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DOES HAVING AN URBAN-CONNECTED CEO SERVE ON A RURAL FIRM'S

BOARD MATTER FOR FIRM PERFORMANCE?

By

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A DISSERTATION

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ABSTRACT

Business firms experience significant advantages in large urban areas from access to large pools of executive talent to information flow through formal and informal networks. Firms located away from these urban areas therefore must seek channels through which they can access these and other resources. One potential area of competitive advantage identified is the appointment of outside Chief Executive Officers (CEOs) to the board of directors. Using three different measures of firm financial performance, I find that these CEO-directors are positively related to increased performance among rural firms and this relationship is even stronger when the CEO-director is from an urban area. Implications for researchers and practitioners are discussed.

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All mistakes, errors, and omissions are my own.

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1. INTRODUCTION

In the first quarter of 2020, profits of domestic United States companies decreased $262.8 billion compared to estimates, partially due to widespread stay-at-home orders and reduced personal spending in response to the coronavirus disease (COVID-19) epidemic (Bureau of Economic Analysis, 2020). Unexpected, external shocks to a firm's profitability highlight the benefit for firms to pursue all reasonable areas of competitive advantage. This dissertation investigates one of those potential sources for rural firms, appointing to their boards directors who simultaneously serve as chief executive officers (CEOs) of outside firms.

1.1 Dissertation Overview

A recent stream of research in the corporate finance literature has suggested that geographic location is important to firm performance (Rosenthal & Strange, 2004). That is, firms in large urban areas are more productive than firms in rural areas. Loughran and Schultz (2005) were among the first to identify a link between urban firms (i.e., those located in the largest United States cities by population) and firm liquidity by increasing their ability to attract investors to reduce trading costs. Using a different proxy to measure large cities, Baran and Wilson (2018) show that director connections to cities with high numbers of firms mitigate the effect of distance to those cities, adding compelling evidence to an urban-success bias. Smith (1776) suggests there is significant information 'spillover' between firms and even industries which is more important than proximity to physical resources. The proliferation of internet-based knowledge and markets has, to some extent, extended this spillover outside of the urban centers (Bertschek et al., 2013).

However, even with such internet-enabled spillover, evidence still suggests that firms located outside of the largest urban areas (rural firms) are still at a competitive disadvantage compared to their urban-based peers. The existing literature has proposed that environmental social capital (Huang & Shang, 2019), urban geography (Alam et al., 2014), and local talent pools (Knyazeva et al., 2013) are potential sources of these disadvantages. Regardless of the reasons for the disadvantages, rural firms headquartered outside of the largest U.S. cities must seek avenues to increase their competitiveness.

As noted above, Knyazeva et al. (2013) offer that urban firms have greater access to large pools of director talent than rural firms. This is a potential source of competitive advantage for urban firms because directors can provide advising and monitoring services to the firm (e.g., Withers et al., 2012). The mechanisms through which they provide value are monitoring the management on behalf of shareholders (Kim et al., 2014), providing key knowledge (Pfeffer & Salancik, 1978), and reducing agency costs (Singh & Davidson, 2003).

Urban firms benefit from a phenomenon known as agglomeration economies – external economies of scale where all firms in an area benefit from factors such as access to transportation hubs (Duranton & Puga, 2004). Although firms headquartered in rural areas do not reap the benefits of agglomeration economies, there are potential channels through which rural firms can experience some of the benefits afforded to urban firms. One such channel is through their boards of directors. Researchers have shown that firms located outside the largest U.S. cities can access some of the information and visibility benefits by appointing directors from those largest cities (Alam et al., 2014; Baran & Wilson, 2018). This dissertation seeks to expand upon existing literature by considering which types of directors matter most for rural firms. However, rural firms still face geographic challenges even when they appoint high quality directors to their boards. Challenges the literature has identified are mostly related to the depth of business talent and resources in large urban areas. Even in the internet age, information asymmetry remains a significant hurdle for rural firms to overcome.

A second related stream of research provides strong evidence that CEOs provide more value as directors than other non-CEO directors. Fich (2005) shows that active CEOs bring to their appointed boards ideas for change that have been successful at their own firms. He further suggests that directors currently serving as CEOs in outside firms (henceforth "CEO-directors") are more sucessful at implementing change because the focal firm's CEO may defer to the CEO-director's expertise and experience, especially if the CEO-director is from a larger or more successful firm. Fahlenbrach et al. (2010) also suggest that outside CEO-directors provide value to the firm through their ability to advise management in a way that executives of other ranks cannot replicate. Futhermore, shareholders and external stakeholders may view the board appointment of an outside CEO as certification that the firm is well-managed, performing well, or has high growth potential. Given this, CEO-directors could provide other intangible value to the firm over and beyond their monitoring and advising abilities (Fahlenbrach et al., 2010).

Even though the literature supports the value of outside CEOs as directors, most publicly-traded firms actually do not appoint such directors (Fahlenbrach et al., 2010). This is somewhat surprising given Fich's (2005) findings and a 2015 survey in which 65% of Fortune 500 firms indicate they actively recruit CEO-directors (Spencer Stuart, 2015). As CEOs are reputation-conscious (Fahlenbrach et al., 2010), the roughly 60% of

S&P 1500 firms located outside major metropolitan areas, or are smaller than the median S&P 1500 firm size (Ansar, 2013; Knyazeva et al., 2013; Ono, 2016) may not be able to offer the prestige necessary to attract CEO-director talent. These reputation and visibility barriers, combined with the time and travel requirements associated with attending board meetings held away from large cities, exacerbates the issue of smaller elite executive talent pools for rural firms compared to their urban peers (Knyazeva et al., 2013).

These findings raise important questions about CEO-directors. If CEO-directors positively affect outcomes in the appointing firm, and urban areas offer both better visibility to the CEO-director (Faleye et al., 2018) and a deeper director talent pool to the firm (Knyazeva et al., 2013), then it is possible that the effect of CEO-directors is even more important for rural firms. This disseration seeks to answer that question. Formally, my first research question is:

RQ1: *Does the appointment of CEO-directors improve firm outcomes in rural firms?*

The Network Theory of Social Capital (Coleman, 1988; Lin, 2008) asserts that an individual can serve as a connecting node between distal portions of his/her network. For example, if a firm appoints a CEO-director, then the firm could connect into the CEO-director's network. The ability to serve as a conduit to expand the firm's pool of experts would allow the firm to reap the benefits of that CEO-director's business and personal relationships regardless of their other business ties (Pfeffer & Salancik, 1978). A recent study by Baran and Wilson (2018) found that board connections to top metropolitan statistical areas (MSAs) help mitigate the negative effect of increased distance from business-dense areas on the connected firms' Tobin's Q. Their work reinforces other studies which have shown a relationship between rural firms' ties to large urban areas and returns on assets (ROA) (Alam et al., 2014) and market values (Omer et al., 2014). These studies show that directors with network ties to the 10 largest MSAs in the United States who serve on the boards of rural firms positively impact those firms' measures of financial performance. Given the foregoing studies on urban directors' importance for rural firms and the literature on CEO-directors offering unique skills and abilities compared to non-CEO directors, it is important for rural firms to know if CEO-directors from large urban areas are even more impactful than non-CEO directors. This leads to my second research question:

> ***RQ2**: Do urban-based CEO-directors provide a stronger impact on the financial performance of rural firms than rural-based CEO-directors?*

1.2 Main Findings

The results from this dissertation are that CEO-directors positively and significantly impact the financial performance of rural firms when that performance is measured by return on assets (ROA). The improvement is substantial among firms headquartered outside of the 25 and 50 largest U.S. cities ("Rural 25" and "Rural 50", respectively), but the evidence does not support the importance of CEO-directors to all firms headquartered outside of the 10 largest cities ("Rural 10"). As an example, when a Rural 50 firm appoints a CEO-director, the associated ROA increase is as much as 2.1% per annum. These hold whether CEO-directors are measured as a binary indicator of their presence (absence) or as a proportion of the total board which consists of CEO-directors.

I also find that, among rural firms that appoint a CEO-director, those CEO-directors with ties to the 25 largest cities are most impactful. Through a series of tests on a subsample, the results strongly support the theoretical prediction that CEO-directors can act as a resource channel that rural firms can use to access urban agglomeration benefits. This increased benefit is robust to tests designed to minimize endogeneity concerns.

1.3 Contributions to the Literature

This dissertation provides two contributions to the corporate governance literature. First, it expands on previous work showing that CEO-directors are demonstrably superior to other non-CEO directors for influencing firm outcomes. Those studies show a positive relationship between CEO-directors and firm performance (e.g., Fich, 2005; Fahlenbrach et al., 2010), but they do not investigate how these impacts vary by firm location. This dissertation will seek to fill that knowledge gap.

The second contribution this study provides is the refinement of previous work on rural firms' performance and their directors' networks (e.g., Baran & Wilson, 2018). Those researchers suggest that firms headquartered outside the largest U.S. cities can improve financial outcomes by appointing directors with network ties to those largest cities. However, they do not consider potential effect differences related to the appointed director's executive rank. This dissertation expands on this knowledge by testing the difference in rural firms' CEO-directors who are connected to urban areas compared to those CEO-directors who are not connected to urban areas.

1.4 Dissertation Organization

The remainder of this dissertation is organized as follows: in Section 2, I will review the literature on director networks, firm geography, and shareholder return metrics, identify gaps in these literatures, and present testable hypotheses. In Section 3, I describe the data sources and the methodology used to test these hypotheses. Section 4 presents the results of the main tests along with the results of robustness tests. Section 5 concludes with known limitations and areas for future research.

2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

This dissertation is grounded in theories that intersect to examine how geography and firm directors influence firm performance. I will review relevant literature on firm geography, CEO-directors, and director networks.

2.1 Geographic Location

The literature presented in this section discusses how geography in general, and urban areas in specific, affect firm performance, efficiency, and growth. The relevance of geography (i.e., firms in rural areas) to firm performance is supported by the Resource Dependency Theory which states that a firm must engage in transactions with other actors and firms in its environment in order to acquire resources (Pfeffer & Salancik, 1978). As rural firms have fewer actors in their immediate environment than urban firms, they are more dependent upon access to farther away urban resources and may need to find alternative methods, such as individual networks, to overcome physical distance to key information resources (Rowley, 1997; Rowley, 2017).

Recent economic growth in the U.S. has been expansive but not uniform across urban and rural areas (Council of Economic Advisers, 2019; Muro & Whiton, 2018). Scholars have documented the inequalities between metropolitan centers and rural areas in aspects of economic growth, development, and connectivity (Chauvin et al., 2017; Cho et al., 2019; Salemink et al., 2017). Large city advantages are well-documented across industries and may be due to factors such as clustering, competition, proximity of resources, and knowledge spillovers (Lee, 2018; Muro & Whiton, 2018; Sunny & Shu, 2019). As such, scholars have emphasized the importance of investigating the development and growth of businesses in a geographical context (Backman & Loof, 2015; Rice et al., 2017).

The geographic location of firms is important to their success. A significant stream of research has developed around the performance of firms within large urban areas beyond geographical proximity to suppliers, markets, or transportation networks. As it relates to firm directors, the most obvious firm benefit of being located in a large business center is the availability of local director talent, but other director-related benefits also exist.

Goldstein and Gronberg (1984) offer the theory of agglomeration economics to explain the source of these benefits to firms located in urban areas. This theory posits that firms benefit from being located near other firms even though these potential resources are external to the organization. Since these authors provide a research framework within which to test the urban-importance ideas of Smith (1776) and Marshall (1920), great work has been done to understand the machinations of urban economics. Some studies have shown that firms located in the largest metropolitan areas are up to 14.4% more productive regardless of sector (Combes et al., 2012).

Geographically proximal firms show many similarities, including how they finance themselves, even after controlling for state laws and local credit markets (Gao et al., 2011). Almazan et al. (2010, p.530) define groups of peer firms located close to one another as "industry clusters" and find that firms within such clusters tend to make more acquisitions and have lower debt ratios and larger cash balances than peer firms not in cluster cities. The effect of having many nearby firms even extends beyond industry and firm metrics. CEO pay level at the executive's home firm is positively linked to the performance of other firms in the same city (Francis et al., 2016), and firms in growing cities enjoy more financial slack including unused debt capacity and unused cash on hand (Almazan et al., 2010).

Rural firms also face higher costs of debt, possibly due to a lower number of prestigious underwriting and lending banks (Arena & Dewally, 2012). Indeed, rural firms' bond yields are on average nine basis points higher than urban firms (Arena & Dewally, 2012). This, in turn, causes rural firms to pre-commit to higher dividends than urban firms due to information asymmetry (John et al., 2011). Rural firms are 20% more likely to have a combination of dividends and debt than urban firms (John et al., 2011). The financial impacts of rural headquarters are, however, not limited to capital structure. Small and rural firms rely more on local suppliers which increases supplier search costs and leads to less efficient production (Bernard et al., 2019).

Beyond just proximity to physical resources, rural firms that are geographically isolated are at an information disadvantage, as well. Indeed, knowledge has been shown to “spill-over” not just between firms in the same industry, as one might expect, but even across industries (Glaeser et al., 1992). The important difference here is that technical information is singular, concrete, and easily usurped by newer technical information. Knowledge, as it relates to cross-firm spill-over, is vague and multi-leveled, and thus not easily transferred. Stated differently, explicit knowledge is ‘tangible’ and can be codified; implicit knowledge – the type that leads to sustained competitive advantages – is highly subjective and requires human resource talent to analyze and implement (O'Hagan & Green, 2002). This makes physical nearness important as firm executives, including potential directors, can glean the information from other directors and carry that knowledge with them to new firms.

Though the benefits of being headquartered in large cities have been well established, obviously not all firms are located in those cities. Since 1990, medium-sized, fast-growing cities (i.e., those not in the top 10 by population) have seen the largest proportional increase in the number of firms headquartered in their city (Kiler, 2006; Ono, 2016). Two of the suggested reasons are the need for managers to be near their firms’ production areas and the burden of operating separate headquarters locations. It is very costly for manufacturing and production firms to set up their headquarters away from their production facilities and many choose not to do so when possible (Henderson & Ono, 2008).

Some firms choose to have headquarters outside of the major US cities for reasons related to cost or firm management (Ono, 2016). For such firms, Alam et al.

(2014) show that geographic distance between directors and firm headquarters is related to directors' ability to gather firm information for decision making. When the percentage of directors living away from the firm (in this study this was defined as more than 60 miles driving distance) is higher, disciplinary CEO turnover is more sensitive to stock performance indicating that directors use external information more than internal information (Alam et al., 2014). This is especially true for firms that have a higher percentage of intangible assets, indicating directors' need for 'soft' over 'hard' performance information (Alam et al., 2014).

An alternative hypothesis to agglomeration economics is that firms in large urban areas simply survive better than firms outside these cities. Operating in tough competition markets could lead to the failure of weaker firms regardless of their ability to acquire intra-industry information. Combes et al. (2012) offer some evidence that this might be true for media and apparel companies, but their results were not significant for other sectors. Further, Ono (2016) find strong evidence that older and more successful non-financial firms, including large privately-held companies, have been exiting the largest cities since 2000.

2.2 Director Connections

The following literature review focuses on boards of directors, the roles they play in firm performance, and how information can flow through their networks.

2.2.1 Directors and Firm Characteristics

Directors perform important monitoring and advisory functions, and firms may recruit directors for reasons other than financial performance. Simultaneously, executives may accept – or even pursue – outside directorships for their own reasons outside of firm performance. Subramanyam et al. (1997) argue that banks often hire directors for their ability to interact with regulators rather than for their expertise. More recently, Menozzi et al. (2012) suggest that regulated utilities select directors who have significant political ties or who are skilled in public relations.

Other studies have found clear influences of agglomeration economies on director networks. Haunschild (1993) provides evidence that business innovations, outside of technology evolution, can be traced through board interlocks. Critical to firm longevity, directors may also learn from each other's successes and avoid repeating mistakes (Mol, 2001). Further, appointments of prestigious executives, or executives from prestigious firms, may be viewed as an endorsement of the firm and its potential (Pollock et al., 2010). This is especially true of external CEOs, who are considered the most prestigious of the executive ranks (Fahlenbrach et al, 2010; Fich, 2005; Pollock et al., 2010), and recruitment of CEOs to a firm's board makes it easier for them to recruit other directors (Acharya & Pollock, 2013).

Ties to important firms and important executives are especially relevant for knowledge transfer because status increases a director's ability to influence others and diffuse knowledge (Oehmichen et al., 2017a). For firms not easily monitored by analysts and institutional investors, these connections and influences play a key role as stronger institutional control reduces the need for strict board monitoring (Oehmichen et al., 2017b). The ability to tap into a director's network adds another benefit to the appointing firm: firm managers often nominate directors with similar backgrounds even though diverse backgrounds potentially improve major decision outcomes (Zhu & Westphal, 2014).

2.2.2 Director Networks

Although the issue is not settled, some research into the effects of professional networks has shown that professional ties between board members and the firm CEO increase firm performance (see Hwang & Kim, 2009 for alternative evidence). Larcker et al. (2013) provide evidence that firms with professionally well-connected boards earn substantially higher excess returns. In their study, the firms in the top quintile of board-connectedness, measured using network analysis, earned 4.68% higher excess returns than firms in the bottom quintile. These firms with well-connected boards were also more likely to beat consensus earnings forecasts and have better abnormal returns following announcements of earnings misses. The model for this is offered by Cohen et al. (2010) who describe a framework through which business network ties funnel accurate information to analysts. Overall, the results of professional board connections are consistent with Pfeffer and Salancik's (1978) theory that board members are a channel through which organizations can access external resources.

Omer et al. (2014) provide even more refined evidence of the link between director networks and firm performance. They find that well-connected directors, that is, directors with connections to powerful executives and firms, are linked to higher market value of equity and Tobin's Q in their board firms. Providing support for this dissertation, research identifies the information transfer value of outside (independent) directors as higher than that of inside directors (Omer et al., 2014; Tuschke et al., 2014).

Alternatively, Hwang and Kim (2009) argue that social connections lead to higher CEO compensation, lower pay-performance sensitivity, and lower turnover-performance sensitivity. And while business improvements information can flow through director networks, Akbas et al. (2016) show that negative news can also travel through director networks to analysts and traders potentially harming their firms. This bad news flow extends to business practices as well, as earnings management may spread from firms who manage their earnings to those who do not through director networks (Chiu et al., 2013) and earnings quality is lower when directors are more central to their networks (Godigbe et al, 2018).

2.3 CEO-Directors

This section reviews literature on how CEOs influence firm value, their general and job-specific human capital, and how those traits affect their value as firm directors. Social network theory (Coleman, 1988) suggests that the network of connections that a firm maintains can provide information advantages and facilitate network information diffusion (Jiafu et al., 2018). Further, Rowley (1997, 2017) finds that organizational success is influenced not just by networks within the organization but also by networks between firms and their stakeholders. While directors can provide firms with access to external networks, the literature reviewed below considers the special case of CEO-directors. As rural firms are geographically, and sometimes temporally, separated from urban information nodes, the additional power and prestige offered by CEO-directors may be even more important to rural firms than to urban firms.

2.3.1 Innovation and Outcomes

Fama & Jensen (1983) open an important conversation in the literature regarding the separation of ownership and control of a firm. One key point they present is that outside directors "are often decision agents in other complex organizations" (Fama & Jensen, 1983, p.313). Fich (2005) expanded on this when he launched an important stream of research showing that CEO-directors positively affect the firms on whose boards they serve. Following him, many subsequent studies have sought to identify how CEO-directors affect the firms on whose boards they serve. The literature has identified numerous ways in which CEO-directors provide unique information and guidance not available from directors of other executive ranks.

In order to understand how CEO-directors impact their directorships, it is helpful to first understand how CEOs create value in general. As a function of corporate strategy, innovation is one of the areas in which managerial discretion is most impactful. Consistent with Becker (1962), managers are often experts in either management human capital or firm/industry-specific human capital. Firms who hire CEOs with lifetime work experience that indicates they own general management human capital produce more patents (Custódio et al., 2019). This suggests that the skills and influence of CEOs is highly portable and repeatable regardless of the employing firm's research and development (R&D) intensity.

Custódio et al. (2019) continue by arguing that CEOs can gather developments and lessons learned in other domains and add them to their firm's expertise. These findings are in line with findings that CEO-directors can influence innovation through other channels, as well. Outside directors from innovative companies increase innovation, as measured by patents awarded (Balsmeier et al., 2014), and this is true of CEOs, as well (Kang et al., 2018). Kang et al. (2018) find that the economic magnitude of R&D and patents is highest when the CEO-director's home firm performance is strong, supporting the general human capital position above. Further, Cucculelli (2018) adds that CEOs positively influence firm innovation regardless of the firm's age. This ability to drive innovation is important for rural firms as these firms are less innovative, in both products and processes, than urban firms (Duranton & Puga, 2001). Rural firms may be able to improve their own innovation outcomes by appointing a CEO-director who can bring his/her expertise to the board.

2.3.2 External Stakeholders

Another area in which CEOs provide unique value to their firms is by developing trust and relationships with stakeholders, which is important because early research indicates directors play an important role in external stakeholder interactions during crises (Huse, 1998). One of the most obvious relationships is with customers. CEOs can drive sales growth, and even product success, by developing customer relationships through their career learning and their effect on organizational learning (Luo et al., 2014). Phua et al. (2018) assert that this ability to influence external stakeholders is due to the CEO's leadership and confidence. They find that CEOs who are high in confidence can secure greater commitment and negotiation terms with suppliers. They attribute these results to the suppliers' belief in the CEO's strategy and the firm's potential.

It is not only customers and supply chain partners who are affected by CEO leadership. Bondholders, credit rating agencies, other directors, and peer CEOs also react favorably to CEO effects. Firm credit ratings, for example, are higher and bond yields are lower for firms in which the CEOs are more open (Liu & Jiraporn, 2010). Critical to this study, CEO-directors positively increase the intrinsic, non-financial motivation of other directors, decreasing their likelihood of leaving voluntarily (Boivie et al., 2010), and their presence improves a firm's chances at recruiting other CEO-directors in the future (Fahlenbrach et al., 2010). A CEO's ability to build relationships and trust with stakeholders outside the business is an important benefit they may bring to rural firms as CEO-directors. For rural firms, the CEO-director's ability to connect the firm to analysts, rating agencies, institutional investors, and supply chain partners through the CEO-director's innate visibility may help mitigate the negative effects of the rural headquarters.

2.3.3 CEO-Director Power and Influence

By applying their management and firm/industry-specific expertise described above, CEO-directors can propose firm strategy alternatives to their board rather than simply approving or disapproving the firm managers' own proposals, especially when the CEO works in a similar industry (Faleye et al., 2018).

Where does this CEO power originate from? Several authors have provided key evidence that CEO power comes from a combination of expertise and prestige. Put simply, CEOs are perceived as experts both within their organizations and throughout the business world (Custódio et al., 2013; Men, 2012; Tabesh et al., 2019; Wai, 2014). More broadly, CEOs are not only experts in general human capital, but they are also higher in general cognitive ability, on average, than other business executive ranks (Wai, 2014). Moreover, in a study of Australian firms, Hutchison (2014) found that general human capital was more important for CEOs than firm-specific knowledge.

McDonald et al. (2008) describe how experts are able to leverage their general knowledge and specific conceptual frameworks in decision making. They present experts as able to apply both abstract knowledge (representing key causal relationships) and analytical reasoning (based on specific prior experiences) to quickly identify best solutions. Further, these authors argue that experts are capable of managing information overload in complex situations, a key personality trait for business CEOs.

However, no amount of director foresight matters if the firm managers do not trust the board's decisions. Here, CEO-directors provide unique value not derived from directors of other executive ranks. Due to their responsibility for formulating and implementing strategy in their home firms, CEOs are perceived as having more expertise (Tuschke et al., 2014). This expertise allows them to recognize sooner than other board members – and build decision consensus – when the firm CEO lacks ability (Fahlenbrach et al., 2011).

It is in this monitoring and control of firm managers that CEO-directors truly surpass non-CEO directors. Dominant firm CEOs are associated with declining firm value, as measured by Tobin's Q, and lower accounting profits (Bebchuk et al., 2011). CEOs also pursue more risk-reducing projects to sub-optimal levels for shareholders when they are dominant over their boards (Pathan, 2009). Exacerbating this power differential, directors often rely on the firm CEO for information, so they may have trouble discerning legitimate from non-legitimate reasons for poor performance (Kor & Sundaramurthy, 2009). CEO-directors, however, are more attuned to CEO-based information (Kor & Sundaramurthy, 2009) and can serve as a power balance against dominant CEOs (Oehmichen et al., 2017a). To this end, Fahlenbrach et al. (2011) show that CEO turnover is more sensitive to poor performance when a CEO (or former CEO) is on the board.

2.3.4 CEO-Director Unique Capabilities

Although some studies suggest that directors focus their attention on either the advising or the monitoring roles of boards, Kim et al. (2014) provide evidence that directors with significant human capital can alternate between roles as needed. This role duality is unique to CEO-directors for the expertise noted above and because CEO-directors earn the trust of firm CEOs more easily (Zhang, 2013). This enables the CEO-director to serve as a trust bridge between the managers and the board even when the board takes a strong monitoring stance (Zhang, 2013). In building trust, CEO-directors can pivot to the advising role and help the firm managers overcome risk aversion even after considering the influence of other executive ranks on the focal board (Kang et al., 2018). By serving both advisor and monitor roles, CEO-directors can be considered uniquely independent directors due to their ability to perform both roles in ways executives of lower ranks cannot (Fahlenbrach et al., 2010).

Outside of CEO-directors, boards in general help develop goodwill and connections with industry players including suppliers, distributors, and major customers (Kor & Sundaramurthy, 2009). These director connections, developed from within each director’s primary network and expertise, are generally output oriented (e.g., marketing, sales), throughput oriented (e.g., production, accounting), or information operations oriented (Oehmichen et al., 2017a). Some researchers believe that a board with directors of diverse professional backgrounds potentially improves major decision outcomes (e.g., Zhu & Westphal, 2014). Unfortunately, heterogeneous teams tend to make major decisions more slowly which can impede a board's ability to take strategic action. CEO-directors, however, can use their executive leadership experience to bridge the gap between these disparate abilities to mitigate negative group decision effects (Oehmichen et al., 2017a).

The benefits of CEO-directors are visible outside the firms, as well. Kang et al. (2018) report that stock prices increase an average of 1.69% when firms announce the appointment of an outside CEO-director. They also estimate the effect of CEOs from similar industries on the focal firm's Tobin's Q to be 0.068 higher with a one standard deviation increase in the proportion of industry CEOs on the board. Important to my study, they find the effects are even stronger for smaller firms which are more likely to be found outside of the largest urban areas (Knyazeva et al., 2013). Other researchers have found similarly strong results for financial outcomes (e.g., Duchin et al., 2014).

For example, in a study that includes the vast mergers and acquisitions (M&A) activity of the 1990s, the early 2000s "Dot-com" bubble, and the 2008-09 recession, firms which avoided bankruptcy had more CEOs on their boards regardless of total board size (Platt & Platt, 2012). Further, when a firm already employs a CEO-director, additional appointments of outside directors - which may be seen as a sign of poor control in already-weak firms (Oehmichen et al., 2017b) - do not cause a negative announcement period reaction (Fahlenbrach et al., 2010). This outside director-control tradeoff is supported by Duchin et al. (2014) findings that outside directors improve firm outcomes, including ROA and stock returns, when information costs are low but hurt performance when information costs are high.

Summarily, CEO-directors are a scarce resource and thus firms may expend significant effort locating and pursing them (Knyazeva et al., 2013). Expectedly, firms who are geographically proximal to large pools of executive talent have more independent boards as a larger number of directors are available (Knyazeva et al., 2013). Though the debate on the relative importance of independent boards is not settled (Petra, 2005; Schmidt, 2015), inside directors benefit from external connections. Masulis and Mobbs (2011) provide evidence that inside directors with outside ties improve shareholder returns. If knowledge is truly portable and CEO-directors' managerial and industry expertise makes them more effective directors, then it should follow that CEO-directors should be able to acquire knowledge to improve their board's decision making regardless of the firm's location.

2.3.5 CEO-Directors and Firm Location

The literature reviewed above provides compelling evidence that firms benefit from being headquartered in large urban areas, that directors can affect positive firm outcomes, and that CEO-directors have unique executive management skills that other directors do not. For these reasons, CEO-directors may be even more important to rural firms than they are for urban firms. A CEO-director's ability to bring his/her business skills to the boardroom, provide counsel to the firm's management, and tap into his/her network for innovation and financial benefits can mitigate the negative effects of being headquartered outside of urban areas. Where urban firms benefit from agglomeration economies and knowledge spill-over, rural firms can enjoy these same benefits by appointing CEO-directors.

Together, the foregoing literature leads to my testable hypotheses:

H1: *The effect of appointing CEO-directors on firm performance is stronger in rural firms than in urban firms.*

H2: *Among rural firms, the effect of appointing CEO-directors who are connected to urban areas on firm performance is stronger than the effect of appointing CEO-directors who are not connected to urban areas.*

3 METHODOLOGY

This study explores the effects of CEO-directors on the performance of rural firms using data on firm location, firm financial characteristics, and board composition between 2009-2019. The sample period follows recent previous studies on CEO-directors (Kang et al., 2018) and board geography (Baran & Wilson, 2018) whose sample periods began in 2009 to reflect regulatory and structural changes resulting from the late 2000s financial crisis. I extend the sample period through 2019 to include the last year with full firm and director data available.

3.1 Model Equations

To investigate the effects of CEO-directors on the performance of rural firms, I test my hypotheses with the general models shown below. The estimation model for Hypothesis 1 is presented in Equation 1.

(Eq. 1)

$$Performance_{i,t} = \beta_0 + \beta_1 Rural_{i,t} + \beta_2 CEO\_Director_{i,t} + \beta_3 Rural * CEO\_Director_{i,t} + \boldsymbol{X}_{i,t-1} + \varepsilon_{it}$$

The dependent variable in Hypothesis 1 is a measure of firm financial performance, proxied by return on assets (ROA). The independent variables of interest are *Rural*, a binary indicator of whether a firm is headquartered in one of the largest urban areas of the United States, *CEO_Director,* a binary indicator of whether the firm appoints a CEO-director in that firm-year, and the interaction term of *Rural* and *CEO_Director*. ***X*** is a vector of control variables informed by the literature and described below. Following the suggestion of Glaeser and Mare (2001), I stratify *Rural* into three tranches based on the relative size of the cities.

I use all standard control variables prescribed by the firm performance literature in each model estimation (Alam et al., 2014; Baran & Wilson, 2018; Fich, 2005). These control variables include for each firm-year: firm size (proxied by the natural logarithm of total revenues), leverage (proxied by debt ratios), growth (proxied by market-to-book ratios), director experience (proxied by director age), board size, and the average number of boards each director serves on. Extending the work of Fich (2005), I also introduce the size of the CEO-director's home firm, proxied by the natural logarithm of total assets, as a control variable. The models also include firm-year fixed effects to capture unobserved influences in the data. Appendix A provides further variable definitions.

The sample for Hypothesis 1 is all firms appearing on the S&P 1500 during the 2009-2019 sample period.

Equation 2 represents the estimation model for Hypothesis 2.

(Eq. 2)

$$Rural\_Performance_{i,t} = \beta_0 + \beta_1 Urban\_Connected_{i,t} + \boldsymbol{X}_{i,t-1} + \varepsilon_{it}$$

For Hypothesis 2, the dependent variable is a measure of firm financial performance, again proxied by return on assets (ROA), for all rural firms who appoint a CEO-director. The independent variable of interest is *Urban_Connected,* a binary indicator of whether the rural firm's CEO-director is connected to one of the largest United States urban areas. The vector of control variables, ***X***, is defined in the same way an in Hypothesis 1, above.

The sample for Hypothesis 2 is reduced to only rural firms who appoint a CEO-director during the sample period.

3.2 Data

For this study, I use a sample of all firms appearing on the Standard & Poors (S&P) 1500 in the years 2009-2019 (Alam et al., 2014; Kang et al., 2018; Knyazeva et al., 2013). Following the recommendations of Fama and French (1992), I remove all utilities and transportation firms (Standard Industrial Classification (SIC) codes 4000-4999) and financial firms (SIC codes 6000-6999) due to the strong regulatory environment in which these firms operate.

The S&P 1500, an index created by Standard & Poor's, is a combination of the S&P LargeCap 500, and S&P MidCap 400, and S&P SmallCap 600 indices (S&P Dow Jones Indices, 2020). For investigating firms outside of the largest U.S. cities, the S&P 1500 is superior to other indices due to size differences between companies within and without large urban areas (Knyazeva et al., 2013).

This dissertation combines data from multiple sources. I retrieve financial and accounting data for all sample firms from the CompuStat database through the Wharton

Research Data Service (WRDS, 2020). BoardEx, also accessed through WRDS, is the source for director information at the firm and individual levels. Data from the United States Census Bureau is used to identify the largest U.S. cities by population (Census Bureau, 2020).

3.3 Data Analysis Plan

Following previous studies on CEO-directors and studies on rural versus urban firms (Knyazeva et al., 2013; Loughran & Schultz, 2005), the primary empirical test for this study is ordinary least squares (OLS) regression. OLS is appropriate for testing the effects of CEO-directors on rural firms because the dependent variable, ROA, is a continuous variable and the independent variables (rural firms, CEO-directors) are theoretically uncorrelated.

For analysis, I merged all datasets before performing required calculations (e.g., to create a debt ratio variable) and transformations (e.g., taking the natural logarithm of firm total assets). All missing data and incomplete cases are assumed to be random, and although the data were leptokurtic, no within-case outliers were significant. Throughout the model estimations, I apply standard statistical significance hurdles informed by the literature (i.e., 10%, 5% and 1% significance levels). All analyses were conducted in *R* version 3.6.0.

3.5 Sensitivity and Robustness Tests

Although the data and analyses support using OLS regressions, concerns about endogeneity, spurious influences, and firm differences still exist. To this end, I conduct a series of robustness tests in order to further confirm the Hypothesis 1 findings. The primary sensitivity tests are the employment of alternative financial performance measures, including Tobin's Q (Alam et al., 2014) and cashflow return (Powell & Stark, 2005).

Tobin's Q is a measure of whether a firm is relatively undervalued or overvalued in the markets. At its core, it is the ratio of a firm's market value to its book value or asset replacement costs. Cashflow return (CFR) is the ratio of a firm's operating performance to the market value of its assets. CFR is an ideal performance measure because it considers firm performance separate from capital structure decisions.

The next robustness check is using an alternative measurement of *CEO_Director*. In the primary model, *CEO_Director* is a binary variable representing the presence or absence of a CEO-director. For sensitivity, I introduce *CEO_Director_Prop,* the proportion of CEO-directors on the firm's board, coded as a continuous percentage.

As there are large economic differences between geographic regions in the United States (Bureau of Economic Analysis, 2020), I test how the effect of CEO-directors differs among firms located in different Bureau of Economic Analysis (BEA) regions. I conduct a series of OLS regressions with the sample for each model specification limited to the firms within each of the eight BEA regions and test the effect of the independent variables on firm financial performance. Although Combes et al. (2012) report only weak associations between a few industries and CEO-director influence, their work does warrant an investigation of the effects of CEO-directors on rural firms. Thus, in these regional model estimations, I include industry fixed effects, coded as each firms two-digit SIC code (Combes et al., 2012), in the model to ensure that CEO-director's ability to improve firm performance is not an artifact of underlying industry characteristics not observed in these data.

As an alternative measure of CEO-director's impact on rural firms' financial performance, and to mitigate endogeneity concerns, I test for post-appointment performance improvement. Limiting the sample to only firms with CEO-directors, I use a logit regression model to estimate the effect of CEO-director appointments on firm ROA after the appointment of the firm's first CEO-director (Alam et al., 2017). For each firm, I create a pre-appointment variable represented by the average of the three pre-appointment years' ROA and a post-appointment variable representing the average of the two post-appointment years' ROA (Alam et al., 2017). Firms are coded 1 if the average post-appointment ROA is greater than the pre-appointment ROA, and the effect of the CEO-director appointments is measured against this binary outcome using a logit regression model.

The most compelling robustness check for the effect of urban-connected CEO-directors on rural firms' financial performance is a difference-in-differences model. A difference-in-differences test serves as a natural quasi-experiment in which the effects of the treatment (CEO-directors with urban connections) are isolated from other performance influences.

After limiting the sample to only rural firms who have appointed a CEO-director during the sample period, I identify which year each firm first appoints a CEO-director. Each firm-year is then coded 0 if that firm-year is before the CEO-director's appointment and 1 if that firm-year is after the CEO-director's appointment. For those firms that appointed a CEO-director in the first year of the sample period, I retrieved the ROA and financial data for the previous three years to ensure each firm's pre-appointment performance is included in the model.

The dependent variable in these models is the firm ROA (in specification one) and Tobin's Q (in specification two). By including the pre-appointment years, a common reference point is created for each firm, allowing the influence of urban-connected CEO-directors to be understood without endogeneity concerns.

4 RESULTS

This section will review the results of hypotheses testing and analyze the results through the lens of the research questions.

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics for the sample; Panel A is the descriptive statistics for the full sample and Panel B lists the descriptive statistics for only urban firms in the 10 largest U.S. cities and rural firms outside of those 10 largest cities. The mean (median) for firm assets is $7.99 billion ($1.673 billion), with a standard deviation of $33.29 billion indicating that the sample is strongly positively skewed; mean (median) total revenues for all firms is $6.98 billion ($1.54 billion), with a standard deviation of $23.66 billion. Leverage has a mean (median) of 0.22 (0.15).

The average firm has a market-to-book ratio of 1.67 and the median market-to-book ratio is 1.30. The average return on assets is 0.09, with a median of 0.09 and a standard deviation of 0.14. The average (median) for the binary *CEO_Director* is 0.15

(0.00), and the average (median) proportion of CEO-directors on a firm's board is 0.08 (0.00). The average board size for the sample is 9.21 directors, with a median of 9.00 and a standard deviation of 1.92.

Panel B of Table 1 compares the descriptive statistics of rural versus urban firms. Urban firms are, on average, larger than rural firms with average (median) total assets of \$8.62 billion (\$1.61 billion) compared to \$6.59 billion (\$1.24 billion). Urban firms also have larger revenues than rural firms, as well: mean (median) revenues are \$7.22 billion (\$1.37 billion) compared to \$6.12 billion (\$1.30 billion). Rural firms enjoy higher market-to-book ratios than urban firms, with a mean (median) for rural firms of 1.85 (1.44) and a mean (median) for urban firms of 1.70 (1.32).

Despite these differences, the urban and rural firms in this sample have very similar returns on assets (ROAs). Urban and rural firms both have a mean (median) ROA of 0.09 (0.09), though the rural firms' standard deviation of 0.14 is slightly higher than the urban firms' standard deviation of 0.13.

Urban firms in this sample are more likely to have a CEO-director appointed to their board, those these are relatively uncommon for either group; the mean (median) number of CEO-directors for urban firms is 0.27 (1.00) compared to the mean (median) for rural firms of 0.05 (0.00). The difference in the proportion of CEO-directors is similar. For urban firms, the average (median) CEO-director proportion is 0.09 (0.00); for rural firms the average (median) CEO-director proportion is 0.07 (0.00). Urban firms' directors are slightly older than rural firms' directors and have shorter average board tenure than rural firms' directors. Directors who sit on the boards of rural firms sit on fewer boards, on average, than directors of urban firms though the boards of urban rural firms are qualitatively similar in size.

4.2 Rural Firms and CEO-Directors

This section presents the results of tests for Hypothesis 1 which predicts that rural firms who appoint CEO-directors have improved firm performance.

4.2.1 Main Hypothesis Tests

To understand the relationship between CEO-directors and the financial performance of rural firms, I estimate a series of OLS regressions using the presence or absence of CEO-directors to predict return on assets (ROA). The first models estimated to understand the effect of CEO-directors on rural firm financial performance are presented in Table 3. The key independent variables are *Rural, CEO_Director,* and the *Rural*CEO_Director* interaction. In each model, all covariates show the expected sign indicating that the sample and model generally align with previous studies.

A secondary contribution to the rural firms and CEO-directors literature from these models is the inclusion of the CEO-director's home firm size, as proxied by total assets, as a control variable. In each model, the CEO-director's home firm size is positively related to his/her influence on firm ROA. Anecdotally, this is supported by large, well-known firms headquartered outside of the largest cities. Although these firms may be geographically distant from large pools of executive talent, their size and visibility enable them to attract elite CEO talent.

Model 1 (*Top 10*, Column 1) tests all firms headquartered outside of the 10 largest U.S. cities. In this model, the coefficient for *CEO_Director*, 0.028 ($t = 3.43$, $p < 0.01$), is positive and significant, indicating that adding a CEO-director is associated with a 0.28% increase in ROA across all firms. While *Rural* (-0.004, $t = -0.71$, $p > 0.1$) shows the expected negative sign, it is not statistically significant. The coefficient for the interaction term, *Rural*CEO_Director* (0.018, $t = 1.59$, $p > 0.1$), is also not statistically different than zero. All other coefficients show the expected sign as informed by the literature. Thus, the results do not indicate that CEO-directors improve performance in rural firms headquartered outside of the 10 largest U.S. cities. This is not entirely unexpected given that this model considers the difference, for example, between the city ranked number 10 and city ranked number 11. The 10th largest city, San Jose, California, has a population of 1.02 million while the 11th largest city, Austin, Texas, has a population of 978,000 – a difference of only 42,000 (or 4% of the population of Austin).

As firms move farther way from the largest population and business centers, the benefits of external expertise and visibility may become more pronounced. Therefore, Model 2 (*Top 25,* Column 2) presents tests for those firms headquartered outside of the 25 largest U.S. cities. In this model, the coefficient for *Rural*, -0.003 ($t = -1.79$, $p < 0.1$), is statistically significant. Interestingly, while *CEO_Director* remains positive and statistically significant, the magnitude of the coefficient (0.007, $t = 1.69$, $p < 0.1$) is dramatically smaller than in Model 1. Importantly, the *Rural*CEO_Director* interaction is positively and statistically significant at the 10% level (0.013, $t = 1.85$, $p < 0.1$), supporting the prediction that CEO-directors improve firm performance in rural firms.

This supports the notion that visibility and the relative executive talent pool are less supportive of firm performance as the local population size decreases.

The results in Model 3 (*Top 50*, Column 3) are for the model testing performance effects for firms headquartered outside of the 50 largest urban areas, a group another level farther from the 10 largest U.S. cities. As predicted, the negative effects of being headquartered away from large urban areas increases; the coefficient on *Rural* increases in magnitude to -0.011 ($t = -1.97$, $p < 0.05$). As these firms are moving farther away from the largest, most populous U.S. cities, this finding supports previous research that shows that firm performance decreases as geographic distance to the nearest urban area increases (Alam et al., 2014; Baran & Wilson, 2018). *CEO_Director* is also positive and statistically significant (0.022, $t = 3.30$, $p < 0.01$).

Providing key support for Hypothesis 1, the *Rural*CEO_Director* interaction term for firms headquartered outside the 50 largest U.S. cities (0.021, $t = 1.91$, $p < 0.05$) is positive, statistically significant, and larger in magnitude than for firms outside the Top 10 and Top 25 cities. These results indicate that CEO-directors are an important source of advantage for rural firms and they increase in importance as the firms become more geographically remote.

In addition to statistical significance, the results of these tests provide economic significance as well. For those rural firms headquartered outside of the 25 largest cities, appointing a CEO-director is associated with a 1.3% increase in ROA. The results are even more striking for those firms headquartered outside the 50 largest U.S. cities. For these firms, appointing a CEO-director is associated with a 2.1% ROA increase. For comparison, the median ROA for firms headquartered outside the Top 50 cities in this sample is 0.094. If a firm whose ROA suggests they are performing at the median appointed a CEO-director, the results of these hypothesis tests indicate their performance would improve such that their ROA would be in the 70^{th} percentile (0.108). Given these findings, Hypothesis 1 is supported for firms headquartered outside the 25 and 50 largest U.S. cities but not for firms headquartered outside the 10 largest U.S. cities.

Though the evidence above provides strong support for the hypothesis that CEO-directors are economically significant for rural firms, the relationship might be limited to only return on assets (ROA). Prior work has suggested that well-connected directors can mitigate the negative effects of geographic distance to the nearest major business center when performance is proxied by Tobin's Q (Baran and Wilson, 2018), so I follow their work and consider the effects of CEO-directors on Tobin's Q here.

To estimate the effect of CEO-directors on rural firms' Tobin's Q, I next conduct a series of regressions in which the methods and covariates are similar to those in Table 3, above. In Table 4, however, the proxy for rural performance (the dependent variable in the models) is each firm-year's Tobin's Q. Also, as market-to-book ratios and Tobin's Q are both proxies for growth potential and are strongly correlated (McNichols et al, 2014), I remove the market-to-book variable from the vector of controls. The results of these model estimations are presented in Table 4.

The effect of CEO-directors on rural firms' Tobin's Q is strikingly different than their effect on rural firms' ROA. In Model 1, where the measure of *Rural* is firms headquartered outside the 10 largest cities, the interaction of *Rural* and *CEO_Director* is positive, statistically significant, and economically meaningful ($\beta = 1.073$, $t = 2.64$, $p <$

0.01). This indicates that if one of these rural firms appoints a CEO-director, the expected Tobin's Q increase is 1.07, which would again move a median firm to the 70^{th} percentile.

Surprisingly, however, while the effect of being headquartered away from urban areas is negative and statistically significant for firms headquartered outside the 25 and 50 largest cities, and the effects of CEO-directors remains positive and statistically significant, the interaction between *Rural* and *CEO_Director* is not significant for either of these models. The negative effect of rural headquarters is stronger in these two groups than the top 10 cities group, so it is possible that the lack of statistically significant interaction is because the negative effects are too great for CEO-directors to overcome. Though outside the scope of this paper, this phenomenon warrants further investigation.

The results of the models testing the effect of CEO-directors on rural firms' financial performance as proxied by Tobin's Q are mixed. Moreover, the statistical and economic significance by sample group is different than those estimates for ROA. Given this, there is no definitive support for the hypothesis that rural firms' Tobin's Q is improved by the appointment of outside CEO-directors.

CEO-directors positively affect rural firms' performance when measured using ROA, but there is no relationship when performance is measured with Tobin's Q. Therefore, I consider a third performance measure – CFR. Table 5 presents the results of these tests.

In Model 1 (*Top 10*, Column 1), there is no relationship between a firm's rural headquarters and its CFR ($\beta = -0.004$, $t = -0.75$, $p > 0.1$), but CEO-directors do provide positive influence ($\beta = 0.019$, $t = 2.35$, $p < 0.05$). The interaction term

*Rural*CEO_Director* indicates that among rural firms outside of the 10 largest cities, external CEOs serving on the firm's board do positively influence CFR (β = 0.020, t = 1.71, $p < 0.10$).

The results for firms outside the 25 and 50 largest cities are qualitatively similar. For firms outside the 25 largest U.S. cities, the *Rural*CEO_Director* coefficient is β = 0.010 (t = 1.81, $p < 0.10$). For firms outside the 50 largest cities, the *Rural*CEO_Director* interaction term coefficient is slightly higher in magnitude (β = 0.018, t = 1.79, $p < 0.10$) but qualitatively similar. In models two and three, the negative effect of establishing a rural headquarters is stronger for firms outside the 25 largest (β = -0.013, t = -2.48, $p < 0.05$) and the 50 largest cities (β = -0.014, t = -2.27, $p < 0.05$) than it is for firms outside the 10 largest cities. All covariates display the sign predicted by the literature.

The results when performance is proxied by CFR further support Hypothesis 1, which states that rural firms benefit when they appoint outside CEOs to their boards. When performance is measured by ROA or CFR, there is a positive and statistically significant impact of CEO-directors on firm performance. Therefore, Hypothesis 1 is supported when these are the performance measures but not when Tobin's Q is the performance measure.

A secondary, but equally important, contribution to the literature from these hypothesis tests is the inclusion of the CEO-director's home firm size as a control. In the models estimating CEO-directors' effects on rural firm ROA, the size of the CEO-director's home firm is positive and statistically significant in all three specifications. Indeed, for firms headquartered outside the 50 largest cities, appointing a CEO-director from a firm one standard deviation larger than the mean firm size is associated with an ROA increase of 0.12%. As this predicted increase is incremental to the main effect of appointing a CEO-director, the importance of attracting CEO-directors from large, visible, and ostensibly successful firms cannot be ignored.

4.2.2 Alternative Measurements

The preceding results provide evidence supporting Hypothesis 1. However, some concerns about endogeneity and measurement bias remain. Thus, I explore other ways to consider how CEO-directors affect rural firm performance. In a series of robustness checks, I consider how firm performance changes after the appointment of a CEO-director, an alternative measurement of CEO-directors, and the potential influence of industry and geographic differences.

The first of these robustness tests is a consideration of how firm performance changes post-appointment. Table 6 presents the results of a series of logit regressions to identify the potential changes in ROA among Rural 10, Rural 25, and Rural 50 firms. In these models, the outcome is measured with a binary indicator of whether the two-year, post-appointment average ROA exceeds the three-year, pre-appointment average ROA (Alam et al., 2017). The same predictor variables as in Table 3 are then used to estimate the effect of CEO-directors on this binary outcome. Overall, each of these three models is appropriately specified; using Akaike's Information Criterion (AIC) and residual deviance estimates, the three models are all better predictors of the dependent variable's variance than the null model.

Model 1 (*Top 10,* Column 1) again tests the effects of rural headquarters and CEO-directors on all firms headquartered outside of the 10 largest U.S. cities. The exp(β) column lists the odds ratio for each of the independent variables, and a Wald χ^2 statistic compares the coefficient estimate to a chi-square distribution with the probability of the coefficient's statistic exceeding the chi-square value presented.

Similar to the results of the ordinary least squares regression above (Table 3), in the model for firms headquartered outside the 10 largest cities, the *Rural*CEO_Director* interaction does not statistically predict the increase in firm ROA post-appointment (β = -0.053, 95% CI [-0.32, 0.21], $p > \chi^2 = 0.692$). The results in the left column of Table 6 do not support Hypothesis 1.

The model specifications for firms outside the 25 largest cities (Model 2) and 50 largest cities (Model 3), however, paint a different picture. For those Rural 25 firms, the *Rural*CEO_Director* interaction is positive and statistically significant (β = 0.576, 95% CI [0.293, 0.856]. This suggests that a rural firm that appoints a CEO-director is 1.78 times more likely to report increased ROA than an urban firm.

The log likelihood results in Model 3 (*Top 50,* Column 3) are similarly convincing. Here, *Rural*CEO_Director* is also positive and statistically significant for firms headquartered outside the 50 largest U.S. cities (β = 0.321, 95% CI [0.303, 0.339], $p > \chi^2 = 0.023$). Thus, the likelihood of increased ROA is 1.38 times more likely for rural firms who appoint a CEO-director than for rural firms that do not appoint a CEO-director. Together, these further support Hypothesis 1 which predicts that CEO-directors improve financial performance among rural firms.

As above, the size of the CEO-director's home firm provides incremental benefits over the benefits of his/her appointment. In each of the three models, CEO-directors from larger firms are 1.03 times more likely to drive ROA increase than their peers from smaller firms. Interestingly, in all three model specifications the number of boards on which a director sits is related to a lower likelihood of increased performance; with each additional board on which a director serves, the probability of increased ROA performance decreases by 2.1%. This effectiveness decrease is qualitatively similar to the those identified by Cashman et al. (2012) in their study on busy directors.

While the presence of a CEO-director has been shown to improve firm performance (Fahlenbrach et al., 2010; Kang et al., 2018), the relative power of that CEO-director on the board has not been empirically investigated. A single CEO-director who joins a very large, entrenched board may not have the relative power he/she is accustomed to and might thus be unable to effect needed change. Alternatively, a powerful CEO-director on a small board may have outsized influence on not only the board but on the firm in general. Thus, I test an alternative measurement of CEO-director that considers the CEO-director's power relative to the rest of the board.

In these models, summarized in Table 7, the binary *CEO_Director* is replaced with *CEO_Director Prop,* a variable which represents the proportion of CEO-directors on a given firm's board. All other independent variables and estimate methods remain unchanged, including the *Rural*CEO_Director Prop* interaction effect. The first three columns in Table 7 describe models that test the robustness of earlier models estimating the effect of the binary *CEO_Director* on firm ROA. Columns four through six present models where Tobin's Q is the firm performance proxy, and in columns seven through nine CFR is the performance measure.

Across the three models where ROA is the performance measure, the results of using a proportion variable for CEO-directors is similar to the results of using a binary indicator. In Model 1, where *Rural* represents all firms outside the Top 10, the proportion of CEO-directors on a board is positively related to ROA, but the *CEO_Director*Rural* interaction indicates that this relationship is not significant for rural firms.

However, for firms outside the 25 largest cities (Model 2) and 50 largest cities (Model 3), there is a positive and statistically significant relationship between CEO-directors and rural firm's ROA. For those Rural 25 firms, the *CEO_Director*Rural* interaction of 0.105 (t = 1.85, $p < 0.10$) suggests that a one standard deviation increase in the proportion of CEO-directors on a rural firm's board is associated with a 0.36% increase in ROA. As above, the influence of CEO-directors is even more pronounced when that CEO-director is from a large firm. The effect of a one standard deviation increase in the proportion of CEO-directors on a board when that CEO-director is from a larger-than-median firm is a 0.42% higher ROA.

The effects are even more pronounced for Rural 50 firms. For these firms, the *CEO_Director*Rural* coefficient estimate of $\beta = 0.109$ (t = 1.97, $p < 0.05$) suggest that a one standard deviation increase in the proportion of CEO-directors on a rural firm's board is associated with a 0.38% ROA increase. The influence of the CEO-director's home firm size is similarly larger for Rural 50 firms than it is for Rural 25 firms. Here, the incremental effect of adding a CEO-director from a large outside firm is a 0.44% higher ROA.

Interestingly, the number of boards on which a firm's directors serve is not significant when the measure of CEO-directors is the proportion variable. This could possibly be due to the large number of null observations in the binary model. In specifications where the measure of *CEO_Director* is often a 0 value, the influence of how many boards on which a director serves could explain some of the performance variance.

Though the evidence in columns one through three of Table 7 provide increased support for the hypothesis that CEO-directors positively impact rural firm's ROA performance, columns four through six of Table 7 do not provide similar support for Tobin's Q performance. In each of these three model estimations, there is no statistically significant relationship between *CEO_Director*Rural* and Tobin's Q. Indeed, the coefficients and their t-statistics are smaller for Rural 25 and Rural 50 firms than they are for the Rural 10 firms. This suggests that some influences of visibility and growth potential decrease as firms become increasingly rural.

Unlike in models in which ROA is the performance proxy, the size of the firm at which the CEO-director is employed is also insignificant. For rural firms, the size of the firm's board is, however, negatively related to the firm's Tobin's Q, as is the average age of their directors. As Tobin's Q is a proxy for growth potential, perhaps geographically distant firms are punished by the markets when their boards are perceived as too large (Coles et al., 2008) or too entrenched (Masulis et al., 2017).

In columns seven through nine, performance is measured by CFR. In Model 7 (Top 10), there is no relationship between the proportion of CEO-directors on a rural firm's board and their cashflow return ($\beta = 0.011$, $t = 1.39$, $p > 0.10$). In Model 8 (Top

25) and Model 9 (Top 50), however, CEO-directors do seem to drive increased performance among rural firms in these groups. For firms outside the 25 largest U.S. cities, the interaction between *Rural* and *CEO_Director Prop* has a coefficient of $\beta = 0.009$ ($t = 1.91$, $p < 0.10$); for those firms outside the 50 largest U.S. cities the interaction term coefficient is $\beta = 0.008$ ($t = 1.72$, $p < 0.10$). While these coefficients are smaller in magnitude than in the models with ROA as the performance measure, the interaction term coefficients are similar in scale to the *CEO_Director Prop* coefficient among both measures. The model results in Table 7 provide further support for Hypothesis 1.

4.2.3 Regional Effects

Prior research indicates that geographic region, such as New England or the southwest, can explain some differences in firm performance (Burrus et al., 2018). To this end, I next consider how the effects of CEO-directors on rural firm performance may differ by region. To test this, I code each firm according to the U.S. Bureau of Economic Analysis (BEA) region in which it is located. The BEA measures various economic factors across eight different regions of the United States, each consisting of between five and 10 individual states. In column of Table 8, a model specification is limited to the firms that are headquartered within that geographic region.

Large differences exist across the eight regions in each of the independent and control variables. For example, a firm's market-to-book ratio is very important in seven regions but not significant in New England., but the average size of a firm's board is only significant in one region (West), The negative effects of being rurally headquartered is statistically significant in five of the eight BEA regions, with model coefficients ranging from $\beta = -0.003$ in the Southeast region to $\beta = -0.039$ in the Mid-Atlantic region.

In six of the eight BEA regions, *Rural*CEO_Director* is positive and statistically significant, offering evidence that CEO-directors positively impact rural firms' ROA performance in these regions. The magnitude of the coefficient seems generally correlated with the region's population growth over the past 20-25 years (Federal Reserve Economic Data, 2020), but this is merely conjecture and warrants empirical investigation in future studies.

The Southwest region, consisting of Arizona, New Mexico, Oklahoma, and Texas, has the strongest relationship between CEO-directors and rural firms' financial performance ($\beta = 0.178$, $t = 2.67$, $p < 0.01$). Here, *ceteris paribus*, appointing a CEO-director is associated with a 1.78% larger ROA for rural firms. The economic significance of this is impressive. If a median-performing firm in this region were to appoint a CEO-director, their performance would move from the 50^{th} percentile into the 85^{th} percentile. Conversely, firms in this region experience a very strong negative relationship, compared to other regions, between their leverage ratios and their financial performance.

Among those regions in which CEO-directors are significantly related to rural firms' ROA performance, states in the New England region (i.e., Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) show the weakest relationship ($\beta = 0.019$, $t = 2.42$, $p < 0.05$). Additionally, this is the only region in which the relationship between the average number of boards on which directors serve and firm performance is negative. Perhaps the CEO-directors in this region, which includes major business centers such as Boston and Hartford, negatively affect firm performance through their busyness, reducing the positive effects of their advising and monitoring expertise (Cashman et al., 2012).

Two regions show unusual results of their model estimates. In the Southeast region, although CEO-directors have a positive effect on firm financial performance, the magnitude of the *Rural*CEO_Director* coefficient is smaller than that of the CEO firm size coefficient. Additionally, firm leverage ratios appear to be unrelated to ROA performance. In the Plains region, the effect of CEO-directors on rural firm performance is statistically insignificant, but the relative size of a CEO-director's home firm is positively related to the ROA performance on all firms.

The insignificant CEO-director effects in the Great Lakes, Rockies, and Plains regions, could be attributed to the geographic distance and travel time required of CEO-directors. The Rockies and Plains regions are home to the fewest number of firms, which may cause these rural firms to look farther away to recruit potential CEO-directors. When CEO-directors are successfully recruited from geographically distant areas, the longer travel times may reduce their ability to adequately perform advising and monitoring duties (Knyazeva et al., 2013).

4.2.4 Summary of Findings

Together, the foregoing results suggest that the effect of CEO-directors on rural firms' performance is robust to a number of alternative measurements and testing specifications. When considering firms headquartered outside of the Top 25 and Top 50 cities, being located away from large urban areas negatively affects firm performance when measured as ROA and CFR. However, appointing a CEO-director to their board offsets this negative effect for these firms. Indeed, appointing a CEO-director improves firm ROA and CFR across different measurement techniques even when controlling for the size of the CEO-director's home firm. When a rural firm appoints a CEO-director, they are more likely to see performance increase during the following year than a rural firm who does not appoint a CEO-director, as well.

The effect of CEO-directors on rural firms is robust to an alternative measure of CEO-directors, the consideration of geographic region of the country, inclusion of controls that proxy for how well known a CEO-director is, and firm, year, and industry fixed effects. Geographically, I find that the financial performance of rural firms in 63% of the Bureau of Economic Analysis regions is positively associated with CEO-directors.

When performance is proxied by Tobin's Q, the positive effect of appointing a CEO-director is limited to firms headquartered outside of the Top 10 cities but not those found more distant from high population areas. This firms in this subsample, which can be considered the least 'remote' of the studied firms, realize positive firm performance effects when appointing a CEO-director. When including those firms headquartered outside of the Top 25 cities and beyond, however, the results are not significant.

The support for Hypothesis 1 contributes to the literature in several ways. First, I extend the firm geography literature by exploring how different degrees of rural headquartering affects firm performance. Where previous studies rely mostly on a binary indicator of whether a firm is in one of the 10 largest cities (Alam et al., 2014; Baran and Wilson, 2018), I further investigate how performance differs as firms become more distant from large urban centers. In addition to using ROA and Tobin's Q to proxy for rural firms' performance as in Alam et al. (2014) and Baran and Wilson (2018), I also test rural firm performance as measured by CFR.

Second, I consider how specific types of directors influence rural firm performance. Alam et al. (2014) and Baran and Wilson (2018) research the effects of directors on rural firm performance, but they do not report which directors may impact performance most. Kang et al. (2018) provide recent evidence of the unique abilities of CEO-directors, but they do not consider whether the influence of CEO-directors is limited by geography.

Although not the focus of this study, I also introduce an important control variable into the rural firm and CEO-director literatures. A key theoretical reason to believe that CEO-directors positively impact rural firm performance is their visibility, strategic expertise, and extensive networks. It is conceivable that the relative size of the firms they lead is a useful proxy for their *wasta* – an Arabic word that translates to "pull," clout, or ability to influence. That is, the positive effects of appointing a CEO-director may be related as much to how large or well-known his/her firm is as it is to their skills as a director. I find in each model that the size of a CEO-director's home firm, proxied by total assets, is positively and statistically significantly related to the performance of the firms on whose boards they serve.

4.3 Urban-Connected CEO-Directors

The second testable hypothesis in this dissertation predicts that, among rural firms who appoint a CEO-director, the positive impact of CEO-directors is greater when those

CEO-directors are from large urban areas than when they are not from large urban areas. This section reviews the models used to test this hypothesis, the results, and robustness checks.

4.3.1 Main Hypothesis Test

Baran and Wilson (2018) suggest that directors with ties to the 10 largest business centers provide benefits to firms located outside of those business centers, but they do not differentiate between types of directors. Further, they only consider the 10 largest cities (by the number of firms located therein) and consider no other identification of urban areas. While the results oh Hypothesis 1 noted above provide strong evidence that CEO-directors positively affect the financial performance of rural firms, Hypothesis 1 also does not test any differences among CEO-directors. To extend Baran and Wilson's (2018) work and further refine the evidence presented above, I next test the effect of urban-based CEO-directors on the performance of rural firms.

For Hypothesis 2, the sample is reduced to all rurally-headquartered firms who have appointed a CEO-director during the sample period. Similar to the delineation in Hypothesis 1, I stratify the sample into three groups: firms outside the 10 largest cities, firms outside the 25 largest cities, and firms outside the 50 largest cities. I consider how the urban connections of CEO-directors impacts rural firms' ROA (Table 9), Tobin's Q (Table 10), and CFR (Table 11). In the following model specifications, *Urban_Connect,* the primary independent variable of interest, is a binary indicator coded 1 if the CEO-director is employed in one of the largest U.S. cities and 0 otherwise.

The results of tests to understand how CEO-directors with urban connections provide incremental value to rural firms' ROA are broadly consistent with the models to test how CEO-directors impact rural firms versus urban firms. In Model 1 of Table 9, there is no significant relationship between CEO-directors with urban connections and CEO-directors without urban connections when considering Rural 10 firms ($\beta = 0.059$, $t = 1.31$, $p > 0.1$). This is not unexpected, as these firms were not affected by CEO-directors in Hypothesis 1. However, the relative visibility of the CEO-director, proxied by the size of his/her home firm, continues to be a positive and statistically significant predictor of rural firms' performance. All other control variables display the expected sign as informed by the literature.

While urban-connected CEO-directors are no more impactful than non-connected CEO-directors for Rural 10 firms, urban connections do indeed matter when firms are headquartered in increasingly rural areas. Model 2 of Table 9 shows that *Urban_Connected* is positive and statistically significant ($\beta = 0.085$, $t = 2.24$, $p < 0.05$) for firms located outside the 25 largest cities. This suggests that, compared to non-connected directors, an urban-connected CEO-director is associated with a 0.85% ROA increase. This is economically significant as it equates to a one decile performance improvement incremental to other effects of appointing a CEO-director.

In this model, the CEO-director's home firm size is also positive and statistically significant ($\beta = 0.009$, $t = 2.01$, $p < 0.05$). The average number of boards on which a firm's directors serve is negatively related to their ROA performance ($\beta = 0.002$, $t = -2.25$, $p < 0.05$), but the average age of their directors is positively related to ROA performance (β = 0.001, $t = 1.99$, $p < 0.05$), suggesting that rural firms benefit most by having smaller boards staffed by more experienced directors.

As expected, considering the impact of CEO-directors on rural firms (see Table 3), CEO-directors' urban connections are even more important for Rural 50 firms as they are increasingly removed from the agglomeration economies of large cities. Model 3 of Table 9 shows that for these Rural 50 firms, *Urban_Connect* is positive, the coefficient is larger in magnitude, and the statistical significance is stronger than it is for Rural 25 firms (β = 0.088, $t = 2.77$, $p < 0.01$). As the cities in this subsample range in population from 650,000 (Memphis, TN) to 50,000 (West Chester, OH), they provide increasingly smaller talent pools and opportunities for market visibility. To illustrate the economic significance to these Rural 50 firms, AK Steel Holdings (West Chester, OH) reported an average ROA of 2.8% during the sample period. The predicted effect of an urban-connected CEO-director would equate to 2.9% higher ROA performance.

The foregoing results indicate that urban-connected CEO-directors impact rural firm performance more than non-connected CEO-directors. Although the relationship is not significant among the sampled rural firms in medium-sized cities (i.e., those outside the 10 largest metropolitan areas), among all firms headquartered outside the 25 and 50 largest cities the positive relationship is strong. Therefore, I find evidence to support Hypothesis 2 for these firms when ROA is used to measure financial performance.

Similar to Hypothesis 1, I also consider how CEO-directors' urban connections might influence other measures of rural firms' performance. Where Table 9 considers return on assets (ROA), Table 10 measures firm performance through Tobin's Q.

Among those firms headquartered outside the 10 largest cities, there is no statistical difference between CEO-directors with and without urban connections (Model 1; $\beta = 0.075$, $t = 0.38$, $p > 0.1$). This stands in contrast to general effect of CEO-directors on rural firms' Tobin's Q (Table 4) where there was a positive relationship. It is feasible that these firms, located in large business centers such as Boston, MA and Charlotte, NC, are proximal enough to outside resources and achieve enough visibility to maintain strong growth potential. All control variables display the expected sign.

The story is similar for those Rural 25 firms (Table 10, Model 2). Here, the association between *Urban_Connect* and firms' Tobin's Q is even weaker than in Model 1 ($\beta = 0.083$, $t = 0.26$, $p > 0.1$). All other coefficients are qualitatively similar to those for Rural 10 firms, so it is unlikely that the model is mis-specified; I must assume that urban-connections simply do not matter for these CEO-directors.

The urban connections of CEO-directors do matter for those appointed to Rural 50 firms ($\beta = 0.088$, $t = 1.77$, $p < 0.1$). Interestingly, all CEO-directors had no relationship with rural firms' Tobin's Q, but those with urban connections are important enough for firms outside the 50 largest cities that they cover up the others in the model. For these firms, appointing a CEO-director with urban connections is related to a 0.88 higher Tobin's Q. The CEO-director's home firm size, potentially a proxy for their visibility and relative network strength, continues to be a positive predictor of firm performance as well.

The relationship between urban-connected CEO-directors and rural firms' Tobin's Q is weak and is significant only for the most rural firms. Unlike the relationship between all CEO-directors and rural firms' Tobin's Q, where the relationship only existed among Rural 10 firms, urban-connected CEO-directors' influence only exists among Rural 50 firms. This is potentially due to the negative visibility effects of being geographically distant from markets and large talent pools. For these firms, their growth potential is limited by the lack of external resources. But, as predicted by the network theory of social capital, urban-based CEO-directors are able to act as resource channels for these firms, establishing critical connections to agglomeration economies.

Table 11 considers the effect of urban-connected CEO-directors on rural firms' cashflow returns (CFR). As with firm ROA (Table 9, above), there is no relationship between urban-connected CEO-directors and rural firms' CFR performance for those companies headquartered outside the 10 largest U.S. cities ($\beta = 0.028$, $t = 1.27$, $p > 0.10$). This is not surprising given the strong correlation between ROA and CFR ($r = 0.760$) and the lack of significance between urban-connected CEO-directors and Rural 10 firms' ROA (Table 9).

For Rural 25 (Table 11, Model 2) and Rural 50 (Table 11, Model 3) firms, however, the effect of urban-connected CEO-directors is positive and significant. Among these firms, appointing an outside CEO who is employed in one of the largest U.S. cities has a strong impact on the rural firms' cashflow return. For those firms headquartered outside the 25 largest cities, having an urban-connected CEO-director ($\beta = 0.051$, $t = 2.08$, $p < 0.05$) is related to a 0.51% increase in yearly CFR. The effect is similar among

Rural 50 firms ($\beta = 0.053$, $t = 2.17$, $p < 0.05$); among these firms, appointing an urban-connected CEO-director to the board is related to a 0.53% CFR increase.

The relative size of the CEO-director's home firm continues to be a positive and statistically significant predictor of firm performance. As in all previous models, this is potentially attributable to the relative skill and visibility of CEOs from large, successful outside firms.

Altogether, the foregoing results provide compelling evidence that supports Hypothesis 2 which predicts that CEO-directors from large urban areas will have a stronger impact on rural firms' financial performance than CEO-directors from other rural areas. The effect is positive and significant among Rural 25 and Rural 50 firms whether the performance measure employed is ROA or CFR, although there is no effect among Rural 10 firms. When Tobin's Q is used as the performance proxy, the effect of urban-connected CEO-directors is only significant among the most rural firms (i.e., those outside the 50 largest U.S. cities).

4.3.2 Difference-in-Differences

Thus far, the evidence that urban-connected CEO-director benefit rural firms most is compelling. Even so, these tests cannot rule out endogeneity, even when including firm-year fixed effects in the models. To close this gap, I estimate a difference-in-differences model to isolate the effect of appointing a CEO-director and compare the pre- and post-appointment firm performance.

A difference-in-differences is a natural quasi-experiment designed to test the effect of a treatment on an outcome by comparing the change over time for the treatment group compared to the change over time of the control group. Here, the appointment of a CEO-director is the experiment; an urban-connected CEO-director is the treatment condition and a non-connected CEO-director is the control condition.

I estimate a difference-in-differences model for all rural firms; in the first test, return on assets is used as the performance proxy, in the second test the measurement is Tobin's Q, and in the third test the measurement is CFR. Table 12 presents the results of these model specifications.

These difference-in-differences tests provide even stronger support for the hypothesis that urban-connected CEO-directors are more beneficial for rural firms than non-connected directors. Model 1 (Table 12) shows that *Urban_Connected* is positive and statistically significant ($\beta = 0.041$, $t = 4.65$, $p < 0.01$); this means that among all rural firms, urban-connected CEO-directors drive 0.41% higher ROA than non-connected directors. This represents a 35% increase across all rural firms in this subsample.

When testing Tobin's Q in Hypothesis 1, the effect of CEO-directors on rural firms was only statistically significant when the sample was firms outside the 10 largest cities. For the sample groups outside the 25 and 50 largest cities, there was no statistical effect on rural firms' Tobin's Q. In the difference-in-differences model, when testing variations in CEO-directors effects, urban-connected CEO-directors are positively related to rural firms' performance.

In Model 2 (Table 12), *Urban_Connect* is positive and statistically significant ($\beta = 0.098$, $t = 1.68$, $p < 0.10$), indicating that although all CEO-directors do not drive performance in all rural firms, CEO-directors from large urban areas do indeed increase performance compared to their non-connected peers. This result is predicted by the resource dependency theory (Pfeffer & Salancik, 1978); it states that firms can use various channels to access outside resources – physical and intangible – to improve firm outcomes. CEO-directors from other rural areas may not have the same ability as urban-connected directors to campaign and negotiate on behalf of their board firms.

Other variables with large magnitude coefficients are the average number of boards on which a firm's directors serve and the size of the CEO-director's home firm. The average number of boards on which a director serves ($\beta = 0.102$, $t = 2.79$, $p < 0.01$) and the size of the CEO-director's home firm ($\beta = 0.068$, $t = 1.97$, $p < 0.05$) are both considered proxies for how visible the director is and how important their network might be. These traits might enhance the CEO-director's ability to access his or her personal resources and leverage them in the boardroom.

Model 3 of Table 12 presents the results of the difference-in-differences model for urban-connected CEO-directors effect on rural firms' cashflow return. As in Model 1 where ROA is the performance measure, urban-connected CEO-directors positively and significantly improve rural firms' CFR ($\beta = 0.037$, $t = 3.98$, $p < 0.01$). In addition to being statistically significant, this coefficient is economically significant as well. For a rural firm, appointing a CEO-director from one of the largest U.S. cities is related to a 0.98% increase in annual CFR compared to appointing a CEO-director from another rural area.

The difference-in-differences test helps rule out endogeneity in the previous model estimations and provides robust evidence to support Hypothesis 2. In these tests, CEO-directors who are connected to the largest urban areas have a more pronounced effect on rural firms' ROA and Tobin's Q than CEO-directors who are from other rural areas. This adds further evidence supporting Hypothesis 2 which predicts that CEO-directors from large urban areas are more impactful for rural firms' financial performance than rurally-based CEO-directors.

4.3.3 Summary of Findings

The models tested here provide strong support for Hypothesis 2 which predicts that CEO-directors from the largest urban areas provide stronger positive results to rural firms than their peers from other rural areas. There are negative effects of rural headquartering, suggested above and in previous studies (Alam et al., 2014; Baran & Wilson, 2018), but CEO-directors can offset those negative influences by bridging the geographic and temporal distance to the benefits of agglomeration economies.

While I cannot completely rule out endogeneity, the difference-in-differences model greatly reduces the concern that the effect of urban connected CEO-directors is due to an unseen firm-level influence. By isolating the presence of absence of urban connections as an experimental condition, we are able to compare the singular effect of these connections on post-appointment ROA, Tobin's Q, and CFR. Because each firm's pre-appointment performance serves as a floating intercept, the experimental effect of the CEO-director is more isolated than in time series regressions.

These findings contribute to the literature by filling gaps left by previous rural firm governance studies. In prior work on the effects of CEO-directors, no consideration was given to the ability of urban-connected CEO-directors to be a resource channel outside of their geographic area. Other studies showed that rural firms' benefit from director connections to urban areas (Baran & Wilson, 2018), but they do not test which directors are most impactful. Further, Baran and Wilson (2018) consider the home of record for their directors and not the city in which that director is currently employed.

Like in Hypothesis 1, a secondary but important contribution to the rural governance literature is the inclusion of a control for the CEO-director's home firm size. This control, proxied here by the firm's total assets, is positive and significant in every model specification, indicating that the size of the firm is related to the CEO-director's network, power, visibility, or all of these.

5 CONCLUSION

CEO-directors are a potential source of competitive advantage for rurally-headquartered firms – one which may have direct benefits to the firm's financial performance. CEO-directors are the most sought-after directors, and their prestige and general human capital make them an ideal bridge between the firm managers and the board. Additionally, their professional experience makes them uniquely suited to perform both traditional board roles, advising and monitoring.

The economic benefits of urban headquarters has been well established. From access to investors to local executive talent to information spillover, firms headquartered in large cities are more productive and face fewer financial hurdles. Because of the ability for information to flow freely across networks through individuals, it is possible that CEO-directors from these largest cities are an even more important area of competitive advantage for rural firms. In addition to having the prestige and skill of an active CEO on their boards, rural firms who appoint CEO-directors from the largest cities may also open an information pipeline to those cities. This information pipeline may subsequently help transfer new knowledge into the firm and export information to analysts and institutional investors.

5.1 Dissertation Implications

This study fills two important gaps in the literature on firm geography and CEO-director effects. Previous studies have found a positive relationship between CEO-directors and firm performance, but other studies have indicated there are negative financial outcomes for firms located outside of large cities. To the best of my knowledge, this dissertation is the first attempt to investigate the effects of CEO-directors on firm performance.

I find that CEO-directors do provide tangible financial benefits, when ROA and CFR are used as the performance proxies, to rural firms. Importantly, these effects are positively related the relative distance the firm is from urban areas. That is, when the pool of rural firms includes all firms located outside of the 10 largest U.S. cities, CEO-directors' impact is inconclusive, but when the pool of rural firms includes only more 'remote' firms, the effects are statistically significant. As predicted, the magnitude of the effect increases when rural firms are measured as those headquartered outside the 50 largest cities. That is, as the relative size of the firm's home area decreases, the importance of CEO-directors increases. These results are consistent whether the effect is measured by a binary indicator of the presence of a CEO-director or the proportion of CEO-directors on the board.

The size of the CEO-director's home firm is also significantly related to his/her influence of firm financial performance. This might be due to one of several reasons; it could be an artifact of the CEO-director's visibility, an example of large firms' ability to hire the most talented CEOs, or a reason more akin to certification that the firm has growth potential (Fahlenbrach et al., 2010). I encourage further research into this phenomenon in order to better understand this cross-firm linkage.

While ROA and CFR are significantly improved by appointing CEO-directors, the same is not true for all performance measures. In a series of tests using Tobin's Q as the proxy for rural firms' performance, rural locations are related to lower performance and CEO-directors are related to higher performance across the model specifications, but the effect of CEO-directors only offsets the negative rural effects in medium-sized cities. Additionally, the size of the CEO's home firm is also not related to the firm's Tobin's Q, either.

I do find that there are regional differences in CEO-director's effects on rural firms. Rural firms in some economic regions (e.g., the Mid-Atlantic) experience much lower ROA than rural firms in other regions. However, the effect of CEO-directors does not offset the negative effects of rural locations in every region. Southwest firms experience the largest performance improvement when appointing CEO-directors, Rocky Mountain region firms realize no benefits, and New England region firms realize small benefits. Other contributing effects to rural firms' performance include the number of boards on which their directors serve, the size of the CEO-director's home firm, and the average director's experience (proxied by age).

I also find evidence that CEO-directors' urban connections are important for rural firms' financial performance. While CEO-directors positively impacted the ROA of all rural firms on whose boards they serve, there is a pronounced increase from urban-connected CEO-directors. Also, although all CEO-directors effect only Rural 10 firms' Tobin's Q, urban-connected CEO-directors do indeed drive higher Tobin's Q performance across all rural firms than non-connected CEO-directors. Together, these indicate that firms headquartered in remote areas may benefit especially from appointing to their boards CEO-directors who can act as agglomeration economies resource channels.

One practical implication of this study is that rural firms may improve their performance by recruiting CEO-directors to serve on their boards. Through personal networks, CEO-directors can serve as a two-way resource channel. First, CEO-directors can apply their own vast expertise and management skills to aid the firm's decisions, allowing the firm to access outside resources not otherwise available to them. Second, CEO-directors can carry firm-specific information to outside stakeholders, such as investment analysts and regulators, to mitigate information asymmetry concerns. CEO-directors can also be seen as a certifying presence to lending and investment banks when the firm seeks outside capital.

The second practical implication is that rural firms can tap into the agglomeration economies benefit of large urban areas, mitigating the negative influence of geographic distance. The literature strongly supports CEO-directors being the most sought-after outside directors, but this dissertation provides evidence that rural firms could focus their recruitment on CEOs from large urban areas. By doing so, they can enjoy the knowledge spillover effect and access the large pools of executive talent.

5.2 Limitations

I acknowledge that this study has important limitations. As noted in the literature review above, outside CEOs are image conscious and tend to accept directorships where they are visible or the firm is high performing. It is possible that CEO-directors only accept directorships at those rural firms whose measurables indicate they are primed for increased performance. I attempt to reduce the likelihood of this reverse causality by estimating whether firm performance increases from recent years immediately before the CEO-director's appointment, such as in the difference-in-differences model, but I cannot definitively establish the causal direction.

Another important limitation is the use ROA as the firm performance measure. While previous studies have found that ROA is an appropriate indicator of financial performance for rural firms (e.g., Alam et al., 2014), it is possible that the CEO-directors affect ROA, or other accounting-based metrics, more than they do market performance. Although I attempt to test the influence of CEO-directors on market-based measures by using Tobin's Q, with mixed results, there are endogeneity concerns when using Tobin's Q as the dependent variable. Share performance may be a more appropriate test of how the markets view CEO-directors' appointment to rural firms' boards. The descriptive statistics of this study's sample indicate that rural firms are generally smaller than urban firms, so their stocks may experience different volatility and trading volume than urban firms (Fama and French, 1992). Thus, I encourage more inquiry into the effect of CEO-directors on shareholder returns to better understand this.

Finally, the relative strength of the CEO-director's network could be an important influence not considered here. Some studies have shown that urban directors are more impactful when they are more centrally-located in their networks (Larcker et al., 2013), which could explain some of the variation in the results of this study, although those authors did not consider the type of director. I consider how the relative importance and visibility of the CEO-director's home firm, proxied by the home firm's size, affects their ability to improve rural firms' financial performance, but this may not capture quantitatively-unobservable characteristics like personality that may improve a CEO-director's network strength. Network research is outside the scope of this paper but should be considered in the future.

5.3 Future Research

This dissertation presents several areas for future research in rural firm financial performance, rural firm governance, urban executive networks, and CEO-director influences. The strong evidence for corporate governance influences on the financial performance of more rural firms compared to the weak evidence when including firms in medium-sized cities calls for more investigation into performance predictors in these medium-sized city firms.

For the financial performance of rural firms, the question of breadth CEO-directors' influence should be considered. I present evidence that CEO-directors strongly improve returns on assets but little evidence that they matter for Tobin's Q. Because of these different effects, it bears investigating if CEO-directors matter for rural firms' abnormal stock returns given that a key theoretical benefit is the CEO-director's ability to liaise with investment analysts. Similarly, another key market indicator drawn from theory include the CEO-director's influence in the debt markets – do these directors influence the bond yields, offering prices, or number and prestige of underwriting banks?

Other impacts on rural firm performance should also be studied. Alam et al. (2014) argue that geographic distance to the Top 10 cities – as measured by the number of firms located therein – decreases firm performance. However, if CEO-directors are one channel by which these geographically distant firms can mitigate the negative effects of distance, what other channels might also exist? Do rural firms see financial performance benefits by appointing former CEOs to their boards? Though the literature identifies CEOs as superior for all firms, research might find other executive ranks, such as chief financial officers, as beneficial specifically to rural firms.

In this dissertation, I control for industry effects when measuring the effect of CEO-directors on rural firm performance. However, some industries may provide varying benefits. As outside directors, CEOs general management capital and strategic expertise are key to their ability to fulfill the monitoring and advising functions. During periods of corporate upheaval, such as restructuring, mergers, or new market expansion, industry-specific skills (e.g., multi-national supply chains) could prove valuable for advising firm managers. Additionally, CEO-directors with ties to large international cities may be important for firms expanding into international trades or mergers.

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APPENDIX A Variables

Variable	*Definition*
Performance	A continuous variable describing the firms' financial performance. Proxied by return on assets (ROA), Tobin's Q, and cashflow return.
Rural	A binary variable coded 1 if the firm is headquartered outside of the largest metropolitan areas in the U.S. by population and 0 otherwise. The variable is subject to three measurement categories identifying the 10, 25, and 50 largest cities, respectively.
CEO_Director	A binary variable coded 1 if a firm appoints a director who is an active CEO of another firm and 0 otherwise
CEO_Director_Prop	A continuous variable representing the proportion of a firm's directors who are active CEOs of outside firms.
Urban_Connected	A binary variable coded 1 if a rural firm's appointed CEO-director is employed by a firm located in one of the largest urban areas and 0 otherwise.
Log Revenues	The natural logarithm of the firm's total revenues.
Log Intangibles	The natural logarithm of the firm's total intangible assets.
Leverage	The ratio of a firm's total debt to its total assets.
Market-to-Book	The ratio of a firm's yearly market value to its book value.
CEO Firm Size	The natural logarithm of the CEO-director's home firm's total assets.
Director Age	A continuous variable describing a CEO-director's professional experience, proxied by his/her age.
Board Size	The number of directors on a firm's board.
Number of Boards	The number of boards the CEO-director is appointed to in a firm-year.

APPENDIX B Tables and Figures

Table 1 - Descriptive Statistics

Table 1 presents the sample's descriptive statistics. Panel A presents the descriptive statistics for the entire sample, including both urban and rural firms. Panel B presents the descriptive statistics by firm headquarters location. For these, *Urban* firms are those headquartered inside of the 10 largest U.S. cities by population; *Rural* firms are those headquartered outside of the 10 largest U.S. cities by population.

		Full Sample					
Panel A		**Mean**	**Q1**	**Med**	**Q3**	**St Dev**	**n**
	CEO-Director	0.15	0.00	0.00	0.36	0.35	18,098
	CEO-Director Prop	0.08	0.00	0.00	0.13	0.11	18,098
	Return on Assets	0.09	0.05	0.09	0.14	0.14	18,098
	Tobin's Q	1.75	0.89	1.32	2.06	1.86	18,098
	Cashflow Return	0.41	0.08	0.11	0.16	0.37	18,098
	Total Assets	7,995.79	577.41	1,627.60	4,914.24	33,295.78	18,098
	Intangibles	2,097.49	72.81	327.48	1,326.24	7,113.25	18,605
	Leverage	0.22	0.02	0.15	0.30	0.32	18,098
	Revenues	6,984.01	556.62	1,544.81	4,426.90	23,658.07	18,098
	Market-to-Book	1.67	0.86	1.30	2.01	1.36	18,098
	Board Size	9.20	8.00	9.00	10.00	1.92	18,098
	Director Age	70.26	65.50	71.00	75.00	6.96	2,443
	Board Tenure	11.49	3.80	9.30	17.30	9.56	2,443
	Number of Boards	2.26	1.00	2.00	3.00	0.97	2,443

		Urban					
Panel B		**Mean**	**Q1**	**Med**	**Q3**	**St Dev**	**n**
	CEO-Director	0.27	0.00	1.00	2.00	0.39	8,371
	CEO-Director Prop	0.09	0.00	0.00	0.18	0.12	8,371
	Return on Assets	0.09	0.05	0.09	0.14	0.13	8,371
	Tobin's Q	1.78	0.90	1.34	2.03	1.81	8,371
	Cashflow Return	0.22	0.08	0.11	0.16	0.06	8,371
	Total Assets	8,612.19	543.06	1,611.54	5,127.26	31,790.92	8,371
	Intangibles	2,365.18	71.36	318.19	1,449.00	7,545.39	8,371
	Leverage	0.17	0.01	0.12	0.25	0.24	8,371
	Revenues	7,219.45	517.86	1,368.52	4,611.82	23,220.36	8,371
	Market-to-Book	1.70	0.90	1.32	2.01	1.39	8,371
	Board Size	9.28	8.00	9.00	11.00	2.01	8,371
	Director Age	70.31	65.00	71.00	75.00	6.93	1,230
	Board Tenure	10.43	3.30	8.40	14.98	8.97	1,230
	Number of Boards	2.47	2.00	2.00	3.00	0.95	1,230

		Rural					
		Mean	**Q1**	**Med**	**Q3**	**St Dev**	**n**
	CEO-Director	0.05	0.00	0.00	1.00	0.52	9,727
	CEO-Director Prop	0.07	0.00	0.00	0.14	0.07	9,727
	Urban Connect	0.38	0.00	0.00	1.00	0.27	1,161
	Return on Assets	0.09	0.05	0.10	0.15	0.14	9,727
	Tobin's Q	1.89	0.93	1.43	2.32	1.92	9,727
	Cashflow Return	0.52	0.08	0.11	0.16	0.54	9,727
	Total Assets	6,597.97	458.58	1,243.05	4,021.33	24,714.39	9,727
	Intangibles	1,658.95	51.53	246.63	993.31	6,037.71	8,722
	Leverage	0.17	0.00	0.09	0.26	0.33	1,149
	Revenues	6,120.69	457.38	1,301.09	3,693.38	22,420.77	9,727
	Market-to-Book	1.85	0.93	1.44	2.30	1.45	9,708
	Board Size	9.16	8.00	9.00	10.00	1.87	9,727
	Director Age	70.06	65.00	70.00	75.00	6.99	939
	Board Tenure	11.92	4.00	9.70	17.90	9.74	1,313
	Number of Boards	2.26	1.00	2.00	3.00	0.99	1,313

Table 2 - Correlation Matrix

This table presents the Pearson correlation coefficients of each variable pair.

	CEO Director	*CEO Director Prop*	*ROA*	*Tobin's Q*	*Cashflow Return*	*Total Assets*	*Intangibles*	*Leverage*	*Revenues*	*Market-to-Book*	*Board Size*	*Director Age*	*Number of Boards*
CEO Director	1												
CEO Director Prop	0.938	1											
ROA	0.132	0.122	1										
Tobin's Q	0.024	0.024	0.090	1									
Cashflow Return	0.145	0.131	0.760	0.012	1								
Total Assets	0.002	-0.002	0.014	-0.057	0.017	1							
Intangibles	-0.001	-0.001	0.003	-0.052	0.620	0.728	1						
Leverage	-0.013	-0.017	-0.135	-0.241	0.406	0.074	0.082	1					
Revenues	0.001	-0.001	0.040	-0.063	0.380	0.740	0.477	0.043	1				
Market-to-Book	0.065	0.060	0.308	0.715	0.389	-0.052	-0.054	-0.267	-0.055	1			
Board Size	-0.023	-0.024	0.100	-0.084	0.021	0.386	0.337	0.174	0.322	-0.082	1		
Director Age	-0.098	-0.090	0.014	-0.190	0.007	0.011	0.049	0.103	0.028	-0.127	0.106	1	
Number of Boards	0.030	0.023	0.049	0.011	0.109	0.018	0.028	0.000	0.045	-0.009	0.029	0.022	1

TABLE 3 - CEO-Directors' Effects on Rural Firm Performance

This table presents the main results of Hypothesis 1 testing. In each of the three models, the dependent variable is a firm's financial performance in a given year as proxied by the Return on Assets (ROA) in that firm-year. Each specification employs a different measurement of the primary independent variable *Rural* according to where the firm is headquartered. In Model 1, *Rural* is coded 1 if a firm is headquartered outside the 10 largest U.S. cities by population; in Model 2 *Rural* is coded 1 if a firm is headquartered outside the 25 largest U.S. cities by population; in Model 3 *Rural* is coded 1 if a firm is headquartered outside the 50 largest U.S. cities by population. Coefficient estimates are given with *t*-statistics in parentheses below.

	Model 1	*Model 2*	*Model 3*
	Top 10	*Top 25*	*Top 50*
Rural	-0.004	-0.003*	-0.011**
	(-0.71)	*(-1.79)*	*(-1.97)*
CEO_Director	0.028***	0.007*	0.022***
	(3.43)	*(1.69)*	*(3.30)*
*Rural*CEO_Director*	0.018	0.013*	0.021*
	(1.59)	*(1.85)*	*(1.91)*
Market-to-Book	0.034***	0.035***	0.035***
	(19.24)	*(19.64)*	*(19.70)*
Log Revenues	0.024***	0.023***	0.023***
	(9.41)	*(9.30)*	*(9.11)*
Log Intangibles	-0.004**	-0.003*	-0.004*
	(-2.40)	*(-1.88)*	*(-1.83)*
Leverage	-0.045***	-0.048***	-0.050***
	(-3.15)	*(-3.33)*	*(-3.40)*
Board Size	0.000	0.000	0.000
	(0.34)	*(0.41)*	*(0.45)*
Number of Boards	-0.002***	-0.002***	-0.002***
	(-3.54)	*(-3.60)*	*(-3.51)*
Director Age	0.002***	0.001***	0.002***
	(4.35)	*(3.84)*	*(3.89)*
CEO Firm Size	0.015**	0.017***	0.019***
	(2.28)	*(2.73)*	*(2.91)*
Firm-Year Fixed Effects	*Yes*	*Yes*	*Yes*
n	*1,817*	*1,817*	*1,817*
Adj. R^2	*0.381*	*0.383*	*0.380*
F-Statistic (10, 1816 df)	*57.36*	*58.03*	58.04

*$p < .1$, **$p < .05$, ***$p < .01$

TABLE 4 - CEO-Directors' Effects on Rural Firms' Tobin's Q

This table presents the results of Hypothesis 1 when Tobin's Q is employed as the proxy for firm financial performance. In each of the three models, the dependent variable is a firm's financial performance in a given year as proxied by Tobin's Q in that firm-year. Each specification employs a different measurement of the primary independent variable Rural according to where the firm is headquartered. In Model 1, Rural is coded 1 if a firm is headquartered outside the 10 largest U.S. cities by population; in Model 2 Rural is coded 1 if a firm is headquartered outside the 25 largest U.S. cities by population; in Model 3 Rural is coded 1 if a firm is headquartered outside the 50 largest U.S. cities by population. Coefficient estimates are given with t-statistics in parentheses below.

	Model 1	*Model 2*	*Model 3*
	Top 10	*Top 25*	*Top 50*
Rural	-0.330*	-0.429**	-0.359*
	(-1.72)	*(-2.06)*	*(-1.74)*
CEO_Director	0.097***	0.444*	0.559**
	(3.45)	*(1.69)*	*(2.42)*
*Rural*CEO_Director*	1.073***	0.070	0.524
	(2.64)	*(0.17)*	*(1.06)*
Log Revenues	-0.201**	-0.198**	-0.183**
	(-2.41)	*(-2.38)*	*(-2.18)*
Log Intangibles	0.059	0.068	0.038
	(1.10)	*(1.24)*	*(0.69)*
Leverage	-2.154***	-2.257***	-1.992***
	(-4.45)	*(-4.64)*	*(-4.06)*
Board Size	-0.043	-0.044	-0.037
	(-0.80)	*(-0.83)*	*(-0.69)*
Number of Boards	-0.181**	-0.176**	-0.177**
	(-2.12)	*(-2.05)*	*(-2.06)*
Director Age	-0.059***	-0.060***	-0.062***
	(-4.67)	*(-4.79)*	*(-4.92)*
CEO Firm Size	0.010	0.011	0.010
	(1.35)	*(1.37)*	*(1.32)*
Firm Fixed Effects	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*
n	*1,716*	*1,716*	*1,716*
Adj. R^2	*0.444*	*0.444*	*0.444*
F-Statistic (12, 1715 df)	*64.07*	*64.03*	64.10

**p* < .1, ***p* < .05, ****p* < .01

TABLE 5 - CEO-Directors' Effects on Rural Firms' Cashflow Returns

In this table, the firm financial performance measure is cash flow return (CFR). In each of the three models, the dependent variable is a firm's financial performance in a given year as proxied by the cash flow return (CFR) in that firm-year. Each specification employs a different measurement of the primary independent variable *Rural* according to where the firm is headquartered. In Model 1, *Rural* is coded 1 if a firm is headquartered outside the 10 largest U.S. cities by population; in Model 2 *Rural* is coded 1 if a firm is headquartered outside the 25 largest U.S. cities by population; in Model 3 *Rural* is coded 1 if a firm is headquartered outside the 50 largest U.S. cities by population. Coefficient estimates are given with *t*- statistics in parentheses below.

	Model 1	*Model 2*	*Model 3*
	Top 10	*Top 25*	*Top 50*
Rural	-0.004	-0.013**	-0.014**
	(-0.75)	*(-2.48)*	*(-2.27)*
CEO_Director	0.019**	0.010	0.010
	(2.35)	*(1.02)*	*(1.63)*
*Rural*CEO_Director*	0.020*	0.010*	0.018*
	(1.71)	*(1.81)*	*(1.79)*
Market-to-Book	0.015***	0.015***	0.014***
	(9.83)	*(9.66)*	*(10.02)*
Log Revenues	0.026***	0.026***	0.025***
	(11.36)	*(11.40)*	*(11.83)*
Log Intangibles	0.008***	0.008***	0.008***
	(6.04)	*(6.07)*	*(6.24)*
Leverage	-0.099***	-0.101***	-0.084***
	(7.58)	*(-7.69)*	*(-6.84)*
Board Size	0.005***	0.005***	0.005***
	(3.49)	*(3.62)*	*(3.42)*
Number of Boards	-0.004*	-0.004*	-0.004*
	(-1.87)	*(-1.89)*	*(-1.85)*
Director Age	0.001***	0.001***	0.001***
	(3.27)	*(3.53)*	*(3.69)*
CEO Firm Size	0.003***	0.003***	0.003***
	(4.89)	*(4.90)*	*(5.10)*
Firm Fixed Effects	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*
n	*1,568*	*1,568*	*1,568*
Adj. R^2	*0.201*	*0.202*	*0.200*
F-Statistic (10, 1567 df)	*40.58*	*40.86*	40.47

**p < .1, **p < .05, ***p < .01*

TABLE 6 - Firm Performance Post-CEO-Director Appointment

This table provides robustness tests of Hypothesis 1. The dependent variable in these models is the log likelihood that a firm will experience an increase in financial performance, as proxied by return on assets (ROA), one year after appointing a CEO-director to their board. The ROA increase must be greater than or equal to a one percentage point increase in ROA over the preceding year. The primary dependent variable in each model is the interaction term of *Rural,* measured by a firm's location outside the 10 (Model 1), 25 (Model 2), or 50 (Model 3) largest U.S. cities by population. Column 1 of each model presents the log likelihood and it's standard error. Column 2 presents the probability that the coefficient is larger than the χ2 critical value. Column 3 presents the exponetiated log odds ratio.

	Model 1			*Model 2*			*Model 3*		
	Top 10			*Top 25*			*Top 50*		
	β (SE)	$Pr(>\chi^2)$	exp(β)	β (SE)	$Pr(>\chi^2)$	exp(β)	β (SE)	$Pr(>\chi^2)$	exp(β)
Rural	0.062 (0.122)	0.295	1.06	-0.284 (0.133)	0.041	0.75**	-0.131 (0.127)	0.032	0.88**
CEO_Director	0.111 (0.187)	0.079	1.12*	0.298 (0.225)	0.046	1.35**	0.116 (0.015)	0.078	1.12*
*Rural*CEO_Director*	-0.053 (0.267)	0.692	0.95	0.576 (0.280)	0.026	1.78**	0.321 (0.018)	0.023	1.38**
Market-to-Book	1.183 (0.089)	0.001	3.26***	1.207 (0.089)	0.001	3.34***	1.191 (0.089)	0.001	3.29***
Log Revenues	0.428 (0.059)	0.001	1.53***	0.429 (0.059)	0.001	1.54***	0.432 (0.060)	0.001	1.54***
Log Intangibles	0.003 (0.037)	0.282	1.00	-0.003 (0.038)	0.234	1.00	-0.002 (0.038)	0.006	0.98**
Leverage	-2.681 (0.399)	0.001	0.07***	-2.622 (0.403)	0.001	0.07***	-2.624 (0.403)	0.001	0.07***
Board Size	0.037 (0.035)	0.216	1.04	0.036 (0.035)	0.191	1.04	0.038 (0.035)	0.181	1.04
Number of Boards	-0.081 (0.012)	0.001	0.92***	0.079 (0.012)	0.001	0.92***	-0.081 (0.012)	0.001	0.92***
Director Age	0.075 (0.009)	0.001	1.08***	0.074 (0.009)	0.001	1.08***	0.074 (0.009)	0.001	2.10***
CEO Firm Size	0.016 (0.002)	0.001	1.02***	0.021 (0.011)	0.001	1.02***	0.026 (0.015)	0.001	1.03***
n	947			947			947		
AIC	2112.9			2107.1			2111.9		
Null Deviance	2790.5			2790.5			2790.5		
Residual Deviance	2088.9			2083.1			2087.9		

TABLE 7 - *Proportion of CEO-Directors and Rural Firm Performance*

This table presents the results of tests of the effect of CEO-directors on the financial performance of rural firms using an alternative measurement of CEO-director. In Columns 1-3, firm performance is proxied by return on assets (ROA), in Columns 4-6, firm performance is proxied by Tobin's Q, and in Columns 7-9 firm performance is proxied by cashflow return. The key predictor variable, *CEO_Director Prop,* is the proportion of outside CEO-directors on each firm's board. Columns 1, 4, and 7 measure *Rural* as firms headquartered outside the 10 largest U.S. cities by population, Columns 2, 5, and 8 measure *Rural* as firms headquartered outside the 25 largest U.S. cities by population, and Columns 3, 6, and 9 measure *Rural* as firms headquartered outside the 50 largest U.S. cities by population. T-statistics are presented in parentheses below each coefficient estimate.

	ROA			*Tobin's Q*			*Cashflow Return*		
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*	*Model 8*	*Model 9*
	Top 10	*Top 25*	*Top 50*	*Top 10*	*Top 25*	*Top 50*	*Top 10*	*Top 25*	*Top 50*
Rural	-0.001	-0.002*	-0.011*	-0.192	-0.136	-0.182	-0.004	-0.013**	-0.005*
	(-0.21)	*(-1.87)*	*(-1.85)*	*(-1.31)*	*(-0.85)*	*(-1.02)*	*(-0.94)*	*(-2.52)*	*(-1.82)*
CEO_Director Prop	0.148*	0.039*	0.129***	0.045	1.007	1.146	0.091*	0.040*	0.023*
	(1.89)	*(1.69)*	*(2.81)*	*(0.30)*	*(0.58)*	*(0.93)*	*(1.66)*	*(1.67)*	*(1.84)*
*Rural*CEO_Director Prop*	0.090	0.105*	0.109**	2.012	0.072	0.016	0.011	0.009*	0.008*
	(1.11)	*(1.85)*	*(1.97)*	*(0.98)*	*(0.03)*	*(0.06)*	*(1.39)*	*(1.91)*	*(1.72)*
Market-to-Book	0.033***	0.033***	0.033***				0.015***	0.015***	0.015***
	(18.99)	*(19.12)*	*(19.19)*				*(9.68)*	*(9.54)*	*(9.56)*
Log Revenues	0.024***	0.025***	0.024***	-0.118*	-0.120*	-0.114*	0.026***	0.026***	0.026***
	(9.69)	*(9.73)*	*(9.51)*	*(-1.83)*	*(-1.87)*	*(-1.76)*	*(11.33)*	*(11.38)*	*(11.37)*
Log Intangibles	-0.005***	-0.005***	-0.005***	0.035	0.037	0.026	-0.008***	-0.009***	-0.008***
	(-3.16)	*(-3.10)*	*(-2.94)*	*(0.83)*	*(0.87)*	*(0.62)*	*(-6.05)*	*(-6.09)*	*(5.98)*
Leverage	-0.048***	-0.050***	-0.051***	0.843**	0.834**	0.930**	-0.010***	-0.012***	-0.009***
	(-3.32)	*(-3.38)*	*(-3.49)*	*(2.13)*	*(2.10)*	*(2.34)*	*(-7.62)*	*(-7.74)*	*(-7.53)*
Board Size	0.000	0.000	0.000	-0.072*	-0.071*	-0.069*	0.005***	0.004***	0.005***
	(0.33)	*(0.26)*	*(0.30)*	*(-1.75)*	*(-1.72)*	*(-1.66)*	*(3.50)*	*(3.62)*	*(3.52)*
Number of Boards	0.003	0.003	0.003	-0.080	-0.079	-0.079	0.004*	0.004*	0.004*
	(1.22)	*(1.31)*	*(1.38)*	*(-1.20)*	*(-1.17)*	*(-1.19)*	*(1.89)*	*(1.93)*	*(1.88)*
Director Age	0.001***	0.001***	0.001***	0.015	-0.016*	-0.017*	0.001*	0.001*	0.001*
	(3.64)	*(3.67)*	*(3.73)*	*(1.63)*	*(-1.75)*	*(-1.82)*	*(1.87)*	*(1.83)*	*(1.79)*
CEO Firm Size	0.015**	0.017**	0.020***	0.012	0.015	0.013	0.003***	0.003***	0.003***
	(2.41)	*(2.46)*	*(3.24)*	*(0.91)*	*(0.84)*	*(0.74)*	*(4.83)*	*(4.86)*	*(4.77)*
Firm Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
n	*1,818*	*1,818*	*1,818*	1,565	*1,565*	*1,565*	1,568	*1,568*	*1,568*
Adj. R^2	*0.369*	*0.370*	*0.371*	*0.449*	*0.444*	*0.449*	*0.299*	*0.282*	*0.290*
F-Statistic	*59.95*	*59.99*	*60.20*	*71.04*	*70.85*	*70.92*	*40.22*	*40.63*	*39.77*
	(10, 1818 df)	*(10, 1818 df)*	*(10, 1818 df)*	*(9, 1564 df)*	*(9, 1564 df)*	*(9, 1564 df)*	*(10, 1567 df)*	*(10, 1567 df)*	*(10, 1567 df)*

**p < .1, **p < .05, ***p < .01*

TABLE 8 - Regional and Industry Influences

This table presents the model estimates for the effect of CEO-directors on the financial performance of rural firms by Bureau of Economic Analysis (BEA) geographic region. In each model, the measurement of firm performance is return on assets (ROA), and the measurement of *Rural* is those firms headquartered outside of the 25 largest U.S. cities by population. Each model estimation is subject to industry fixed effects, proxied by the two-digit SIC code, and firm-year fixed effects. T-statistics are presented in parentheses below each coefficient estimate.

	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*	*Model 8*
	Great Lakes	*West*	*Southwest*	*Southeast*	*Mid-Atlantic*	*Rockies*	*Plains*	*New England*
Rural	-0.015	-0.032*	-0.004**	-0.003*	-0.039***	-0.000	-0.008	-0.011**
	(-1.52)	*(-1.67)*	*(-1.97)*	*(-1.69)*	*(-2.80)*	*(-0.17)*	*(-0.30)*	*(-2.02)*
CEO_Director	0.008	0.017**	0.016*	0.014*	0.015*	0.001	0.050**	0.017**
	(0.76)	*(1.97)*	*(1.81)*	*(1.74)*	*(1.72)*	*(0.04)*	*(2.28)*	*(2.23)*
*Rural*CEO_Director*	0.014	0.067*	0.178***	0.020*	0.022*	0.009	0.036	0.019**
	(0.72)	*(1.88)*	*(2.67)*	*(1.81)*	*(1.92)*	*(0.20)*	*(0.95)*	*(2.42)*
Market-to-Book	0.052***	0.017***	0.021***	0.045***	0.031***	0.086***	0.072***	0.011
	(23.98)	*(4.40)*	*(3.25)*	*(12.68)*	*(8.80)*	*(3.09)*	*(4.53)*	*(1.01)*
Log Revenues	0.003	0.053***	0.013*	0.012***	0.030***	0.013	0.026**	0.049***
	(0.60)	*(8.18)*	*(1.88)*	*(2.85)*	*(5.53)*	*(0.95)*	*(2.26)*	*(5.28)*
Log Intangibles	-0.004	0.006*	0.000	-0.002	-0.018***	-0.010	-0.17***	-0.017**
	(-1.03)	*(1.72)*	*(0.17)*	*(-0.66)*	*(-4.91)*	*(-1.04)*	*(-2.73)*	*(-2.13)*
Leverage	-0.040*	-0.149***	-0.109***	-0.030	0.044	0.078	-0.029	-0.182**
	(-1.85)	*(-3.56)*	*(-3.04)*	*(-0.96)*	*(1.53)*	*(0.62)*	*(-0.76)*	*(-2.14)*
Board Size	0.003	-0.019***	-0.004	0.001	0.002	-0.010	0.008	0.001
	(1.11)	*(-3.93)*	*(-0.87)*	*(0.44)*	*(0.99)*	*(-1.07)*	*(1.46)*	*(0.27)*
Number of Boards	0.007*	0.009	0.002	0.001	0.005	0.010	0.057***	-0.022**
	(1.87)	*(1.34)*	*(0.33)*	*(0.15)*	*(0.98)*	*(0.48)*	*(4.47)*	*(-2.40)*
Director Age	0.002**	0.000	0.002*	0.001*	-0.002***	0.005**	-0.000	-0.001
	(2.46)	*(0.92)*	*(1.88)*	*(1.65)*	*(-3.54)*	*(2.49)*	*(-0.11)*	*(-0.55)*
CEO Firm Size	0.010	0.009*	0.011*	0.021*	0.016**	0.009	0.013*	0.019***
	(1.32)	*(1.71)*	*(1.84)*	*(1.92)*	*(2.01)*	*(1.43)*	*(1.68)*	*(3.13)*
Firm Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
n	*202*	*398*	*262*	*295*	*301*	*70*	*118*	*172*
Adj. R^2	*0.409*	*0.406*	*0.288*	*0.638*	*0.571*	*0.281*	*0.718*	*0.304*
F-Statistic	*31.38*	*14.22*	*5.84*	*24.56*	*22.27*	*2.44*	*14.50*	*4.66*
F-Statistic df	*(10, 201 df)*	*(10, 397 df)*	*(10, 261 df)*	*(10, 294 df)*	*(10, 300 df)*	*(10, 69 df)*	*(10, 117 df)*	*(10, 171 df)*

*$p < .1$, **$p < .05$, ***$p < .01$

TABLE 9 - Urban Connected CEO-Directors and Rural Firm ROA

This table presents the estimations for the main tests of Hypothesis 2. For these models, the sample is reduced to only rural firms that appointed a CEO-director during the sample period. Each model tests the effect of whether those CEO-directors are connected to the largest urban areas of the United States on firm financial performance, proxied by return on assets (ROA). In Model 1, the effect of *Urban_Connect* is measured on all rural firms outside the 10 largest U.S. cities; in Model 2, the effect of *Urban_Connect* is measured on all rural firms outside the 25 largest U.S. cities; in Model 3, the effect of *Urban_Connect* is measures on all rural firms outside the 50 largest U.S. cities. T-statistics are presented in parentheses below the coefficient estimates.

	Model 1	*Model 2*	*Model 3*
	Top 10	*Top 25*	*Top 50*
Urban_Connect	0.059	0.085**	0.088***
	(1.31)	*(2.24)*	*(2.77)*
Market-to-Book	0.020***	0.019***	0.021***
	(5.46)	*(5.05)*	*(6.12)*
Log Revenues	0.004	0.004	0.003
	(1.03)	*(0.82)*	*(1.11)*
Log Intangibles	-0.006**	-0.005**	-0.004**
	(-1.97)	*(-1.98)*	*(-2.01)*
Leverage	-0.044**	-0.051**	-0.056**
	(-2.12)	*(-2.44)*	*(-2.30)*
Board Size	0.004	0.004	0.006
	(1.61)	*(1.58)*	*(1.09)*
Number of Boards	-0.003**	-0.002**	0.003**
	(-2.17)	*(-2.25)*	*(1.97)*
Director Age	0.001**	0.001**	0.003*
	(1.98)	*(1.99)*	*(1.94)*
CEO Firm Size	0.010**	0.009**	0.011**
	(2.09)	*(2.01)*	*(2.21)*
Firm Fixed Effects	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*
n	*1,161*	*1,161*	*1,161*
Adj. R^2	*0.303*	*0.309*	*0.380*
F-Statistic (8, 1160 df)	*13.59*	*13.20*	*18.07*

**p* < .1, ***p* < .05, ****p* < .01

TABLE 10 - Urban Connected CEO-Directors and Rural Firm Tobin's Q

This table presents the results for Hypothesis 2 testing. For these models, the sample is reduced to only rural firms that appointed a CEO-director during the sample period. Each model tests the effect of whether those CEO-directors are connected to the largest urban areas of the United States on firm financial performance, proxied by Tobin's Q. In Model 1, the effect of *Urban_Connect* is measured on all rural firms outside the 10 largest U.S. cities; in Model 2, the effect of *Urban_Connect* is measured on all rural firms outside the 25 largest U.S. cities; in Model 3, the effect of *Urban_Connect* is measures on all rural firms outside the 50 largest U.S. cities. T-statistics are presented in parentheses below the coefficient estimates.

	Model 1	*Model 2*	*Model 3*
	Top 10	*Top 25*	*Top 50*
Urban_Connect	0.075	0.083	0.088*
	(0.38)	*(0.26)*	*(1.77)*
Log Revenues	-0.248***	-0.245***	-0.253***
	(-3.22)	*(-3.28)*	*(-3.21)*
Log Intangibles	0.140***	0.144***	0.151***
	(3.75)	*(3.80)*	*(3.91)*
Leverage	-1.232***	-1.233***	-1.313***
	(-3.58)	*(-3.62)*	*(-3.86)*
Board Size	0.039	0.040	0.041
	(0.88)	*(0.85)*	*(1.09)*
Number of Boards	0.021**	0.028**	0.027**
	(2.17)	*(2.21)*	*(2.18)*
Director Age	-0.021**	-0.025**	-0.022**
	(-2.01)	*(-2.48)*	*(-2.31)*
CEO Firm Size	0.010*	0.009*	0.010*
	(1.78)	*(1.75)*	*(1.81)*
Firm Fixed Effects	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*
n	*1,161*	*1,161*	*1,161*
Adj. R^2	*0.303*	*0.309*	*0.312*
F-Statistic (7, 1160 df)	*13.59*	*13.20*	*14.06*

*$p < .1$, **$p < .05$, ***$p < .01$

TABLE 11 - Urban Connected CEO-Directors and Rural Firm Cashflow Return

This table presents the estimations for the main tests of Hypothesis 2. For these models, the sample is reduced to only rural firms that appointed a CEO-director during the sample period. Each model tests the effect of whether those CEO-directors are connected to the largest urban areas of the United States on firm financial performance, proxied by cashflow return (CFR). In Model 1, the effect of *Urban_Connect* is measured on all rural firms outside the 10 largest U.S. cities; in Model 2, the effect of *Urban_Connect* is measured on all rural firms outside the 25 largest U.S. cities; in Model 3, the effect of *Urban_Connect* is measures on all rural firms outside the 50 largest U.S. cities. T-statistics are presented in parentheses below the coefficient estimates.

	Model 1	*Model 2*	*Model 3*
	Top 10	*Top 25*	*Top 50*
Urban_Connect	0.028	0.051**	0.053**
	(1.27)	*(2.08)*	*(2.17)*
Market-to-Book	0.021***	0.020***	0.021***
	(4.84)	*(4.77)*	*(4.92)*
Log Revenues	0.013***	0.014***	0.013***
	(6.93)	*(6.82)*	*(7.11)*
Log Intangibles	0.006***	0.006***	0.006***
	(4.97)	*(4.98)*	*(5.01)*
Leverage	-0.064***	-0.071**	-0.066**
	(-6.12)	*(-6.44)*	*(-6.30)*
Board Size	0.002***	0.002***	0.002***
	(3.61)	*(3.58)*	*(3.59)*
Number of Boards	0.002**	0.002**	0.002**
	(1.99)	*(2.05)*	*(2.02)*
Director Age	0.001**	0.001**	0.001**
	(1.96)	*(1.99)*	*(2.02)*
CEO Firm Size	0.010***	0.011***	0.011***
	(3.09)	*(3.01)*	*(3.21)*
Firm Fixed Effects	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*
n	*1,161*	*1,161*	*1,161*
Adj. R^2	*0.253*	*0.269*	*0.281*
F-Statistic (9, 1160 df)	*17.59*	*21.06*	*23.27*

*$p < .1$, **$p < .05$, ***$p < .01$

TABLE 12 - Difference-in-Differences for Urban-Connected CEO-Directors

This table presents results of difference-in-differences modesl comparing firm financial performance after a rural firm's first appointment of a CEO-director to the financial performance pre-appointment. In Model 1 financial performance is proxied by return on assets (ROA), in Model 2 financial performance is proxied by Tobin's Q, and in Model 3 financial performance is proxied by cashflow return (CFR). The independet variable of interest is *Urban_Connected*Post-Appointment, the interaction term of* Urban_Connected, a binary indicator of whether the appointed CEO-director is employed by a firm in one of the largest U.S. cities by population (coded 1 if yes and 0 otherwise) and the firm-years after the firm's first appointment of a CEO-director (coded 1 if the year is post-appointment and 0 otherwise). T-statistics for each coefficient estimate are presented in parentheses.

	Model 1	*Model 2*	*Model 3*
	ROA	*Tobin's Q*	*CFR*
Urban_Connected	0.053***	0.084*	0.052***
	(3.81)	*(1.72)*	*(3.76)*
Post-Appointment	0.038**	0.076	0.018**
	(2.41)	*(1.60)*	*(2.70)*
*Urban_Connected*Post-Appointment*	0.041***	0.098*	0.037***
	(4.65)	*(1.68)*	*(3.98)*
Log Intangibles	-0.009***	-0.382**	0.011***
	(-3.18)	*(-2.21)*	*(6.18)*
Leverage	0.017	-5.099***	-0.043***
	(0.55)	*(-4.35)*	*(5.51)*
Market-to-Book	0.004*		0.016***
	(1.65)		*(7.77)*
Log Revenues	0.009*	-0.095	0.029***
	(1.67)	*(-0.31)*	*(8.22)*
Board Size	0.004	0.009	0.003***
	(1.39)	*(0.06)*	*(3.10)*
Number of Boards	0.001*	0.102*	0.002**
	(1.73)	*(1.79)*	*(2.01)*
Director Age	0.002*	0.010*	0.001*
	(1.71)	*(1.68)*	*(1.87)*
CEO Firm Size	0.021**	0.068**	0.017**
	(2.01)	*(1.97)*	*(2.19)*
Firm Fixed Effects	*Yes*	*Yes*	*Yes*
n	*1,161*	*1,161*	*1,161*
Adj. R^2	*0.422*	*0.575*	*0.318*
F-Statistic (10, 1160 df)	*9.68*	*13.14*	*16.88*

*$p < .1$, **$p < .05$, ***$p < .01$