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Busy directors and firm performance: Does firm location matter?☆

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ABSTRACT

We examine whether busy directors' impacts on firm performance vary with firm headquarter locations. We classify firms into Metro and Rural firms based on their headquarter locations. Using a sample of 11,537 firm-year observations from 1997 to 2013, we find that Metro firm busy directors significantly enhance firm performance and are associated with lower default risk, lower cash effective tax rate, lower real earnings management, and more efficient assets utilization. We further show busy independent directors enhance firm performance after the 2007–2008 financial crisis, but not in the early years after SOX. Interestingly, the results indicate that SOX compromises the effectiveness of busy inside directors in Metro firms in the post-SOX period. The location effect is robust across multiple model specifications and various measures of director busyness and Metro firms. We conclude that firm location affects the effectiveness of busy directors and Metro firms benefit more from directors with multiple directorships.

1. Introduction

Busy directors, defined as those with three or more outside directorships[1] (Ferris, Jagannathan, & Pritchard, 2003; Fich & Shivdasani, 2006; Jiraporn, Kim, and Davidson, 2008), affect firm performance. Empirical studies document equivocal results on the impact of busy directors on firm performance, with some studies show a positive effect (Ferris et al., 2003; Fich, 2005; Field, Lowry, & Mkrtchyan, 2013; Harris & Shimizu, 2004; Keys & Li, 2005), while others document a negative one (Ahn, Jiraporn, & Kim, 2010a,2010b; Andres & Lehmann, 2010; Jiraporn, Kim, & Davidson, 2008). Cashman, Gillan, and Jun (2012) contribute the disparate results to sample selection and empirical design. We argue that contextual factors may also lead to these inconsistent findings.

Studies show that busy directors are not universally the same.[2] Further, specific contextual factors, such as firm characteristics, firm operating environment, director incentives, directors' perception of the importance of a directorship, may affect their social and professional connections, behavior, decisions, value creation abilities, and hence firm performance. Therefore, simply counting the

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[1] We use different definitions of busy directors in Robustness check, specifically, we use both 2 and 4 directorships as cutting-off points to classify whether a director is busy or not.

[2] For example, Benson, Davidson, James, and Wang (2017) show busy inside directors are more likely to use share repurchases and tend to repurchase more, while busy independent directors prefer dividends and tend to pay higher levels of dividends. Benson, Davidson, Davidson, and Wang (2015) document that busy CEOs in bidder firms pay lower premiums in mergers and acquisitions, while target busy CEOs shirk their responsibilities by accepting lower premiums.

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number of outside directorships held by individual directors and/or focusing on their affiliations to the host firms may not be able to capture their true value effects. For example, Field et al. (2013) find busy directors in IPO firms have different value effects from those in the most established firms; Elyasiani and Zhang (2015) show that the performance of bank holding companies increases with director busyness; Masulis and Mobbs (2014) show that busy directors rank directorships held and allocate their limited resources unequally by distributing more efforts and resources to firms where their directorships are more prestigious or are perceived more valuable. Therefore, we cannot generalize the effect of busy directors on firm value.

In this paper, we analyze the effect of a firm's location on busy director-firm performance relation. We classify firms into Metro firms and Rural firms based on their headquarter locations. Metro firms refer to those located in one of the largest ten metropolitan statistical areas (MSA areas) as of the 2010 Census (Loughran, 2008; Gao, Ng, & Wang, 2011; John, Knyazeva, & Knyazeva, 2011).[3] Rural firms are those that do not satisfy the definition of Metro firms. We empirically test whether Metro firms benefit more from busy directors than Rural firms and investigate possible channels through which value is created by busy directors. We further examine whether busy directors-firm performance relation varies corresponding to two important events in recent history: the Sarbanes-Oxley Act (SOX) of 2002 and the 2007–2008 financial crisis, since the two events triggered significant debates on the effectiveness of board monitoring and its impact on firm value. In particular, we use Tobin's Q and return on assets (ROA) as firm performance proxies. Tobin's Q is calculated as the market value of common equity plus the book value of assets minus the book value of common equity scaled by the book value of assets and ROA is calculated as the ratio of earnings before interest and taxes to total assets.

Using a sample of 11,537 firm-year observations from 1997 to 2013, we find that Metro firm busy directors significantly enhance firm performance. The parameter estimates suggest that one percentage increase in the proportion of busy inside/independent directors increases Tobin's Q by 0.13/0.04 percentage. In addition, Metro firm busy directors are associated with lower default risk, lower cash effective tax rate, lower real earnings management, and higher assets utilization efficiency. Metro firm busy directors' favorable financial strategies provide some explanations on the positive relation between busy directors and overall performance in Metro firms. Further analysis shows Metro firm busy independent directors have a stronger positive effect on firm performance in the post-financial crisis years (2008–2013), but not in the immediate post-SOX period (2003–2007). In addition, SOX may have some unintended effects on inside directors as the results show that Metro firm busy inside directors' role in value creation is compromised in the post-SOX period.

The location effect on the director busyness-performance relation is robust across various model specifications and different definitions of key variables. First, we control the potential endogeneity between firm performance and busy directors, induced by either unobservable omitted variables and/or the selection of busy directors by better performing firms, with instrumental variable approach and firm fixed effect regressions. Second, we mitigate sample selection bias with Heckman selection model and address the issue of observable omitted variable bias by adding more control variables. Third, we conduct a Chow test to directly examine the structural changes between firm performance and director busyness around SOX. Lastly, we use different definitions and measurements of firm performance, director busyness, and Metro firms. Our major findings remain with all the tests.

We enrich the existing literature on director busyness and firm geographic location in various ways. First, we are the first to address the role of location in the effectiveness of busy directors. The location effects provide some explanations on the controversial evidence of the busy director-firm performance relation. Second, we complement the current literature on the non-universal role of busy directors and the results have some policy implications. The findings that Metro firm busy directors improve firm performance suggest that limiting the number of directorships held by a director may not always be in the best interest of shareholders. Third, the results imply the priority of Metro firm busy directors, reflecting that directorships carry different values and provide different incentives to their holders. Finally, not only do we document a positive relation between Metro firm busy directors and firm performance, but also explore and identify some channels through which Metro firm busy directors create value.

We organize the remainder of this paper as follows. In Section 2, we motivate our research, review the literature, and develop our hypotheses. We provide an overview of our sample and the data in Section 3. In Section 4, we present our empirical results and provide concluding remarks in Section 5.

2. Literature review and hypothesis development

2.1. Firm location and corporate decisions

Firms exercise caution in selecting their headquarters' and subsidiaries' locations to take advantage of various location benefits and fulfill their objectives. For example, Yamori (1998) notes that financial institutions choose their locations based on FDI (foreign direct investment) manufactory industries and local banking opportunities in host countries. According to Dyreng, Lindsey, and Thornock (2013), U.S. firms locate subsidiaries in Delaware for tax benefits and a Delaware-based state tax avoidance strategy lowers state effective tax rates by 0.7% to 1.1% which effectively reduces a firm's tax burden and increases its earnings.

The relevance of geography in corporate decisions and valuation has been extensively documented. Gao, Ng, and Wang (2008) indicate that a firm's geographic dispersion affects its policies and has important implications on its valuation. Studies show that a firm's location affects its cost of capital (Arena & Dewally, 2012; Boubakri, Guedhami, & Saffar, 2016; Husted, Jamali, & Saffar, 2016), equity issuance (Loughran, 2008), likelihood of financial misconduct (Kedia & Rajgopal, 2011), capital structure (Gao et al., 2011), dividend policy (John et al., 2011; Ucar, 2016)[4] broad based option plans (Kedia & Rajgopal, 2009), stock price crash risk

[3] In the robustness test, we use the distance to major airports defined by Federal Aviation Association (FAA) to define Metro and Rural firms.

(Kubick & Lockhart, 2016), corporate social responsibility engagement (Husted et al., 2016), post-privatization ownership structure (Boubakri et al., 2016), lease intensity (Devos & Rahman, 2014), and the relation between ROE, R&D, firm size and firm value (Carosi, 2016). However, little attention has been given to the possible direct link between corporate governance and location. The board of directors is an important part of corporate governance. We explore the location effects on directors with multiple directorships.

2.2. Busy directors and firm performance

Two arguments dominate the existing literature of director busyness, Reputation Hypothesis and Busyness Hypothesis. Reputation Hypothesis states that director accumulation reflects the high quality of a director and busy directors have superior ability to process information, suggesting a positive effect of busy directors on firm value. While, Busyness Hypothesis focuses on the constraints of a busy director's time, energy, and conflicts of events and posits that directorship accumulation may compromise the quality of a director's service and hence negatively affect firm performance.

Empirical studies have provided mixed evidence on the debate over the benefits and the costs of multiple directorships. Some studies find that directorship accumulation is an important and valuable source of firm value (Ferris et al., 2003; Fich, 2005; Field et al., 2013; Harris & Shimizu, 2004; Keys & Li, 2005). By studying their trade behaviors, Cook and Wang (2011) find that busy directors have superior ability and outperform those with only one directorship. Fileds et al. (2013) argue that busy directors have a wider network of contacts, more experiences, and more skills, which benefit firms with greater advising needs. Lee and Lee (2012) show that multiple directorships are beneficial, especially in countries with weaker corporate governance. Meanwhile, consistent with Busyness Hypothesis, other studies show that busy boards are related to low board meeting attendance (Jiraporn, Davidson, DaDalt, & Ning, 2009), greater likelihood of financial statement fraud (Beasley, 1996), weak corporate governance, lower market-to-book ratios, weaker profitability, and lower sensitivity of CEO turnover to firm performance (Fich & Shivdasani, 2006), a deep diversification discount (Jiraporn et al., 2008), and higher CEO compensation (Andres & Lehmann, 2010). Multiple directorships are value decreasing (Ahn et al., 2010a, 2010b; Andres & Lehmann, 2010; Fich & Shivdasani, 2006; Jiraporn et al., 2008).

Given the controversial empirical evidence, we propose busy directors' value effects cannot be generalized. First of all, busy directors are not a homogenous group. For example, busy inside directors and busy independent directors (Benson et al., 2017), busy CEO and busy non-CEO directors (Benson et al., 2015), busy directors in IPO firms and those in the most established firms (Field et al., 2013), and busy directors in large firms and those in small firms are different and exert different impacts on their firms. Secondly, not all directorships are the same. Individual board seats carry different values and some directorships are more prestigious than others. Masulis and Mobbs (2014) argue and find empirical evidence that board seats provide unequal incentives and busy directors do rank their directorships to allocate their limited resources accordingly.

2.3. Busy directors, geographic location, and firm performance

Since firm characteristics affect the value of a directorship, a firm's headquarter location may, to some extent, determine the attractiveness of its directorships and hence the ranking by potential and sitting holders. Busy directors may prioritize the responsibilities of competing directorships based on their host firms' locations. The differential effectiveness of busy directors may be attributable partially to different firm locations.

Firstly, Metro firms are characterized with easier accessibility, more speedy information transmission, higher visibility, greater popularity with the investing community, and closer scrutiny from the public, the media, and regulators.[5] Directors care about their reputation and reputation concerns can serve as an important incentive to exert efforts. Serving on the board of a more visible and/or more prestigious firm can either make or break the reputation of a director quickly. Rewards and penalties linked to Metro firm directorships can be substantial, which changes a director's value in the director labor market. We propose that busy directors value their Metro firm directorships more than other directorships held and are willing or have to invest more time and other resources in these firms. Consequently, they act in the interest of shareholders, such as advising Metro firms in a timely manner, effectively controlling management misconduct, and hence improve performance regardless of their busyness status.

Secondly, regulatory enforcement is an extreme version of monitoring and may force busy directors to exercise their fiduciary duty more diligently. The SEC (The U.S. Securities and Exchange Commission) is a regulatory and enforcement agency of the US Federal government, headquartered in Washington D.C, and currently has 11 regional offices across the country.[6] The SEC exercises its monitoring role and takes actions against those that violate security rules and regulations. However, given its resource constraints, The SEC is not able to target all firms that violate regulatory rules and the enforcement decreases as the distance between the focal firm and an SEC office increases. Further, employees in firms close to the SEC offices are more familiar with the SEC and more likely to whistle blow the problems of their firms, which intensifies the scrutiny over these firms (Kedia & Rajgopal, 2011). Consequently, a

[4] Remotely located firms pay higher dividends to mitigate agency problems (John et al., 2011).

[5] For example, Loughran (2008) shows that it is easier for urban firm investors to access information and it is most costly for rural firms to generate information; Arena and Dewally (2012) document empirical evidence that rural firms have information disadvantage and rely more on relationship banking; John et al. (2011) find that firm location affects shareholders' ability to monitor and oversee management and remote firms pre-commit to pay dividends to reduce agency problems.

[6] The eleven SEC regional offices are located in Atlanta, Boston, Chicago, Denver, Fort Worth, Los Angeles, Miami, New York, Philadelphia, Salt Lake City, and San Francisco. Nine of the ten cities classified as Metro areas in our study have an SEC regional office except Houston. Therefore, we do not differentiate the role of the distance to the SEC offices, we classify all firms close to the SEC offices as Metro firms.

firm's relative location to an SEC office affects its behavior and performance. For example, the SEC oversight affects firm disclosure practices (Kedia & Rajgopal, 2011) and stock performance (Kubick & Lockhart, 2016). Particularly, firms located close to the SEC are less likely to restate their financial statements (Kedia & Rajgopal, 2011) and have a smaller stock crash risk (Kubick & Lockhart, 2016). These studies show the host firm's location, to some extent, may put a director in a venerable position given its special corporate culture, the higher level of oversight, and pressure from neighboring firms. Busy directors may spend more time and efforts in their host firms that are geographically important so as to enjoy the prestige linked to these firms' directorships.

Lastly, directors' connections matter. The advantageous locations of Metro firms create more opportunities for Metro firm executives and directors to network with their counterparts in other firms or other professionals and politicians. Studies have shown that directors' connections have clear impacts on information flow (Engelberg, Gao, & Parsons, 2012; Khatami, Marchica, & Mura, 2016), credit ratings (Khatami et al., 2016), cost of capital (Chuluun, Prevost, & Puthenpurackal, 2014; Houston, Jiang, Lin, & Ma, 2014), mergers and acquisitions (Ferris, Houston, & Javakhadze, 2016; Ishii & Xuan, 2014), takeover activities (Renneboog & Zhao, 2014), financial reporting (Omer, Shelly, and Tice, 2016), and firm value (Cai & Sevilir, 2012; Goldman, Rocholl, & So, 2009).[7] Further, soft information is valuable,[8] yet hard to obtain. Networking is an important approach to obtain soft information. Metro firm directors may actively collect, process, and use the soft information via their connections. Metro firms' location advantages can facilitate their busy directors to fulfill their fiduciary duties. Further, under a relatively higher level of outside monitoring from various stakeholders, Metro firm busy directors are more likely to take advantage of these valuable resources and dedicate to value creation. We predict the reputation effect of busy directors dominates the busyness effect in Metro firms.

H_1: The value effect of Metro firm busy directors is different from that of Rural firm busy directors. Metro firm busy directors enhance firm performance.

2.4. The Sarbanes-Oxley Act, the 2007–2008 financial crisis, and busy directors

In July 2002, the U.S. Congress passed the Sarbanes-Oxley Act (SOX) in response to the corporate scandals in the late 90s to early 2000s. This act mandates numerous changes on corporate America to restore public confidence. SOX includes various provisions targeting various monitoring mechanisms and increasing penalties for corporate fraud, such as provisions on accounting firms (Sections I and II), on corporate responsibility (Section III, on the board, the CEO. and the CFO), on financial disclosure and internal control (Section IV), and on penalty for corporate fraud (Sections VIII, IX, and X). We focus on the requirements on corporate boards. SOX requires independence of the audit committee (Section 301). Shortly after the passage of SOX, major U.S. stock exchanges passed similar rules on financial disclosure, auditor independence, corporate responsibility, and criminal responsibility. Specifically, NYSE (New York Stock Exchange) and NASDAQ (The National Association of Securities Dealers Automated Quotation System) require their listed firms have the majority of their board members and the key sub-committees (compensation, nominating, and audit committees) be independent and require the audit committee members be financially literate and at least one of them be an accounting or a finance expert. In addition, the stock exchanges also require the board hold additional meetings without the management.

The mandated provisions in SOX and the stock exchange rules[9] have led to significant changes in management behavior, corporate governance, and business environment, such as board structure and board size (Dah, Frye, & Hurst, 2014; Linck, Netter, & Yang, 2008),[10] market liquidity (Jain, Kim, & Rezaee, 2008), risk-taking behavior (Bargeron, Lehn, & Zutter, 2010; Kang, Liu, & Qi, 2010; Wang, Davidson, & Wang, 2010), innovation (Gu & Zhang, 2017), mergers and acquisitions (Karan & Sharifi, 2006), costs for insiders to extract rents from minority shareholders (Duarte, Kong, Siegel, & Young, 2014), reduced benefits of a US listing (Marosi & Massoud, 2008), costs and profitability (Ahmed, McAnally, Rasmussen, & Weaver, 2010), the exit of low-quality auditors (DeFond & Lennox, 2011), earnings reporting (Iliev, 2010), IPO valuation (Johnston & Madura, 2009), corporate transparency and cost of capital (Andrade, Bernile, & Hood, 2014). Undoubtedly, such changes affect firm performance, though not universally to the same extent (Ahmed et al., 2010; Akhigbe, Martin, & Newman, 2010; Chhaochharia & Grinstein, 2007; Iliev, 2010; Wintoki, 2007). We investigate whether SOX and the security exchange requirements affect busy directors differently in Metro and Rural firms.

Sections III and IV of SOX focus on the roles that managers and directors play in corporate governance. As a result, SOX may, by holding board members more accountable, change the relationship between busy directors and firm performance. Studies have provided some evidence of the SOX effects on busy directors and firm performance. For example, Jiraporn et al. (2009) find that busy directors are less likely to miss board meetings post-SOX. Cashman et al. (2012) show that the negative association between busy directors and firm value has been weakened post-SOX. Other studies show the value effect of SOX depends on firm size and the extent of compliance with the provisions of SOX (Chhaochharia & Grinstein, 2007), on the level of information asymmetry and corporate

[7] Connections are an important source of value. Even though most studies have documented connections benefit a firm due to better information flow. However, connections may destroy value in some circumstances, e.g. Cheung, Chung, Tan, and Wang (2013) find that close connections between the board and controlling shareholders have a negative impact on corporate governance; Ishii and Xuan (2014) show that social ties between bidder and target executives and directors negatively affect acquiring firms.

[8] For example, Chen, Huang, Tsai, and Tzeng (2013) show that soft information helps borrowers obtain loans with low rates.

[9] Because the NYSE and NASDAQ proposals are very close to the passage of SOX in time, we do not separate the three events in our study. For simplicity, we generalize the effects of the three as the effects of SOX.

[10] In addition to the two studies, other studies also provide some evidence on board changes post SOX, such as increased independence of the board, director pay, and board size (Linck, Netter, & Yang, 2009), increased independence of board subcommittees (Brick & Chidambaran, 2010), the number of outside directorships held by retired CEOs (Lee, 2011), the likelihood of adjusting the board structure (Cicero, Wintoki, & Yang, 2013), the increased likelihood of appointing directors from supply chain partners (Minnick & Raman, 2017), decreased role of gender diversity (Pathan & Faff, 2013).

governance (Akhigbe et al., 2010), on monitoring-costs and the benefits from outside monitoring (Wintoki, 2007). According to Dah et al. (2014), SOX has brought some unintended effects, specifically, they find that the CEO turnover performance sensitivity significantly decreases following SOX in firms that decrease board independence and large board independence changes seem to be most detrimental to the monitoring function of the board.

Further, the 2007–2008 financial crisis may also influence the relation between corporate governance and firm performance given changes in the macro economic environment and intensified monitoring from various stakeholders. Pathan and Faff (2013) indicate that governance issues are more noticeable and the role of the board is more important during and after a financial crisis. Nguyen, Nguyen, and Yin (2015) find that the credit crisis significantly changes firms' investing and financing behavior and good corporate governance alleviate the adverse effects of the credit supply shock. Similarly, Bucă and Vermeulen (2017) find that investments fall substantially in bank-dependent industries. Francis, Hasan, and Wu (2012) argue and provide empirical evidence that firm performance is a function of firm-level differences in corporate boards during a crisis; Pathan and Faff (2013) document the positive effect of gender diversity diminishes during the crisis and in the post-crisis period.

Based on the above discussions, we can reasonably expect that the impact of busy directors on firm performance may differ across time. The empirical evidence suggests SOX and the 2007–2008 financial crisis may alter the effect of location on the relation between busy directors and firm performance. Given the increased board independence and the intensified monitoring on corporate boards following SOX and the financial crisis, we expect to see a stronger positive link between busy independent directors and firm performance, reflecting the improved board monitoring from independent directors after SOX and the financial crisis.

H_2: The value effects of Metro firm busy directors are different between busy inside directors and busy independent directors across time, specifically before SOX, immediately after SOX, and after the 2007–2008 financial crisis.

3. Variable construction and descriptive statistics

3.1. Geographic variables

Using the 2010 Census, we classify firms as Metro firms if they are headquartered in one of the largest ten metropolitan statistical areas (MSA) (Loughran & Schultz, 2005; John et al., 2011; Gao et al., 2011). Specifically, we create an indicator variable Metro, which equals one if a firm's headquarter is in one of the MSA of New York City, Los Angeles, Chicago, Washington D.C, San Francisco, Boston, Dallas-Fort Worth, Philadelphia, Houston, and Miami, and zero otherwise. In one of the robustness tests, we use the minimum distance between a firm's headquarter and the nearest large or medium-sized commercial service airport hubs classified by the Federal Aviation Administration (FAA).[11] FAA defines major airports as large and medium-sized commercial service airport hubs that account for at least 0.25% of total passenger boarding. Metra1, an indicator variable, takes a value of one if the minimum distance between a firm's headquarter and a major airport is below the sample median, and zero otherwise.

3.2. Busy director measurements

We use one aggregate and two dissected measures of board busyness in our primary analysis. *Pro.busy dir* is the total number of busy directors, as defined in the introduction, scaled by the total number of directors on the board. As in Duchin, Matsusaka, and Ozbas (2010), we classify independent directors as those who are not employees of a host firm and are not linked to the firm through any business relations or family ties (such as former employees, family members of employees, employees of the suppliers or customers of the firm), and inside directors as all other directors. *Pro.busy ins.dir* is the total number of busy inside directors scaled by the total number of inside directors on the board. *Pro.busy ind.dir* is the total number of busy independent directors scaled by the total number of independent directors. In the robustness tests, we use two and four directorships as the cutting-off point to classify busy directors. In addition, we use the average number of outside directorships held by directors/inside directors/independent directors to proxy for board busyness (Ferris et al., 2003; Fich & Shivdasani, 2006; Jiraporn et al., 2008).[12]

3.3. Firm performance variables

We employ Tobin's Q to measure firm performance as in previous literature (Coles, Daniel, & Naveen, 2008; Morck, Shleifer, & Vishny, 1988; Palia, 2001; Yermack, 1996;). However, Tobin's Q may also serve as a proxy for a firm's incentive to invest and may be mechanically inflated due to underinvestment. Alternatively, we measure firm performance with ROA. Tobin's Q and ROA are defined as in the introduction.

3.4. Firm policy variables

To investigate potential channels through which Metro firm busy directors improve firm performance, we examine four financial

[11] Outside monitors, such as directors, auditors, analysts, and government enforcement agents, have greater transportation costs with firms located further away from these airport hubs. As such, remotely located firms may not be subject to the same level of external scrutiny as those more accessible ones.

[12] To save space, the results are not tabulated, but available upon request.

policies, including credit risk, tax planning, earnings management, and asset utilization. Firms with lower or no credit ratings have a higher likelihood of default, resulting in poorer firm performance. We measure default risk with the issuers' long-term credit ratings assigned by the Standard & Poor's. Specifically, we construct a variable, *Default risk*, with higher values for firms with no or lower credit ratings and lower values for firms with higher credit ratings.

A firm's efficient tax management can lower its tax liabilities and improve its earnings (Hanlon & Heitzman, 2010; Rego & Wilson, 2012). If director busyness represents a director's superior quality, we expect firms with busy directors are more capable of gathering and processing necessary information to effectively implement tax strategies to lower their firms' tax rate. We use the three-year average *Cash_ETR*, calculated as the three-year sum of cash taxes paid ending in year *t* scaled by the three-year sum of pre-tax book income less special items ending in year *t*, and is truncated to be between zero and one (Dyreng, Hanlon, & Maydew, 2008, 2010; and Rego & Wilson, 2012). Using the average value can minimize the influence of year-to-year fluctuations in tax management, hence better measures the cross-sectional variations in firms' tax expenses (Dyreng, Hanlon, & Maydew, 2008; Rego and Wilson, 2012).

One of the main motivations of earnings management comes from the pressure put on the CEO to deliver firm performance. Firms can inflate earnings through either accrual earnings management or real earnings management. Accrual earnings management is conducted through altering financial statements and real earnings management is accomplished by altering operating activities to make them deviate from the optimal levels and/or cut discretionary spending, such as R&D, advertising, and selling, general, and administrative expenditures. Hence, real earnings management has long-term negative impacts on firm performance. If Metro firm busy directors are better monitors, they should be able to control or reduce real earnings management. We follow Roychowdhury (2006) and Kothari, Mizik, and Roychowdhury (2016) to calculate abnormal production costs and abnormal discretionary expenses. We combine these two proxies to create an aggregate real earnings management measure, $RM_{AGGREGATE,}$ as in Zang (2012). $RM_{AGGREGATE}$ is the sum of abnormal production costs and the negative value of abnormal discretionary expenses, where abnormal production costs and abnormal discretionary expenses are the deviations from their predicted values. The computation of $RM_{AGGREGATE}$ is detailed in Appendix Table A.

Finally, we examine whether Metro firm busy directors help improve assets utilization efficiency. We measure assets utilization efficiency with assets turnover, calculated as the ratio of sales to total assets. A higher assets turnover suggests a firm uses its assets more efficiently and henceimproves firm performance.

3.5. Other control variables

We control various firm and director characteristics that either theoretically or have been empirically shown to affect performance or link to director busyness. Corporate governance variables include the average tenure and the average age of busy directors/inside directors/independent directors, managerial ownership,[13] the proportion of independent directors, and board size ,[14] We measure CEO ownership with delta, calculated as the dollar change in CEO equity portfolio wealth for a 1% change in the stock price. Following Core and Guay (2002) and Coles, Daniel, and Neveen (2006), we use the Black and Scholes (1973) option valuation model to estimate delta of option portfolio. CEO Delta is the sum of option portfolio delta and share portfolio delta, where share portfolio delta is the price of restricted and unrestricted shares divided by 100.

We also control for firm size, firm age, investment opportunities (measured by capital expenditure and R&D expenditures), long term operating assets (measured by plant, property, and equipment), and capital structure (measured by leverage). Fich and Shivdasani (2006) argue that Tobin's Q may be inflated when firms suffer from underinvestment problems, and it is appropriate to control sales growth in regression analysis. We control operation complexity with the number of business segments. Lastly, we control the previous year's firm performance, industry, and time.

To examine the location effect on the relation between busy directors and earnings management, we control variables that may affect earnings management, including Analysts (the number of financial analysts following the firm), Beat (the number of times that a firm beats analysts' earnings forecasts), Big 4 (whether the firm's auditor is one of the big four accounting firms), Auditor tenure, and Litigation as defined in Appendix Table A. In the analysis of the location effect on busy director-tax strategy relation, we control variables that influence tax, including operating income (CF_vol), foreign pre-tax income (For_Inc and For_op), and tax loss carry forward status (Ch_NOL and NOL).

In the robustness tests, we add five additional corporate governance variables related to the effectiveness of board monitoring and/or firm performance, including CEO age, CEO tenure, CEO-chairman duality, the proportion of female directors, and institutional ownership. To save space, we do not discuss the construction of each control variable in the text. Appendix Table A provides detailed variable definitions and data sources. All continuous variables are winsorized at upper and lower 1% of the sample distribution.

[13] Jensen and Meckling (1976) propose that managerial ownership can mitigate interest misalignment between managers and shareholders, and thus enhances firm value. Empirical studies, however, document mixed results on the relation between managerial ownership and firm performance, a positive association between managerial ownership and financial performance (Mehran, 1995), a positive but decreasing relation (Anderson & Reeb, 2003; McConnell & Servaes, 1995; McConnell, Servaes, & Lins, 2008; Tian, 2004; Tong, 2008), and no relation (Demsetz, 1983; Demsetz & Lehn, 1985; Agrawal & Knoeber, 1996; Himmelberg, Hubbard, & Palia, 1999; Coles, Lemmon, & Meschke, 2012; Brick, Palia, & Wang, 2005).

[14] Free-rider and communication problems associated with larger boards increase managerial power and facilitate managerial entrenchment (Jensen, 1993; Yermack, 1996). From theoretical stand point, independent directors are better monitors and firms with greater independent director representation enjoy better performance (Fama & Jensen, 1983). Empirical studies, however, are lack of reliable evidence that director independence matters for performance. Most studies document statistically insignificant associations between the two (Fields & Keys, 2003).

Table 1
Descriptive statistics. This table presents the sample descriptive statistics. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, Analysts and auditor data from I/B/E/S, and excludes financial firms (SIC 6000–6999) and regulated utility companies (SIC 4900–4949). The sample period is 1997–2013. All variables are defined as in Appendix Table A. All continuous variables are winsorized at upper and lower 1% of the sample distribution.

	N	Mean	Std. Dev.	P10	P25	Median	P75	P90
Pro.busy dir	11,537	0.0845	0.1113	0.0000	0.0000	0.0000	0.1429	0.2500
Pro.busy ins.dir	11,537	0.0327	0.1130	0.0000	0.0000	0.0000	0.0000	0.0000
Pro.busy ind.dir	11,537	0.1004	0.1379	0.0000	0.0000	0.0000	0.1667	0.2857
Avg. ins.dir out directorships	11,537	0.5448	0.6627	0.0000	0.0000	0.3333	1.0000	1.5000
Avg. ind.dir out directorships	11,537	0.9175	0.6221	0.1667	0.4444	0.8333	1.3000	1.7500
Avg dir out directorships	11,537	0.8148	0.5369	0.1429	0.4000	0.7500	1.1429	1.5455
Metro	11,537	0.4071	0.4913	0.0000	0.0000	0.0000	1.0000	1.0000
Metro1	11,537	0.4981	0.5000	0.0000	0.0000	0.0000	1.0000	1.0000
Min. distance to 60 airports	11,537	48.8417	73.3624	8.9109	14.9881	22.6521	38.5513	133.7032
Tobin's Q	11,537	2.0671	1.3247	1.0335	1.2495	1.6441	2.3690	3.5827
ROA	11,537	0.0602	0.0966	−0.0222	0.0378	0.0717	0.1064	0.1454
Ret	11,537	0.1449	0.4707	−0.3896	−0.1514	0.0984	0.3675	0.6911
CEO delta	11,537	0.7517	1.7262	0.0392	0.0945	0.2443	0.6340	1.6165
Ln (board size)	11,537	2.1418	0.2537	1.7918	1.9459	2.1972	2.3026	2.4849
Pro. independent director	11,537	0.7104	0.1587	0.5000	0.6000	0.7500	0.8333	0.8889
Avg. busyins. dir tenure	11,537	1.0785	4.4739	0.0000	0.0000	0.0000	0.0000	0.0000
Avg. busyins. director age	11,537	5.5273	17.7672	0.0000	0.0000	0.0000	0.0000	0.0000
Avg. busyind. dir tenure	11,537	3.1849	5.0555	0.0000	0.0000	0.0000	5.2500	10.1429
Avg. busyind. director age	11,537	27.5594	31.5892	0.0000	0.0000	0.0000	62.8333	67.5000
Avg. busy. dir tenure	11,537	3.6871	5.6759	0.0000	0.0000	0.0000	6.0000	11.5000
Avg. busy. director age	11,537	29.5924	31.6836	0.0000	0.0000	0.0000	63.0000	67.5000
Firm size	11,537	7.3181	1.4352	5.6050	6.2899	7.1695	8.2006	9.2728
Capital expenditure	11,537	0.0537	0.0518	0.0116	0.0202	0.0367	0.0675	0.1166
Plant, property and equipment	11,537	0.5112	0.3661	0.1224	0.2216	0.4113	0.7259	1.0588
R&D expenditure	11,537	0.0339	0.0539	0.0000	0.0000	0.0052	0.0497	0.1096
Sale growth	11,537	0.1053	0.2339	−0.1170	−0.0035	0.0800	0.1804	0.3355
Ln (1 + firm age)	11,537	2.9053	0.7500	1.9459	2.3979	2.8904	3.4965	3.8067
Ln (1 + segments)	11,537	1.9041	0.6407	1.0986	1.3863	1.9459	2.4849	2.7726
Leverage	11,537	0.2020	0.1786	0.0000	0.0262	0.1908	0.3123	0.4219
Ln (1 + CEO age)	11,453	4.0268	0.1298	3.8501	3.9512	4.0431	4.1109	4.1744
Ln (1 + CEO tenure)	11,453	1.7654	0.9144	0.6931	1.0986	1.7918	2.3979	2.9444
CEO-chairman duality	11,453	0.5289	0.4992	0.0000	0.0000	1.0000	1.0000	1.0000
Pro. female directors	11,453	0.0968	0.0937	0.0000	0.0000	0.1000	0.1429	0.2222
Institutional ownership	8841	0.7758	0.1878	0.5281	0.6818	0.8149	0.9125	0.9909
Default risk	11,537	5.6262	6.2491	0.0000	0.0000	0.0000	12.0000	15.0000
Cash_ETR	9779	0.2410	0.1650	0.0249	0.1352	0.2409	0.3233	0.3909
CF_vol	9779	0.0366	0.0479	0.0081	0.0132	0.023	0.0422	0.0757
For_income	9779	0.0223	0.0398	0.0000	0.0000	0.0021	0.0332	0.0768
Ch_NOL	9779	0.007	0.0496	−0.0103	0.0000	0.0000	0.0000	0.0291
NOL	9779	0.4355	0.4958	0.0000	0.0000	0.0000	1.0000	1.0000
For_op	9779	0.6036	0.4892	0.0000	0.0000	1.0000	1.0000	1.0000
Asset turnover	11,537	1.1123	0.6887	0.4183	0.6275	0.9398	1.4040	2.0304
$RM_{AGGREGATE}$	9160	0.0444	0.2071	−0.1773	−0.0639	0.0323	0.1405	0.2837
Beat	9160	1.9386	1.3621	0.0000	1.0000	2.0000	3.0000	4.0000
Big 4	9160	0.9014	0.2981	1.0000	1.0000	1.0000	1.0000	1.0000
Auditor_tenure	9160	2.372	0.7307	1.3863	1.9459	2.3979	2.8904	3.2958
NOA	9160	2.3423	2.0247	0.9386	1.2362	1.7448	2.6830	4.2495
Litigation	9160	0.2543	0.4355	0.0000	0.0000	0.0000	1.0000	1.0000

3.6. Sample and descriptive statistics

Our initial sample begins with all firms with headquarter location data available in Compustat, stock data available in CRSP, and CEO compensation data available in Execucomp and includes 29,109 firm-year observations. This sample is then merged with ISS to include director information, resulting in 14,657 firm-year observations. We exclude financial (Standard Industrial Classification (SIC) codes 6000-6999) and utility firms (SIC codes 4900-4949) because these industries are highly regulated and their boards have a more limited role, leading to 11,819 firm-year observations. After deleting observations with missing values on key variables, we have a final sample of 11,537 firm-year observations from fiscal year 1997 to 2013. Our sample size varies depending on the availability of the data in the robustness tests and the investigation of the association between director busyness and firm policies.

Table 1 reports the descriptive statistics of our sample. On average, 8.45%/3.27%/10.04% of directors/inside directors/independent directors are busy. 40.7% of the firms in our sample are in the metropolitan statistical areas. Around half of our sample firms are Metro firms when we use the sample median distance between headquarter location and a major airport as a benchmark to classify Metro and Rural firms. The mean/median of Tobin's Q is 2.07/1.64, and the mean/median value of ROA is 6%/7%. The

Table 2
Correlations .This table presents variable correlations. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). All variables are defined in Appendix Table A. The sample period is 1997–2013. The correlations with significance at or above 10% level are highlighted.

	1 Pro.busy ins.dir	2 Pro.busy ind.dir	3 Pro.busy dir	4 Metro	5 Tobin's Q	6 ROA	7 Avg. busyins. dir tenure	8 Avg. busyins. director age	9 Avg. busyind. dir tenure	10 Avg. busyind. director age	11 Avg. busy. dir tenure	12 Avg. busy. director age
2	**0.1781**											
3	**0.4557**	**0.9234**										
4	0.0103	**0.0333**	**0.0347**									
5	0.015	−0.0049	−0.0015	**−0.0376**								
6	−0.0025	**−0.0258**	**−0.0229**	**−0.0356**	**0.2882**							
7	**0.7156**	**0.1231**	**0.3296**	0.0108	0.0142	**0.0288**						
8	**0.9205**	**0.167**	**0.4293**	**0.0158**	**0.0166**	0.0033	**0.7891**					
9	**0.1356**	**0.5689**	**0.5611**	0.0104	**−0.0302**	0.0076	**0.1402**	**0.1253**				
10	**0.1335**	**0.8164**	**0.775**	**0.0317**	**−0.0323**	−0.0141	**0.0931**	**0.122**	**0.7379**			
11	**0.3596**	**0.471**	**0.5577**	0.0046	**−0.0353**	0.0108	**0.5382**	**0.399**	**0.8447**	**0.6106**		
12	**0.3006**	**0.7652**	**0.7983**	**0.0311**	**−0.0369**	**−0.0219**	**0.2597**	**0.3257**	**0.6925**	**0.9381**	**0.7098**	**1.0000**

average default risk, effective tax rate, and assets turnover are 5.63, 0.24, and 1.1, respectively. Around 90% of the sample firms have an auditor from one of the big four accounting firms and the average auditor tenure is 2.4 years.

4. Empirical results

4.1. Univariate tests

4.1.1. Correlations of the variables

We conduct correlation analysis on the variables and present the correlation matrix of the key variables in Table 2. The correlation coefficients between the Metro indicator variable and the two performance variables are negative and significant. Metro indicator is positively correlated with the proportion of busy directors and the proportion of busy independent directors. The correlations between busy directors and Tobin's Q are insignificant, and the correlation between busy directors and ROA and the correlation between busy independent directors and ROA are negative and significant. These correlations represent the general relation between firm performance and director busyness across all firms in the sample. Lastly, the correlations between busy director age & tenure and firm performance are inconsistent when we use different measures of performance.

4.1.2. Mean comparisons

We split the sample into four subsamples. Two subsamples are created based on the location of each firm, Metro firms vs. Rural firms, and the other two subsamples are created based on the time of the Sarbanes-Oxley Act (2003), pre-SOX vs. post-SOX. We conduct univariate tests in the mean difference for all variables and additional busy director attributes between Metro and Rural firms and in the mean difference for busy director features between Pre-SOX and Post-SOX periods. The results are presented in Table 3.

Panel A shows, on average, Metro firms have busier independent directors, busier directors, and lower credit ratings than Rural firms, with the mean differences significant at a level of less than 1%. On average, Rural firms are smaller and more profitable and have higher fixed assets, incur more R&D expenses, and engage in more earnings management. Rural firms' high R&D expenses may help them increase their competitiveness and improve performance.

Panel B shows, on average, Metro firm busy directors are older and have a longer tenure than Rural firm busy directors; Busy directors/inside directors/independent directors in Metro firms hold more directorships of Metro S&P 1500 firms than those in Rural firms. On average, 66%, 74%, 75% of the directorships held by Metro firm busy inside directors, busy outside directors and busy directors are Metro S&P 1500 directorships, while only 1.2%, 5.3%, and 5.9% of the directorships held by Rural firm busy inside directors, busy outside directors and busy directors are Metro S&P 1500 directorships. 100% in Metro firms vs. 3.4%, 12.5% and 13.9% in Rural firms, busy inside directors, busy independent directors, and busy directors have at least one directorship in a Metro S &P 1500 firm. The mean differences of these variables between Metro and Rural firms are highly significant. The results suggest that Rural firms may not be able to capitalize on the advantages of Metro firm directorships given that there is only a small number of Rural firm busy directors holding Metro firm directorships.

In addition, Panel B shows the mean differences of the interest variables in the pre-SOX and the post-SOX periods. Busy inside directors hold, on average, fewer directorships in Metro S&P 1500 firms in the post- SOX period than the pre-SOX period and only 24.69% of busy inside directors sit on the boards of Metro S&P 1500 firms in the post-SOX period vs. 31.9% in the pre-SOX period. Busy independent directors and busy directors in general sit on more boards in the post-SOX period than the pre-SOX period. The differences are highly significant. The univariate tests show that board structure has experienced significant changes after SOX which contribute to the changes in firm policies and strategies as discussed in the literature review section.

The univariate tests provide preliminary evidence that Metro firms differ from Rural firms and on average Metro firms have more

Table 3
Univariate test. This table presents the univariate test results. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, Analysts and auditor data from I/B/E/S, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). The sample period is 1997–2013. Panel A presents the univariate test results for all variables. Panel B presents the univariate test results on busy directors. All variables are defined in Appendix Table A. All continuous variables are winsorized at upper and lower 1% of the sample distribution. The difference in means is conducted with a *t*-test assuming unequal variances.

Panel A. Univariate tests on all variables

	Rural	Metro	Difference	(P-value)
Pro.busy ins.dir	0.0318	0.0341	−0.0024	0.2725
Pro.busy ind.dir	0.0966	0.1059	−0.0094	0.0004
Pro.busy dir	0.0813	0.0891	−0.0079	0.0002
Avg. ins.dir out directorships	0.5423	0.5485	−0.0063	0.6198
Avg. ind.dir out directorships	0.9056	0.9349	−0.0294	0.0134
Avg dir out directorships	0.8043	0.8301	−0.0258	0.0122
Tobin's Q	2.1084	2.0070	0.1014	0.0000
ROA	0.0631	0.0561	0.0070	0.0001
CEO delta	0.7469	0.7588	−0.0119	0.7149
Ln (board size)	2.1335	2.1538	−0.0203	0.0000
Pro. independent director	0.7112	0.7093	0.0018	0.5425
Avg. busyins. dir tenure	1.0383	1.1370	−0.0987	0.2486
Avg. busyins. director age	5.2952	5.8654	−0.5702	0.0939
Avg. busyind. dir tenure	3.1414	3.2483	−0.1069	0.2652
Avg. busyind. director age	26.7308	28.7661	−2.0353	0.0007
Avg. busy. dir tenure	3.6656	3.7184	−0.0528	0.6228
Avg. busy. director age	28.7747	30.7831	−2.0084	0.0008
Firm size	7.2308	7.4453	−0.2145	0.0000
Capital expenditure	0.0535	0.0540	−0.0005	0.6121
Plant, property and equipment	0.5217	0.4958	0.0259	0.0002
R&D expenditure	0.0361	0.0307	0.0054	0.0000
Sale growth	0.1016	0.1106	−0.0090	0.0455
Ln (1 + firm age)	2.9010	2.9116	−0.0106	0.4628
Ln (1 + segments)	1.8819	1.9363	−0.0544	0.0000
Leverage	0.2025	0.2013	0.0013	0.7072
Default risk	5.3353	6.049	−0.7144	0.0000
Cash_ETR	0.2419	0.2407	0.0013	0.7095
CF_vol	0.0361	0.0375	−0.0015	0.1434
For_income	0.0211	0.0242	−0.0031	0.0005
Ch_NOL	0.0091	0.0099	−0.0008	0.7429
NOL	0.4228	0.4553	−0.0325	0.0009
For_op	0.5865	0.6288	−0.0423	0.0000
$RM_{AGGREGATE}$	0.0477	0.0386	0.0091	0.0369
Beat	1.9373	1.9448	−0.0075	0.7952
Big 4	0.9240	0.8693	0.0547	0.0000
Auditor_tenure	2.4198	2.3027	0.1171	0.0000
NOA	2.3710	2.2997	0.0714	0.0962
Litigation	0.2678	0.2320	0.0358	0.0001
Asset turnover	1.0248	1.1723	−0.1474	0.0000

Panel B. Univariate test results on busy directors

	Rural	Metro	Difference	(P-value)
Busyins. dir tenure	0.1377	0.1643	−0.0266	0.0193
Busyind. dir tenure	0.5547	0.6143	−0.0595	0.0004
Busy dir tenure	0.6924	0.7785	−0.0861	0.0000
Busyins. dir dirage	0.7009	0.8274	−0.1265	0.0043
Busyind. dir age	4.7278	5.3486	−0.6208	0.0000
Busy dir age	5.4287	6.1760	−0.7473	0.0000
	Rural	Metro	Difference	(P-value)
Busy ins. dir. tot. metro directorships	0.0337	1.1089	−1.0752	0.0000
Busy ins. dir. tot. directorships	2.0015	1.9927	0.0087	0.8682
Busy ind. dir. tot. metro directorships	0.1428	1.1976	−1.0548	0.0000
Busy ind. dir. tot. directorships	3.4834	3.7407	−0.2573	0.7601
Busy dir. tot. metro directorships	0.1601	1.2366	−1.0765	0.0000
Busy dir. tot. directorships	3.2871	3.5048	−0.2176	0.7655
Busy ins. dir. pro. metro directorships	0.0123	0.6605	−0.6482	0.0000
Busy ins. dir. metro. directorship ≥ 1	0.0337	1.0000	−0.9663	0.0000
Busy ind. dir. pro. metro directorships	0.0526	0.7357	−0.6831	0.0000
Busy ind. dir. metro. directorship ≥ 1	0.1251	1.0000	−0.8749	0.0000

(*continued on next page*)

Table 3 (*continued*)

Panel B. Univariate test results on busy directors				
	Rural	Metro	Difference	(P-value)
Busy dir. pro. metro directorships	0.0592	0.7450	−0.6858	0.0000
Busy dir. metro. directorship ≥ 1	0.1386	1.0000	−0.8614	0.0000
	Pre-SOX	Post-SOX	Difference	(P-value)
Busy ins. dir. tot. metro directorships	0.5480	0.4054	0.1426	0.0002
Busy ins. dir. tot. directorships	2.0149	1.9426	0.0724	0.2182
Busy ind. dir. tot. metro directorships	0.6010	0.6320	−0.0310	0.1000
Busy ind. dir. tot. directorships	1.8838	9.3506	−7.4668	0.0000
Busy dir. tot. metro directorships	0.6348	0.6390	−0.0042	0.8147
Busy dir. tot. directorships	1.9011	8.3226	−6.4215	0.0000
Busy ins. dir. pro. metro directorships	0.3190	0.2469	0.0721	0.0034
Busy ins. dir. metro. directorship ≥ 1	0.4936	0.3750	0.1186	0.0003
Busy ind. dir. pro. metro directorships	0.3565	0.3453	0.0112	0.2845
Busy ind. dir. metro. directorship ≥ 1	0.5088	0.5188	−0.0100	0.4504
Busy dir. pro. metro directorships	0.3669	0.3467	0.0202	0.0401
Busy dir. metro. directorship ≥ 1	0.5215	0.5115	0.0100	0.4160

busy directors. We employ multivariate tests to examine whether the busy director-firm performance relation differs between Metro and Rural firms.

4.2. Effect of board busyness on firm performance

We begin our multivariate analysis by examining the effect of board busyness on firm performance. If current director busyness is related to past firm performance, the coefficient estimates on director busyness may be biased in the performance regressions without controlling past firm performance. Hence, we include the lagged firm performance to better capture the potential contracting environment correlated to current firm performance and/or director busyness but not captured by the explanatory variables in the model.

Table 4 reports the results of OLS regressions where the dependent variable is Tobin's Q in Models (1)–(3) and is ROA in Models (4)–(6). The independent variables are the location dummy, a proxy of director busyness, an interaction term between location and director busyness, busy director characteristics (tenure and age), and other control variables in each model, where our variable of interest is the interaction of director busyness and location. All variables are defined as in Section 3. Model (1) shows that the estimated coefficient on Metro is negative and significant at the 5% level; the estimated coefficient on Pro. busy inside directors is negative and significant at 10% level, and the estimated coefficient of the interaction term between inside director busyness and Metro is positive and significant at the 1% level. We find similar results when we use independent director busyness and overall director busyness in Models (2) and (3). Busy directors in Metro firms significantly increase firm performance. In Model (1)/(2), the parameter estimates on the proportion of busy inside/independent directors and the interaction between Pro. busy inside/independent directors and Metro indicate one percentage increase in the proportion of busy inside/independent directors increases Tobin's Q by 0.13 percentage (0.38–0.25)/0.04 percentage (0.21–0.17).

In Models (4)–(6), we repeat the analysis by replacing Tobin's Q with ROA as a performance measure and we find similar results. The estimated coefficients of the interaction between board busyness and Metro in Models (5) and (6) are significantly positive, albeit weaker, providing further support for Hypothesis 1 that Metro firm busy directors enhance firm performance.

The special operating environment of Metro firms, such as information advantages, more connected network, greater visibility, and intensified monitoring from both the public and regulators, seem to incentivize and facilitate busy directors to transfer their experience and expertise into enhanced firm performance. The results seem to suggest Metro firm busy directors may implement different financial policies from those in Rural firms. We investigate this possibility in the next section.

4.3. Effects of director busyness on firm policies

In this section, we investigate potential channels through which busy directors improve firm performance. Specifically, we examine the association between busy directors and various financial policies in Metro and Rural firms, including credit risk, tax practice, earnings management, and asset utilization. The results are presented in Table 5.

Panel A presents the results on the relation between director busyness and default risk. Model (1) shows the coefficients on Pro. Busy inside directors and the interaction between inside director busyness and Metro are negative but not significant, indicating no statistical association between inside director busyness and firm default risk. In Model (2), the coefficient of the interaction between independent director busyness and Metro is negative and significant at the 1% level. Metro firm busy independent directors significantly decrease firm default risk. Similar results are found for busy directors as shown in Model (3).

Panel B presents the results on the relation between director busyness and cash effective tax rate. Our sample size reduces to 9779

Table 4
Geographic location, busy directors, and firm performance. This table presents the results of regressing firm value on various director busyness proxies. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). The sample period is 1997–2013. We use the proportion of busy directors, defined as those with three or more outside directorships, as proxies for director busyness. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Metro	−0.0338**	−0.0429**	−0.0574***	−0.0059***	−0.0073***	−0.0078***
	(−2.00)	(−2.19)	(−2.92)	(−3.12)	(−3.48)	(−3.72)
Pro.busy ins.dir	−0.2537*			0.0014		
	(−1.67)			(0.07)		
Metro*Pro.busy ins.dir	0.3789***			0.0174		
	(3.34)			(1.30)		
Pro.busy ind.dir		−0.1695*			−0.0165	
		(−1.81)			(−1.36)	
Metro*Pro.busy ind.dir		0.2113*			0.0195*	
		(1.80)			(1.79)	
Pro.busy dir			−0.0892			−0.0041
			(−0.79)			(−0.30)
Metro*Pro.busy dir			0.4203***			0.0292*
			(3.15)			(1.95)
Avg. busyins. dir tenure	−0.0021***			0.0000**		
	(−17.24)			(2.28)		
Avg. busyins. dirage	0.0012			−0.0000		
	(1.23)			(−0.29)		
Avg. busyind. dir tenure		−0.0020***			0.0001***	
		(−14.47)			(2.65)	
Avg. busyind. dir age		0.0005			0.0000	
		(1.36)			(0.50)	
Avg. busy dir tenure			−0.0020***			0.0001**
			(−14.87)			(2.36)
Avg. busy dir age			0.0000			−0.0000
			(0.01)			(−1.04)
CEO Delta	0.0879***	0.0878***	0.0881***	0.0018***	0.0018***	0.0018***
	(7.71)	(7.69)	(7.74)	(3.46)	(3.40)	(3.43)
Ln (board size)	0.0245	0.0219	0.0291	0.0024	0.0020	0.0030
	(0.59)	(0.53)	(0.70)	(0.55)	(0.45)	(0.69)
Pro. independent director	0.1040*	0.0730	0.0769	0.0078	0.0079	0.0084
	(1.66)	(1.21)	(1.28)	(1.24)	(1.31)	(1.39)
Firm size	−0.0471***	−0.0466***	−0.0487***	0.0034***	0.0035***	0.0034***
	(−5.47)	(−5.27)	(−5.45)	(3.67)	(3.72)	(3.60)
Capital expenditure	−0.2159	−0.2163	−0.2154	0.0213	0.0212	0.0210
	(−0.98)	(−0.98)	(−0.97)	(0.90)	(0.90)	(0.89)
Plant, property and equipment	0.0927***	0.0936***	0.0926***	0.0031	0.0031	0.0031
	(2.81)	(2.84)	(2.82)	(0.74)	(0.75)	(0.74)
R&D expenditure	1.5956***	1.6034***	1.6087***	−0.3925***	−0.3910***	−0.3906***
	(5.30)	(5.30)	(5.30)	(−8.94)	(−8.88)	(−8.86)
Sale growth	0.1965***	0.1958***	0.1985***	0.0861***	0.0859***	0.0860***
	(3.88)	(3.86)	(3.91)	(13.70)	(13.67)	(13.69)
Ln (1 + firm age)	0.0145	0.0163	0.0160	0.0046***	0.0047***	0.0047***
	(1.21)	(1.36)	(1.35)	(3.45)	(3.47)	(3.48)
Ln (1 + segments)	−0.0227	−0.0224	−0.0229	−0.0035**	−0.0035**	−0.0035**
	(−1.60)	(−1.58)	(−1.62)	(−2.29)	(−2.28)	(−2.28)
Leverage	−0.2920***	−0.2924***	−0.2908***	−0.0561***	−0.0559***	−0.0556***
	(−4.24)	(−4.25)	(−4.24)	(−7.11)	(−7.06)	(−7.04)
Lagged Q	0.6922***	0.6926***	0.6917***			
	(45.69)	(45.96)	(46.07)			
Lagged ROA				0.4978***	0.4974***	0.4972***
				(22.80)	(22.77)	(22.82)
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	11,537	11,537	11,537	11,537	11,537	11,537
R^2	0.7000	0.6999	0.7001	0.4126	0.4128	0.4129

Table 5
Geographic location, busy directors, and firm policies. This table reports the relation between director busyness and firm policies conditional on firm location. Panel A presents the relation between director busyness and default risk. We measure default risk by quantifying the credit ratings where firms with higher credit ratings are given lower values, so that firms with no or lower credit ratings have higher scores for default risk. Panel B presents the relation between director busyness and tax management. Panel C presents the relation between director busyness and real earnings management. Panel D presents the relation between director busyness and asset utilization efficiency, measured by assets turnover. We use the proportion of busy directors to measure director busyness. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, auditor data from I/B/E/S, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). All variables are defined in Appendix Table A. The sample period is 1997–2013.

Panel A. Director busyness and default risk

	(1)	(2)	(3)
	Dependent variable = Default risk		
Metro	0.0491	0.1219**	0.1164**
	(0.97)	(2.10)	(1.98)
Pro.busy ins.dir	−0.1471		
	(−0.57)		
Metro*Pro.busy ins.dir	−0.3182		
	(−1.39)		
Pro.busy ind.dir		0.0500	
		(0.25)	
Metro*Pro.busy ind.dir		−0.6973***	
		(−2.85)	
Pro.busy dir			−0.2033
			(−0.80)
Metro*Pro.busy dir			−0.7777**
			(−2.49)
Avg. busyins. dir tenure	−0.0066		
	(−1.17)		
Avg. busyins. dirage	0.0021		
	(1.12)		
Avg. busyind. dir tenure		−0.0024	
		(−0.54)	
Avg. busyind. dir age		0.0006	
		(0.70)	
Avg. busy dir tenure			−0.0035
			(−0.84)
Avg. busy dir age			0.0015*
			(1.83)
CEO Delta	−0.0159*	−0.0147*	−0.0159*
	(−1.80)	(−1.67)	(−1.81)
Ln (board size)	0.0637	0.0711	0.0532
	(0.63)	(0.71)	(0.53)
Pro. independent director	0.2480*	0.2447*	0.2679*
	(1.78)	(1.78)	(1.95)
Firm size	0.3346***	0.3384***	0.3407***
	(14.90)	(15.08)	(15.18)
Capital expenditure	−0.1238	−0.1242	−0.0973
	(−0.28)	(−0.28)	(−0.22)
Plant, property and equipment	0.0248	0.0258	0.0258
	(0.29)	(0.30)	(0.30)
R&D expenditure	−3.3266***	−3.2525***	−3.2687***
	(−3.57)	(−3.52)	(−3.54)
Sale growth	−0.0418	−0.0414	−0.0463
	(−0.88)	(−0.87)	(−0.97)
Ln (1 + firm age)	−0.0880***	−0.0910***	−0.0868***
	(−2.76)	(−2.82)	(−2.68)
Ln (1 + segments)	0.0051	0.0077	0.0084
	(0.13)	(0.20)	(0.21)
Leverage	2.1094***	2.1144***	2.1090***
	(17.80)	(17.89)	(17.75)
Constant	−1.7512***	−1.7759***	−1.8093***
	(−4.78)	(−5.02)	(−5.04)
Industry and year effects	Yes	Yes	Yes
N	11,537	11,537	11,537
R^2	0.2844	0.2857	0.286

(*continued on next page*)

Table 5 (*continued*)

Panel B. Director busyness and tax management			
	(1)	(2)	(3)
	Dependent variable = Cash_ETR		
Metro	0.0008	0.0020	0.0029
	(0.22)	(0.47)	(0.68)
Pro.busy ins.dir	0.0647		
	(1.45)		
Metro*Pro.busy ins.dir	−0.0631**		
	(−1.98)		
Pro.busy ind.dir		0.0332	
		(1.37)	
Metro*Pro.busy ind.dir		−0.0311	
		(−1.23)	
Pro.busy dir			0.0367
			(1.21)
Metro*Pro.busy dir			−0.0483*
			(−1.75)
Avg. busyins. dir tenure	0.0010*		
	(1.81)		
Avg. busyins. dirage	−0.0005*		
	(−1.85)		
Avg. busyind. dir tenure		0.0003	
		(0.66)	
Avg. busyind. dir age		−0.0001	
		(−1.18)	
Avg. busy dir tenure			0.0003
			(0.79)
Avg. busy dir age			−0.0001
			(−1.17)
CEO Delta	0.0014	0.0013	0.0013
	(1.63)	(1.57)	(1.56)
Ln (board size)	0.0211**	0.0211**	0.0211**
	(2.51)	(2.52)	(2.52)
Pro. independent director	−0.0261**	−0.0201	−0.0212*
	(−2.06)	(−1.63)	(−1.73)
Firm size	−0.0120***	−0.0122***	−0.0121***
	(−7.06)	(−7.09)	(−6.97)
Capital expenditure	−0.1680***	−0.1668***	−0.1672***
	(−3.42)	(−3.39)	(−3.40)
Plant, property and equipment	−0.0236***	−0.0237***	−0.0237***
	(−2.97)	(−2.98)	(−2.98)
R&D expenditure	−0.3895***	−0.3925***	−0.3916***
	(−7.20)	(−7.25)	(−7.24)
Sale growth	−0.0857***	−0.0857***	−0.0858***
	(−8.73)	(−8.73)	(−8.73)
Ln (1 + firm age)	0.0091***	0.0090***	0.0089***
	(3.38)	(3.39)	(3.34)
Ln (1 + segments)	0.0061**	0.0061**	0.0061**
	(1.99)	(1.98)	(1.99)
Leverage	−0.0928***	−0.0930***	−0.0929***
	(−8.01)	(−8.00)	(−7.99)
CF_vol	−0.1926***	−0.1946***	−0.1944***
	(−3.61)	(−3.65)	(−3.65)
For_income	−0.0648	−0.0670	−0.0660
	(−1.48)	(−1.53)	(−1.51)
Ch_NOL	−0.0153	−0.0156	−0.0155
	(−1.12)	(−1.14)	(−1.13)
NOL	−0.0203***	−0.0204***	−0.0203***
	(−5.59)	(−5.62)	(−5.58)
For_op	0.0036	0.0037	0.0036
	(0.77)	(0.80)	(0.79)
Constant	0.3136***	0.3105***	0.3106***
	(11.28)	(10.94)	(11.02)
Industry and year effects	Yes	Yes	Yes
N	9779	9779	9779
R^2	0.1103	0.1099	0.1100

Panel C. Director busyness and real earnings management

	(1)	(2)	(3)
	Dependent variable = $RM_{AGGREGATE}$		
Metro	−0.0063	−0.0019	0.0004
	(−1.32)	(−0.35)	(0.08)
Pro.busy ins.dir	0.0869		
	(1.62)		
Metro*Pro.busy ins.dir	−0.0713*		
	(−1.88)		
Pro.busy ind.dir		0.0180	
		(0.59)	
Metro*Pro.busy ind.dir		−0.0675**	
		(−2.10)	
Pro.busy dir			0.0307
			(0.86)
Metro*Pro.busy dir			−0.1098***
			(−2.82)
Avg. busyins. dir tenure	−0.0003		
	(−0.40)		
Avg. busyins. dirage	−0.0003		
	(−0.75)		
Avg. busyind. dir tenure		0.0007	
		(1.07)	
Avg. busyind. dir age		0.0001	
		(0.67)	
Avg. busy dir tenure			0.0002
			(0.36)
Avg. busy dir age			0.0001
			(1.04)
CEO Delta	0.0126***	0.0125***	0.0125***
	(6.57)	(6.57)	(6.56)
Ln (board size)	−0.0045	−0.0092	−0.0086
	(−0.41)	(−0.82)	(−0.77)
Pro. independent director	−0.0045	−0.0072	−0.0039
	(−0.27)	(−0.44)	(−0.24)
Firm size	0.0108***	0.0104***	0.0105***
	(4.60)	(4.32)	(4.35)
Capital expenditure	−0.0389	−0.0369	−0.0381
	(−0.61)	(−0.58)	(−0.60)
Plant, property and equipment	−0.0487***	−0.0492***	−0.0490***
	(−5.37)	(−5.42)	(−5.39)
R&D expenditure	−0.3098***	−0.3194***	−0.3206***
	(−4.24)	(−4.36)	(−4.38)
Sale growth	−0.0817***	−0.0815***	−0.0820***
	(−5.81)	(−5.78)	(−5.82)
Ln (1 + firm age)	0.0038	0.0031	0.0035
	(1.10)	(0.88)	(1.01)
Ln (1 + segments)	−0.0200***	−0.0199***	−0.0200***
	(−4.87)	(−4.85)	(−4.86)
Leverage	−0.0931***	−0.0949***	−0.0947***
	(−5.60)	(−5.71)	(−5.70)
CF_vol	0.0823	0.0830	0.0838
	(1.34)	(1.34)	(1.36)
Beat	−0.0073***	−0.0073***	−0.0073***
	(−4.21)	(−4.22)	(−4.23)
Big 4	0.0057	0.0058	0.0057
	(0.71)	(0.72)	(0.71)
Auditor_tenure	−0.0015	−0.0015	−0.0015
	(−0.47)	(−0.47)	(−0.47)
NOA	−0.0138***	−0.0138***	−0.0137***
	(−6.15)	(−6.16)	(−6.12)
Litigation	0.0162*	0.0168*	0.0169*
	(1.66)	(1.71)	(1.73)
Constant	0.1208***	0.1329***	0.1265***
	(4.32)	(4.61)	(4.42)
Industry and year effects	Yes	Yes	Yes
N	9037	9037	9037
R^2	0.1163	0.1169	0.1170

Panel D. Director busyness and asset turnover

	(1)	(2)	(3)
	Dependent variable = Asset turnover		
Metro	−0.0762**	−0.1108***	−0.1139***
	(−2.30)	(−3.38)	(−3.43)
Pro.busy ins.dir	0.0951		
	(0.53)		
Metro*Pro.busy ins.dir	0.1714		
	(1.12)		
Pro.busy ind.dir		−0.1178	
		(−0.86)	
Metro*Pro.busy ind.dir		0.3947***	
		(2.87)	
Pro.busy dir			−0.1004
			(−0.60)
Metro*Pro.busy dir			0.5094***
			(3.00)
Avg. busyins. dir tenure	0.0021		
	(0.58)		
Avg. busyins. dirage	−0.0013		
	(−1.02)		
Avg. busyind. dir tenure		0.0021	
		(0.72)	
Avg. busyind. dir age		0.0003	
		(0.33)	
Avg. busy dir tenure			0.0013
			(0.51)
Avg. busy dir age			0.0001
			(0.15)
CEO Delta	−0.0061	−0.0057	−0.0053
	(−0.86)	(−0.82)	(−0.76)
Ln (board size)	0.2065***	0.1886***	0.1947***
	(3.55)	(3.11)	(3.23)
Pro. independent director	0.0743	0.0588	0.0654
	(0.86)	(0.69)	(0.78)
Firm size	−0.0792***	−0.0835***	−0.0841***
	(−5.81)	(−6.13)	(−6.11)
Capital expenditure	−0.4544	−0.4350	−0.4453
	(−1.54)	(−1.47)	(−1.51)
Plant, property and equipment	0.0715	0.0683	0.0691
	(1.36)	(1.30)	(1.32)
R&D expenditure	−1.3831***	−1.3944***	−1.3851***
	(−4.86)	(−4.87)	(−4.83)
Sale growth	−0.0223	−0.0201	−0.0184
	(−0.61)	(−0.54)	(−0.50)
Ln (1 + firm age)	0.0179	0.0196	0.0187
	(0.88)	(0.96)	(0.91)
Ln (1 + segments)	0.0554**	0.0545**	0.0540**
	(2.12)	(2.10)	(2.08)
Leverage	−0.5547***	−0.5564***	−0.5560***
	(−6.37)	(−6.36)	(−6.35)
Tobin's Q	0.0476***	0.0463***	0.0458***
	(3.86)	(3.76)	(3.73)
Constant	0.9505***	1.0258***	1.0169***
	(5.08)	(5.34)	(5.36)
Industry and year effects	Yes	Yes	Yes
N	11,537	11,537	11,537
R^2	0.4606	0.4623	0.4623

firm-year observations after deleting observations with missing values on variables needed to calculate cash effective tax rate and on other variables in tax management regressions. In Model (1), the significantly negative coefficient on the interaction between Pro. busy ins. dir and Metro suggests that, compared to those in Rural firms, busy inside directors in Metro firms are associated with lower cash effective tax rate. The insignificant coefficient on the interaction between Pro. busy ind. dir and Metro in Model (2) indicates that the association between independent director busyness and cash effective tax rate is not contingent upon firm location. The results of using overall director busyness in Model (3) echo the findings in Model (1).

Panel C presents the results on the relation between director busyness and real earnings management. Our sample size reduces to

Table 6
Geographic location, busy directors, and firm performance_ SOX and the financial crisis effects. This table presents the results of regressing firm value on various director busyness proxies with the control of SOX and the 2007–2008 financial crisis effects. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). Variable T is given a value of zero for years before 2003 (pre-SOX period), a value of one for years 2003 to 2007 (post-SOX period), and two for years 2008 and after (post-financial crisis period). The sample period is 1997–2013. Panels A and B present the results of using Tobin's Q and ROA as performance proxy, respectively. We use the proportion of busy directors to measure director busyness. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

Panel A: Tobin's Q as firm performance measure

	(1)	(2)	(3)	(4)	(5)	(6)
	Metro firms			Rural firms		
	Dependent variable = Tobins' Q					
T = 1(2003, 2007)	0.8193***	0.7659***	0.8065***	0.8246***	0.8081***	0.8167***
	(6.28)	(5.97)	(6.21)	(9.06)	(8.76)	(8.84)
T = 2(≥ 2008)	0.5584***	0.5150***	0.5454***	0.3839***	0.3913***	0.3981***
	(7.03)	(6.44)	(6.76)	(6.28)	(5.96)	(6.05)
Pro.busy ins.dir	0.1267**			−0.0966		
	(2.48)			(−0.40)		
T = 1*Pro.busy ins.dir	−0.4308*			−0.0162		
	(−1.79)			(−0.10)		
T = 2*Pro.busy ins.dir	−0.3192			−0.0267		
	(−1.22)			(−0.15)		
Pro.busy ind.dir		−0.1777			−0.1179	
		(−0.80)			(−0.82)	
T = 1*Pro.busy ind.dir		0.1814			0.1471	
		(0.76)			(0.87)	
T = 2*Pro.busy ind.dir		0.1895*			−0.1185	
		(1.78)			(−0.64)	
Pro.busy dir			0.2714*			−0.0353
			(1.83)			(−0.20)
T = 1*Pro.busy dir			−0.0415			0.0881
			(−0.16)			(0.43)
T = 2*Pro.busy dir			0.0410			−0.2138
			(0.15)			(−0.95)
Avg. busyins. dir tenure	0.0039			0.0018		
	(0.73)			(0.58)		
Avg. busyins. dirage	0.0033*			−0.0002		
	(1.82)			(−0.11)		
Avg. busyind. dir tenure		0.0044			−0.0036	
		(1.21)			(−1.29)	
Avg. busyind. dir age		0.0003			0.0007	
		(0.44)			(0.99)	
Avg. busy dir tenure			0.0032			−0.0026
			(1.09)			(−1.09)
Avg. busy dir age			−0.0004			0.0004
			(−0.51)			(0.64)
CEO Delta	0.0723***	0.0716***	0.0714***	0.1053***	0.1057***	0.1058***
	(4.94)	(4.73)	(4.81)	(6.34)	(6.39)	(6.37)
Ln (board size)	0.0057	0.0066	0.0186	0.0332	0.0332	0.0357
	(0.10)	(0.11)	(0.32)	(0.53)	(0.53)	(0.57)
Pro. independent director	0.1394	0.0510	0.0558	0.0669	0.0656	0.0673
	(1.37)	(0.52)	(0.58)	(0.79)	(0.80)	(0.82)
Firm size	−0.0469***	−0.0444***	−0.0493***	−0.0521***	−0.0520***	−0.0523***
	(−3.71)	(−3.57)	(−3.93)	(−4.10)	(−4.03)	(−4.02)
Capital expenditure	0.0489	0.0754	0.0831	−0.4987	−0.5036	−0.4980
	(0.14)	(0.21)	(0.24)	(−1.62)	(−1.64)	(−1.62)
Plant, property and equipment	0.0862*	0.0919*	0.0842*	0.0808*	0.0810*	0.0797*
	(1.80)	(1.95)	(1.78)	(1.79)	(1.80)	(1.76)
R&D expenditure	1.9922***	1.9620***	1.9724***	1.5725***	1.5957***	1.5832***
	(4.08)	(4.02)	(4.03)	(3.72)	(3.77)	(3.73)
Sale growth	0.0973	0.0960	0.1000	0.2306***	0.2304***	0.2299***
	(1.42)	(1.41)	(1.46)	(3.01)	(3.01)	(3.00)
ln (1 + firm age)	0.0164	0.0177	0.0178	0.0124	0.0138	0.0132
	(0.92)	(0.98)	(0.99)	(0.70)	(0.78)	(0.74)
Ln (1 + segments)	−0.0056	−0.0025	−0.0044	−0.0349*	−0.0363*	−0.0355*
	(−0.29)	(−0.13)	(−0.23)	(−1.69)	(−1.76)	(−1.72)
Leverage	−0.2825***	−0.2925***	−0.2871***	−0.3504***	−0.3445***	−0.3450***

(continued on next page)

Table 6 (*continued*)

Panel A: Tobin's Q as firm performance measure

	(1)	(2)	(3)	(4)	(5)	(6)
	Metro firms			Rural firms		
	Dependent variable = Tobins' Q					
	(−2.77)	(−2.89)	(−2.84)	(−3.62)	(−3.54)	(−3.55)
Lagged Q	0.7100***	0.7117***	0.7097***	0.6902***	0.6903***	0.6905***
	(29.78)	(30.06)	(30.03)	(32.48)	(32.57)	(32.59)
Constant	0.3726**	0.4368***	0.4192***	0.6947***	0.6843***	0.6780***
	(2.33)	(2.76)	(2.61)	(4.48)	(4.42)	(4.41)
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	4696	4696	4696	6841	6841	6841
R^2	0.7184	0.7176	0.7178	0.7047	0.7048	0.7048

Panel B: ROA as firm performance measure

	(1)	(2)	(3)	(4)	(5)	(6)
	Metro firms			Rural firms		
	Dependent variable = ROA					
T = 1(2003,2007)	0.0269	0.0192	0.0211	0.0546***	0.0524***	0.0538***
	(1.58)	(1.13)	(1.24)	(4.70)	(4.45)	(4.61)
T = 2(≥ 2008)	0.0363***	0.0302***	0.0330***	0.0410***	0.0399***	0.0400***
	(4.70)	(3.69)	(4.00)	(6.43)	(6.18)	(6.18)
Pro.busy ins.dir	0.0397*			0.0541**		
	(1.79)			(2.15)		
T = 1*Pro.busy ins.dir	0.0223			−0.0097		
	(1.02)			(−0.60)		
T = 2*Pro.busy ins.dir	−0.0678*			0.0377		
	(−1.91)			(1.51)		
Pro.busy ind.dir		−0.0395*			−0.0110	
		(−1.80)			(−0.61)	
T = 1*Pro.busy ind.dir		0.0289			0.0113	
		(0.94)			(0.63)	
T = 2*Pro.busy ind.dir		0.0511**			0.0055	
		(2.16)			(0.28)	
Pro.busy dir			−0.0218			0.0057
			(−0.87)			(0.28)
T = 1*Pro.busy dir			0.0505*			0.0007
			(1.77)			(0.04)
T = 2*Pro.busy dir			0.0068			0.0097
			(0.20)			(0.41)
Avg. busyins. dir tenure	0.0009			0.0008**		
	(1.50)			(2.29)		
Avg. busyins. dirage	0.0002			−0.0006***		
	(1.29)			(−2.79)		
Avg. busyind. dir tenure		0.0009**			0.0003	
		(2.25)			(1.05)	
Avg. busyind. dir age		−0.0001			−0.0001	
		(−0.85)			(−0.75)	
Avg. busy dir tenure			0.0010**			0.0004
			(2.26)			(1.61)
Avg. busy dir age			−0.0002			−0.0001*
			(−1.37)			(−1.93)
CEO Delta	0.0003	0.0003	0.0002	0.0019**	0.0018**	0.0018**
	(0.35)	(0.34)	(0.21)	(2.52)	(2.38)	(2.37)
Ln (board size)	−0.0031	−0.0018	−0.0010	0.0063	0.0054	0.0063
	(−0.36)	(−0.19)	(−0.11)	(1.03)	(0.90)	(1.05)
Pro. independent director	0.0032	0.0007	0.0015	−0.0032	0.0028	0.0033
	(0.25)	(0.05)	(0.12)	(−0.37)	(0.33)	(0.40)
Firm size	0.0103***	0.0110***	0.0109***	0.0030**	0.0031**	0.0032**
	(4.36)	(4.58)	(4.51)	(2.33)	(2.41)	(2.44)
Capital expenditure	0.1029*	0.1045*	0.1042*	0.0457	0.0471	0.0475
	(1.93)	(1.96)	(1.96)	(1.52)	(1.55)	(1.57)
Plant, property and equipment	−0.0107	−0.0100	−0.0101	0.0025	0.0022	0.0022

(*continued on next page*)

Table 6 (*continued*)

Panel B: ROA as firm performance measure

	(1)	(2)	(3)	(4)	(5)	(6)
	Metro firms			Rural firms		
	Dependent variable = ROA					
	(−1.04)	(−0.98)	(−0.99)	(0.47)	(0.42)	(0.42)
R&D expenditure	−0.7925***	−0.7907***	−0.7896***	−0.3212***	−0.3213***	−0.3214***
	(−8.27)	(−8.28)	(−8.27)	(−5.75)	(−5.73)	(−5.73)
Sale growth	0.0491***	0.0489***	0.0492***	0.0815***	0.0813***	0.0814***
	(3.97)	(3.96)	(3.99)	(10.38)	(10.38)	(10.39)
ln (1 + firm age)	0.0029	0.0027	0.0023	0.0052***	0.0051***	0.0050***
	(0.91)	(0.83)	(0.72)	(2.79)	(2.78)	(2.73)
Ln (1 + segments)	−0.0068**	−0.0062*	−0.0062*	−0.0025	−0.0023	−0.0022
	(−2.09)	(−1.93)	(−1.94)	(−1.14)	(−1.03)	(−1.02)
Leverage	−0.0870***	−0.0879***	−0.0875***	−0.0497***	−0.0494***	−0.0493***
	(−4.47)	(−4.50)	(−4.47)	(−4.31)	(−4.28)	(−4.27)
Lagged ROA	0.0204***	0.0207***	0.0206***	0.4836***	0.4848***	0.4839***
	(7.85)	(8.04)	(7.97)	(16.78)	(16.80)	(16.80)
Constant	−0.0601*	−0.0615*	−0.0636*	−0.0245	−0.0278	−0.0298*
	(−1.81)	(−1.83)	(−1.92)	(−1.45)	(−1.63)	(−1.76)
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	4696	4696	4696	6841	6841	6841
R^2	0.2984	0.2979	0.2979	0.3910	0.3899	0.3901

9037 firm-year observations after deleting missing values on key variables. The coefficient on the interaction between Metro and Pro. busy ins. dir/Pro. busy ind. dir/Pro. busy dir in Model (1)/(2)/(3) is negative and significant, suggesting that busy directors in Metro firms are associated with reductions in firms' real earnings management activities. As real earnings management has a long-term negative impact on firm value, the reduction in real earnings management leads to better firm performance.

Panel D presents the results on the relation between director busyness and asset utilization efficiency. In Model (2), the positive and significant coefficient on the interaction between Pro. busy ind. dir and Metro shows that Metro firm busy independent directors are associated with higher asset utilization efficiency. We fail to find such a relation for busy inside directors, indicating the positive and significant relation between Metro firm busy directors and asset utilization efficiency shown in Model (3) is attributed to busy independent directors.

The overall results of Table 5 show that Metro firm busy directors are associated with lower default risk, lower cash effective tax rate, lower level of real earnings management, and higher asset utilization efficiency, providing some explanations on the positive link between Metro firm busy directors and firm performance documented in Table 4.

4.4. SOX, the financial crisis, director busyness, and firm performance

To test whether SOX and the 2007–2008 financial crisis change the relation between busy directors and firm performance, we include a category variable T, which equals to one for years between 2003 and 2007, and two for years 2008 and after, and zero for years prior to SOX. The category variable T is interacted with director busyness to catch differences in the busy director-firm performance relation across different time periods. The results are reported in Table 6. Panels A and B present the results of using Tobin's Q and ROA as a performance proxy, respectively. Models (1)–(3)/(4)–(6) present the results of the subsample of Metro firms/Rural firms in both panels.

The estimated coefficient of board busyness is positive and significant for the sample of Metro firms as shown in Model (3) of Panel A, but is negative and not significant in Model (3) of Panel B, providing limited support that busy directors in Metro firms increase firm value prior to SOX. However, none of the interaction term of the time dummy variables with busy directors is significant in Model (6) of both panels, indicating that SOX and the 2007–2008 financial crisis may not exert significant influence on busy directors in Rural firms.

We further investigate the potential differential effects of busy inside directors and busy independent directors across time. In Model (1), the estimated coefficient on the proportion of busy inside directors is positive and significant in both panels. However, the estimated coefficient on the interaction term between inside director busyness and T = 1 (immediate post-SOX)/T = 2 (post-financial crisis) is negative and significant at the 10% level in Panel A/Panel B, suggesting Metro firm busy insider directors destroy firm value in the post-SOX period. One possible explanation might be that focusing on independent directors by SOX seems to compromise the role of inside directors. In Model (2),[15] the estimated coefficient of the interaction term between independent director busyness and

[15] In Panel B of Table 6, we find a significant negative estimated coefficient for independent director busyness as shown in Model (2), but the overall effect of busy independent director is still positive if we count the effect of the financial crisis.

Table 7

Geographic location, busy directors, and firm performance_ Instrumental variable approach. This table presents the instrumental regression results. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). The sample period is 1997–2013. The first-stage regression models director busyness with three instruments: 1) director busyness three years ago, 2) the number of independent directors over 60 years of age (# Ind. directors 60), and 3) a dummy variable that equals one if at least one independent director is female, and zero otherwise (Female ind. director), and interactions of each instrumental variable with the Metro indicator variable. The dependent variable in the second-stage is the Tobin's Q. We use the proportion of busy directors to measure director busyness. To save space, the coefficients for the control variables are not reported in the table. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	1st stage		2nd stage	1st stage		2nd stage	1st stage		2nd stage
	Pro.busy ins.dir	Pro.busy ins.dir*Metro	Tobin's Q	Pro.busy ind.dir	Pro.busy ind.dir*Metro	Tobin's Q	Pro.busy ind.dir	Pro.busy ind.dir*Metro	Tobin's Q
Predicted pro.busy ins.dir			−0.3268						
			(−0.87)						
Predicted pro.busy ins.dir*Metro			1.0232**						
			(2.34)						
Predicted pro.busy ind.dir						0.0666			
						(0.42)			
Predicted pro.busy ind.dir*Metro						0.3204*			
						(1.71)			
Predicted pro.busy dir									0.0588
									(0.31)
Predicted pro.busy dir*Metro									0.5625**
									(2.18)
Prop.busy ins. dir_lag3	0.1505***	−0.0127***							
	(6.20)	(−2.77)							
Prop.busy ins. dir_lag3*Metro	0.0636	0.2442***							
	(1.18)	(5.41)							
Prop.busy ind. dir_lag3				0.3945***	−0.0145***				
				(19.94)	(−3.45)				
Prop.busy ind. dir_lag3*Metro				−0.0060	0.4229***				
				(−0.18)	(15.12)				
Prop.busy dir_lag3							0.4335***	−0.0149***	
							(20.62)	(−3.36)	
Prop.busy dir_lag3*Metro							0.0394	0.5096***	
							(0.95)	(14.65)	
# Ind. directors 60	0.0065***	−0.0005		0.0043***	0.0000		0.0037***	−0.0001	
	(4.52)	(−0.78)		(3.15)	(0.06)		(3.42)	(−0.12)	
Female ind. director	0.0018	−0.0060***		−0.0014	−0.0047**		0.0007	−0.0029**	
	(0.31)	(−2.80)		(−0.26)	(−2.51)		(0.16)	(−1.97)	
# Ind. directors 60* Metro	−0.0004	0.0073***		−0.0003	0.0040***		−0.0003	0.0031***	
	(−0.21)	(4.75)		(−0.16)	(2.69)		(−0.18)	(2.77)	
Female ind. director * Metro	0.0163*	0.0317***		0.0121	0.0189***		0.0063	0.0119**	
	(1.72)	(4.19)		(1.41)	(2.77)		(0.87)	(2.10)	
Metro	−0.0006	0.0299***	−0.1107***	0.0071	0.0315***	−0.0579**	0.0029	0.0226***	−0.0739***
	(−0.07)	(4.07)	(−2.65)	(0.79)	(4.31)	(−2.09)	(0.43)	(4.11)	(−2.74)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	7467	7467	7467	7467	7467	7467	7467	7467	7467
R^2	0.2031	0.4099	0.7445	0.3010	0.4719	0.7444	0.3538	0.5289	0.7447
1st-Stage test statistics:									
Angrist-Pischke F-test for weak identification	13.59	134.40		94.22	440.54		100.61	629.03	
Angrist-Pischke Chi2 for underidentification	68.70	679.46		476.33	2227.05		508.62	3179.88	
Sanderson-Windmeijer F test for weak identification	16.82	44.92		108.73	169.38		114.58	205.58	
Sanderson-Windmeijer Chi2 for underidentification	85.03	227.1		549.66	856.26		579.22	1039.22	
2st-Stage test statistics:									
F-test			2.87			3.05			2.93
P-Value for Hansen J-statistic			0.57			0.54			0.56

T = 2 is positive and significant in both panels, suggesting that Metro firm busy independent directors are positively associated with firm performance in the post-financial crisis period. However, we cannot contribute Metro firm busy independent directors' value-enhancing effects after the financial crisis simply to the implementation of SOX given the possible confounding effects from the financial crisis. Further, we document different results for the Rural firms as shown in Models (4) and (5). None of our variables of interest is significant except the positive estimated coefficient of the proportion of busy inside directors in Model (4) of Panel B,[16] suggesting that there is no significant change in the association between busy directors and firm performance for Rural firms across different time periods.

The overall results of Table 6 confirm the differential effects of busy directors/inside directors/independent directors in Metro and Rural firms and provide evidence supporting Hypothesis 2 that the value effects of busy inside directors and busy independent directors vary due to SOX and the financial crisis.

4.5. Robustness check

4.5.1. Instrumental variable approach

We conduct several additional tests to ensure that our results are not driven by biases in variable identification, model specification, or endogeneity. Early work on the association between director busyness and firm performance employs ordinary least squares regressions (Cashman et al., 2012; Fich & Shivdasani, 2006; Ferris et al., 2003). This estimation methodology treats director busyness as an exogenous variable. However, if director busyness and firm performance are simultaneously determined, the error term and the director busyness are correlated. Such correlation violates the OLS regression assumption of no relation between error term and regressors, leading to inefficient estimations. Practically, qualified directors are in high demand and are more likely to join well-performed firms. These tendencies may create a spurious positive relation between director busyness and firm value, leading to biased interpretation.

To account for potential endogeneity, we employ an instrumental variable approach. Proper instruments should satisfy the relevance and the exclusion conditions. We choose three instrumental variables as in Field et al. (2013), including director busyness three years earlier, the number of independent directors over 60 years old (*# Ind. directors. 60*), and an indicator variable with a value of one if the board has at least one female independent director, and zero otherwise (*Female ind. director*).[17] Including director busyness three years earlier reduces our sample to 7467 firm-year observations. In the first stage, we include the three instrumental variables, the interaction between each instrumental variable and the Metro indicator (Wooldrige, 2010), and control variables. In the second stage, we regress Tobin's Q on the predicted director busyness, the predicted interaction between director busyness and the Metro indicator, and the same set of control variables as in Tables 4.

The results are reported in Table 7. The significant associations between director busyness proxies and their instruments provide evidence supporting the relevance condition of instrumental variable approach. Furthermore, the specification tests indicate all the equations are well-specified. Both *Angrist-Pischke* and *Sanderson-Windmeijer* F-statistics for weak identification are significant, rejecting the null hypothesis of weak instruments. *Angrist-Pischke* and *Sanderson-Windmeijer* Chi2 tests reject the null hypothesis of under-identification. The statistically insignificant Hansen J-statistics indicate we cannot reject the null hypothesis that the instruments are uncorrelated with the error terms. Collectively, the statistics provide evidence that the instrumental variables satisfy both the relevance and the exclusion conditions.

The estimated coefficient on the interaction between the predicted percentage of busy inside directors/independent directors/directors and Metro in Model (3)/(6)/(9) is positive and significant, suggesting busy directors are value-enhancing in Metro firms. The results are consistent with the argument that busy directors prioritize the directorships held and dedicate more time and energy to the prestigious ones, and hence enhance firm value. The results are also consistent with the predictions of Metro firm busy directors' valuable connections and information advantages.

4.5.2. Fixed effect regression

To the extent that Metro firms with better performance may be more likely to select busy directors, a positive association between director busyness and Metro firm performance could arise due to such spurious correlation. To control for the selection bias and time-invariant omitted variable bias, we conduct fixed effect regressions. Results are presented in Table 8. In Model (1), the estimated coefficient on the interaction between Metro and Pro. busy ins. dir is significantly positive and the estimated coefficient on Pro. busy ins. dir is significantly negative, suggesting that busy inside directors in Rural firms undermine firm value (measured with Tobin's Q), but this negative impact is alleviated in Metro firms. The estimated coefficient on the interaction between Metro and Pro. busy ind. dir is significantly positive and the estimated coefficient on Pro. busy ind. dir is significantly negative in Model (5), indicating that, although busy independent directors reduce ROA in Rural firms, this negative influence is decreased in Metro firms. Lastly, the positive and significant estimated coefficients on the interaction between Metro and Pro. busy dir in Models (3) and (6) show that busy directors are value-enhancing in Metro firms.

[16] Since this is the only significant estimate in Rural firms and only for one of the two performance measures, we do not consider it economically significant.

[17] We use director busyness three years earlier to capture the persistence in firms' demand for busy directors and use an indicator variable of female director to capture the demand for female directors. As indicated in Field et al. (2013), female directors are highly demanded. 44% of respondents in the Spencer Stuart survey say they are looking for female directors while only 21% of new S&P directors in 2010 are female: http://content.spencerstuart.com/sswebsite/pdf/lib/SSBI2010.pdf. Further, older directors are less likely to have time constraints and thus are more likely to serve on multiple boards.

Table 8
Geographic location, busy directors, and firm performance_Fixed effect regression. This table presents the fixed regression results of regressing firm value on various director busyness proxies. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). The sample period is 1997–2013. We use the proportion of busy directors to measure director busyness. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Pro.busy ins.dir	−0.6423***			−0.0009		
	(−3.20)			(−0.04)		
Metro*Pro.busy ins.dir	0.4014***			0.0106		
	(2.73)			(0.77)		
Pro.busy ind.dir		−0.2342*			−0.0259*	
		(−1.89)			(−1.80)	
Metro*Pro.busy ind.dir		0.0633			0.0165*	
		(0.37)			(1.96)	
Pro.busy dir			−0.1533			−0.0061
			(−1.20)			(−0.41)
Metro*Pro.busy dir			0.3714**			0.0223*
			(2.38)			(1.85)
Avg. busyins. dir tenure	0.0003			0.0005*		
	(0.10)			(1.91)		
Avg. busyins. dirage	0.0025**			−0.0001		
	(1.97)			(−0.74)		
Avg. busyind. dir tenure		−0.0010			0.0004	
		(−0.41)			(1.58)	
Avg. busyind. dir age		0.0008			−0.0000	
		(1.63)			(−0.25)	
Avg. busy dir tenure			−0.0007			0.0004*
			(−0.37)			(1.88)
Avg. busy dir age			0.0005			−0.0001
			(1.13)			(−1.42)
CEO Delta	0.2007***	0.2001***	0.2002***	0.0030***	0.0030***	0.0030***
	(10.40)	(10.45)	(10.40)	(3.16)	(3.16)	(3.16)
Ln (board size)	−0.0646	−0.0594	−0.0589	0.0040	0.0038	0.0043
	(−0.93)	(−0.83)	(−0.83)	(0.56)	(0.53)	(0.60)
Pro. independent director	0.0832	0.0232	0.0462	0.0050	0.0045	0.0059
	(0.85)	(0.25)	(0.49)	(0.51)	(0.47)	(0.62)
Firm size	−0.5391***	−0.5350***	−0.5353***	−0.0121***	−0.0117***	−0.0118***
	(−13.53)	(−13.44)	(−13.41)	(−2.90)	(−2.81)	(−2.84)
Capital expenditure	−0.0267	−0.0623	−0.0494	0.0789***	0.0783***	0.0792***
	(−0.09)	(−0.20)	(−0.16)	(2.68)	(2.66)	(2.68)
Plant, property and equipment	−0.3051***	−0.2950**	−0.2977**	−0.0215*	−0.0208*	−0.0209*
	(−2.65)	(−2.54)	(−2.57)	(−1.93)	(−1.87)	(−1.88)
R&D expenditure	2.1590**	2.2095***	2.2212***	−0.8533***	−0.8497***	−0.8509***
	(2.54)	(2.59)	(2.60)	(−8.51)	(−8.46)	(−8.47)
Sale growth	0.3850***	0.3850***	0.3839***	0.0869***	0.0868***	0.0868***
	(8.04)	(8.04)	(8.00)	(15.62)	(15.62)	(15.60)
Ln (1 + firm age)	−0.0115	0.0052	0.0068	0.0165***	0.0169***	0.0166***
	(−0.17)	(0.08)	(0.10)	(2.62)	(2.65)	(2.63)
Ln (1 + segments)	−0.0164	−0.0167	−0.0156	−0.0040	−0.0040	−0.0040
	(−0.58)	(−0.58)	(−0.55)	(−1.46)	(−1.47)	(−1.45)
Leverage	−0.6270***	−0.6288***	−0.6339***	−0.1149***	−0.1156***	−0.1155***
	(−5.57)	(−5.57)	(−5.60)	(−7.40)	(−7.42)	(−7.41)
Lagged Q	0.3871***	0.3882***	0.3879***			
	(20.69)	(20.59)	(20.62)			
Lagged ROA				0.1937***	0.1933***	0.1929***
				(9.20)	(9.15)	(9.12)
Constant	5.7959***	5.7399***	5.7150***	0.1341***	0.1305***	0.1302***
	(14.13)	(13.92)	(13.93)	(3.51)	(3.43)	(3.43)
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	11,537	11,537	11,537	11,537	11,537	11,537
R^2	0.4249	0.4243	0.4242	0.1936	0.1942	0.1939

Table 9
Geographic location, busy directors, and firm performance_Heckman selection model. This table presents the regression results from Heckman selection model. The analysis is conducted at director level. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). The sample period is 1997–2013. In the first stage, we use logit regression to predict the likelihood for a director to be busy, the results are presented in Appendix Table E. In the second stage, we include inverse-mills ratio estimated from the first stage to control potential sample selection bias. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Metro	−0.0192	−0.0054***	−0.0219	−0.0058***	−0.0239	−0.0059***
	(−1.26)	(−3.07)	(−1.44)	(−3.24)	(−1.57)	(−3.29)
Busy ins.dir	−0.1743			0.0046		
	(−1.10)			(0.24)		
Metro*Busy ins.dir	0.1377***			0.0086**		
	(2.97)			(1.98)		
Busy ind.dir		−0.1103			−0.0052	
		(−1.41)			(−0.56)	
Metro*Busy ind.dir		0.0590***			0.0042*	
		(3.02)			(1.90)	
Busy dir			−0.1103			−0.0053
			(−1.50)			(−0.62)
Metro*Busy dir			0.0729***			0.0050**
			(3.80)			(2.34)
Busyins. dir dirage	0.0020			−0.0002		
	(0.77)			(−0.62)		
Busyins. dir tenure	0.0027			0.0006***		
	(1.24)			(2.60)		
Busyind. dir age		0.0015			0.0000	
		(1.23)			(0.26)	
Busyind. dir tenure		−0.0007			0.0002	
		(−0.48)			(1.38)	
Busy dir age			0.0013			0.0000
			(1.16)			(0.19)
Busy dir tenure			0.0009			0.0003**
			(0.68)			(2.38)
CEO Delta	0.0766***	0.0781***	0.0781***	0.0022***	0.0004	0.0005
	(6.29)	(5.98)	(5.98)	(3.96)	(0.80)	(1.00)
Ln (board size)	0.0081	0.0083	0.0075	0.0015	0.0044	0.0045
	(0.21)	(0.22)	(0.19)	(0.36)	(1.04)	(1.07)
Pro. independent director	0.0954*	0.0781	0.0781	0.0099	0.0166***	0.0160***
	(1.73)	(1.45)	(1.45)	(1.63)	(2.67)	(2.59)
Firm size	−0.0729***	−0.0636***	−0.0692***	−0.0093***	0.0173***	0.0191***
	(−3.12)	(−3.34)	(−3.20)	(−3.56)	(7.85)	(7.60)
Capital expenditure	−0.1840	−0.1342	−0.1257	0.0530**	0.0064	0.0056
	(−0.89)	(−0.63)	(−0.59)	(2.32)	(0.28)	(0.24)
Plant, property and equipment	0.0933***	0.0857***	0.0826**	−0.0022	0.0153***	0.0158***
	(2.96)	(2.64)	(2.52)	(−0.55)	(3.78)	(3.85)
R&D expenditure	1.4203***	1.3814***	1.3503***	−0.4261***	−0.2279***	−0.2218***
	(4.63)	(4.39)	(4.25)	(−9.84)	(−5.24)	(−5.10)
Sale growth	0.2068***	0.2008***	0.2053***	0.0903***	0.0700***	0.0686***
	(4.16)	(4.13)	(4.17)	(14.54)	(11.84)	(11.45)
Ln (1 + firm age)	0.0137	0.0157	0.0152	0.0046***	0.0040***	0.0040***
	(1.25)	(1.42)	(1.39)	(3.49)	(2.97)	(2.97)
Ln (1 + segments)	−0.0213	−0.0210	−0.0212	−0.0033**	−0.0028*	−0.0027*
	(−1.63)	(−1.61)	(−1.63)	(−2.24)	(−1.88)	(−1.82)
Leverage	−0.2773***	−0.3252***	−0.3242***	−0.0449***	−0.0267***	−0.0291***
	(−4.66)	(−4.96)	(−4.98)	(−5.91)	(−3.52)	(−3.88)
Lagged Q	0.7158***	0.7151***	0.7150***			
	(51.35)	(50.92)	(50.98)			
Lagged ROA				0.4926***	0.4880***	0.4885***
				(23.93)	(23.49)	(23.49)
Inverse-Mills	−0.0967	−0.0837	−0.0989	−0.0338***	0.0513***	0.0552***
	(−1.50)	(−1.57)	(−1.62)	(−4.67)	(7.83)	(7.46)
Constant	1.6223***	1.3537***	1.4298***	0.2800***	−0.2998***	−0.3132***
	(3.10)	(4.13)	(3.97)	(4.74)	(−7.30)	(−7.00)
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	97,790	97,790	97,790	97,790	97,790	97,790
R^2	0.7210	0.7211	0.7211	0.4037	0.4073	0.4068

Table 10
Geographic location, busy directors, and firm performance_ SOX effect using Chow-test. This table presents the results of regressing firm value on various director busyness proxies. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). Pre is the three-year period prior to SOX (1999, 2000, and 2001), and Post is the three-year period after SOX (2003, 2004, and 2005). SOX1 is an indicator variable with a value of one for the Post period and zero for the Pre period. The numbers used in the regressions are the averages of the variables for the three years in the Pre and the three years in the Post periods, respectively. Panel A presents the results of Metro firms and Panel B presents the results of Rural firms. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

Panel A.

	Metro firms								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dependent variable = Tobins' Q								
	Pre	Post		Pre	Post		Pre	Post	
Pro.busy ins.dir	1.285	0.196	0.967						
	(1.44)	(0.20)	(1.38)						
Pro.busy ind.dir				0.947	0.590	0.756			
				(1.28)	(0.89)	(1.38)			
Pro.busy dir							0.753	0.701	0.710
							(1.18)	(1.13)	(1.41)
SOX1			−0.167*			−0.229**			−0.226*
			(−1.71)			(−1.96)			(−1.94)
Pro.busy ins.dir*SOX1			−1.183*						
			(−1.95)						
Pro.busy ind.dir*SOX1						0.143			
						(0.23)			
Pro.busy dir *SOX1									0.090
									(0.98)
Avg. busyins. dir tenure	0.003	−0.031	−0.008						
	(0.16)	(−1.43)	(−0.55)						
Avg. busyins. dirage	0.003	0.008	0.005						
	(0.51)	(1.46)	(1.28)						
Avg. busyind. dir tenure				0.048**	−0.005	0.023			
				(2.30)	(−0.27)	(1.63)			
Avg. busyind. dir age				−0.004	0.004	−0.000			
				(−1.00)	(1.21)	(−0.15)			
Avg. busy dir tenure							0.027	−0.010	0.008
							(1.53)	(−0.75)	(0.67)
Avg. busy dir age							−0.001	0.004	0.002
							(−0.20)	(1.33)	(0.64)
CEO Delta	0.181***	0.143***	0.170***	0.171***	0.140***	0.166***	0.169***	0.140***	0.164***
	(4.96)	(4.04)	(6.60)	(4.67)	(4.00)	(6.42)	(4.61)	(4.01)	(6.35)
Ln (board size)	0.115	−0.529*	−0.184	−0.053	−0.527*	−0.261	−0.018	−0.513*	−0.249
	(0.37)	(−1.93)	(−0.87)	(−0.16)	(−1.91)	(−1.20)	(−0.06)	(−1.87)	(−1.16)
Pro. independent director	0.816*	0.582	0.664**	0.563	0.413	0.448	0.617	0.440	0.483*
	(1.96)	(1.53)	(2.30)	(1.26)	(1.09)	(1.50)	(1.43)	(1.16)	(1.65)
Firm size	−0.058	−0.044	−0.037	−0.024	−0.078	−0.046	−0.029	−0.080	−0.046
	(−0.82)	(−0.86)	(−0.84)	(−0.34)	(−1.47)	(−1.03)	(−0.41)	(−1.50)	(−1.03)
Capital expenditure	6.282***	3.186*	4.570***	6.510***	3.353**	4.628***	6.189***	3.402**	4.568***
	(3.33)	(1.96)	(3.62)	(3.45)	(2.08)	(3.67)	(3.28)	(2.11)	(3.62)
Plant, property and equipment	−1.167***	−0.474**	−0.770***	−1.121***	−0.511**	−0.751***	−1.129***	−0.510**	−0.755***
	(−4.04)	(−2.19)	(−4.22)	(−3.86)	(−2.38)	(−4.12)	(−3.89)	(−2.37)	(−4.14)
R&D expenditure	10.795***	4.683***	8.627***	10.910***	4.567***	8.625***	10.952***	4.615***	8.655***
	(8.61)	(3.82)	(9.68)	(8.66)	(3.76)	(9.68)	(8.67)	(3.80)	(9.70)
Sale growth	2.004***	0.990***	1.661***	1.943***	1.060***	1.677***	1.963***	1.057***	1.677***
	(6.61)	(3.34)	(7.74)	(6.40)	(3.59)	(7.81)	(6.46)	(3.59)	(7.81)
ln (1 + firm age)	0.031	0.053	0.036	0.035	0.076	0.049	0.036	0.079	0.053
	(0.35)	(0.67)	(0.59)	(0.39)	(0.97)	(0.80)	(0.39)	(0.99)	(0.86)
Ln (1 + segments)	−0.357***	−0.096	−0.219***	−0.365***	−0.085	−0.215***	−0.364***	−0.081	−0.214***
	(−3.06)	(−1.07)	(−2.93)	(−3.10)	(−0.96)	(−2.87)	(−3.09)	(−0.91)	(−2.86)
Leverage	−0.951**	−0.766**	−1.034***	−0.946**	−0.846**	−1.058***	−0.973**	−0.851**	−1.068***
	(−2.42)	(−2.21)	(−3.87)	(−2.40)	(−2.47)	(−3.97)	(−2.46)	(−2.48)	(−4.00)
Constant	2.002***	2.893***	2.387***	2.232***	3.065***	2.656***	2.154***	3.003***	2.590***
	(3.52)	(5.44)	(6.02)	(3.63)	(5.65)	(6.39)	(3.60)	(5.59)	(6.36)
Industry effect									
Chow test			2.7			3.25			2.78
P-value			0.067			0.039			0.062

(*continued on next page*)

Table 10 (*continued*)

Panel A.

	Metro firms								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dependent variable = Tobins' Q								
	Pre	Post		Pre	Post		Pre	Post	
N	360	340	700	360	340	700	360	340	700
R^2	0.449	0.199	0.363	0.446	0.213	0.364	0.442	0.213	0.362

Panel B.

	Rural firms								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dependent variable = Tobins' Q								
	Pre	Post		Pre	Post		Pre	Post	
Pro.busy ins.dir	−0.768	−0.140	−0.383						
	(−1.08)	(−0.20)	(−0.67)						
Pro.busy ind.dir				−0.638	0.565	−0.248			
				(−1.12)	(0.96)	(−0.55)			
Pro.busy dir							−0.581	0.813	−0.117
							(−1.09)	(1.57)	(−0.28)
SOX1			−0.136*			−0.191**			−0.197**
			(−1.74)			(−2.05)			(−2.12)
Pro.busy ins.dir*SOX1			−0.286						
			(−0.49)						
Pro.busy ind.dir*SOX1						0.317			
						(0.61)			
Pro.busy dir *SOX1									0.345
									(1.03)
Avg. busyins. dir tenure	0.007	0.021	0.015						
	(0.45)	(1.42)	(1.41)						
Avg. busyins. dirage	0.001	−0.008*	−0.003						
	(0.27)	(−1.66)	(−0.97)						
Avg. busyind. dir tenure				0.007	0.009	0.004			
				(0.40)	(0.78)	(0.43)			
Avg. busyind. dir age				0.001	−0.006**	−0.002			
				(0.38)	(−2.02)	(−0.87)			
Avg. busy dir tenure							−0.002	0.011	0.004
							(−0.18)	(1.08)	(0.47)
Avg. busy dir age							0.002	−0.008***	−0.003
							(0.57)	(−3.11)	(−1.48)
CEO Delta	0.350***	0.201***	0.280***	0.351***	0.196***	0.279***	0.350***	0.194***	0.278***
	(10.99)	(7.29)	(13.21)	(10.97)	(7.15)	(13.09)	(10.95)	(7.15)	(13.05)
Ln (board size)	0.204	−0.231	−0.008	0.200	−0.143	0.038	0.220	−0.107	0.048
	(0.84)	(−0.98)	(−0.04)	(0.82)	(−0.59)	(0.22)	(0.91)	(−0.45)	(0.28)
Pro. independent director	0.275	0.449	0.306	0.240	0.617*	0.386*	0.283	0.645**	0.382*
	(0.84)	(1.40)	(1.33)	(0.72)	(1.92)	(1.65)	(0.86)	(2.03)	(1.65)
Firm size	−0.121**	0.006	−0.059	−0.120**	0.001	−0.063*	−0.120**	0.014	−0.057
	(−2.17)	(0.14)	(−1.60)	(−2.11)	(0.02)	(−1.68)	(−2.09)	(0.30)	(−1.52)
Capital expenditure	5.047***	6.730***	6.018***	5.035***	6.742***	6.033***	5.048***	6.571***	5.949***
	(3.28)	(4.91)	(5.76)	(3.27)	(4.91)	(5.76)	(3.27)	(4.81)	(5.68)
Plant, property and equipment	−0.798***	−0.705***	−0.747***	−0.811***	−0.716***	−0.741***	−0.805***	−0.699***	−0.730***
	(−3.60)	(−3.78)	(−5.08)	(−3.64)	(−3.83)	(−5.03)	(−3.61)	(−3.76)	(−4.95)
R&D expenditure	8.330***	5.385***	7.019***	8.309***	5.154***	6.959***	8.313***	5.324***	7.021***
	(7.98)	(5.64)	(9.79)	(7.91)	(5.41)	(9.67)	(7.90)	(5.61)	(9.75)
Sale growth	1.348***	0.946***	1.238***	1.360***	0.961***	1.242***	1.369***	0.973***	1.241***
	(5.32)	(3.85)	(6.97)	(5.37)	(3.87)	(6.97)	(5.40)	(3.94)	(6.97)
ln (1+firm age)	−0.023	0.014	−0.007	−0.021	0.000	−0.004	−0.012	0.001	−0.006
	(−0.31)	(0.20)	(−0.14)	(−0.28)	(0.01)	(−0.08)	(−0.16)	(0.02)	(−0.11)
Ln (1+segments)	−0.134	−0.057	−0.101	−0.130	−0.032	−0.094	−0.134	−0.031	−0.092
	(−1.36)	(−0.73)	(−1.60)	(−1.32)	(−0.41)	(−1.49)	(−1.36)	(−0.40)	(−1.45)
Leverage	−0.658**	−1.000***	−0.827***	−0.650**	−1.048***	−0.834***	−0.649**	−1.057***	−0.832***
	(−2.03)	(−3.34)	(−3.68)	(−2.01)	(−3.48)	(−3.71)	(−2.00)	(−3.54)	(−3.71)

(*continued on next page*)

Table 10 (*continued*)

Panel B.									
	Rural firms								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dependent variable = Tobins' Q								
	Pre	Post		Pre	Post		Pre	Post	
Constant	2.360***	2.125***	2.343***	2.380***	1.907***	2.250***	2.286***	1.747***	2.213***
	(4.61)	(4.41)	(6.63)	(4.41)	(3.76)	(6.06)	(4.29)	(3.47)	(6.01)
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chow test			2.22			2.44			2.56
P-value			0.1092			0.0876			0.0778
N	540	510	1050	540	510	1050	540	510	1050
R^2	0.470	0.338	0.420	0.470	0.335	0.418	0.469	0.343	0.419

4.5.3. Heckman selection model

We further use Heckman selection model to control potential sample selection bias. The analysis is conducted at director level. In the first stage, we use logit regression to predict the likelihood for a director to be busy and create an indicator variable with a value of one if the director is busy and zero otherwise. The results are presented in Appendix Table E. We have 101,401 director-year observations, but the missing value on variables in the first stage reduces our sample to 97,790 director-year observations.

In the second stage, we include inverse-mills ratio estimated from the first stage to control potential sample selection bias. Table 9 presents the regression results. We observe a positive and significant estimated coefficient on the interaction between Metro and Pro. busy ins. dir in Model (1), on the interaction between Metro and Pro. busy ind. dir in Model (2), and on the interaction between Metro and Pro. busy dir in Model (3), respectively. The results indicate that, controlling for sample selection bias, busy directors significantly improve Tobin's Q. Similar results are found when ROA is used as a performance proxy.

4.5.4. Chow test

As a robustness test for the influence of SOX on the association between director busyness and firm value, we follow Chowdhury, Kumar, and Shome (2016), who employ the averages of variable values three years before and three years after an event such that there is only one data point in each period to test the structural change around the event. This methodology reduces the potential bias arising from the dependence of observations for each firm. Specifically, we create an indicator variable SOX1, which equals to one for the years of 2003, 2004, and 2005 (post-SOX years) and zero for the years of 1999, 2000, and 2001 (pre-SOX years). We have 700 firm-year observations when using Tobin's Q as firm performance proxy, with 360 in the pre-SOX and 340 in the post-SOX periods. We have 1050 firm-year observations when using ROA as firm performance proxy, with 540 in the pre-SOX and 510 in the post-SOX periods. We calculate the average of each variable pre-SOX and post-SOX. Then we create interactions between SOX1 and the proxies for board busyness to capture the influence of SOX on the relation between director busyness and firm value and carry out a Chow test to examine the significance of the structural changes. The results are presented in Table 10.

Panels A and B present the results of Metro and Rural firms, respectively. The coefficient on SOX is significantly negative in Models (3), (6), and (9), suggesting SOX is associated with value reduction in the post-SOX period. The value-destroying effect of Metro busy inside directors is statistically significant, as evidenced by the significantly negative coefficient of *Pro.busy. ins. dir* SOX1*. The F-value for Chow-Test is 2.7 (P-value = 0.067), suggesting a structural shift in the association between inside director busyness and Tobin's Q from pre- to post-SOX years. We do not observe similar change with other busy director proxies. The results in Panel B imply no meaningful structural change in the association between director busyness and Tobin's Q around SOX for Rural firms. The comparison of the coefficients on director busyness of Metro and Rural firms indicate that busy directors are more beneficial to Metro firms. Collectively, we find a moderate negative impact of SOX on the value-enhancing effect of busy inside directors in Metro firms, and the overall results show that busy directors of Metro firms are associated with higher firm value.[18] The results of using ROA are largely consistent with using Tobin's Q. To save space, the results are not reported but available upon request.

4.5.5. Alternative proxy for Metro locations

To check the robustness of the definition of Metro firms, we replace Metro with the second measure of firm location, Metro1, and repeat the analysis of Table 4. The results are reported in Table 11. The estimated coefficient on the interaction between Metro1 and a director busyness measure is significantly positive across all models but (2), suggesting busy directors are value-enhancing in Metro firms.

[18] The results are quantitatively similar when the average number of outside directorships is used to measure director busyness. The results are available from authors upon request.

Table 11
Geographic location, busy directors, and firm performance_ Alternative definition for Metro. This table presents the results of regressing firm performance on various director busyness proxies. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). The sample period is 1997–2013. Metro1 is an indicator variable that equals one if the minimum distance between a company's headquarter and a major airport is below the sample median and zero otherwise, where major airports are defined by the Federal Aviation Administration (FAA) as large and medium-sized commercial service airport hubs that account for at least 0.25% of total passenger boardings. To save space, the coefficients for the control variables are not reported in the table. We use the proportion of busy directors, defined as those with three or more outside directorships, as proxies for director busyness. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's QDependent variable = ROA					
Metro1	−0.0299*	−0.0302	−0.0408*	−0.0057***	−0.0066***	−0.0067***
	(−1.67)	(−1.44)	(−1.92)	(−2.91)	(−2.98)	(−3.04)
Pro.busy ins.dir	−0.2168			0.0069		
	(−1.39)			(0.37)		
Metro1*Pro.busy ins.dir	0.2455**			0.0050*		
	(2.22)			(1.88)		
Pro.busy ind.dir		−0.1195			−0.0114	
		(−1.26)			(−0.93)	
Metro1*Pro.busy ind.dir		0.0827			0.0100*	
		(0.72)			(1.82)	
Pro.buy dir			−0.0119			0.0022
			(−0.10)			(0.15)
Metro1*Pro.busy dir			0.2272*			0.0145*
			(1.70)			(1.98)
Busyins. dir dirage	0.0019			0.0005*		
	(0.70)			(1.89)		
Busyins. dir tenure	0.0009			−0.0001		
	(0.71)			(−1.09)		
Busyind. dir age		−0.0002			0.0004*	
		(−0.10)			(1.71)	
Busyind. dir tenure		0.0005			−0.0000	
		(1.14)			(−0.49)	
Busy dir age			0.0000			0.0004**
			(0.00)			(1.98)
Busy dir tenure			−0.0000			−0.0001*
			(−0.09)			(−1.95)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	11,577	11,577	11,577	11,577	11,577	11,577
R^2	0.7000	0.6999	0.6999	0.4119	0.4119	0.4120

4.5.6. Additional governance variables

We include five additional corporate governance variables, including CEO-chairman duality, the proportion of female directors, CEO age, CEO tenure, and institutional ownership to the models of Table 4. The results are reported in Table 12. The institutional ownership data is obtained from Thomas 13F, which reduces our sample to 8841 firm-year observations. The estimated coefficient on the interaction between director busyness and Metro is positive and significant across all models but (4). The overall results are consistent with the findings of the primary analysis. Metro firm busy directors increase firm performance.

4.5.7. More robust tests

We conduct several additional tests and present the results in Appendix Tables B, C, and D, including tests at director level, tests by redefining busy directors as those with 2 or more directorships and as those with 4 or more directorships. The results are consistent with our primary analysis. We also find quantitatively similar results when measuring director busyness with the average outside directorships (to save space, results are not tabulated but available upon request). We conclude the results are robust to different measures of board busyness, Metro firms, and model specifications.

5. Conclusion

By nature, Metro firms not only have easier access to various resources critical to good decision making, but also are subject to more intensified monitoring from various stakeholders than Rural firms. The platform provided by Metro firms can either help build or destroy a director's reputation quickly in the director labor market, which gives directors incentives to make good use of the bigger platform.

In this paper, we examine the moderating effects of location on the association between busy directors and firm performance. We find Metro firms benefit from having directors with multiple directorships, consistent with the predication of both Metro firm busy

Table 12
Geographic location, busy directors, and firm performance_ Control more governance variables. This table presents the results of regressing firm performance on various director busyness proxies. The sample includes Compustat Industrial firms with available CEO equity compensation data from EXECUCOMP, stock information from CRSP, and board structure data from ISS, and excludes financial firms (SIC 6000–6999) and utility companies (SIC 4900–4949). The sample period is 1997–2013. We add five additional corporate governance variables that are potentially related to firm performance and/or director busyness, including CEO age, CEO tenure, CEO-chairman duality, the proportion of female directors, and institutional ownership. To save space, the coefficients for the control variables are not reported in the table. We use the proportion of busy directors, defined as those with three or more outside directorships, as proxies for director busyness. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Metro	−0.0123	−0.0330	−0.0436**	−0.0065***	−0.0088***	−0.0091***
	(−0.68)	(−1.59)	(−2.09)	(−3.30)	(−4.14)	(−4.21)
Pro.busy ins.dir	−0.2661			0.0162		
	(−1.61)			(0.87)		
Metro*Pro.busy ins.dir	0.3388**			0.0034		
	(2.55)			(0.25)		
Pro.busy ind.dir		−0.2626**			−0.0120	
		(−2.31)			(−1.04)	
Metro*Pro.busy ind.dir		0.3082**			0.0255*	
		(2.40)			(1.94)	
Pro.buy dir			−0.2042			−0.0026
			(−1.54)			(−0.19)
Metro*Pro.busy dir			0.4990***			0.0333**
			(3.38)			(2.07)
Busyins. dir dirage	0.0034			0.0003		
	(1.02)			(0.76)		
Busyins. dir tenure	0.0005			−0.0001		
	(0.41)			(−0.79)		
Busyind. dir age		−0.0004			0.0002	
		(−0.14)			(0.71)	
Busyind. dir tenure		0.0008			−0.0000	
		(1.55)			(−0.08)	
Busy dir age			−0.0001			0.0001
			(−0.04)			(0.45)
Busy dir tenure			0.0002			−0.0000
			(0.51)			(−0.80)
CEO-chairman duality	−0.0146	−0.0166	−0.0175	−0.0010	−0.0012	−0.0012
	(−0.79)	(−0.89)	(−0.94)	(−0.52)	(−0.63)	(−0.65)
Pro. female directors	0.1932	0.1779	0.1740	0.0240**	0.0229**	0.0228**
	(1.61)	(1.49)	(1.46)	(2.31)	(2.20)	(2.20)
Ln (1 + CEO age)	−0.0688	−0.0676	−0.0679	0.0039	0.0042	0.0042
	(−0.94)	(−0.92)	(−0.93)	(0.46)	(0.50)	(0.50)
Ln (1 + CEO tenure)	−0.0204**	−0.0190*	−0.0183*	−0.0012	−0.0011	−0.0011
	(−1.99)	(−1.86)	(−1.79)	(−1.08)	(−1.00)	(−0.98)
Insititutional ownership	0.4181***	0.4208***	0.4227***	0.0353***	0.0355***	0.0355***
	(6.85)	(6.82)	(6.86)	(5.27)	(5.29)	(5.31)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	8841	8841	8841	8841	8841	8841
R^2	0.7411	0.7411	0.7412	0.4276	0.4278	0.4279

directors' greater reputation concerns and resource advantages. The results suggest that directorships in Metro firms are perceived more important and valuable than those in Rural firms and busy directors seem to invest more time and energy in Metro firms as reflected in the positive link between Metro firm busy directors and firm performance we document in this paper. However, we do not find clear evidence that SOX significantly improves the effectiveness of independent directors since the positive relation between busy independent directors and performance becomes stronger only in the post-financial crisis years, not in the years immediately after the passage of SOX. The possible explanation might be that it takes time to realize the positive effect of SOX on corporate governance, or it might be that SOX does not achieve its intended effects. The improvement on the effectiveness of busy independent directors after 2008 might be the results of the increased scrutiny from various stakeholders after the financial crisis.

In addition, we find Metro firm busy directors are associated with more favorable financial policies, including lower effective tax rate, more efficient use of assets, lower earnings management, and the better ability to afford debt, which help explain the better performance in Metro firms with busy directors. Undoubtedly, Metro firm busy directors' more favorable policies may not be limited to the above mentioned. Future studies may further explore other financial policies implemented by Metro firm busy directors. We conclude the impact of busy directors on performance is contingent upon the geographic locations of host firms and proximate to large or relatively large cities enhances board effectiveness.

Appendix A

See Appendix Table A.

Appendix Table A
Variable descriptions and data sources. This table describes the construction of the variables and the data sources.

Variable Name	Definition and Data Source
Geographic variables	
Metro	An indicator variable that equals one if a firm is headquartered in one of the metropolitan statistics areas of New York City, Los Angeles, Chicago, Washington D.C, San Francisco, Boston, Dallas-Fort Worth, Philadelphia, Houston, or Miami, and zero otherwise Source: COMPUSTAT
Metro1	An indicator variable that equals one if the minimum distance between a company's headquarter and a major airport is below the sample median and zero otherwise (Metro1), where major airports are defined by the Federal Aviation Administration (FAA) in 2010 as large and medium-sized commercial service airport hubs account for at least 0.25% of total passenger boardings, minimum distance between a company's headquarter and a major airport (Min. distance to 60 airports) Source: COMPUSTAT
Busy Director Variables	
Pro.busy dir	The total number of busy directors scaled by total number of directors, where a busy director is defined as one with three or more outside directorships. Source: ISS
Pro.busy ins.dir	The total number of busy inside directors scaled by total number of inside directors, where an inside director is either a firm's employee or someone affiliated with the firm through business or family relations. Source: ISS
Pro.busy ind.dir	The total number of busy independent directors scaled by total number of independent directors, where independent directors are those who have no other relations with the firm but sitting on the board. Source: ISS
Avg.dir.out.directorships	The average number of outside directorships held by all directors. Source: ISS
Avg.ins.dir.out.directorships	The average number of outside directorships held by inside directors Source: ISS
Avg.ind.dir.out.directorships	The average number of outside directorships held by independent directors. Source: ISS
Firm Performance Variables	
Tobin's Q	Total market value of assets (the market value of common equity plus the book value of assets minus the book value of common equity) scaled by the book value of assets (Tobin's Q) Source: COMPUSTAT and CRSP
ROA	The ratio of earnings before interest and taxes to total assets. Source: COMPUSTAT
Firm Policy Variables	
Default risk	Category variable constructed from firms' credit ratings, where firms with higher credit ratings are given lower values, so that firms with no or lower credit ratings have higher scores for default risk Source: COMPUSTAT
Cash_ETR	Three-year average cash effective tax rate, calculated as the cash taxes paid scaled by pre-tax income minuses special items Source: COMPUSTAT
$RM_{AGGREGATE}$	Sum of abnormal production costs and the negative value of abnormal discretionary expenses, where abnormal production cost is the deviations from the predicted values from the following industry-year regression (Abnormal production costs): $\frac{PROD_{it}}{Assets_{i,t-1}} = k_1\frac{1}{Assets_{i,t-1}} + k_2\frac{SALES_{i,t}}{Assets_{i,t-1}} + k_3\frac{\Delta SALES_{i,t}}{Assets_{i,t-1}} + k_4\frac{\Delta SALES_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it},$ And the value of abnormal discretionary expenses is the deviations from the predicted values from the following industry-year regression (Abnormal discretionary expenses): $\frac{DISX_{it}}{Assets_{i,t-1}} = k_1\frac{1}{Assets_{i,t-1}} + k_2\frac{SALES_{i,t}}{Assets_{i,t-1}} + \varepsilon_{it},$ Source: COMPUSTAT
Assets turnover	Sales to total assets Source: COMPUSTAT
Control variables	
Capital expenditure	Capital expenditure scaled by total assets, measured at the fiscal year end Source: COMPUSTAT
R & D expenditure	Research and development expenses scaled by total assets, measured at the fiscal year end Source: COMPUSTAT
Plant, property and equipment	Plant, property and equipment, scaled by total assets. Source: COMPUSTAT

(*continued on next page*)

Appendix Table A (*continued*)

Variable Name	Definition and Data Source
Firm size	The natural logarithm of total assets Source: COMPUSTAT
Leverage	The sum of current and long-term debt scaled by total assets at the fiscal year end Source: COMPUSTAT
Sales growth	Current year's sales minus sales in the previous year divided by sales in the previous year Source: COMPUSTAT
Ln (1 + segments)	The natural logarithm of one plus the number of business segments a firm operates in Source: COMPUSTAT
Ln (1 + firmage)	The natural logarithm of one plus firm age, where firm age is computed as the difference between the observation year and the year the firm was first listed on CRSP Source: CRSP
Analyst	The natural logarithm of one plus the number of analysts following the firm Source: I/B/E/S
Beat	The number of times the actual earnings per share is larger than the mean analysts forecast Source: I/B/E/S
Big 4	An indicator variable with a value of one if the firm's auditor is one of the Big 4, and zero otherwise. Big four accounting firms include Deloitte, PWC, Ernst & Young, and KPMG. Source: I/B/E/S
Auditor_tenure	The natural logarithm of one plus the number of years the auditor has audited the firm Source: I/B/E/S
NOA	Shareholders' equity less cash and marketable securities plus total debt, scaled by total assets for the previous year Source: COMPUSTAT
CF_vol	The standard deviation of cash flows in the past five years, where the cash flow is calculated as the ratio of earnings before interest, taxes, depreciation to total assets Source: COMPUSTAT
For_income	Foreign pre-tax income scaled by lagged total assets Source: COMPUSTAT
Ch_NOL	Change in tax loss carry forward scaled by lagged total assets Source: COMPUSTAT
NOL	An indicator variable equals to one if the tax loss carry forward is large than zero, and zero otherwise Source: COMPUSTAT
For_op	An indicator variable equals one if a firm's foreign pre-tax income is not equal to zero, and zero otherwise Source: COMPUSTAT
Litigation	An indicator variable with a value of one if a firm's SIC code is 2833–2836, 8731–8734, 7371–7379, 3570–3577, 3600–3674, and zero otherwise
Pro. independent director	Proportion of independent directors on the board Source: ISS
Pro. female directors	Proportion of female directors on the board Source: ISS
Ln (board size)	The natural logarithm of the number of directors on the board Source: ISS
CEO-chairman duality	An indicator variable, equals to 1 if the CEO holds the position of the chairman of the board, zero otherwise. Source: ISS
CEO delta	The dollar change in CEO equity portfolio wealth for a 1% change in the stock price. Source:
CEO age	Age of the CEO Data source: EXECUCOMP
Ln (1 + CEO tenure)	The natural logarithm of one plus the number of years the executive has served as the CEO Data source: EXECUCOMP
Institutional ownership	Percentage of institutional ownership Data source: Thomas 13F
Additional Busy director variables	
Busyins. dir tenure	The number of years a busy inside director serving on the board Source: ISS
Busyins. dir age	Age of a busy inside director Source: ISS
Busyind. dir tenure	The number of years of a busy independent director serving on the board Source: ISS
Busyind. dir age	Age of a busy independent director Source: ISS
Busy dir tenure	The Number of years of a busy director serving on the board Source: ISS
Busy dir age	Age of a busy director Source: ISS
Busyins dir. year_infirm	Total number of years busy inside directors stays with a firm Source: ISS
Busyind dir. year_infirm	Total number of years busy independent directors stays with a firm Source: ISS

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Appendix Table A (*continued*)

Variable Name	Definition and Data Source
Busy dir. year_infirm	Total number of years busy directors stays with a firm Source: ISS
Busy ins. dir. tot. metro directorships	Busy inside directors' directorships in Metro S&P 1500 firms. Source: ISS
Busy ins. dir. tot. directorships	Busy inside directors' total directorships in S&P 1500 firms. Source: ISS
Busy ind. dir. tot. metro directorships	Busy independent directors' directorships in Metro S&P 1500 firms. Source: ISS
Busy ind. dir. tot. directorships	Busy independent directors' total directorships in S&P 1500 firms. Source: ISS
Busy dir. tot. metro directorships	Busy directors' directorships in Metro S&P 1500 firms. Source: ISS
Busy dir. tot. directorships	Busy directors' total directorships in S&P 1500 firms. Source: ISS
Busy ins. dir. pro. metro directorships	Busy inside directors' directorships in Metro S&P 1500 firms scaled by total directorships in S&P 1500 firms. Source: ISS
Busy ins. dir. metro. directorship ≥ 1	Indicator variable equals to one if a busy inside director has at least one directorship in Metro S&P 1500 firms, and zero otherwise. Source: ISS
Busy ind. dir. pro. metro directorships	Busy independent directors' directorships in Metro S&P 1500 firms scaled by total directorships in S&P 1500 firms. Source: ISS
Busy ind. dir. metro. directorship ≥ 1	Indicator variable equals to one if a busy independent director has at least one directorship in Metro S&P 1500 firms, and zero otherwise. Source: ISS
Busy dir. pro. metro directorships	Busy directors' directorships in Metro S&P 1500 firms scaled by total directorships in S&P 1500 firms. Source: ISS
Busy dir. metro. directorship ≥ 1	Indicator variable equals to one if a busy director has at least one directorship in Metro S&P 1500 firms, and zero otherwise. Source: ISS

Appendix B

See Appendix Table B.

Appendix Table B

Busy director characteristics, and director busyness and firm performance_ at director level. This table presents the results of univariate tests on the number of years of service of busy directors for Metro vs. Rural firms and the regression results of the relation between director busyness and firm performance at director level. Panel A reports the univariate tests on the number of years of service of busy directors for Metro vs. Rural firms. Panel B reports the regression results. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

Panel A: Univariate tests on the number of years of service of busy directors for Metro vs. Rural firms

	Rural	Metro	Difference	(P-value)
Busyins dir. year_infirm	13.6852	14.2377	−0.5525	0.3511
Busyind dir. year_infirm	9.1792	8.9767	0.2025	0.1396
Busy dir. year_infirm	9.7764	9.6881	0.0883	0.5481

Panel B: regression results

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Metro	−0.0198	−0.0220	−0.0240	−0.0054***	−0.0056***	−0.0058***
	(−1.29)	(−1.44)	(−1.57)	(−3.08)	(−3.23)	(−3.30)
Busy ins.dir	−0.1041			−0.0110		
	(−0.68)			(−0.51)		
Metro*Busy ins.dir	0.1431***			0.0092**		
	(3.01)			(2.08)		
Busy ind.dir		−0.1087			−0.0051	
		(−1.41)			(−0.54)	
Metro*Busy ind.dir		0.0502**			0.0040*	

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Appendix Table B (*continued*)

Panel B: regression results

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
		(2.53)			(1.84)	
Busy dir			−0.0974			−0.0061
			(−1.35)			(−0.70)
Metro*Busy dir			0.0656***			0.0049**
			(3.37)			(2.34)
Busyins. dir tenure	0.0024			0.0005**		
	(1.06)			(2.02)		
Busyins. dir dirage	0.0011			0.0000		
	(0.42)			(0.12)		
Busyind. dir tenure		0.0002			0.0003*	
		(0.16)			(1.88)	
Busyind. dir age		0.0015			0.0000	
		(1.21)			(0.12)	
Busy dir tenure			0.0015			0.0004***
			(1.08)			(2.72)
Busy dir age			0.0011			0.0000
			(1.02)			(0.14)
CEO Delta	0.0758***	0.0758***	0.0759***	0.0018***	0.0018***	0.0018***
	(6.42)	(6.42)	(6.42)	(3.45)	(3.45)	(3.44)
Ln (board size)	0.0366	0.0363	0.0361	0.0017	0.0016	0.0016
	(0.93)	(0.92)	(0.91)	(0.41)	(0.40)	(0.40)
Pro. independent director	0.0936*	0.0903	0.0904	0.0090	0.0090	0.0091
	(1.67)	(1.62)	(1.62)	(1.53)	(1.53)	(1.55)
Firm size	−0.0442***	−0.0443***	−0.0444***	0.0028***	0.0028***	0.0028***
	(−5.33)	(−5.34)	(−5.36)	(3.24)	(3.23)	(3.23)
Capital expenditure	−0.1720	−0.1707	−0.1702	0.0454**	0.0456**	0.0456**
	(−0.81)	(−0.80)	(−0.80)	(2.05)	(2.06)	(2.05)
Plant, property and equipment	0.1082***	0.1082***	0.1079***	0.0033	0.0033	0.0033
	(3.44)	(3.44)	(3.43)	(0.90)	(0.90)	(0.90)
R&D expenditure	1.5879***	1.5886***	1.5898***	−0.3740***	−0.3741***	−0.3739***
	(5.42)	(5.42)	(5.42)	(−8.62)	(−8.62)	(−8.61)
Sale growth	0.1625***	0.1624***	0.1628***	0.0791***	0.0791***	0.0791***
	(3.19)	(3.19)	(3.19)	(13.64)	(13.64)	(13.64)
Ln (1 + firm age)	0.0167	0.0172	0.0167	0.0046***	0.0046***	0.0046***
	(1.49)	(1.54)	(1.50)	(3.55)	(3.56)	(3.52)
Ln (1 + segments)	−0.0206	−0.0207	−0.0208	−0.0031**	−0.0031**	−0.0031**
	(−1.56)	(−1.57)	(−1.57)	(−2.13)	(−2.13)	(-2.13)
Leverage	−0.2731***	−0.2728***	−0.2728***	−0.0520***	−0.0520***	−0.0520***
	(−4.41)	(−4.42)	(−4.42)	(−7.10)	(−7.10)	(−7.10)
Lagged Q	0.7066***	0.7066***	0.7064***			
	(49.29)	(49.31)	(49.32)			
Lagged ROA				0.4930***	0.4930***	0.4929***
				(23.90)	(23.89)	(23.88)
Constant	0.8936***	0.8962***	0.8995***	0.0094	0.0096	0.0096
	(7.99)	(8.03)	(8.07)	(0.77)	(0.78)	(0.79)
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	101,401	101,401	101,401	101,401	101,401	101,401
R^2	0.7097	0.7097	0.7097	0.3969	0.3969	0.3969

Appendix C

See Appendix Table C.

Appendix Table C

Geographic location, busy directors, and firm performance_ use two directorships to define busy directors. This table presents the results of defining busy directors as those with two or more directorships. Panel A presents the variable descriptive. Panel B presents the regression results. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

Panel A. Variable descriptive

	N	Mean	Std. Dev.	P10	P25	Median	P75	P90
Pro.busy ins.dir2	11,537	0.1275	0.2597	0.0000	0.0000	0.0000	0.0000	0.5000
Pro.busy ind.dir2	11,537	0.2510	0.2195	0.0000	0.0000	0.2222	0.4000	0.5556
Pro.busy dir2	11,537	0.2192	0.1870	0.0000	0.0833	0.2000	0.3333	0.5000
Avg. busyins. dir2 tenure	11,537	2.9308	6.7461	0.0000	0.0000	0.0000	0.0000	12.0000
Avg. busyins. dir2 age	11,537	15.0263	26.4220	0.0000	0.0000	0.0000	0.0000	62.0000
Avg. busyind. dir2 tenure	11,537	5.0940	5.0351	0.0000	0.0000	4.5000	8.0000	11.5000
Avg. busyind. dir2 age	11,537	44.8741	28.5037	0.0000	0.0000	60.0000	65.0000	68.0000
Avg. busy dir2 tenure	11,537	5.9282	5.5863	0.0000	0.2917	5.0000	9.0000	13.0000
Avg. busy dir2 age	11,537	47.2459	27.0123	0.0000	46.0000	60.3333	64.7321	68.0000

Panel B. Regression results

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Metro	−0.0298	−0.0771***	−0.0849***	−0.0057***	−0.0076***	−0.0083***
	(−1.64)	(−3.05)	(−3.33)	(−2.84)	(−3.10)	(−3.32)
Pro.busy ins.dir2	−0.0280			−0.0004		
	(−0.78)			(−0.09)		
Metro*Pro.busy ins.dir2	0.0630			0.0019*		
	(1.18)			(1.85)		
Pro.busy ind.dir2		−0.0736			−0.0088	
		(−1.43)			(−1.59)	
Metro*Pro.busy ind.dir2		0.2208***			0.0088*	
		(2.86)			(1.94)	
Pro.busy dir2			−0.0546			−0.0075
			(−0.85)			(−1.11)
Metro*Pro.busy dir2			0.2884***			0.0136*
			(3.35)			(1.83)
Avg. busyins. dir2 tenure	0.0019			0.0005*		
	(0.68)			(1.80)		
Avg. busyins. dir2 age	0.0003			−0.0001		
	(0.43)			(−1.07)		
Avg. busyind. dir2 tenure		−0.0001			0.0003	
		(−0.04)			(1.64)	
Avg. busyind. dir2 age		0.0001			−0.0000	
		(0.36)			(−0.69)	
Avg. busy dir2 tenure			−0.0002			0.0003*
			(−0.11)			(1.83)
Avg. busy dir2 age			0.0001			−0.0001
			(0.18)			(−1.44)
CEO Delta	0.0876***	0.0884***	0.0886***	0.0019***	0.0019***	0.0019***
	(7.78)	(7.80)	(7.82)	(3.56)	(3.60)	(3.57)
Ln (board size)	0.0291	0.0259	0.0276	0.0027	0.0026	0.0030
	(0.70)	(0.63)	(0.67)	(0.63)	(0.60)	(0.70)
Pro. independent director	0.0956	0.0714	0.0615	0.0078	0.0083	0.0091
	(1.56)	(1.20)	(1.03)	(1.27)	(1.37)	(1.48)
Firm size	−0.0470***	−0.0480***	−0.0503***	0.0034***	0.0036***	0.0036***
	(−5.39)	(−5.38)	(−5.53)	(3.66)	(3.75)	(3.63)
Capital expenditure	−0.2139	−0.2194	−0.2215	0.0228	0.0231	0.0225
	(−0.97)	(−0.99)	(−1.00)	(0.97)	(0.98)	(0.95)
Plant, property and equipment	0.0926***	0.0971***	0.0978***	0.0029	0.0031	0.0032
	(2.81)	(2.98)	(3.01)	(0.70)	(0.75)	(0.77)
R&D expenditure	1.5895***	1.6048***	1.5999***	−0.3938***	−0.3928***	−0.3922***
	(5.29)	(5.35)	(5.32)	(−9.01)	(−8.95)	(−8.93)
Sale growth	0.1946***	0.1976***	0.2002***	0.0851***	0.0849***	0.0851***
	(3.87)	(3.94)	(3.99)	(13.62)	(13.53)	(13.54)

(continued on next page)

Appendix Table C (*continued*)

Panel B. Regression results

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Ln (1 + firm age)	0.0142	0.0162	0.0157	0.0044***	0.0044***	0.0043***
	(1.18)	(1.35)	(1.31)	(3.26)	(3.22)	(3.15)
Ln (1 + segments)	−0.0221	−0.0225	−0.0232	−0.0035**	−0.0034**	−0.0034**
	(−1.56)	(−1.59)	(−1.64)	(−2.28)	(−2.20)	(−2.24)
Leverage	−0.2922***	−0.2885***	−0.2903***	−0.0560***	−0.0559***	−0.0558***
	(−4.27)	(−4.23)	(−4.25)	(−7.12)	(−7.06)	(−7.07)
Lagged Q	0.6928***	0.6920***	0.6915***			
	(45.73)	(46.00)	(45.98)			
Lagged ROA				0.4966***	0.4963***	0.4959***
				(22.77)	(22.75)	(22.74)
Constant	0.9771***	1.0143***	1.0349***	0.0060	0.0052	0.0047
	(8.81)	(8.99)	(9.19)	(0.44)	(0.37)	(0.33)
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	11,537	11,537	11,537	11,537	11,537	11,537
R^2	0.6999	0.7001	0.7003	0.4118	0.4119	0.4120

Appendix D

See Appendix Table D.

Appendix Table D

Geographic location, busy directors, and firm performance_ use four directorships to define busy directors. This table presents the results of defining busy directors as those with four or more directorships. Panel A presents the variable descriptive. Panel B presents the regression results. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

Panel A. Variable descriptive

	N	Mean	Std. Dev.	P10	P25	Median	P75	P90
Pro.busy ins.dir2	11,537	0.0121	0.0711	0.0000	0.0000	0.0000	0.0000	0.0000
Pro.busy ind.dir2	11,537	0.0389	0.0852	0.0000	0.0000	0.0000	0.0000	0.1667
Pro.busy dir2	11,537	0.0321	0.0659	0.0000	0.0000	0.0000	0.0000	0.1250
Avg. busyins. dir2 tenure	11,537	0.4621	3.0901	0.0000	0.0000	0.0000	0.0000	0.0000
Avg. busyins. dir2 age	11,537	2.2299	11.6922	0.0000	0.0000	0.0000	0.0000	0.0000
Avg. busyind. dir2 tenure	11,537	1.6427	4.1304	0.0000	0.0000	0.0000	0.0000	7.0000
Avg. busyind. dir2 age	11,537	13.6777	26.2685	0.0000	0.0000	0.0000	0.0000	65.0000
Avg. busy dir2 tenure	11,537	1.9334	4.7123	0.0000	0.0000	0.0000	0.0000	8.0000
Avg. busy dir2 age	11,537	14.9421	27.0710	0.0000	0.0000	0.0000	0.0000	65.0000

Panel B. Regression results

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Metro	−0.0268*	−0.0266	−0.0336*	−0.0053***	−0.0059***	−0.0060***
	(−1.65)	(−1.53)	(−1.92)	(−2.85)	(−3.16)	(−3.17)
Pro.busy ins.dir4	−0.8658***			−0.0162		
	(−3.49)			(−0.56)		
Metro*Pro.busy ins.dir4	0.4521**			0.0208		
	(2.34)			(0.91)		
Pro.busy ind.dir4		−0.1784			−0.0161	
		(−1.05)			(−0.89)	
Metro*Pro.busy ind.dir4		0.1309*			0.0221*	
		(1.70)			(1.86)	
Pro.busy dir4			−0.1817			−0.0025
			(−0.86)			(−0.10)
Metro*Pro.busy dir4			0.3743*			0.0295**
			(1.73)			(2.30)
Avg. busyins. dir tenure	−0.0007			0.0008***		
	(−0.18)			(2.58)		

(*continued on next page*)

Appendix Table D (*continued*)

Panel B. Regression results						
	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable = Tobin's Q			Dependent variable = ROA		
Avg. busyins. dirage	0.0045***			−0.0001		
	(2.71)			(−0.65)		
Avg. busyind. dir tenure		0.0010			0.0006**	
		(0.34)			(2.24)	
Avg. busyind. dir age		0.0001			−0.0000	
		(0.20)			(−0.60)	
Avg. busy dir tenure			−0.0003			0.0006***
			(−0.14)			(2.75)
Avg. busy dir age			0.0001			−0.0001
			(0.11)			(−1.47)
CEO Delta	0.0871***	0.0868***	0.0870***	0.0019***	0.0019***	0.0019***
	(7.81)	(7.84)	(7.87)	(3.66)	(3.59)	(3.60)
Ln (board size)	0.0285	0.0352	0.0375	0.0025	0.0019	0.0025
	(0.69)	(0.86)	(0.91)	(0.59)	(0.44)	(0.60)
Pro. independent director	0.1116*	0.0830	0.0853	0.0071	0.0066	0.0074
	(1.86)	(1.41)	(1.47)	(1.14)	(1.09)	(1.22)
Firm size	−0.0454***	−0.0441***	−0.0448***	0.0032***	0.0032***	0.0032***
	(−5.38)	(−5.17)	(−5.20)	(3.50)	(3.44)	(3.40)
Capital expenditure	−0.2097	−0.2109	−0.2047	0.0239	0.0255	0.0252
	(−0.96)	(−0.97)	(−0.94)	(1.02)	(1.09)	(1.08)
Plant, property and equipment	0.0887***	0.0901***	0.0897***	0.0030	0.0030	0.0029
	(2.74)	(2.78)	(2.78)	(0.72)	(0.74)	(0.71)
R&D expenditure	1.6935***	1.6870***	1.6897***	−0.3863***	−0.3879***	−0.3875***
	(5.68)	(5.65)	(5.65)	(−8.92)	(−8.95)	(−8.94)
Sale growth	0.1960***	0.1967***	0.1970***	0.0842***	0.0843***	0.0843***
	(3.98)	(3.99)	(4.00)	(13.36)	(13.38)	(13.39)
Ln (1 + firm age)	0.0161	0.0158	0.0166	0.0049***	0.0048***	0.0047***
	(1.38)	(1.35)	(1.42)	(3.62)	(3.54)	(3.47)
Ln (1 + segments)	−0.0229*	−0.0220	−0.0223	−0.0037**	−0.0037**	−0.0037**
	(−1.65)	(−1.59)	(−1.61)	(−2.47)	(−2.42)	(−2.43)
Leverage	−0.2946***	−0.2987***	−0.2987***	−0.0550***	−0.0553***	−0.0553***
	(−4.42)	(−4.49)	(−4.49)	(−7.10)	(−7.14)	(−7.13)
Lagged Q	0.6963***	0.6968***	0.6963***			
	(47.03)	(47.11)	(47.11)			
Lagged ROA				0.4960***	0.4963***	0.4962***
				(23.21)	(23.21)	(23.20)
Constant	0.9353***	0.9367***	0.9356***	0.0068	0.0086	0.0073
	(8.51)	(8.47)	(8.45)	(0.51)	(0.63)	(0.54)
Industry and year effects	Yes	Yes	Yes	Yes	Yes	Yes
N	11,537	11,537	11,537	11,537	11,537	11,537
R^2	0.7035	0.7031	0.7031	0.4068	0.4068	0.4069

Appendix E

See Appendix Table E.

Appendix Table E

Heckman selection model first stage. This table presents the results of the logit regression employed in the first stage of Heckman selection model to control sample selection bias. The dependent variable in model (1)/(2)/(3) is an indicator variables equal to one if an inside director/an independent directors/a director holds three or more directorships, zero otherwise. Industry is defined per Fama and French (1997) 49 industry classifications. Heteroscedasticity robust t-statistics clustered at the firm level are reported in parentheses. All variables are defined in Appendix Table A. Superscripts ***, **, and * indicate the levels of significance at the 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
	Dependent variable		
	Busy ins. dir.	Busy ind. dir.	Busy dir.
HHI	−0.0100	−0.0506	−0.0492
	(−0.07)	(−0.69)	(−0.74)

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Appendix Table E (*continued*)

	(1)	(2)	(3)
	Dependent variable		
	Busy ins. dir.	Busy ind. dir.	Busy dir.
Firm size	0.3640***	0.2882***	0.3074***
	(13.70)	(26.57)	(30.02)
Capital expenditure	−0.0054	−0.7926**	−0.7183**
	(−0.01)	(−2.03)	(−1.97)
Plant, property and equipment	0.1128	0.2865***	0.2717***
	(0.84)	(5.33)	(5.37)
R&D expenditure	2.3185***	2.5604***	2.5850***
	(2.61)	(7.18)	(7.72)
Sale growth	−0.2566*	−0.2111***	−0.2249***
	(−1.80)	(−3.44)	(−3.93)
ROA	0.1040	−0.2746*	−0.2325
	(0.27)	(−1.81)	(−1.62)
Leverage	−0.0999	0.4796***	0.3993***
	(−0.49)	(6.01)	(5.28)
CEO Delta	−0.0067	−0.0112	−0.0090
	(−0.42)	(−1.52)	(−1.32)
CEO Vega	−0.0214	0.0321***	0.0250***
	(−0.93)	(3.65)	(3.01)
CEO age	0.0181***	−0.0026	0.0004
	(3.88)	(−1.35)	(0.23)
CEO tenure	−0.0112**	−0.0178***	−0.0173***
	(−2.32)	(−8.23)	(−8.63)
Constant	−8.7419***	−5.3075***	−5.3361***
	(−19.33)	(−24.86)	(−27.81)
Industry and year effects	Yes	Yes	Yes
N	97,790	97,790	97,790
R^2	0.0851	0.099	0.0848

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