	0.923
Number of Caucasian female directors	Caucasian_Fem_No	0.965	1.000	0.000	1.000	0.000	6.000
Number of non-Caucasians female directors	NON_C_Fem_No	0.176	0.000	0.000	0.000	0.000	3.000
Proportion of female directors	FEMpercent	0.116	0.111	0	0.182	0	0.375
Age diversity of directors	Agediversity	0.703	0.719	0.660	0.760	0.444	0.816
Entrenchment index	EINDEX	2.265	2	1	3	0.000	6
Firm age	AGE	2.981	3.091	2.773	3.296	1.792	3.434
Diversification dummy	DIVER	0.539	1	0	1	0	1

Table 4 Descriptive statistics for variables (N=5243) cont'd

		Mean	Median	q1	q3	Min	Max
Dividend dummy	DD	0.579	1	0	1	0	1
Leverage	LEV	0.168	0.158	0.025	0.258	0	0.836
Market-to-book	MB	0.894	0.846	0.466	1.291	-0.517	2.918
Merger dummy	MERGER	0.253	0	0	1	0	1
Market capitalization	SIZE	7.923	7.780	6.789	8.947	4.893	11.943
Return on equity	ROE	0.123	0.127	0.065	0.193	-0.866	0.979
Volatility of return on equity	VROE	0.130	0.002	0	0.010	0	7.138
Accruals quality	AQMeasure	-0.083	-0.080	-0.134	-0.041	-0.134	-0.001

Table 5 Pearson correlation (N=5243)

	ψ		DINDEX		Diverse		LTYPES		NON_C		NON_Cpercent		LDIR		INEDpercent	
ψ	1		-0.04	***	-0.05	***	-0.06	***	-0.05	***	-0.04	***	-0.10	***	-0.17	***
DINDEX	-0.04	***	1		0.87	***	0.94	***	0.96	***	1.00	***	0.31	***	0.21	***
Diverse	-0.05	***	0.87	***	1		0.92	***	0.79	***	0.91	***	0.39	***	0.21	***
LTYPES	-0.06	***	0.94	***	0.92	***	1		0.91	***	0.94	***	0.44	***	0.22	***
NON_C	-0.05	***	0.96	***	0.79	***	0.91	***	1		0.97	***	0.44	***	0.22	***
NON_Cpercent	-0.03	***	0.99	***	0.81	***	0.89	***	0.95	***	1	***	0.26	***	0.19	***
LDIR	-0.12	***	0.31	***	0.39	***	0.44	***	0.44	***	0.29	***	1		0.16	***
INEDpercent	-0.17	***	0.21	***	0.21	***	0.22	***	0.20	***	0.21	***	0.16	***	1	
Caucasian_Fem_No	-0.03	**	0.16	***	0.20	***	0.24	***	0.23	***	0.13	***	0.47	***	0.18	***
Age Diversity	-0.02		0.06	***	0.09	***	0.09	***	0.08	***	0.05	***	0.26	***	0.03	**
EINDEX	-0.22	***	-0.05	***	-0.02		-0.05	***	-0.05	***	-0.05	***	0.05	***	0.14	***
AGE	-0.23	***	0.14	***	0.15	***	0.18	***	0.18	***	0.14	***	0.32	***	0.12	***
DIVER	-0.07	***	0.02		0.04	***	0.05	***	0.04	***	0.01		0.15	***	0.04	***
DD	-0.17	***	0.16	***	0.17		0.21	***	0.21	***	0.14	***	0.32	***	0.08	***
LEV	0.01		0.04		0.04	***	0.06	***	0.06	***	0.04		0.19	***	0.14	***
MB	0.03	**	0.13	***	0.09	***	0.12	***	0.13	***	0.11	***	0.06	***	0.03	**
MERGER	0.02		-0.03		-0.03	**	-0.04	***	-0.02		-0.03	**	-0.01		0.01	
SIZE	-0.19	***	0.35	***	0.34	***	0.41	***	0.42	***	0.32	***	0.48	***	0.17	***
ROE	-0.08	***	0.11	***	0.08	***	0.11	***	0.12	***	0.12	***	0.16	***	0.05	***
VROE	0.02		0.03		0.03	*	0.03	*	0.02		0.02	*	-0.02	*	0.04	***
AQMeasure	-0.05	***	0.07	***	0.06	***	0.09	***	0.08	***	0.06	***	0.13	***	-0.05	***

Table 5 Pearson correlation (N=5243) (continued)

	Caucasian_Fem_No		AgeDiversity		EINDEX		AGE		DIVER		DD		LEV		MB	
ψ	-0.03	**	-0.02		-0.22	***	-0.23	***	-0.07	***	-0.17	***	0.01		0.03	**
DINDEX	0.16	***	0.06	***	-0.05	***	0.14	***	0.02		0.16	***	0.04	**	0.13	***
Diverse	0.20	***	0.09	***	-0.02	*	0.15	***	0.04	***	0.17	***	0.04	***	0.09	***
LTYPES	0.24	***	0.09	***	-0.05	***	0.18	***	0.05	***	0.21	***	0.06	***	0.12	***
NON_C	0.23	***	0.08	***	-0.05	***	0.18	***	0.04	***	0.21	***	0.06	***	0.13	***
NON_Cpercent	0.13	***	0.05	***	-0.05	***	0.11	***	0.01	***	0.14	***	0.03	***	0.12	***
LDIR	0.47	***	0.26	***	0.05	***	0.32	***	0.15	***	0.32	***	0.19	***	0.06	***
INEDpercent	0.18	***	0.03	**	0.14	***	0.12	***	0.04	***	0.08	***	0.10	***	0.03	**
Caucasian_Fem_No	1		0.12	***	0.02	*	0.21	***	0.08	***	0.21	***	0.11	***	0.09	***
Age Diversity	0.12	***	1		0.01		0.04	***	0.02	*	0.07	***	0.04	***	0.01	
EINDEX	0.02	*	0.01		1		0.01		0.11	***	0.02		0.05	***	-0.11	***
AGE	0.21	***	0.04	***	0.01		1		0.11	***	0.39	***	0.07	***	-0.06	***
DIVER	0.08	***	0.02	*	0.11	***	0.11	***	1		0.17	***	0.08	***	-0.04	***
DD	0.21	***	0.07	***	0.02		0.39	***	0.17	***	1		0.06	***	0.08	***
LEV	0.11	***	0.04	***	0.05	***	0.07	***	0.08	***	0.06	***	1		0.01	
MB	0.09	***	0.01		-0.11	***	-0.06	***	-0.04	***	0.08	***	0.01		1	
MERGER	-0.04	***	-0.02		-0.01		-0.06	***	0.05	***	-0.07	***	0.06	***	-0.04	***
SIZE	0.33	***	0.08	***	-0.12	***	0.23	***	0.07	***	0.27	***	0.05	***	0.42	***
ROE	0.14	***	0.01		-0.07	***	0.04	***	-0.01		0.16	***	-0.03	**	0.51	***
VROE	-0.02		0.01		-0.01		-0.03	**	-0.01		-0.07	***	0.16	***	0.25	***
AQMeasure	0.10	***	0.07	***	-0.01		0.12	***	0.02		0.19	***	0.12	***	-0.07	***

Table 5 Pearson correlation (N=5243) (continued)

	MERGER		SIZE		ROE		VROE		AQMeasure	
ψ	0.02		-0.19	***	-0.08	***	0.02		-0.05	***
DINDEX	-0.03	*	0.35	***	0.11	***	0.03	**	0.07	***
Diverse	-0.03	**	0.34	***	0.08	***	0.03	**	0.06	***
LTYPES	-0.04	***	0.41	***	0.11	***	0.03	*	0.09	***
NON_C	-0.02	**	0.42	***	0.12	***	0.02		0.09	***
NON_Cpercent	-0.02	**	0.32		0.10		0.03		0.06	
LDIR	-0.01		0.48	***	0.12	***	0.00		0.13	***
INEDpercent	0.01		0.17	***	0.05	***	0.04	***	-0.04	***
Caucasian_Fem_No	-0.04	***	0.33	***	0.09	***	0.00		0.10	***
AgeDiversity	-0.02		0.08	***	0.01		0.01		0.07	***
EINDEX	-0.01		-0.12	***	-0.07	***	-0.02		-0.01	
AGE	-0.06	***	0.23	***	0.04	***	-0.03	**	0.12	***
DIVER	0.05	***	0.07	***	-0.01		-0.01		0.02	
DD	-0.07	***	0.27	***	0.16	***	-0.07	***	0.19	***
LEV	0.06	***	0.05	***	-0.03	**	0.16	***	0.12	***
MB	-0.04	***	0.42	***	0.51	***	0.25	***	-0.07	***
MERGER	1		0.03	*	-0.01		-0.02		-0.04	**
SIZE	0.03	*	1		0.32	***	-0.01		0.01	
ROE	-0.01		0.32	***	1		0.21	***	0.01	
VROE	-0.02		-0.01		0.21	***	1		-0.06	***
AQMeasure	-0.04	**	0.01		0.01		-0.06	***	1	

Sample data distribution summary - ethnic diversity

Table 6.1

DINDEX	Firm-years
0	2380
>0 to <0.2	1159
0.2 to <0.3	833
0.3 to <0.4	509
0.4 to <0.5	269
0.5 to <0.6	87
0.6 to <0.7	6
	5243

Table 6.2

Diverse	Firm-years
No Diversity	2380
Diverse	2863
	5243

Table 6.3

Number of ethnic groups	Firm-years
1	2380
2	2114
3	663
4	86
	5243

Table 6.4

NON_Cpercent	Firm-years
0	2380
>0 to <0.1	487
0.1 to <0.2	1612
0.2 to <0.3	554
0.3 to <0.4	154
0.4 to <0.5	53
0.5 to 0.55	3
	5243

Sample data distribution Summary - ethnic diversity

Table 6.5

Number of non-Caucasians	Firm-years
0	2380
1	1726
2	781
3	254
4	88
5	12
6	2
	5243

Table 6.6

	Number	Proportion
Caucasian	43,638	0.9070
Native American	10	0.0002
African American	2,381	0.0495
Hispanic	866	0.0180
Asian	1,217	0.0253
Total	48,112	1

Table 6.7 Female proportion

	Total	Female	Percentage
Caucasian	43,638	5060	12%
Native American	10	1	10%
African American	2,381	630	26%
Hispanic	866	133	15%
Asian	1,217	160	13%
Total	48,112	5,984	12%

Table 6.8

Distribution of different ethnic group directors in Large Cap, Mid Cap and Small Cap firms

	Caucasian	Asian	African American	Hispanic	Native American
S & P 500	18,641	552	1577	563	4
S & P 400	10,590	288	459	160	5
S & P 600	14,407	377	345	143	1
Total	43,638	1217	2381	866	10

	Caucasian	Asian	African American	Hispanic	Native American
S & P 500	43%	45%	66%	65%	40%
S & P 400	24%	24%	19%	18%	50%
S & P 600	33%	31%	14%	17%	10%
Total	100%	100%	100%	100%	100%

Table 6.9 Linked, independent and executive directors distribution

	Linked	%	Independent	%	Executive	%	Total
Caucasian	3,108	7.12%	33,287	76.28%	7,243	16.60%	43,638
Native American	4	40.00%	6	60.00%	0	0.00%	10
African American	76	3.19%	2,249	94.46%	56	2.35%	2,381
Hispanic	29	3.35%	754	87.07%	83	9.58%	866
Asian	85	6.98%	845	69.43%	287	23.58%	1,217

Table 6.10 Mean number of committees involved

	Mean
Caucasian	1.57
African American	1.84
Hispanic	1.57
Asian	1.25

Table 6.11 Audit committee proportion

	Total	Audit committee	Percentage
Caucasian	43,638	17,440	40%
Native American	10	5	50%
African American	2,381	1,057	44%
Hispanic	866	354	41%
Asian	1,217	348	29%

Table 6.12 Corporate governance committee proportion

	Total	Corporate governance committee	Percentage
Caucasian	43,638	16719	38%
Native American	10	1	10%
African American	2381	1159	49%
Hispanic	866	356	41%
Asian	1217	386	32%

Table 6.13 Nomination committee proportion

	Total	Nomination committee	Percentage
Caucasian	43638	17397	40%
Native American	10	0	0%
African American	2381	1171	49%
Hispanic	866	355	41%
Asian	1217	395	32%

Table 6.14 Compensation committee proportion

	Total	Compensation committee	Percentage
Caucasian	43,638	17,112	39%
Native American	10	1	10%
African American	2,381	1,005	42%
Hispanic	866	297	34%
Asian	1,217	364	30%

Table 6.15 Number of other major company boards

	Mean
Caucasian	0.92
Native American	0.50
African American	1.54
Hispanic	1.17
Asian	0.91

Table 6.16 Finance expert proportion

	Total	Finance expert	Percentage
Caucasian	43,638	6,428	15%
Native American	10	0	0%
African American	2,381	226	9%
Hispanic	866	93	11%
Asian	1,217	129	11%

Table 6.17 CEO background proportion

	Total	CEO	Percentage
Caucasian	43,638	8,071	18%
Native American	10	0	0%
African American	2,381	222	9%
Hispanic	866	181	21%
Asian	1,217	268	22%

Table 7

Effect of ethnic diversity on firm-specific information – main tests - Clustered for years and industries

	Predicted sign	(1)		(2)		(3)		(4)	
Intercept		2.593	***	2.570	***	2.539	***	2.593	***
		15.37		15.00		15.26		15.44	
$DINDEX_{t-1}$	+	**0.173**	***						
		2.63							
$Diverse_{t-1}$	+			**0.032**					
				1.55					
$LTYPES_{t-1}$	+					**0.075**	*		
						1.85			
$NON_Cpercent_{t-1}$	+							**0.298**	***
								2.96	
$LDIR_{t-1}$	?	0.002		0.002		-0.002		0.004	
		0.05		0.04		(0.06)		0.08	
$INEDpercent_{t-1}$	?	-0.028		-0.013		-0.019		-0.030	
		(0.33)		(0.15)		(0.22)		(0.36)	
$Caucasian_Fem_No_{t-1}$	+	0.033	***	0.031	*	0.031	**	0.033	***
		2.56		2.44		2.46		2.59	
$Age\ Diversity_{t-1}$	?	0.098		0.097		0.099		0.097	
		0.81		0.80		0.82		0.81	
$EINDEX_{t-1}$	-	-0.019	**	-0.020	*	-0.019	**	-0.019	**
		(2.28)		(2.35)		(2.29)		(2.26)	
AGE_{t-1}	-	-0.204	***	-0.203	*	-0.204	***	-0.205	***
		(7.32)		(7.28)		(7.30)		(7.33)	
$DIVER_{t-1}$	?	-0.091	***	-0.092	*	-0.092	***	-0.091	***
		(4.52)		(4.56)		(4.56)		(4.52)	
DD_{t-1}	?	-0.179	***	-0.177	*	-0.178	***	-0.179	***
		(8.01)		(7.94)		(7.98)		(8.02)	
LEV_{t-1}	?	-0.076		-0.077		-0.078		-0.076	
		(1.00)		(1.01)		(1.02)		(0.99)	
MB_{t-1}	?	0.084	***	0.084	*	0.085	***	0.084	***
		4.08		4.07		4.09		4.07	
$MERGER_{t-1}$	?	0.019		0.019		0.019		0.019	
		0.87		0.85		0.87		0.86	
$SIZE_{t-1}$	?	-0.118	***	-0.116	*	-0.117	***	-0.118	***
		(12.51		(12.29		(12.33)		(12.57)	
ROE_{t-1}	?	-0.280	***	-0.280	*	-0.280	***	-0.280	***
		(4.50)		(4.49)		(4.49)		(4.51)	
$VROE_{t-1}$	?	-0.001		-0.001		-0.001		-0.002	
		(0.11)		(0.07)		(0.09)		(0.12)	
$AQMeasure_{t-1}$	?	-2.112	***	-2.104	*	-2.109	***	-2.115	***
		(7.29)		(7.26)		(7.28)		(7.30)	
N		5243		5243		5243		5243	
R^2		0.49		0.49		0.49		0.49	

Table 7 (Continued)

Note: Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 8

Effect of ethnic diversity on firm-specific information - Tokenism

- clustered for years and industries

	(1)		(2)		(3)		(4)	
Intercept	2.838	***	2.805	***	2.755	***	2.836	***
	15.62		15.32		15.47		15.70	
$DINDEX_{t-1}$	**0.222**	***						
	3.23							
$Diverse_{t-1}$			**0.052**	**				
			2.23					
$LTYPES_{t-1}$					**0.104**	**		
					2.41			
$NON\text{-}Cpercent_{t-1}$							**0.367**	***
							3.52	
$LDIR_{t-1}$	-0.019		-0.018		-0.023		-0.017	
	(0.31)		(0.28)		(0.37)		(0.27)	
$INEDpercent_{t-1}$	-0.049		-0.031		-0.037		-0.051	
	(0.52)		(0.34)		(0.39)		(0.54)	
$Caucasian_Fem_No_{t-1}$	0.048	***	0.047	***	0.046	***	0.048	***
	3.33		3.22		3.22		3.36	
$Age\ Diversity_{t-1}$	0.129		0.125		0.130		0.128	
	0.98		0.96		0.99		0.98	
$EINDEX_{t-1}$	-0.028	***	-0.028	***	-0.028	***	-0.028	***
	(2.92)		(3.01)		(2.93)		(2.91)	
AGE_{t-1}	-0.256	***	-0.254	***	-0.255	***	-0.256	***
	(8.29)		(8.22)		(8.25)		(8.30)	
$DIVER_{t-1}$	-0.098	***	-0.099	***	-0.099	***	-0.098	***
	(4.40)		(4.43)		(4.43)		(4.39)	
DD_{t-1}	-0.144	***	-0.141	***	-0.143	***	-0.144	***
	(5.87)		(5.75)		(5.83)		(5.88)	
LEV_{t-1}	-0.073		-0.073		-0.076		-0.072	
	(0.85)		(0.86)		(0.89)		(0.85)	
MB_{t-1}	0.068	***	0.068	***	0.069	***	0.068	***
	2.87		2.87		2.89		2.86	
$MERGER_{t-1}$	0.013		0.013		0.014		0.013	
	0.55		0.53		0.55		0.52	
$SIZE_{t-1}$	-0.123	***	-0.121	***	-0.122	***	-0.124	***
	(11.40)		(11.14)		(11.19)		(11.46)	
ROE_{t-1}	-0.298	***	-0.297	***	-0.297	***	-0.298	***
	(4.23)		(4.21)		(4.21)		(4.24)	
$VROE_{t-1}$	-0.002		-0.001		-0.001		-0.002	
	(0.13)		(0.09)		(0.09)		(0.13)	
$AQMeasure_{t-1}$	-1.947	***	-1.931	***	-1.943	***	-1.950	***
	(5.89)		(5.84)		(5.88)		(5.90)	
N	4245		4245		4245		4245	
R^2	0.49		0.49		0.49		0.49	

Table 8 (Continued)

Note: Firm years with only one non-Caucasian who is African American are excluded to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 9

Effect of ethnic diversity on stock price informativeness (excluding years of financial crisis 2007-2008) - clustered for years and industries

	(1)		(2)		(3)		(4)		(5)		(6)	
Intercept	2.526	***	2.528	***	2.703	***	2.702	***	2.636	***	2.636	***
	14.18		14.26		15.24		15.31		13.98		14.05	
$DINDEX_{t-1}$	0.180	***			0.189	***			0.198	***		
	2.60				2.70				2.66			
$NON_Cpercent_{t-1}$			0.314	***			0.322	***			0.341	***
			2.96				3.00				2.99	
$LDIR_{t-1}$	0.008		0.010		-0.010		-0.008		-0.005		-0.003	
	0.14		0.17		(0.18)		(0.14)		(0.09)		(0.06)	
$INEDpercent_{t-1}$	-0.035		-0.037		-0.084		-0.086		-0.095		-0.098	
	(0.39)		(0.42)		(0.94)		(0.96)		(1.01)		(1.04)	
$Caucasian_Fem_No_{t-1}$	0.028	**	0.029	**	0.041	***	0.042	***	0.037	***	0.037	***
	2.10		2.13		3.02		3.05		2.56		2.59	
$Age\ Diversity_{t-1}$	0.140		0.139		0.159		0.159		0.214		0.214	
	1.10		1.10		1.25		1.25		1.59		1.59	
$EINDEX_{t-1}$	-0.021	**	-0.020	**	-0.022	**	-0.022	**	-0.024	**	-0.024	**
	(2.24)		(2.22)		(2.38)		(2.36)		(2.37)		(2.35)	
AGE_{t-1}	-0.210	***	-0.210	***	-0.226	***	-0.226	***	-0.233	***	-0.233	***
	(7.17)		(7.17)		(7.61)		(7.61)		(7.45)		(7.45)	
$DIVER_{t-1}$	-0.088	***	-0.088	***	-0.081	***	-0.081	***	-0.077	***	-0.077	***
	(4.17)		(4.16)		(3.82)		(3.81)		(3.42)		(3.41)	
DD_{t-1}	-0.189	***	-0.189	***	-0.172	***	-0.172	***	-0.183	***	-0.184	***
	(8.03)		(8.03)		(7.24)		(7.25)		(7.25)		(7.25)	
LEV_{t-1}	-0.076		-0.075		-0.065		-0.065		-0.067		-0.066	
	(0.93)		(0.93)		(0.79)		(0.78)		(0.75)		(0.74)	

Table 9 (Continued)

	(1)		(2)		(3)		(4)		(5)		(6)	
MB_{t-1}	0.086	***	0.086	***	0.078	***	0.077	***	0.078	***	0.078	***
	3.98		3.97		3.47		3.47		3.32		3.32	
$MERGER_{t-1}$	0.026		0.025		0.027		0.027		0.035		0.035	
	1.11		1.10		1.17		1.15		1.42		1.40	
$SIZE_{t-1}$	-0.116	***	-0.117	***	-0.120	***	-0.121	***	-0.119	***	-0.119	***
	(11.59)		(11.66)		(11.89)		(11.95)		(10.93)		(10.98)	
ROE_{t-1}	-0.274	***	-0.274	***	-0.295	***	-0.296	***	-0.285	***	-0.285	***
	(4.23)		(4.23)		(3.98)		(3.99)		(3.64)		(3.65)	
$VROE_{t-1}$	-0.003		-0.003		0.002		0.002		0.000		0.000	
	(0.24)		(0.25)		0.14		0.14		0.02		0.02	
$AQMeasure_{t-1}$	-2.162	***	-2.164	***	-1.964	***	-1.967	***	-2.020	***	-2.022	***
	(7.12)		(7.13)		(6.40)		(6.41)		(6.24)		(6.25)	
N	4843		4843		4713		4713		4313		4313	
R^2	0.48		0.48		0.49		0.49		0.48		0.48	
Year(s) excluded	2007		2007		2008		2008		2007-2008		2007-2008	

Note: Firm years of 2007, 2008, 2007 &2008 are excluded to run the main regressions (1)&(2), (3)&(4) , (5)&(6).

Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 10.1

Prediction model-first regression- Predicting the $DINDEX_{t-1}$ and NON_C_{t-1}

$Ethnic_{t-1} = c_0 + c_1 ROA_{i,t-1} + c_2 LOGTA_{i,t-1} + c_3 AGE_{i,t-1} + c_4 SALESGROWTH_{i,t-1} + c_5 DIRECTORSHIPS_{i,t-1} + c_6 DT_{i,t-1} + c_7 TOTALRISK_{i,t-1} + c_8 TOBINSQ_{i,t-1} + c_9 RETURN_{i,t-1} + c_{10} VWRETD_{i,t-1} + c_{11} SHAREHOLDINGS_{i,t-1} + c_{12}$ STATE DIVERSITY $_{i,t-1} + c_{13}$ AQMeasure $_{i,t-1} + \Sigma$ Industry dummies $+ \sum$ Year Dummies $+ \varepsilon_{i,t}$

	$DINDEX_{t-1}$		$NON_Cpercent_{t-1}$	
	(1)		(2)	
Intercept	-0.180	***	-1.112	***
	(5.89)		(5.65)	
ROA_{t-1}	0.028		0.022	
	0.78		0.97	
$LOGTA_{t-1}$	0.030	***	0.018	***
	15.04		13.98	
AGE_{t-1}	0.006		0.003	
	0.97		0.74	
$SALESGROWTH_{t-1}$	-0.055	***	-0.034	***
	(3.23)		(3.08)	
$DIRECTORSHIPS_{t-1}$	0.035	***	0.021	***
	8.06		7.41	
DT_{t-1}	0.002		0.002	
	0.53		0.73	
$TOTALRISK_{t-1}$	-0.001		0.001	
	(0.10)		0.22	
$TOBINSQ_{t-1}$	0.008	***	0.005	***
	2.70		2.76	
$RETURN_{t-1}$	-0.010		-0.006	
	(1.38)		(1.40)	
$VWRETD_{t-1}$	0.003		0.003	
	0.12		0.19	
$SHAREHOLDINGS_{t-1}$	-0.009		-0.007	***
	(0.81)		(0.96)	
STATE $DIVERSITY_{t-1}$	0.065	***	0.046	***
	4.07		4.39	
$AQMeasure_{t-1}$	0.071	***	0.046	***
	4.44		4.44	
N	4303		4303	
R^2	0.23		0.28	

Note: Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 10.2

Prediction model – second regression -clustered for years and firms

Association between unexplained diversity and firm-specific information

	(1)		(2)	
Intercept	2.899	***	2.894	***
	14.52		14.51	
Residual_DINDEX$_{t-1}$	**0.210**	***		
	2.80			
Residual_NON_Cpercent$_{t-1}$			**0.338**	***
			2.95	
LDIR$_{t-1}$	-0.005		-0.002	
	(0.08)		(0.03)	
INEDpercent$_{t-1}$	-0.067		-0.067	
	(0.69)		(0.69)	
Caucasian_Fem_No$_{t-1}$	0.036	***	0.037	***
	2.57		2.58	
Age diversity$_{t-1}$	0.060		0.060	
	0.44		0.45	
EINDEX$_{t-1}$	-0.022	**	-0.022	**
	(2.32)		(2.30)	
AGE$_{t-1}$	-0.215	***	-0.216	***
	(6.36)		(6.37)	
DIVER$_{t-1}$	-0.074	***	-0.074	***
	(3.24)		(3.24)	
DD$_{t-1}$	-0.196	***	-0.196	***
	(7.62)		(7.62)	
LEV$_{t-1}$	-0.033		-0.034	
	(0.39)		(0.40)	
MB$_{t-1}$	0.105	***	0.105	***
	4.43		4.43	
MERGER$_{t-1}$	0.017		0.016	
	0.68		0.65	
SIZE $_{t-1}$	-0.109	***	-0.109	***
	(10.18)		(10.19)	
ROE$_{t-1}$	-0.290	***	-0.290	***
	(4.03)		(4.03)	
VROE$_{t-1}$	-0.002		-0.002	
	(0.12)		(0.12)	
AQMeasure$_{t-1}$	-0.362	***	-0.362	***
	(4.76)		(4.76)	
N	4303		4303	
R^2	0.47		0.47	

Note: I replaced the board ethnic diversity variables with the residual of the first regressions of the prediction model to run the main tests. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 11

Instrumental variable approach

Effect of Ethnic Diversity (instrumental variables) on firm-specific information - clustered for years and industries

	(1)		(2)	
Intercept	2.389	***	2.413	***
	14.10		14.35	
STATE DIVERSITY	**0.215**	*******		
	3.03			
State_Non_C_percent			**0.211**	*******
			3.16	
$LDIR_{t-1}$	0.032		0.036	
	0.58		0.65	
$INEDpercent_{t-1}$	0.008		0.009	
	0.09		0.11	
$Caucasian_Fem_No_{t-1}$	0.029	**	0.029	**
	2.25		2.25	
$Age\ Diversity_{t-1}$	0.103		0.100	
	0.85		0.83	
$EINDEX_{t-1}$	-0.018	**	-0.018	**
	(2.12)		(2.15)	
AGE_{t-1}	-0.199	***	-0.198	***
	(6.96)		(6.91)	
$DIVER_{t-1}$	-0.090	***	-0.090	***
	(4.45)		(4.46)	
DD_{t-1}	-0.170	***	-0.169	***
	(7.58)		(7.51)	
LEV_{t-1}	-0.077		-0.074	
	(1.01)		(0.97)	
MB_{t-1}	0.085	***	0.085	***
	4.09		4.07	
$MERGER_{t-1}$	0.016		0.015	
	0.71		0.70	
$SIZE_{t-1}$	-0.115	***	-0.116	***
	(12.33)		(12.38)	
ROE_{t-1}	-0.276	***	-0.276	***
	(4.40)		(4.39)	
$VROE_{t-1}$	-0.002		-0.002	
	(0.17)		(0.17)	
$AQMeasure_{t-1}$	-2.046	***	-2.034	***
	(7.02)		(6.98)	
N	5210		5210	
R^2	0.49		0.49	

Table 11 (continued)

Note: I replaced the board ethnic diversity variables with the instrumental variables, the state diversity variable (STATE DIVERSITY) and the percentage of non-Caucasians in the state (State_Non_C_percent) to run the main tests. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Distribution of change events

Table 12.1
Increase in non-Caucasian director events

Increase in non-Caucasian directors	Number of events
Increase in one African American	126
Increase in two African Americans	4
Increase in one Asian	71
Increase in two Asians	1
Increase in one Hispanic	48
Increase in two Hispanics	1
Increase in three Hispanics	1
	252

Table 12.2
Decrease in non-Caucasians events

Decrease in non-Caucasian directors	Number of events
Decrease in one African American	51
Decrease in one African American and one Hispanic	2
Decrease in one African American and one Asian	1
Decrease in three African Americans	3
Decrease in one Asian	23
Decrease in two Asians	2
Decrease in one Hispanic	21
Decrease in two Hispanics	1
	104

Table 12.3 Change regression model

$$\Delta\psi_{i\ (t\text{-}3\ to\ t)} = \alpha + \beta_1 \Delta ETHNIC_{i,\ (t\text{-}3\ to\ t\text{-}2)} + \beta_2 \Delta LDIR_{i,\ (t\text{-}3\ to\ t\text{-}2)} + \beta_3 \Delta\ INEDpercent_{(t\text{-}3\ to\ t\text{-}2)} + \beta_4 \Delta\ Caucasian_Fem_No_{i,(t\text{-}3\ to\ t\text{-}2)} + \beta_5 \Delta AgeDiversity_{i,\ (t\text{-}3\ to\ t\text{-}2)} + \gamma_1\ \Delta EINDEX_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_2 \Delta AGE_{i,(t\text{-}4\ to\ t\text{-}1)} + \gamma_3 \Delta\ DIVER_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_4 \Delta\ DD_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_5\ \Delta LEV_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_6 \Delta MB_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_7\ \Delta MERGER_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_8 \Delta SIZE_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_9 \Delta ROE_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_{10} \Delta VROE_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \gamma_{11}\ \Delta AQMeasure_{i,\ (t\text{-}4\ to\ t\text{-}1)} + \sum Industry\ Dummies + \sum Year\ Dummies + \varepsilon_{i,t}$$

	(1)		(2)		(3)		(4)	
Intercept	0.510	***	0.514	***	0.512	***	0.507	***
	3.78		3.80		3.80		3.74	
Δ NON_C$_{(t-3\ to\ t-2)}$	**0.092**	**						
	2.45							
Increase in NON_C $_{(t-3\ to\ t-2)}$			**0.129**	***				
			2.81					
Decrease in NON_C $_{(t-3\ to\ t-2)}$			**0.011**					
			0.16					
Δ DINDEX$_{(t-3\ to\ t-2)}$					**0.557**	**		
					1.96			
Increase in DINDEX$_{(t-3\ to\ t-2)}$							**0.942**	***
							2.58	
Decrease in DINDEX$_{(t-3\ to\ t-2)}$							**-0.142**	
							(0.28)	
Δ LDIR $_{(t-3\ to\ t-2)}$	-0.102		-0.110		-0.031		-0.058	
	(0.61)		(0.66)		(0.19)		(0.36)	
Δ INEDpercent$_{(t-3\ to\ t-2)}$	-0.406	*	-0.398	*	-0.419	*	-0.414	*
	(1.88)		(1.85)		(1.94)		(1.91)	
Δ Caucasian_Fem_No $_{(t-3\ to\ t-2)}$	-0.010				-0.010			
	(0.29)				(0.27)			
Increase in Caucasian_Fem_No$_{(t-3\ to\ t-2)}$			-0.059				-0.060	
			(1.19)				(1.25)	
Decrease in Caucasian_Fem_No$_{(t-3\ to\ t-2)}$			0.059				0.065	
			0.90				0.98	
Δ Age Diversity$_{(t-3\ to\ t-2)}$	0.058		0.074		0.060		0.073	
	0.23		0.30		0.24		0.29	
Δ EINDEX$_{(t-4\ to\ t-1)}$	-0.095	***	-0.096	***	-0.095	***	-0.096	***
	(6.08)		(6.14)		(6.06)		(6.14)	
Δ AGE $_{(t-4\ to\ t-1)}$	-0.981	***	-0.974	***	-0.987	***	-0.971	***
	(4.49)		(4.45)		(4.51)		(4.43)	
Δ DIVER$_{(t-4\ to\ t-1)}$	0.037		0.038		0.039		0.039	
	0.96		0.99		1.00		1.01	
Δ DD$_{(t-4\ to\ t-1)}$	0.035		0.033		0.037		0.037	
	0.64		0.60		0.68		0.68	
Δ LEV$_{(t-4\ to\ t-1)}$	-0.034		-0.036		-0.028		-0.026	
	(0.23)		(0.23)		(0.18)		(0.17)	

Table 12.3 (continued)

	(1)		(2)		(3)		(4)	
Δ MB $_{(t-4 \text{ to } t-1)}$	-0.030		-0.028		-0.028		-0.028	
	(0.72)		(0.69)		(0.69)		(0.68)	
Δ MERGER $_{(t-4 \text{ to } t-1)}$	0.063	**	0.064	**	0.063	**	0.063	**
	2.18		2.21		2.16		2.15	
Δ SIZE $_{(t-4 \text{ to } t-1)}$	-0.090	**	-0.091	**	-0.091	**	-0.092	**
	(2.26)		(2.28)		(2.26)		(2.29)	
Δ ROE $_{(t-4 \text{ to } t-1)}$	-0.213	***	-0.213	***	-0.213	***	-0.213	***
	(2.98)		(2.98)		(2.99)		(2.98)	
Δ VROE $_{(t-4 \text{ to } t-1)}$	-0.006		-0.010		-0.007		-0.007	
	(0.31)		(0.26)		(0.37)		(0.34)	
Δ AQMeasure $_{(t-4 \text{ to } t-1)}$	0.150		0.120		0.133		0.108	
	0.31		0.25		0.27		0.22	
N	2456		2456		2456		2456	
R^2	0.47		0.47		0.47		0.47	

Note:The Increase in NON_C in column(2) = the increase in number of non-Cacausians if the change in number of non-Caucasian is >0 , =0 if the change in number of non-Caucasians=<0. The Decrease in NON_C in column (2) = the decrease in number of non-Cacausians if the change in number of non-Caucasian is <0 , =0 if the change in number of non-Caucasians=>0. The Increase in DINDEX in column(4)= the increase in DINDEX if the change in DINDEX is >0 , =0 if the change in DINDEX=<0. The Decrease in DINDEX in column (4) = the decrease in DINDEX if the change in DINDEX is <0 , =0 if the change in DINDEX=>0. The Increase in Caucasian_Fem_No in column (2) & (4)= the increase in number of female Cacausians if the change in number of female Caucasian is >0 , =0 if the change in number of female Caucasians=<0. The Decrease in Caucasian_Fem_No in column (2) & (4) = the decrease in number of female Cacausians if the change in number of female Caucasian is <0, =0 if the change in number of female Caucasians=>0. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 13

Effect of ethnic diversity on firm-specific information – controlled for the number of minority female

	(1)		(2)	
Intercept	2.598	***	2.596	***
	15.31		15.35	
$DINDEX_{t-1}$	**0.165**	**		
	2.31			
$NON_Cpercent_{t-1}$			**0.292**	***
			2.66	
$LDIR_{t-1}$	0.000		0.003	
	0.00		0.06	
$INEDpercent_{t-1}$	-0.029		-0.031	
	(0.34)		(0.36)	
$Caucasian_Fem_No_{t-1}$	0.033	***	0.033	***
	2.58		2.58	
$Non_C_Fem_No_{t-1}$	0.007		0.003	
	0.29		0.13	
$Age\ Diversity_{t-1}$	0.097		0.097	
	0.81		0.81	
$EINDEX_{t-1}$	-0.019	**	-0.019	**
	(2.27)		(2.26)	
AGE_{t-1}	-0.205	***	-0.205	***
	(7.33)		(7.33)	
$DIVER_{t-1}$	-0.091	***	-0.091	***
	(4.53)		(4.52)	
DD_{t-1}	-0.179	***	-0.179	***
	(8.01)		(8.02)	
LEV_{t-1}	-0.076		-0.076	
	(1.00)		(1.00)	
MB_{t-1}	0.084	***	0.084	***
	4.07		4.07	
$MERGER_{t-1}$	0.019		0.019	
	0.87		0.86	
$SIZE_{t-1}$	-0.118	***	-0.118	***
	(12.50)		(12.57)	
ROE_{t-1}	-0.280	***	-0.280	***
	(4.51)		(4.51)	
$VROE_{t-1}$	-0.002		-0.002	
	(0.12)		(0.12)	
$AQMeasure_{t-1}$	-2.112	***	-2.115	***
	(7.29)		(7.30)	
N	5243		5243	
R^2	0.49		0.49	

Note: An additional variable, the number of non-Caucasian female, NonC_Fem_No, is included to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 14

Effect of ethnic eiversity on firm-specific information in firms with / without merger activity

- Clustered for years and industries

	Without Merger		Without Merger		With Merger		With Merger	
Intercept	2.569	***	2.572	***	2.695	***	2.680	***
	13.67		13.74		7.48		7.49	
$DINDEX_{t-1}$	**0.090**				**0.390**	***		
	1.19				**2.91**			
$NON_Cpercent_{t-1}$			**0.171**				**0.609**	***
			1.47				**3.04**	
$LDIR_{t-1}$	0.005		0.006		-0.045		-0.040	
	0.08		0.09		(0.37)		(0.32)	
$INEDpercent_{t-1}$	-0.036		-0.039		-0.020		-0.016	
	(0.38)		(0.41)		(0.11)		(0.09)	
$Caucasian_Fem_No_{t-1}$	0.044	***	0.045	***	-0.013		-0.012	
	3.08		3.11		(0.48)		(0.45)	
$Age\ Diversity_{t-1}$	0.086		0.086		0.188		0.187	
	0.64		0.63		0.69		0.69	
$EINDEX_{t-1}$	-0.023	**	-0.023	**	-0.009		-0.008	
	(2.34)		(2.33)		(0.48)		(0.45)	
AGE_{t-1}	-0.223	***	-0.223	***	-0.150	***	-0.150	***
	(6.78)		(6.78)		(2.78)		(2.78)	
$DIVER_{t-1}$	-0.072	***	-0.072	***	-0.161	***	-0.161	***
	(3.17)		(3.16)		(3.66)		(3.67)	
DD_{t-1}	-0.159	***	-0.160	***	-0.255	***	-0.255	***
	(6.19)		(6.20)		(5.57)		(5.56)	
LEV_{t-1}	0.030		0.030		-0.347	**	-0.345	**
	0.34		0.33		(2.27)		(2.26)	
MB_{t-1}	0.081	***	0.081	***	0.092	**	0.092	**
	3.34		3.34		2.27		2.26	
$SIZE_{t-1}$	-0.122	***	-0.123	***	-0.108	***	-0.108	***
	(11.27)		(11.33)		(5.62)		(5.63)	
ROE_{t-1}	-0.276	***	-0.276	***	-0.252	**	-0.255	**
	(3.81)		(3.80)		(2.32)		(2.34)	
$VROE_{t-1}$	-0.011		-0.011		0.040		0.040	
	(0.76)		(0.77)		1.18		1.20	
$AQMeasure_{t-1}$	-2.407	***	-2.410	***	-1.428	**	-1.432	**
	(7.01)		(7.02)		(2.50)		(2.51)	
N	3914		3914		1327		1327	
R^2	0.48		0.48		0.53		0.53	

Note: Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 15

Effect of ethnic diversity on firm-specific information in firms with different profit volatility

(VROE<median - Stable and VROE>median -Volatile) - Clustered for years and industries

	Stable		Stable		Volatile		Volatile	
Intercept	2.380	***	2.373	***	2.746	***	2.750	***
	9.61		9.63		11.97		12.05	
DINDEX $_{t-1}$	**0.121**				**0.207**	**		
	1.29				**2.24**			
NON_Cpercent $_{t-1}$			**0.181**				**0.380**	***
			1.25				**2.67**	
LDIR $_{t-1}$	0.116		0.119		-0.098		-0.098	
	1.52		1.56		(1.25)		(1.24)	
INEDpercent $_{t-1}$	0.024		0.026		-0.061		-0.066	
	0.20		0.21		(0.51)		(0.55)	
Caucasian_Fem_No $_{t-1}$	-0.003		-0.003		0.071	***	0.071	***
	(0.17)		(0.17)		3.81		3.84	
Age Diversity $_{t-1}$	-0.120		-0.120		0.268		0.268	
	(0.69)		(0.69)		1.60		1.60	
EINDEX $_{t-1}$	-0.020	*	-0.020	*	-0.023	*	-0.022	*
	(1.70)		(1.71)		(1.80)		(1.77)	
AGE $_{t-1}$	-0.184	***	-0.184	***	-0.227	***	-0.228	***
	(4.44)		(4.44)		(5.86)		(5.88)	
DIVER $_{t-1}$	-0.054	*	-0.054	*	-0.130	***	-0.130	***
	(1.88)		(1.89)		(4.47)		(4.46)	
DD $_{t-1}$	-0.170	***	-0.170	***	-0.178	***	-0.179	***
	(5.25)		(5.24)		(5.51)		(5.54)	
LEV $_{t-1}$	-0.201	*	-0.201	*	-0.057		-0.057	
	(1.77)		(1.77)		(0.53)		(0.53)	
MB $_{t-1}$	0.111	***	0.110	***	0.078	***	0.078	***
	3.40		3.38		2.87		2.87	
MERGER $_{t-1}$	0.034		0.034		-0.004		-0.005	
	1.11		1.10		(0.14)		(0.15)	
SIZE $_{t-1}$	-0.102	***	-0.102	***	-0.133	***	-0.134	***
	(7.19)		(7.18)		(10.21)		(10.27)	
ROE $_{t-1}$	-0.430	***	-0.431	***	-0.213	***	-0.213	***
	(3.27)		(3.27)		(3.01)		(3.01)	
VROE $_{t-1}$	74.859	***	74.769	***	0.000		-0.001	
	3.21		3.21		(0.03)		(0.04)	
AQMeasure $_{t-1}$	-2.101	***	-2.100	***	-2.079	***	-2.087	***
	(5.13)		(5.13)		(4.98)		(5.00)	
N	2622		2622		2621		2621	
R^2	0.50		0.48		0.49		0.49	

Note: Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 16

Effect of ethnic diversity on firm-specific information in firms with different growth potential

(MB=or <median -Low growth , MB > median –High growth)

- Clustered for years and industries

	Low Growth		Low Growth		High Growth		High Growth	
Intercept	3.152	***	3.154	***	2.107	***	2.103	***
	11.92		11.99		9.17		9.18	
$DINDEX_{t-1}$	**0.102**				**0.174**	*		
	1.07				**1.89**			
$NON_Cpercent_{t-1}$			**0.187**				**0.288**	**
			1.29				**2.04**	
$LDIR_{t-1}$	0.032		0.031		0.007		0.010	
	0.41		0.41		0.09		0.13	
$INEDpercent_{t-1}$	-0.153		-0.154		0.014		0.012	
	(1.25)		(1.26)		0.12		0.10	
$Caucasian_Fem_No_{t-1}$	0.024		0.024		0.027		0.028	
	1.31		1.32		1.52		1.54	
$Age\ Diversity_{t-1}$	0.226		0.225		-0.121		-0.120	
	1.34		1.34		(0.71)		(0.70)	
$EINDEX_{t-1}$	-0.020	*	-0.020	*	-0.010		-0.010	
	(1.65)		(1.65)		(0.82)		(0.81)	
AGE_{t-1}	-0.236	***	-0.236	***	-0.187	***	-0.187	***
	(5.80)		(5.81)		(4.67)		(4.67)	
$DIVER_{t-1}$	-0.084	***	-0.085	***	-0.089	***	-0.089	***
	(2.95)		(2.96)		(3.19)		(3.18)	
DD_{t-1}	-0.090	***	-0.090	***	-0.244	***	-0.244	***
	(2.88)		(2.87)		(7.43)		(7.44)	
LEV_{t-1}	-0.108		-0.107		-0.144		-0.143	
	(0.92)		(0.91)		(1.36)		(1.35)	
MB_{t-1}	-0.068		-0.068		0.167	***	0.167	***
	(1.45)		(1.46)		4.59		4.59	
$MERGER_{t-1}$	-0.014		-0.014		0.075	**	0.074	**
	(0.46)		(0.46)		2.32		2.29	
$SIZE_{t-1}$	-0.144	***	-0.144	***	-0.087	***	-0.088	***
	(9.90)		(9.94)		(6.82)		(6.85)	
ROE_{t-1}	-0.398	***	-0.396	***	-0.240	***	-0.241	***
	(3.75)		(3.74)		(3.11)		(3.13)	
$VROE_{t-1}$	0.001		0.000		-0.008		-0.008	
	0.02		0.00		(0.52)		(0.51)	
$AQMeasure_{t-1}$	-1.721	***	-1.726	***	-2.289	***	-2.290	***
	(4.10)		(4.11)		(5.76)		(5.77)	
N	2622		2622		2621		2621	
R^2	0.51		0.51		0.50		0.50	

Note: Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 17

Effect of ethnic diversity on firm-specific information in firms with different leverage

- Clustered for years and industries (LEV=or <median -Low leverage , LEV > median –High leverage)

	Low Leverage		Low Leverage		High Leverage		High Leverage	
Intercept	2.459	***	2.459	***	2.670	***	2.669	***
	10.92		10.96		8.78		8.81	
$DINDEX_{t-1}$	**0.106**				**0.197**	**		
	1.16				**2.00**			
$NON_Cpercent_{t-1}$			**0.188**				**0.330**	**
			1.34				**2.19**	
$LDIR_{t-1}$	0.022		0.023		-0.060		-0.057	
	0.29		0.30		(0.73)		(0.69)	
$INEDpercent_{t-1}$	0.134		0.133		-0.245	*	-0.248	*
	1.20		1.20		(1.84)		(1.86)	
$Caucasian_Fem_No_{t-1}$	-0.012		-0.011		0.078	***	0.078	***
	(0.62)		(0.60)		4.41		4.43	
$Age\ Diversity_{t-1}$	0.231		0.230		-0.019		-0.018	
	1.40		1.40		(0.11)		(0.10)	
$EINDEX_{t-1}$	-0.037	***	-0.037	***	0.000		0.000	
	(2.87)		(2.85)		(0.03)		(0.03)	
AGE_{t-1}	-0.223	***	-0.223	***	-0.178	***	-0.178	***
	(5.88)		(5.88)		(4.22)		(4.24)	
$DIVER_{t-1}$	-0.049	*	-0.049	*	-0.133	***	-0.132	***
	(1.80)		(1.80)		(4.37)		(4.36)	
DD_{t-1}	-0.170	***	-0.170	***	-0.137	***	-0.137	***
	(5.50)		(5.50)		(4.05)		(4.06)	
LEV_{t-1}	-0.439	*	-0.440	*	0.401	***	0.400	***
	(1.70)		(1.70)		2.54		2.54	
MB_{t-1}	0.057	*	0.057	*	0.086	***	0.086	***
	1.68		1.69		3.07		3.07	
$MERGER_{t-1}$	0.029		0.028		0.020		0.020	
	0.92		0.90		0.62		0.62	
$SIZE_{t-1}$	-0.097	***	-0.097	***	-0.116	***	-0.116	***
	(8.18)		(8.21)		(7.20)		(7.25)	
ROE_{t-1}	-0.503	***	-0.503	***	-0.193	***	-0.193	***
	(3.81)		(3.81)		(2.78)		(2.78)	
$VROE_{t-1}$	0.033		0.033		-0.013		-0.013	
	1.27		1.27		(0.82)		(0.82)	
$AQMeasure_{t-1}$	-1.833	***	-1.832	***	-2.280	***	-2.286	***
	(4.83)		(4.83)		(5.19)		(5.20)	
N	2622		2622		2621		2621	
R^2	0.50		0.5		0.50		0.50	

Note: Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 18

Effect of ethnic diversity on firm-specific information measured by FINC

$FINC_{k,t} = \alpha + \beta_1 ETHNIC_{k,t-1} + \beta_2 LDIR_{k,t-1} + \beta_3 INEDpercent_{k,t-1} + \beta_4 FEMpercent_{k,t-1} + \beta_5 Age\ Diversity_{k,t-1} + \gamma_1 EINDEX_{k,t-1} + \gamma_2 AGE_{k,t-1} + \gamma_3 DIVER_{k,t-1} + \gamma_4 DD_{k,t-1} + \gamma_5 LEV_{k,t-1} + \gamma_6 MB_{k,t-1} + \gamma_7 MERGER_{k,t-1} + \gamma_8 SIZE_{k,t-1} + \gamma_9 ROE_{k,t-1} + \gamma_{10} VROE_{k,t-1} + \gamma_{11} AQMeasure_{k,t-1} + \varepsilon$

	(1)		(2)	
Intercept	0.821	***	0.746	**
	2.61		2.35	
$DINDEX_{t-1}$	**0.592**	***		
	3.98			
$NON_Cpercent_{t-1}$			**0.713**	***
			3.37	
$LDIR_{t-1}$	0.001		0.004	
	0.01		0.03	
$INEDpercent_{t-1}$	-0.033		-0.016	
	(0.28)		(0.13)	
$FEMpercent_{t-1}$	-0.599	**	-0.488	**
	(2.49)		(2.07)	
$Age\ Diversity_{t-1}$	-0.203		-0.184	
	(0.59)		(0.53)	
$EINDEX_{t-1}$	0.006		0.006	
	0.54		0.54	
AGE_{t-1}	0.000		-0.005	
	0.00		(0.08)	
$DIVER_{t-1}$	-0.161	***	-0.162	***
	(3.92)		(3.93)	
DD_{t-1}	0.273	***	0.271	***
	5.28		5.20	
LEV_{t-1}	0.142		0.148	
	1.17		1.21	
MB_{t-1}	0.016		0.015	
	0.43		0.39	
$MERGER_{t-1}$	-0.023		-0.019	
	(0.43)		(0.36)	
$SIZE_{t-1}$	-0.065	***	-0.059	***
	(3.20)		(2.91)	
ROE_{t-1}	0.113		0.103	
	1.00		0.92	
$VROE_{t-1}$	-0.056	*	-0.054	*
	(1.89)		(1.80)	
$AQMeasure_{t-1}$	0.242	***	0.256	***
	2.77		2.92	
N	395		395	
R^2	0.22		0.20	

Note : Variables are defined in Appendix 2. The variables are the two-SIC code industry averages ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 19
Comparison of means of institutional investors' shareholdings for firms with high and low ethnic diversity
(higher than medium DINDEX and lower than medium DINDEX)

	High ethnic diversity N=2757	Low ethnic diversity N=2312	Difference	t-statistics	
Number of II	354.700	209.200	-145.5	-22.19	***
Percentage held by II	0.781	0.802	0.021	5.02	***
Concentration of II	0.051	0.055	0.004	2.70	***
II_RTV	45.178	47.369	2.191	2.42	**
II_Trade	10.009	10.490	0.481	2.78	***

Table 20

Effect of ethnic diversity on firm-specific information in firms with different concentration level of institutional investors- Clustered for years and industries

(Ownership Concentration-Herfindahl-Hirshman Index =or <median - Low Concentration , > median - High Concentration)

	Low		Low		High		High	
Intercept	1.965	***	1.967	***	2.998	***	2.994	***
	7.58		7.63		13.18		13.24	
$DINDEX_{t-1}$	**-0.013**				**0.318**	***		
	(0.14)				**3.34**			
$NON_Cpercent_{t-1}$			**-0.016**				**0.533**	***
			(0.11)				**3.70**	
$LDIR_{t-1}$	0.076		0.075		-0.115		-0.114	
	1.02		1.02		(1.41)		(1.40)	
$INEDpercent_{t-1}$	0.104		0.103		-0.102		-0.102	
	0.82		0.81		(0.89)		(0.89)	
$Caucasian_Fem_No_{t-1}$	0.031	*	0.031	*	0.041	**	0.042	**
	1.73		1.73		2.15		2.19	
$Age\ Diversity_{t-1}$	-0.010		-0.010		0.243		0.244	
	(0.05)		(0.05)		1.48		1.49	
$EINDEX_{t-1}$	0.013		0.013		-0.035	***	-0.035	***
	1.17		1.17		(2.71)		(2.70)	
AGE_{t-1}	-0.208	***	-0.208	***	-0.189	***	-0.189	***
	(5.18)		(5.18)		(4.80)		(4.80)	
$DIVER_{t-1}$	-0.113	***	-0.113	***	-0.071	**	-0.071	**
	(3.98)		(3.98)		(2.44)		(2.46)	
DD_{t-1}	-0.181	***	-0.181	***	-0.206	***	-0.205	***
	(5.89)		(5.89)		(6.36)		(6.34)	
LEV_{t-1}	-0.127		-0.127		0.062		0.063	
	(1.16)		(1.16)		0.57		0.59	
MB_{t-1}	0.054	*	0.054	*	0.109	***	0.109	***
	1.87		1.87		3.74		3.73	
$MERGER_{t-1}$	0.029		0.029		0.006		0.005	
	0.97		0.98		0.17		0.15	
$SIZE_{t-1}$	-0.056	***	-0.056	***	-0.167	***	-0.167	***
	(4.23)		(4.23)		(10.75)		(10.79)	
ROE_{t-1}	-0.228	***	-0.228	***	-0.227	***	-0.228	***
	(2.54)		(2.54)		(2.75)		(2.75)	
$VROE_{t-1}$	0.013		0.013		-0.008		-0.008	
	0.50		0.50		(0.48)		(0.49)	
$AQMeasure_{t-1}$	-2.103	***	-2.103	***	-1.874	***	-1.879	***
	(5.14)		(5.14)		(4.56)		(4.58)	
N	2596		2596		2596		2596	
R^2	0.52		0.52		0.48		0.48	

Note: Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 21

Effect of ethnic diversity on firm-specific information – controlled for the number, concentration and shareholdings of institutional investors

	(1)		(2)	
Intercept	3.217	***	3.216	***
	16.21		16.28	
$DINDEX_{t-1}$	**0.128**	**		
	1.97			
$NON_Cpercent_{t-1}$			**0.220**	**
			2.22	
$LDIR_{t-1}$	0.020		0.022	
	0.37		0.39	
$INEDpercent_{t-1}$	0.013		0.012	
	0.16		0.14	
$Caucasian_Fem_No_{t-1}$	0.016		0.016	
	1.25		1.28	
$Age\ Diversity_{t-1}$	0.143		0.143	
	1.20		1.19	
$EINDEX_{t-1}$	-0.003		-0.003	
	(0.37)		(0.36)	
AGE_{t-1}	-0.221	***	-0.221	***
	(7.89)		(7.89)	
$DIVER_{t-1}$	-0.082	***	-0.082	***
	(4.09)		(4.09)	
DD_{t-1}	-0.194	***	-0.194	***
	(8.83)		(8.83)	
LEV_{t-1}	-0.025		-0.025	
	(0.33)		(0.33)	
MB_{t-1}	0.119	***	0.119	***
	5.66		5.66	
$MERGER_{t-1}$	0.024		0.024	
	1.12		1.11	
$SIZE_{t-1}$	-0.234	***	-0.234	***
	(14.44)		(14.45)	
ROE_{t-1}	-0.265	***	-0.265	***
	(4.32)		(4.32)	
$VROE_{t-1}$	-0.004		-0.004	
	(0.28)		(0.28)	
$AQMeasure_{t-1}$	-1.861	***	-1.863	***
	(6.49)		(6.50)	
Number of II	0.001	***	0.001	***
	9.61		9.60	
Concentration of II	0.884	***	0.884	***
	3.99		3.99	
Percentage held by II	-0.062		-0.062	
	(0.77)		(0.76)	
N	5192		5192	
R^2	0.50		0.50	

Table 21 (continued)

Note: Three additional variables, the Number of institutional investors (Number of II), Concentration of institutional investors ownership (Concentration of II), and Percentage of shares held by institutional investors (Percentage held by II) are included to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 22

Effect of ethnic diversity on the number of institutional investors (Number of II)

- Custered for years and industries

$$\text{Number of } II_{it} = \alpha + \beta_1 ETHNIC_{i,t} + \beta_2 LDIR_{i,t} + \beta_3 INEDpercent_{i,t} + \beta_4 Caucasian_Fem_No_{i,t} + \beta_5 AgeDiversity_{i,t} + \gamma_1 EINDEX_{i,t} + \gamma_2 AGE_{i,t} + \gamma_3 DIVER_{i,t} + \gamma_4 DD_{i,t} + \gamma_5 LEV_{i,t} + \gamma_6 MB_{i,t} + \gamma_7 MERGER_{i,t} + \gamma_8 SIZE_{i,t} + \gamma_9 ROE_{i,t} + \gamma_{10} VROE_{i,t} + \gamma_{11} AQMeasure_{i,t} + \sum \text{Industry Dummies} + \sum \text{Year Dummies} + \varepsilon_{i,t}$$

	(1)		(2)	
Intercept	-857.446	***	-858.473	***
	(32.17)		(32.35)	
DINDEX	**39.869**	****		
	3.26			
NON_Cpercent			**64.786**	****
			3.41	
LDIR	-18.868	**	-18.241	*
	(2.01)		(1.94)	
INEDpercent	28.956	**	28.959	**
	2.10		2.10	
Caucasian_Fem_No	12.891	***	12.942	***
	5.06		5.08	
Age Diversity	-50.161	**	-50.219	**
	(2.51)		(2.52)	
EINDEX	-12.004	***	-11.988	***
	(7.50)		(7.49)	
AGE	5.830		5.844	
	1.48		1.49	
DIVER	-3.064		-3.053	
	(0.85)		(0.84)	
DD	8.395	***	8.393	***
	2.54		2.54	
LEV	-39.365	***	-39.288	***
	(3.26)		(3.25)	
MB	-46.841	***	-46.871	***
	(13.33)		(13.35)	
MERGER	1.540		1.438	
	0.40		0.37	
SIZE	147.518	***	147.499	***
	63.28		63.30	
ROE	-11.934		-12.020	
	(1.27)		(1.28)	
VROE	4.015	**	4.025	**
	2.44		2.44	
AQMeasure	-411.174	***	-411.626	***
	(8.60)		(8.61)	
N	5192		5192	
R^2	0.80		0.80	

Table 22 (continued)

Note: The dependent variable IV is replaced by number of Institutional Investors (Number of II) to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 23.1

Effect of ethnic diversity on relative trading volume of institutional investors (II_RTV)

- Custered for years and industries

$$II_RTV_{it} = \alpha + \beta_1 ETHNIC_{i,t-1} + \beta_2 LDIR_{i,t-1} + \beta_3 INEDpercent_{i,t-1} + \beta_4 Caucasian_Fem_No_{i,t-1} + \beta_5 AgeDiversity_{i,t-1} + \gamma_1 EINDEX_{i,t-1} + \gamma_2 AGE_{i,t-1} + \gamma_3 DIVER_{i,t-1} + \gamma_4 DD_{i,t-1} + \gamma_5 LEV_{i,t-1} + \gamma_6 MB_{i,t-1} + \gamma_7 MERGER_{i,t-1} + \gamma_8 SIZE_{i,t-1} + \gamma_9 ROE_{i,t-1} + \gamma_{10} VROE_{i,t-1} + \gamma_{11} AQMeasure_{i,t-1} + \sum Industry\ Dummies + \sum Year\ Dummies + \varepsilon_{i,t}$$

	(1)		(2)	
Intercept	66.952	***	67.298	***
	15.60		15.73	
$DINDEX_{t-1}$	**-6.477**	****		
	(3.39)			
$NON_Cpercent_{t-1}$			**-9.855**	****
			(3.38)	
$LDIR_{t-1}$	4.578	***	4.438	***
	3.02		2.94	
$INEDpercent_{t-1}$	4.852	*	4.759	*
	1.72		1.68	
$Caucasian_Fem_No_{t-1}$	0.225		0.225	
	0.69		0.69	
$Age\ Diversity_{t-1}$	-3.727		-3.722	
	(1.04)		(1.04)	
$EINDEX_{t-1}$	0.315		0.312	
	1.22		1.21	
AGE_{t-1}	1.580	**	1.578	**
	2.34		2.34	
$DIVER_{t-1}$	1.516	***	1.519	***
	2.65		2.66	
DD_{t-1}	3.834	***	3.831	***
	6.60		6.60	
LEV_{t-1}	-1.403		-1.410	
	(0.70)		(0.71)	
MB_{t-1}	-0.506		-0.498	
	(0.96)		(0.94)	
$MERGER_{t-1}$	2.061	***	2.079	***
	3.20		3.22	
$SIZE_{t-1}$	-4.227	***	-4.235	***
	(17.21)		(17.23)	
ROE_{t-1}	5.624	***	5.640	***
	4.03		4.04	
$VROE_{t-1}$	-0.539		-0.544	
	(1.30)		(1.32)	
$AQMeasure_{t-1}$	26.233	***	26.295	***
	3.26		3.27	
N	5069		5069	
R^2	0.68		0.68	

Table 23.1 (continued)

Note: The dependent variable IV is replaced by Relative Trading Volume of Institutional Investors (II_RTV , Summation of the four quarters' change in shareholdings of institutional investors divided by the total trading volume in a year) to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 23.2

Effect of ethnic diversity on relative trading volume of institutional investors (II_RTV) with different percentage of shares held by institutional investors

- Custered for years and industries (N=5045)

(Percentage of shares held by Institutional Investors =or <median - low %, > median – high %)

	low %		low %		high %		high %	
Intercept	69.513	***	69.842	***	67.342	***	67.601	***
	10.47		10.58		12.26		12.34	
$DINDEX_{t-1}$	**-4.798**				**-8.379**	*******		
	(1.64)				**(3.19)**			
NON_C$percent_{t-1}$			**-7.225**	*****			**-13.138**	*******
			(1.65)				**(3.26)**	
$LDIR_{t-1}$	5.473	**	5.349	**	3.227	*	3.074	
	2.30		2.27		1.65		1.58	
$INEDpercent_{t-1}$	5.363		5.271		5.019		4.971	
	1.29		1.26		1.29		1.27	
$Caucasian_Fem_No_{t-1}$	-0.714		-0.714		1.226	***	1.229	***
	(1.47)		(1.47)		2.88		2.88	
$Age\ Diversity_{t-1}$	-10.143	*	-10.121	*	0.002		0.015	
	(1.87)		(1.86)		0.00		0.00	
$EINDEX_{t-1}$	0.092		0.091		0.305		0.299	
	0.22		0.21		0.98		0.96	
AGE_{t-1}	0.625		0.621		1.948	**	1.949	**
	0.61		0.60		2.08		2.08	
$DIVER_{t-1}$	1.097		1.100		1.833	***	1.832	***
	1.18		1.18		2.60		2.60	
DD_{t-1}	6.227	***	6.225	***	2.541	***	2.542	***
	6.21		6.21		3.36		3.37	
LEV_{t-1}	1.937		1.935		-5.981	**	-5.997	**
	0.63		0.62		(2.29)		(2.29)	
MB_{t-1}	-0.313		-0.314		-0.952		-0.939	
	(0.36)		(0.36)		(1.28)		(1.26)	
$MERGER_{t-1}$	2.652	**	2.671	**	1.380	*	1.390	*
	2.52		2.53		1.87		1.89	
$SIZE_{t-1}$	-4.123	***	-4.130	***	-4.270	***	-4.269	***
	(12.02)		(12.06)		(10.78)		(10.78)	
ROE_{t-1}	3.234		3.251		5.702	***	5.707	***
	1.27		1.28		3.66		3.66	
$VROE_{t-1}$	-1.219	**	-1.222	**	0.520		0.519	
	(2.13)		(2.13)		0.89		0.89	
$AQMeasure_{t-1}$	29.774	**	29.873	**	20.154	*	20.223	*
	2.50		2.51		1.90		1.91	
N	2522		2522		2523		2523	
R^2	0.69		0.69		0.70		0.70	

Table 23.2(continued)

Note: The dependent variable IV is replaced by Relative Trading Volume of Institutional Investors (II_RTV , Summation of the four quarters' change in shareholdings of institutional investors divided by the total trading volume in a year) to run the main regressions. . Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 23.3

Effect of ethnic diversity on relative trading volume of institutional investors (II_RTV) with different concentration level of institutional investors

- Custered for years and industries (N=5045)

(Ownership Concentration-Herfindahl-Hirshman Index =or <median -Low Concentration , > median –High Concentration)

	Low II concentration		Low II concentration		High II concentration		High II concentration	
Intercept	49.261	***	49.408	***	77.894	***	78.326	***
	8.80		8.87		11.69		11.83	
$DINDEX_{t-1}$	**-2.370**				**-10.206**	***		
	(0.98)				**(3.39)**			
$NON_Cpercent_{t-1}$			**-3.536**				**-16.042**	***
			(0.93)				**(3.57)**	
$LDIR_{t-1}$	5.553	***	5.486	***	4.264	*	4.134	*
	2.98		2.95		1.72		1.68	
$INEDpercent_{t-1}$	9.194	***	9.147	***	3.017		2.923	
	2.61		2.60		0.74		0.71	
$Caucasian_Fem_No_{t-1}$	-1.104	***	-1.102	***	1.245	**	1.234	**
	(2.58)		(2.58)		2.51		2.48	
$Age\ Diversity_{t-1}$	-0.393		-0.362		-4.463		-4.557	
	(0.09)		(0.08)		(0.81)		(0.82)	
$EINDEX_{t-1}$	0.277		0.277		0.561		0.557	
	0.89		0.89		1.40		1.39	
AGE_{t-1}	1.448		1.445		1.057		1.053	
	1.60		1.59		1.12		1.12	
$DIVER_{t-1}$	1.742	***	1.739	***	1.471		1.495	
	2.71		2.70		1.57		1.60	
DD_{t-1}	3.263	***	3.263	***	3.956	***	3.939	***
	4.62		4.62		4.43		4.42	
LEV_{t-1}	3.914		3.919		-4.473		-4.481	
	1.40		1.40		(1.59)		(1.59)	
MB_{t-1}	0.388		0.393		-0.630		-0.619	
	0.55		0.56		(0.80)		(0.78)	
$MERGER_{t-1}$	2.382	***	2.392	***	1.952	*	1.964	*
	3.15		3.16		1.83		1.84	
$SIZE_{t-1}$	-3.422	***	-3.424	***	-4.889	***	-4.904	***
	(10.48)		(10.52)		(10.84)		(10.88)	
ROE_{t-1}	2.419		2.426		6.852	***	6.876	***
	1.21		1.21		3.69		3.71	
$VROE_{t-1}$	-1.241	**	-1.244	**	-0.245		-0.247	
	(2.29)		(2.29)		(0.49)		(0.49)	
$AQMeasure_{t-1}$	20.681	**	20.690	**	27.333	**	27.495	**
	2.11		2.11		2.17		2.18	
N	2522		2522		2523		2523	
R^2	0.71		0.71		0.68		0.68	

Table 23.3 (continued)

Note: The dependent variable IV is replaced by Relative Trading Volume of Institutional Investors (II_RTV , Summation of the four quarters' change in shareholdings of institutional investors divided by the total trading volume in a year) to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 23.4

Effect of ethnic diversity on relative trading volume of institutional investors (II_RTV) with different number of institutional investors (Number of Institutional Investors =or <median - Smaller No II ,> median – More No II)

- Custered for years and industries (N=5045)

	Smaller No II		Smaller No II		More No II		More No II	
Intercept	72.413	***	72.979	***	34.014	***	34.195	***
	9.58		9.74		5.10		5.15	
$DINDEX_{t-1}$	**-12.759**	***			**-1.985**			
	(4.19)				**(0.82)**			
$NON_Cpercent_{t-1}$			**-20.423**	***			**-2.852**	
			(4.39)				**(0.76)**	
$LDIR_{t-1}$	1.965		1.790		7.303	***	7.242	***
	0.90		0.82		3.58		3.55	
$INEDpercent_{t-1}$	-0.560		-0.737		11.191	***	11.146	***
	(0.14)		(0.19)		3.13		3.13	
$Caucasian_Fem_No_{t-1}$	1.278	**	1.272	**	-0.782	*	-0.780	*
	2.42		2.41		(1.78)		(1.77)	
$Age\ Diversity_{t-1}$	-0.225		-0.295		-5.766		-5.757	
	(0.04)		(0.06)		(1.16)		(1.16)	
$EINDEX_{t-1}$	0.340		0.339		0.735	**	0.735	**
	0.88		0.88		2.09		2.09	
AGE_{t-1}	1.987	**	1.984	**	0.888		0.879	
	2.17		2.16		0.86		0.86	
$DIVER_{t-1}$	1.811	**	1.832	**	1.553	**	1.550	**
	2.10		2.13		2.17		2.16	
DD_{t-1}	3.647	***	3.621	***	3.372	***	3.375	***
	4.56		4.54		3.84		3.84	
LEV_{t-1}	-4.785	*	-4.773	*	9.100	***	9.081	***
	(1.85)		(1.85)		2.68		2.67	
MB_{t-1}	-0.538		-0.533		-0.782		-0.777	
	(0.62)		(0.61)		(1.14)		(1.13)	
$MERGER_{t-1}$	2.241	**	2.236	**	1.484	*	1.495	*
	2.29		2.29		1.73		1.74	
$SIZE_{t-1}$	-3.987	***	-3.997	***	-2.002	***	-2.007	***
	(5.74)		(5.78)		(5.09)		(5.11)	
ROE_{t-1}	7.880	***	7.898	***	1.823		1.822	
	3.99		4.00		1.02		1.02	
$VROE_{t-1}$	-0.372		-0.373		-0.201		-0.203	
	(0.78)		(0.79)		(0.30)		(0.30)	
$AQMeasure_{t-1}$	15.288		15.322		19.976	*	19.973	*
	1.30		1.30		1.86		1.86	
N	2528		2528		2517		2517	
R^2	0.65		0.65		0.74		0.74	

Table 23.4 (continued)

Note: The dependent variable IV is replaced by Relative Trading Volume of Institutional Investors (II_RTV , Summation of the four quarters' change in shareholdings of institutional investors divided by the total trading volume in a year) to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 23.5

Effect of relative trading volume of institutional investors (II_RTV) on the change in institutional investors' shareholdings

- Clustered for years and industries

	Predicted		
Intercept		0.436	
		0.23	
II_RTV	**+**	**-0.010**	****
		(2.08)	
$LDIR_{t-1}$	?	-0.107	
		(0.19)	
$INEDpercent_{t-1}$	?	-1.105	
		(1.12)	
$Caucasian_Fem_No_{t-1}$	+	0.104	
		0.75	
$Age\ Diversity_{t-1}$	?	0.376	
		0.28	
$EINDEX_{t-1}$	-	0.157	
		1.60	
AGE_{t-1}	-	-0.197	
		(0.62)	
$DIVER_{t-1}$	?	0.195	
		0.88	
DD_{t-1}	?	-0.005	
		(0.02)	
LEV_{t-1}	?	-0.374	
		(0.43)	
MB_{t-1}	?	0.294	
		1.21	
$MERGER_{t-1}$	?	0.535	**
		2.48	
$SIZE_{t-1}$	?	-0.157	*
		(1.71)	
ROE_{t-1}	?	2.031	***
		2.63	
$VROE_{t-1}$	?	-0.395	**
		(2.51)	
$AQMeasure_{t-1}$	?	-1.562	
		(0.50)	
N		5210	
R^2		0.49	

Table 23.5 (continued)

Note: The dependent variable IV is replaced by is the change in institutional investors' shareholdings and an additional independent variable , Relative Trading Volume of Institutional Investors (II_RTV , Summation of the four quarters' change in shareholdings of institutional investors divided by the total trading volume in a year), is included to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 24

Effect of ethnic diversity on firm-specific information – controlled for trading volume of institutional investors

- Clustered for years and industries

	(1)		(2)	
Intercept	2.246	***	2.248	***
	12.75		12.82	
$DINDEX_{t-1}$	**0.153**	**		
	2.29			
$NON_Cpercent_{t-1}$			**0.269**	***
			2.62	
II_Trade	**0.029**	***	**0.029**	***
	9.90		**9.90**	
$LDIR_{t-1}$	0.033		0.034	
	0.59		0.61	
$INEDpercent_{t-1}$	-0.052		-0.054	
	(0.61)		(0.64)	
$Caucasian_Fem_No_{t-1}$	0.037	***	0.038	***
	2.94		2.97	
$Age\ Diversity_{t-1}$	0.015		0.015	
	0.12		0.12	
$EINDEX_{t-1}$	-0.022	**	-0.021	**
	(2.50)		(2.48)	
AGE_{t-1}	-0.176	***	-0.176	***
	(6.20)		(6.21)	
$DIVER_{t-1}$	-0.091	***	-0.090	***
	(4.48)		(4.48)	
DD_{t-1}	-0.130	***	-0.131	***
	(5.90)		(5.92)	
LEV_{t-1}	-0.191	**	-0.191	**
	(2.44)		(2.43)	
MB_{t-1}	0.079	***	0.079	***
	3.79		3.78	
$MERGER_{t-1}$	0.022		0.022	
	0.99		0.98	
$SIZE_{t-1}$	-0.111	***	-0.112	***
	(11.26)		(11.32)	
ROE_{t-1}	-0.255	***	-0.255	***
	(3.97)		(3.97)	
$VROE_{t-1}$	-0.002		-0.002	
	(0.16)		(0.17)	
$AQMeasure_{t-1}$	-1.983	***	-1.985	***
	(6.79)		(6.80)	
N	5069		5069	
R^2	0.50		0.50	

Table 24 (continued)

Note: An additional control variable, Trading Volume of Institutional Investors (II_Trade, Summation of the four quarters' change in shareholdings of institutional investors divided by the number of shares outstanding), is added to the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 25.1

2SLS regressions of ethnic diversity and concentration of institutional investors' ownership on firm-specific information-full sample

	(1)		(2)		(3)	
Intercept	16.866		14.955		2.624	***
	1.42		1.37		15.01	
$DINDEX_{t-1}$	**34.490**					
	1.15					
$NON_Cpercent_{t-1}$			**51.782**			
			1.08			
Concentration of II					**0.689**	*******
					3.14	
II_Trade					**0.028**	*******
					14.78	
$LDIR_{t-1}$	-3.973		-3.150		0.220	***
	(1.09)		(1.00)		3.41	
$INEDpercent_{t-1}$	-6.916		-6.445		-0.656	***
	(1.29)		(1.21)		(6.95)	
$Caucasian_Fem_No_{t-1}$	0.315		0.333		0.095	***
	1.51		1.42		6.55	
Age $Diversity_{t-1}$	0.286		0.214		-0.109	
	0.30		0.23		(0.73)	
$EINDEX_{t-1}$	0.049		0.045		-0.142	***
	0.28		0.24		(16.83)	
AGE_{t-1}	-0.321	*	-0.324	*	-0.328	***
	(1.64)		(1.70)		(10.29)	
$DIVER_{t-1}$	0.229		0.207		-0.042	*
	0.91		0.84		(1.83)	
DD_{t-1}	-0.403		-0.372		-0.072	***
	(1.33)		(1.28)		(2.76)	
LEV_{t-1}	1.458		1.405		0.214	***
	1.27		1.21		2.59	
MB_{t-1}	0.069		0.046		0.155	***
	0.42		0.26		6.95	
$MERGER_{t-1}$	0.415		0.326		0.052	**
	1.17		1.09		2.00	
$SIZE_{t-1}$	-0.953		-0.910		-0.134	***
	(1.35)		(1.28)		(13.20)	
ROE_{t-1}	0.247		0.166		-0.248	***
	0.42		0.30		(3.89)	
$VROE_{t-1}$	-0.251		-0.232		-0.024	
	(1.14)		(1.08)		(1.57)	
$AQMeasure_{t-1}$	-6.226		-6.123		-0.794	***
	(1.26)		(1.19)		(3.04)	
N	5044		5044		5044	
R^2	0.005		0.006		0.20	

Table 25.1 (continued)

I specify ETHNIC and Concentration of II as endogenous variables and run 2SLS regressions. Concentration of II and II_Trade replaced Ethnic (DINDEX and NON_Cperecent) in the regression (3). Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 25.2

2SLS regressions of ethnic diversity and concentration of institutional investors' ownership on firm-specific information - high concentration of institutional investors subsample

	(1)	(2)	(3)	
Intercept	31.697	27.964	3.029	***
	0.92	0.93	13.08	
$DINDEX_{t-1}$	**67.179**			
	0.83			
$NON_Cpercent_{t-1}$		**102.622**		
		0.83		
Concentration of II			**0.520**	**
			2.14	
II_Trade			**0.024**	***
			9.28	
$LDIR_{t-1}$	-9.071	(7.89)	0.026	
	(0.82)	(0.82)	0.29	
$INEDpercent_{t-1}$	-10.348	-9.558	-0.510	***
	(0.87)	(0.87)	(3.89)	
$Caucasian_Fem_No_{t-1}$	0.602	0.669	0.099	***
	0.94	0.93	4.81	
$Age\ Diversity_{t-1}$	-1.559	-0.978	-0.138	
	(0.53)	(0.38)	(0.67)	
$EINDEX_{t-1}$	-0.004	0.000	-0.153	***
	(0.02)	0.00	(12.32)	
AGE_{t-1}	-0.172	-0.156	-0.209	***
	(0.34)	(0.31)	(4.78)	
$DIVER_{t-1}$	0.437	0.297	-0.026	
	0.67	0.57	(0.77)	
DD_{t-1}	0.393	0.509	-0.124	***
	0.51	0.57	(3.42)	
LEV_{t-1}	2.183	2.224	0.326	***
	0.86	0.86	2.91	
MB_{t-1}	-0.287	-0.342	0.161	***
	(0.44)	(0.48)	5.28	
$MERGER_{t-1}$	-0.043	-0.128	0.050	
	(0.10)	(0.27)	1.31	
$SIZE_{t-1}$	-1.682	-1.562	-0.177	***
	(0.91)	(0.92)	(11.24)	
ROE_{t-1}	1.603	1.393	-0.201	**
	0.67	0.65	(2.51)	
$VROE_{t-1}$	-0.545	-0.512	-0.033	*
	(0.83)	(0.83)	(1.72)	
$AQMeasure_{t-1}$	-6.140	-5.936	-0.536	
	(0.76)	(0.76)	(1.39)	
N	2522	2522	2522	
R^2	0.002	0.002	0.20	

Table 25.2 (continued)

I specify ETHNIC and Concentration of II as endogenous variables and run 2SLS regressions for firms with high concentration of institutional investors. Concentration of II and II_Trade replaced Ethnic (DINDEX and NON_Cperecent) in the regression (3). Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 25.3

2SLS regressions of ethnic diversity and concentration of institutional investors' ownership on firm-specific information - low concentration of institutional investors subsample

	(1)		(2)		(3)	
Intercept	4.786	***	4.584	***	1.837	***
	4.97		5.40		6.04	
$DINDEX_{t-1}$	**4.960**	****				
	2.12					
$NON_Cpercent_{t-1}$			**7.623**	****		
			2.19			
Concentration of II					**-2.082**	
					(0.73)	
II_Trade					**0.039**	****
					13.98	
$LDIR_{t-1}$	-0.112		0.022		0.401	***
	(0.41)		0.11		4.39	
$INEDpercent_{t-1}$	-1.894	***	-1.853	***	-0.721	***
	(3.55)		(3.71)		(5.32)	
$Caucasian_Fem_No_{t-1}$	0.112	***	0.114	***	0.084	***
	3.56		3.61		4.10	
Age $Diversity_{t-1}$	0.191		0.120		0.025	
	0.62		0.40		0.11	
$EINDEX_{t-1}$	-0.091	***	-0.092	***	-0.121	***
	(4.12)		(4.32)		(10.50)	
AGE_{t-1}	-0.488	***	-0.488	***	-0.442	***
	(7.68)		(7.74)		(9.60)	
$DIVER_{t-1}$	0.017		0.023		-0.053	*
	0.37		0.48		(1.65)	
DD_{t-1}	-0.182	***	-0.184	***	-0.041	
	(2.55)		(2.60)		(1.08)	
LEV_{t-1}	0.371	**	0.351	**	0.208	*
	2.04		1.98		1.68	
MB_{t-1}	0.204	***	0.199	***	0.158	***
	4.55		4.47		4.74	
$MERGER_{t-1}$	0.149	**	0.132	**	0.044	
	2.26		2.21		1.26	
$SIZE_{t-1}$	-0.249	***	-0.250	***	-0.067	***
	(3.63)		(3.74)		(4.05)	
ROE_{t-1}	-0.356	**	-0.365	**	-0.194	*
	(2.39)		(2.44)		(1.84)	
$VROE_{t-1}$	-0.021		-0.019		-0.022	
	(0.62)		(0.56)		(0.91)	
$AQMeasure_{t-1}$	-1.996	***	-2.025	***	-0.627	*
	(2.76)		(2.82)		(1.78)	
N	2521		2521		2521	
R^2	0.10		0.10		0.22	

Table 25.3 (continued)

Note: I specify ETHNIC and Concentration of II as endogenous variables and run 2SLS regressions for firms with low concentration of institutional investors. Concentration of II and II_Trade replaced Ethnic (DINDEX and NON_Cperecent) in the main regression for the regression (3). Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 26

Effect of ethnic diversity on number of analysts following

- Clustered for years and industries

	Predicted	(1)		(2)	
Intercept		-21.415	***	-21.219	***
		(13.28)		(13.30)	
DINDEX	**?**	**18.143**	*******		
		6.19			
DINDEX*SIZE	?	**-2.471**	*******		
		(6.61)			
NON_Cpercent	**?**			**27.519**	*******
				6.22	
NON_Cpercent*SIZE	?			**-3.781**	*******
				(6.75)	
LDIR	?	-1.233	**	-1.246	**
		(2.42)		(2.45)	
INEDpercent	?	-0.860		-0.811	
		(1.08)		(1.02)	
Caucasian_Fem_No	+	-0.077		-0.081	
		(0.66)		(0.70)	
Age Diversity	?	-0.424		-0.396	
		(0.36)		(0.34)	
EINDEX	-	-0.160	**	-0.159	**
		(2.00)		(1.98)	
AGE	-	-2.751	***	-2.746	***
		(9.95)		(9.93)	
DIVER	?	-1.053	***	-1.057	***
		(5.23)		(5.26)	
DD	?	-2.210	***	-2.206	***
		(10.38)		(10.36)	
LEV	?	0.460		0.457	
		0.64		0.63	
MB	?	-0.880	***	-0.870	***
		(4.01)		(3.96)	
MERGER	?	-0.601	***	-0.591	***
		(2.97)		(2.92)	
SIZE	?	6.424	***	6.393	***
		58.26		59.84	
ROE	?	-4.598	***	-4.592	***
		(7.58)		(7.57)	
VROE	?	0.201		0.200	
		1.49		1.48	
AQMeasure	?	-12.400	***	-12.286	***
		(4.86)		(4.81)	
N		5193		5193	
R^2		0.67		0.67	

Table 26 (continued)

Note: The dependent variable IV is replaced by number of analysts following and an additional independent variable ETHNIC*SIZE is included to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 27

Effect of number of analysts following and ethnic diversity on firm-specific information - Clustered for years and industries

	Predicted sign	(1)		(2)	
Intercept		2.814	***	2.814	***
		16.85		16.93	
Analysts No		**0.015**	***	**0.015**	***
		10.18		**10.21**	
DINDEX $_{t-1}$	+	**0.195**	***		
		2.98			
NON_Cpercent$_{t-1}$	+			**0.334**	***
				3.33	
LDIR$_{t-1}$	?	0.035		0.037	
		0.66		0.71	
INEDpercent$_{t-1}$	?	-0.015		-0.017	
		(0.18)		(0.20)	
Caucasian_Fem_No$_{t-1}$	+	0.033	***	0.033	***
		2.59		2.63	
Age Diversity$_{t-1}$	?	0.101		0.101	
		0.84		0.84	
EINDEX$_{t-1}$	-	-0.016	*	-0.016	*
		(1.92)		(1.91)	
AGE$_{t-1}$	-	-0.156	***	-0.156	***
		(5.69)		(5.70)	
DIVER$_{t-1}$	?	-0.073	***	-0.073	***
		(3.65)		(3.64)	
DD$_{t-1}$	?	-0.152	***	-0.152	***
		(6.88)		(6.89)	
LEV$_{t-1}$	?	-0.070		-0.070	
		(0.93)		(0.92)	
MB$_{t-1}$	?	0.099	***	0.098	***
		4.83		4.83	
MERGER$_{t-1}$	?	0.030		0.030	
		1.40		1.38	
SIZE$_{t-1}$	?	-0.209	***	-0.209	***
		(15.38)		(15.44)	
ROE$_{t-1}$	?	-0.206	***	-0.206	***
		(3.29)		(3.29)	
VROE$_{t-1}$	?	-0.007		-0.007	
		(0.51)		(0.51)	
AQMeasure$_{t-1}$	?	-1.924	***	-1.927	***
		(6.66)		(6.67)	
N		5193		5193	
R^2		0.50		0.50	

Table 27 (continued)

Note: Additional independent variables, number of analysts following, Analysts No, and the interaction of number of analysts following and ethnic diversity, Analysts No*ETHNIC (DINDEX and NONC_percent) are included to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

Table 28

Effect of portion of non-Caucasians in different committees on firm-specific information

- Clustered for years and industries

	Predicted sign	(1)		(2)		(3)		(4)	
Intercept		2.557	***	2.593	***	2.637	***	2.573	***
		15.33		14.83		15.48		15.47	
NONC _AC_percent$_{t-1}$	**+**	**0.057**							
		0.90							
NONC _CG_percent$_{t-1}$	**+**			**0.131**	**				
				2.05					
NONC _Nom_percent$_{t-1}$	**+**					**0.117**	*		
						1.88			
NONC _Comp_percent$_{t-1}$	**+**							**0.122**	**
								2.03	
LDIR $_{t-1}$	?	0.012		-0.054		-0.051		-0.001	
		0.22		(0.98)		(0.91)		(0.02)	
INEDpercent$_{t-1}$	?	-0.004		-0.035		-0.019		-0.005	
		(0.05)		(0.39)		(0.21)		(0.07)	
Caucasian_Fem_No$_{t-1}$	+	0.031	**	0.038	***	0.035	***	0.032	**
		2.41		2.94		2.71		2.48	
Age Diversity$_{t-1}$	?	0.095		0.058		0.096		0.092	
		0.79		0.46		0.78		0.77	
EINDEX$_{t-1}$	-	-0.020	**	-0.017	*	-0.018	**	-0.018	**
		(2.29)		(1.93)		(2.01)		(2.09)	
AGE$_{t-1}$	-	-0.207	***	-0.190	***	-0.196	***	-0.205	***
		(7.39)		(6.54)		(6.95)		(7.32)	
DIVER$_{t-1}$	?	-0.091	***	-0.093	***	-0.096	***	-0.092	***
		(4.50)		(4.48)		(4.71)		(4.57)	
DD $_{t-1}$	?	-0.174	***	-0.187	***	-0.174	***	-0.177	***
		(7.79)		(8.22)		(7.70)		(7.96)	
LEV$_{t-1}$	?	-0.084		-0.126		-0.140	*	-0.079	
		(1.10)		(1.58)		(1.81)		(1.03)	
MB$_{t-1}$	?	0.083	***	0.090	***	0.085	***	0.082	***
		4.00		4.26		4.05		3.98	
MERGER$_{t-1}$	?	0.018		0.009		0.021		0.015	
		0.84		0.40		0.93		0.67	
SIZE$_{t-1}$	?	-0.114	***	-0.105	***	-0.111	***	-0.113	***
		(12.31)		(10.87)		(11.72)		(12.22)	
ROE$_{t-1}$	?	-0.274	***	-0.297	***	-0.278	***	-0.281	***
		(4.40)		(4.59)		(4.40)		(4.51)	
VROE$_{t-1}$	?	0.000		0.002		0.000		0.000	
		(0.03)		0.12		0.00		0.00	
AQMeasure$_{t-1}$	?	-2.116	***	-2.181	***	-2.104	***	-2.085	***
		(7.30)		(7.24)		(7.10)		(7.19)	
N		5228		4838		5068		5220	
R^2		0.48		0.49		0.49		0.49	

Table 28 (continued)

Note: The independent variable ethnic diversity is replaced by the percentage of non-Caucasians in different committees (1) Audit Commmitee , **NONC _AC_percent** , (2) Corporate Governance Committee, **NONC _CG_percent**, (3) Nomination Committee, **NONC _Nom_percent, (4)** Compensation Committee, **NONC _Comp_percent** to run the main regressions. Fixed effects of industries based on two-digit SIC code and fiscal years are controlled for in the above regressions by dummy variables. Variables are defined in Appendix 2. ***, ** and * denote statistical significance at the 1% (two tailed), 5% (two tailed) and 10 % (two tailed) levels respectively.

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