

Extending the Resource-Based View of the Firm: Corporate Relocation Disruptions and Financial Reporting

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Abstract

In this study, we leverage the relocation of corporate headquarters as an event that disrupts a firm's human capital and organizational resources to examine the influences firm resources have on financial reporting outcomes. Using a sample of U.S. public companies over the period 2004 to 2018, we find that corporate headquarters relocations to new states and metropolitan areas are associated with significantly higher likelihoods of both restatement and non-timely filing of the annual report, indicating that disruptions to human capital and organizational resources have significant negative effects on the financial reporting process. In additional analyses, we find evidence consistent with internal control being a mechanism through which resource disruptions affect financial reporting outcomes. This research extends our understanding of contexts in which the resource-based view of the firm is applicable and documents the important roles that firm-wide human capital and organizational resources have in the financial reporting process.

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1. Introduction

The resource-based view of the firm depicts firms as a collection of resources and activities that can be organized and leveraged to gain a competitive advantage (Rubin 1973; Penrose 1959; Wernerfelt 1984; Barney 1991; Barney, Wright, and Ketchen 2001). Although viewing the firm through this lens is widely accepted in the academic literature, results of empirical tests of the theory have been mixed (Newbert 2007). These tests overwhelmingly limit their consideration to measures of firm performance (e.g., profitability, labor productivity, market share), primarily in the setting of competitive markets. In this study, we extend the resource-based view of the firm by examining the disruption to human capital and organizational resources, induced by relocation of the firm's corporate headquarters, on financial reporting outcomes. The financial reporting process is not typically viewed as a source of competitive advantage for publicly-traded firms, but is nonetheless an important function to consider because it is mandatory for all publicly-traded firms and bears potentially significant benefits and costs (see Beyer, Cohn, Lys, and Walther (2010) and Roychowdhury, Shroff, and Verdi (2019) for discussions).

Corporate headquarters relocations are an appealing setting in which to examine the resource-based view of the firm because these events are likely disruptive to a firm's human and organizational capital. Relocation of a firm's headquarters can result in a significant loss of, and change to, the human capital of the relocating firm because employee turnover is inevitable (Feldman and Bolino 1998), particularly among the older, more experienced personnel (Sagie, Krausz, and Weinstein 2001). This is especially true as knowledge and skill reside within the individual, rather than the firm itself (Grant 1996). Corporate headquarters relocation also

disrupts organizational capital because firm norms, routines, and culture that are essential to the effective management and deployment of organizational resources are codified at headquarters (Chandler 1991; Birkinshaw, Braunerhjelm, Holm, and Terjesen 2006). Therefore, relocation may prompt new corporate hierarchies, structures, policies, or internal controls for a variety of firm processes, while also limiting the time available for executives to focus on certain firm functions, such as financial reporting.

Relocation is likely to directly affect a firm's accounting, auditing, and financial reporting because these functions relocate to maintain their proximity to firm executives at corporate headquarters. Employee turnover coinciding with corporate headquarters relocation can prompt organizational changes to the structure and responsibilities of financial reporting personnel and, in turn, require modifications to associated control activities and procedures. Modifications to organizational structure and routines take time to implement and become effective (Rice and Weber 2012). In the interim, employees may be placed in positions and asked to perform functions with which they have little knowledge or previous experience, increasing the likelihood of mistakes and lengthening the time required to produce the financial reports. Additionally, even if key personnel are retained through the relocation, executives may have fewer resources to focus on the financial reporting process. Corporate headquarters relocations consume much of executive personnel's focus and the firm's resources (Kunisch, Menz, and Ambos 2015) and decision-makers inherently tend to devote resources to matters garnering most of their attention (Ocasio 1997). Ultimately, the loss of key personnel with deep institutional knowledge and experience in the financial reporting process, combined with disruption to established routines and reduced executive oversight, are likely to impair a firm's ability to produce high quality financial reports.

We use a sample of public companies based in the United States between 2004 and 2018 to test whether resource disruption through corporate headquarter relocation affects financial reporting outcomes. For each firm-year in our sample, we collect the address of the principal executive offices from the first page of the Form 10-K filed with the Securities and Exchange Commission (SEC). Using these addresses, we identify corporate headquarters relocations based on observed changes in the address of the principal executive offices from the prior year to the current year. We create two binary measures of relocation capturing headquarters relocations to a different state and to a different Core Based Statistical Area (CBSA). Moving to a different state or a new metropolitan area is likely to induce disruption in human capital and organizational resources that can have financial reporting consequences.

We first examine whether relocating firms have a higher likelihood of subsequent restatement of their annual financial statements. Subsequent restatement indicates that the annual financial statements contained material errors when released, suggesting that the financial reporting process was not effective. We then consider whether corporate relocation lengthens the financial reporting timeline by investigating whether relocating firms have a higher susceptibility for non-timely filing of their annual financial statements. Timeliness is not only an intuitive consequence, but also an ancillary characteristic of the Financial Accounting Standards Board's Conceptual Framework, underscoring its importance. Using a logistic regression model that includes controls for factors likely to explain variation in low quality financial reporting and the decision to relocate, we find corporate headquarters relocations to new states and metropolitan areas are associated with significantly higher likelihoods of both restatement and non-timely filing of the annual report. In economic terms, the direct effect of a relocation to a different state (metropolitan area) is associated with an increased likelihood of subsequent restatement of 5.2

(5.1) percentage points. Similarly, relocation to a different state (metropolitan area) is associated with 4.9 (4.7) percentage points higher likelihood of a non-timely filing. This evidence suggests that corporate relocations have significant negative effects on the financial reporting process by increasing the likelihood of material errors, as well as the time required to complete the financial reporting process.

We next consider whether internal control quality could be a potential mechanism through which corporate headquarters relocations negatively affect the financial reporting process. Relocations may disrupt organizational structures and processes, in addition to potentially disrupting individuals responsible for internal control over financial reporting. Utilizing management-disclosed material weaknesses in internal control over financial reporting, we find that that the relocation of corporate headquarters is associated with a significantly higher likelihood that management reports a material weakness in internal control over financial reporting as of the end of the fiscal year. The effect of relocation to a different state (metropolitan area) is associated with an economically significant 6.1 (5.9) percentage points greater likelihood of material weakness. We then use structural equation modeling (SEM) to test how these internal control weaknesses may directly, and indirectly, affect the financial reporting process, while controlling for the same factors included in our financial reporting analysis. The results of this path analysis reveal that corporate headquarters relocations contribute directly to a higher likelihood of lower quality internal control and indirectly to poor financial reporting outcomes, through their effect on internal control. Thus, internal control appears to be a mechanism through which resource disruptions affect financial reporting quality and timeliness.

To ensure that our results are not driven by certain characteristics of relocating firms, we perform several additional analyses. We utilize propensity score matched samples, exclude non-

relocating firms from our sample, assess the influence of firm size on our inferences, and control for persistent financial reporting and internal control issues. We continue to find that relocation of the corporate headquarters, and not characteristics of the relocating firms, are responsible for negatively impacting the financial reporting process.

This study extends our understanding of contexts in which the resource-based view of the firm can be applied to include the financial reporting process. Prior research on the resource-based view of the firm overwhelmingly considers how firms' resources can be utilized in order to gain a (sustainable) competitive advantage (Barney 1991; Barney, Barney, Ketchen, Wright, Ketchen, and Wright 2011; Newbert 2007; Armstrong and Shimizu 2007). The financial reporting process is not a source of competitive advantage, yet is critically important to, and mandatory for, all publicly traded firms. It requires significant human capital, coordinated on a firm-wide basis using organizational resources. We show that the resource-based view of the firm is a useful framework for evaluating the influences of resources in settings not involving competitive advantage, expanding the boundaries of the resource-based view of the firm's application.

Our findings also demonstrate that firm decisions that may seem to have little direct relevance to the financial reporting process can have consequences for internal control and financial reporting. Such insights expound upon those from prior studies that identify certain governance and time-invariant firm characteristics as influential to internal control and financial reporting quality (e.g., Dechow, Ge, and Schrand 2010; Klein 2002; Cohen, Krishnamoorthy, and Wright 2004). Moreover, they reinforce the view that high quality financial reporting requires strong firm-wide engagement of human and organizational capital.

In addition, this research extends our understanding of the consequences of corporate headquarters relocations. Despite public interest in corporate headquarters relocations, as reflected in the media attention given to recent high-profile relocations (e.g., Chipotle, Hewlett-Packard, Oracle, and Honeywell), examination by academics into the consequences and benefits to relocating firms has been scant and no examination, to our knowledge, has considered the financial reporting-related implications. The financial reporting process is not likely of principal concern or motivation when firms relocate. However, management should be cognizant of the risks relocations pose to the financial reporting process and proactively take greater care, through planning and implementing strategies to manage human and organizational capital, to minimize the disruption.

Finally, our findings should be of interest to external stakeholders that rely on information contained in external financial reports because they suggest that the quality of information publicly released shortly after a disruption to resources may be lower. Thus, corporate headquarters relocations constitute an observable factor relevant to the assessment of internal control and financial reporting quality. Identifying additional factors that inform assessments of internal control and financial reporting quality is important considering the limitations of the binary nature of audit reports that are intended to be informative of such matters (Christensen, Neuman, and Rice 2019).

2. Prior Literature and Hypothesis Development

2.1 Resource-Based View of the Firm

Early views of the firm considered external factors, such as product demand and prices, to be the key drivers of firm decision-making and performance (e.g., Bain 1959). Subsequently,

Penrose (1959) and Rubin (1973) introduced an alternative view positing internal firm resources as integral to firm performance and sources of competitive advantage. This view was codified by Wernerfelt (1984) as the resource-based view of the firm. Formally, the resource-based view of the firm (RBV) asserts that a firm is a unique collection of resources and capabilities, which, when properly utilized, position the firm to gain a competitive advantage (Barney 1991; Barney et al. 2001).

Prior research defines resources as all assets, capabilities, organizational processes, firm attributes, information, and knowledge controlled by a firm (e.g., Barney 1991). Barney (1991) groups these resources into three broad categories. One, physical capital includes a firm's plant and equipment, other physical assets and technology, and its raw materials. Two, human capital refers to the knowledge, education, skills, training, and experience of the individual managers and employees within the firm (Becker 1962). Three, organizational capital includes a firm's formal reporting structure, systems of internal control, and planning processes, as well as the methods for communication between the firm and external environment.

Resources that are rare, inimitable, and not substitutable are the most critical to firm success in gaining a competitive advantage (Barney 1991; Barney et al. 2011; Newbert 2007). Elements of human capital, such as employee skills and behaviors and people management systems, are increasingly important to firms (Wright, Dunford, and Snell 2001), especially as technology- and service-oriented functions continue to account for greater percentages of firm activities in developed economies. Each firm has, in some respect, unique human capital due to differences in the experience, skills, and knowledge possessed by the individual employees within the firm. Idiosyncrasies in organizational structures, which must be implemented to fully leverage the human capital, further contribute to this heterogeneity among firms (Wiklund and

Shepherd 2003). Specifically, prior research argues that a strong organizational structure is essential for proper implementation of firm strategy, so much so that changes in firm strategy also require changes to the organizational structure to be fully realized (Rumelt 1974; Hamilton and Shergill 1992; Okumus 2003). In addition, the organizational structure can be seen as a ‘meta-resource’ that organizes and combines the firm’s other resources and capabilities to position the firm to achieve its full potential (Collis 1994; Petts 1997; Ljungquist 2007). To better understand how firms operate and how the RBV can be useful as a framework for providing context for firm outcomes, we must more closely examine the effects of changes in these resources on a broader set of firm functions.

In a review of empirical research on the RBV, Armstrong and Shimizu (2007) identify numerous studies that purportedly test the RBV. Overwhelmingly, the outcomes examined pertain to firm performance (e.g., profitability, labor productivity, market share). We extend the RBV literature by considering the effects of the human capital and organizational resources elements of the RBV on financial reporting outcomes. The financial reporting process is an important firm function to consider because it is not only mandatory for publicly-traded firms, but also bears potentially significant costs and benefits to the firm. Shareholders can hold the firm and its management accountable for incorrect or misleading financial reports by bringing costly litigation, lowering the firm’s value, removing top management, or increasing financing costs (Hribar and Jenkins 2004; Palmrose and Scholz 2004; Desai, Hogan, and Wilkins 2006; Hennes, Leone, and Miller 2008; Wilson 2008; Hennes, Leone, and Miller 2012).

In its purest form, the RBV’s interest lies primarily in identifying resources that contribute to a firm’s ability to *sustain* a competitive advantage. By invoking the RBV framework in this study, we do not mean to suggest that required annual financial reporting is

necessarily a source of sustained competitive advantage for a firm. Since every public company must engage in financial reporting, such processes are not rare or inimitable – two attributes of resources as sources of sustainable competitive advantage. However, as detailed above, financial reporting is still an important function for a publicly traded firm. When top management solely deploys resources to optimize performance metrics indicative of a competitive advantage, such as revenue, market share, profitability, or stock returns, financial reporting gets overlooked in their decision-making. As such, understanding the consequences to the financial reporting process may help to better inform management’s resource allocation decisions.

2.2 Corporate Headquarters’ Role in the RBV

An instance in which there is likely to be a significant disruption to human capital and organizational resources, and thereby influence the financial reporting process, is when firms relocate their corporate headquarters. The practice of establishing corporate headquarters that are distinct from the relatively autonomous operating units is one of the defining characteristics of the modern diversified corporation (Chandler 1962, 1991). In the 1990s, a minimalist approach was taken to corporate headquarters. Shareholders, especially from private equity firms, advocated for a smaller executive team to oversee operating managers. The leadership group was responsible for ensuring that the operating managers hit performance-related targets, effectively implemented the firm’s overall strategy, and complied with applicable laws and regulations (*The Economist* 2008). Globalization and increased regulatory requirements, however, have compelled a trend toward larger corporate headquarters exercising greater influence over division-level and operating decisions (Kunisch, Müller-Stewens, and Collis 2012), making them more central to the operation and success of a firm (Chandler 1991; Birkinshaw et al. 2006). Corporate headquarters tend to now be the organizational unit with formal authority to make

decisions concerning resources and determine the overall corporate strategy on how to deploy those resources. Collis, Young, and Goold (2007) identify four general roles of corporate headquarters: resource allocation and deployment; monitoring and evaluating the performance of operating units; shared back-office functions, such as payroll processing; and, obligatory legal, financial, and regulatory compliance and reporting. The last of these functions, involving compliance and reporting, is the focus of our empirical examination. Given the corporate headquarters' prominent role in the firm, human capital and organizational resources, especially in the area of financial reporting, are concentrated at the corporate headquarters.

Firms seek to improve the effectiveness and efficiency of the human capital and organizational structures at corporate headquarters through continuous refinement. This perspective is consistent with the hypercompetitive view of RBV, which posits that competitive advantages are difficult to maintain over a long period of time and require resources to be continually adapted and reconfigured (D'Aveni 2010; Eisenhardt and Brown 1998). Based on survey responses from some of the largest corporations in North America and Europe, more than two-thirds of firms reported recent, major changes to their corporate headquarters (Kunisch et al. 2012). Firms may change the physical location of the corporate headquarters to reconfigure their organizational assets (Birkinshaw et al. 2006).

The reasons stated for why firms choose to relocate their corporate headquarters are numerous, but some more commonly cited are in response to regulatory changes (Garnaut 2002), growth (Brouwer, Mariotti, and Van Ommeren 2004), shifting population or labor demographics (Klier and Testa 2002), and changes in corporate tax rates (Laamanen, Simula, and Torstila 2012). Heightened volatility in these factors in recent years has likely contributed to the relatively high number of firms electing to move their headquarters. Prior studies of corporate

relocations have found that five percent (Strauss-Kahn and Vives 2009) to six percent (Voget 2011) of firms move their headquarters within a five- or ten-year time horizon, respectively.¹ Relocations induce not only employee turnover, due to some employees voluntarily choosing not to relocate and others not relocating due to strategic attrition, but also changes to firm organizational structures. These disruptions likely affect financial reporting outcomes because they significantly alter key inputs – the human capital and organizational structures – to the process.

There has been relatively little academic research into the consequences and benefits of corporate headquarters relocation, especially as it relates to the critical function of financial reporting. Much of the prior research instead seeks to identify characteristics of the surrounding areas to which firms tend to relocate. Davis and Henderson (2008) argue that a firm benefits if there is a broader range of expert services available for the corporate headquarters and if the new location is proximate to other corporate headquarters. Baaij, Mom, Van Den Bosch, and Volberda (2012) suggest that headquarters relocation can be beneficial for firms if it results in closer communication with external stakeholders, improves access to resources, or provides access to favorable fiscal, legal, and regulatory regimes. Consistent with this view, firms generally relocate to metropolitan areas with comparatively stronger resources, such as better transportation infrastructure, lower corporate taxes, lower costs of labor, and a higher concentration of specialized business services (Strauss-Kahn and Vives 2009).

Only a few studies attempt to identify measurable benefits of headquarters relocation. Laamanen et al. (2012) find that relocating firms experience a decrease in their corporate tax rate

¹ Comparatively, in our 15-year sample period, there are 7,005 unique firms, of which 809 (11.5 percent) relocate their corporate headquarters. This relative frequency is likely higher due to the longer time horizon and because our analyses do not require capital markets data that tends to contribute to sample attrition in other studies.

after relocation, suggesting that a theorized driver of relocation is, in fact, realized. However, researchers have been unable to find improvements in monitoring or performance resulting from the perceived enhanced access to resources after relocation. Gregory, Lombard, and Seifert (2005) explore numerous measures of operating performance and conclude that there is little evidence of improved operating performance after headquarters relocation. Specifically, they do not find a significant change in return on assets, return on equity, total return, or the ratio of selling, general, and administrative expenses to sales, after firms relocate their corporate headquarters. These studies suggest that the desired improvement in resource utilization at the new headquarters location may not actually affect production and profitability. The resources involved in the financial reporting process, however, should be significantly, contemporaneously affected by relocation of the corporate headquarters.

2.3 Hypothesis Development

Financial reporting is a human-centric process that relies heavily on strong organizational structures to assimilate and report information on the firm's performance and financial position. The quality of financial reporting, therefore, depends on a firm's ability to deploy human capital in the context of its unique organizational systems. Prior research has shown that certain aspects of firm human capital and organizational structures influence financial reporting outcomes. For example, Czerney, Schmidt, Thompson, and Zhu (2020) find that the occurrence of Type II subsequent events may constrain management attention, increasing the likelihood of subsequent restatement. Call, Campbell, Dhaliwal, and Moon (2017) find that as the education level of the workforce available in the area proximate to the firm decreases, so too does the firm's financial reporting quality. With regard to organizational structures and processes, firms that are more complex, undergoing rapid change, or restructuring are more likely to have material weaknesses

in their internal control over financial reporting, contributing to a higher likelihood of restatement (Doyle, Ge, and McVay 2007). Perceptions of employee treatment policies, based on *Fortune*'s list of "100 Best Companies to Work For" and KLD's ratings of employee relations, are associated with lower likelihoods of employee-related material weaknesses and restatements caused by unintentional errors (Guo, Huang, Zhang, and Zhou 2016). Collectively, prior research suggests that certain firm human capital and organizational structures may have an impact on the financial reporting process. Therefore, it is possible that a disruption to those resources may also influence financial reporting outcomes.

Due to the high degree of human capital required in the accounting, auditing, and financial reporting functions, these processes are likely to be disproportionately disrupted by the decision to relocate the corporate headquarters. Demand for personnel with skills in these areas is perpetually high and employees' knowledge and skills are not owned by firms, making it possible for employees to freely transfer them elsewhere (Campbell, Coff, and Kryscynski 2012). To firms' further detriment, when knowledge and capabilities are embedded in specific employees, rather than within the firm itself, there is a firm-specific component to human capital utilized in a firm's systems, including financial reporting, that will be lost when employees leave (Coff 1997; Hatch and Dyer 2004; Kor and Leblebici 2005). Prior research (e.g., Plumlee and Yohn 2010; Hennes et al. 2008, 2014) and firm disclosures most often attribute restatements in financial information to basic, unintentional errors, rather than to fraud. Retention of personnel with sufficient knowledge and attention can lessen the prevalence and magnitude of errors of this nature.

We expect that changes in human and organizational capital induced by headquarters relocations have adverse effects on the financial reporting process. Accordingly, we state our hypothesis in the alternative form as follows:

Hypothesis: Human and organizational capital disruption is associated with adverse financial reporting outcomes.

We acknowledge the possibility that corporate headquarters relocation may not significantly disrupt human capital and organizational structures relevant to financial reporting or may disrupt them in such a way that actually improves the process. The relocation may be motivated by a desire to streamline the organizational structure, resulting in a simplified financial reporting process with less complex internal control over financial reporting. Simplification, efficiency, and lower complexity may reduce the likelihood for misstatements or errors, improving reporting outcomes. Successful corporations also recognize that the full potential economic value of individual knowledge can only be reached by codifying it into routines and organizing processes so that they are not dependent on any individual(s) (Clarke and Rollo 2001). In such companies, human capital disruption that coincides with corporate headquarters relocation is less likely to have a negative effect on the financial reporting process.

3. Research Design

3.1 Using Corporate Headquarters Relocations as a Setting to Test RBV

We use public company corporate headquarters relocations as an advantageous setting in which to test the effects of human capital and organizational resources on the financial reporting process. Corporate headquarters relocations are appealing because they constitute disruptions to firms' human and organizational resources, but do not likely directly influence reporting outcomes. Moreover, although firms that relocate have concurrent changes in their physical

assets (e.g., buildings), these assets are likely not impactful to financial reporting. It is instead the disruption to the human capital and organizational resources in which we are interested that is likely to affect financial reporting outcomes.

When a firm chooses to relocate its corporate headquarters, some key employees will inevitably choose not to move with the firm (Feldman and Bolino 1998). The distance between the old and new locations is likely a strong determinant of attrition, but so too are the age demographics of the employee base. Older, more experienced employees are less likely than younger, less experienced employees to follow their employers (Sagie et al. 2001), rendering employee turnover most acute among those with the greatest institutional knowledge. In addition, cost cutting and reducing unnecessary overhead, giving rise to involuntary turnover, are often cited as reasons for corporate headquarters relocation (Ghosh, Rodriguez, and Sirmans 1995). If a relocation is simply part of a change in overall focus on cost cutting, a corporate relocation may also be associated with downsizing of certain departments and/or employees resulting in an even greater loss of human capital. The loss of key personnel due to corporate relocation could contribute negatively to the financial reporting process.

Corporate headquarters relocation may also prompt significant changes in the firm's organizational structure, including the reporting and approval processes related to financial reporting. Such organizational changes may involve new corporate hierarchies, new reporting structures or policies, and new internal controls for a variety of functions, including financial reporting. More generally, they diminish the firm's ability to effectively utilize available resources. As an example, executive personnel often see the relocation consume much of their focus, limiting the time they have available to devote to financial reporting (Kunisch et al. 2015). Executives also exhibit tendencies to devote greater resources to matters demanding most of

their attention, which can disrupt organizational processes. In the end, it takes time to implement new procedures and for them to become effective, increasing the risk of disruption concurrent to the timing of the relocation.

We establish the location of a firm's corporate headquarters based on the address of its principal executive offices that we extract from the first page of Form 10-K filed with the SEC using a self-developed Python-based program. As the name suggests, the chief executive officer and other top executives are based out of the principal executive offices. Accounting and reporting functions generally have situs at this location (Collis et al. 2007) because they produce the information that supports the strategic and other corporate decision-making processes. The location of the principal executive offices often differs from the address of the principal business operations, mailing address, or state of incorporation, all of which are also disclosed in Form 10-K.

To identify corporate headquarters relocations, we compare the address of the principal executive offices in the current year Form 10-K to the address in the prior year Form 10-K. Differences between these addresses constitute relocations. Based on changes in the address of the principal executive offices, we construct two measures of corporate headquarters relocations: *ChgState* and *ChgCBSA*. *ChgState* equals one if the firm moves its principal executive offices to a different state in the current year, and zero otherwise. *ChgCBSA* equals one if the firm moves its principal executive offices to a different CBSA in the current year, and zero otherwise.²

CBSAs are geographic and socioeconomically tied adjacent areas that have at least 10,000

² When constructing *ChgState*, we additionally require that the CBSAs differ to reduce the likelihood of capturing relocations within the same metropolitan area (e.g., from New York to New Jersey near New York City; from Maryland to Virginia near Washington, D.C.). Thus, all instances in which *ChgState* equals one are also one for *ChgCBSA*.

people in the urban center, as determined by the U.S. Census Bureau.³ CBSAs encompass both Metropolitan Statistical Areas, which have previously been used in accounting research (Call et al. 2017; Beck, Francis, and Gunn 2018), and Micropolitan Statistical Areas. Although a move from one CBSA to another may not be as disruptive as a move from one state to another, by changing CBSAs, a firm is moving to a new metropolitan area and such a move is likely to induce meaningful organizational change. We assign corporate headquarters locations to CBSAs using their zip codes.

3.2 Measuring Financial Reporting Outcomes

We examine two impacts to financial reporting: subsequent restatement of the annual financial statements (*Rsmt*) and non-timely filings (*NonTimely*). *Rsmt* equals one if the firm subsequently announces the restatement of the current year financial statements, and zero otherwise. Restatements with restatement periods of more than 275 days in Audit Analytics and that encompass the fiscal year end date are deemed restatements of the annual financial statements. *NonTimely* equals one if the firm files its annual report (Form 10-K) after its required filing date, and zero otherwise. Non-timely filings are identified by the filing of a Form NT with the SEC prior to filing the Form 10-K. We examine non-timely filings because the Financial Accounting Standards Board's Conceptual Framework asserts that timeliness is an ancillary characteristic of relevance, rendering it a significant determinant of decision-useful information (Lambert, Jones, Brazel, and Showalter 2017; Czerney, Jang, and Omer 2019). Both variables are constructed using data from Audit Analytics.

³ See <https://www.census.gov/topics/housing/housing-patterns/about/core-based-statistical-areas.html> for further discussion of CBSAs.

3.3 Regression Models

To test our Hypothesis, in which we predict that disruptions to human and organizational capital have adverse effects on financial reporting, we estimate the following model using logistic regression:

$$[Rsm\textit{t}, NonTimely] = \beta_0 + \beta_1[ChgState, ChgCBSA] + Controls + \varepsilon \quad (1)$$

Rsm\textit{t}, *NonTimely*, *ChgState*, and *ChgCBSA* are as previously defined. A positive and significant coefficient on *ChgState* or *ChgCBSA* indicates that human and organizational capital disruptions, as induced by corporate headquarters relocation, are associated with lower financial reporting quality (i.e., greater likelihood of restatement or non-timely filing), providing support for our Hypothesis.

We follow prior literature to identify an appropriate set of common control variables (*Controls*) to include in Model 1 that may explain variation in financial reporting outcomes and the decision to relocate. We control for the quality of internal control over financial reporting using *ICMW*, which equals one if management of the firm reports one or more material weaknesses in internal control over financial reporting in the current year, and zero otherwise.⁴ *ICMW* is included because of the strong influence that the quality of the internal control environment has on financial reporting (e.g., Doyle et al. 2007; Chan, Farrell, and Lee 2008; Ashbaugh-Skaife, Collins, Kinney, and Lafond 2008). We control for audit-related factors using *GC*, *BigN*, *Log(OfficeSize)*, *AudTenure*, and *BusySeason*. *GC* equals one if the auditor's report expresses substantial doubt about the client's ability to continue as a going concern, and zero

⁴ We use management internal control disclosures, as required by Sarbanes-Oxley Act of 2002 Section 404(a), instead of auditor internal control disclosures, as required by Sarbanes-Oxley Act of 2002 Section 404(b), because 1) we are interested in a measure that is more closely aligned with financial reporting quality than with audit quality and 2) 404(a) disclosures are available for a broader cross-section of firms than are 404(b) disclosures, since non-accelerated filers are not required to have their independent auditor opine on internal control effectiveness.

otherwise. Firms that receive going concern opinions are financially constrained and, therefore, likely to have fewer resources to devote to internal control and financial reporting, as well as to effectively execute a relocation. We utilize two variables to control for auditor quality because Big N auditors are associated with more conservative financial reports (Francis, Maydew, and Sparks 1999) and auditors from larger audit offices tend to perform higher quality audits yielding higher quality financial reports (Francis and Yu 2009). *BigN* equals one if the firm has a Big 4 auditor, and zero otherwise. *OfficeSize* is calculated as the number of public company clients of the audit office for the audit firm performing the external audit. We include *AudTenure*, calculated as length of time that the current auditor has been engaged by the client (in years) based on Audit Analytics data, due to prior research that finds a relation between auditor tenure and financial reporting quality (Johnson, Khurana, and Reynolds 2002; Chen, Lin, and Lin 2008). We also control for whether or not the firm has a calendar year-end (*BusySeason*), in which case the external audit would be performed during “busy season” when the external auditor is resource-constrained (Lopez and Peters 2012).

Our next group of control variables captures firm characteristics that prior research has shown to be associated with internal control deficiencies and lower quality financial reporting (Doyle et al. 2007; Ashbaugh-Skaife, Collins, and Kinney 2007). *AT*, measured using the firm’s total asset balance as of the end of the current year, controls for firm size. *InvRec*, which is the sum of total inventory and receivables scaled by total assets, is included because firms with higher inventory and receivables balances have higher risk of material misstatement. We calculate leverage (*Lev*) as the sum of long-term debt and the current portion of long-term debt, scaled by total assets. We include *RevGrowth* and *Loss* as two measures to control for firm financial performance. *RevGrowth* is the year-over-year growth in revenue and *Loss* equals one

if the firm reports a net loss before extraordinary items. We control for complexity using number of geographic segments (*NGeoSeg*), as well as a firm's life cycle using its age (*Age*). Finally, prior research documents that corporate governance and CEO- and CFO-related factors affect reporting quality (Ali and Zhang 2015; Zhang 2019; Bergstresser and Philippon 2006; Carcello, Neal, Palmrose, and Scholz 2011). Accordingly, we control for changes in CEO (CFO) using *ChgCEO* (*ChgCFO*), which equals one if the firm changes its CEO (CFO) in the current year, and zero otherwise.

Model 1 also includes year and industry fixed effects to control for time series variation and time-invariant industry characteristics, respectively. Standard errors are clustered by firm. We winsorize *InvRec*, *Lev*, and *RevGrowth* at the one percent and 99 percent levels to reduce the influence of outliers. Refer to Appendix A for a summary discussion of how we calculate variables included in our regression models.

4. Sample Selection and Empirical Findings

4.1 Sample Selection

Table 1 summarizes our sample selection procedure. We begin with 102,925 annual reports filed on Form 10-K for fiscal years 2004 through 2018 by firms with coverage in Audit Analytics. Our sample period starts in 2004 because we are interested in financial reporting in the post-Sarbanes-Oxley Act of 2002 (SOX) environment.⁵ We then exclude 36,484 firm-years without coverage in Compustat because we rely on Compustat data to calculate several control variables. We drop 5,840 firm-years with principal executive offices located outside the United States and 814 firm-years for which the principal executive office could not be extracted from

⁵ We additionally use 2003 as a base year for determining corporate headquarter relocations in 2004.

the Form 10-K. Finally, we drop 8,484 firm-years missing data necessary to calculate any other control variables. The final sample for our main analyses consists of 51,303 observations.

[Insert Table 1 Here]

4.2 Descriptive Statistics

Table 2, Panel A, presents descriptive statistics for our dependent, test, and control variables. Regarding financial reporting quality, 9.2 percent of annual financial statements are subsequently restated (*Rsm*t), while 8.2 percent of firm-years are filed after the deadline required by the SEC (*NonTimely*). We observe corporate headquarters relocations to a new state (metropolitan area) in 1.3 (1.8) percent of firm-years. Nearly 64 percent of firm-years have a Big N auditor (*BigN*) and the mean (median) audit office size (*OfficeSize*) and auditor tenure (*AudTenure*) are 22.2 (15.0) clients and 6.9 (6.0) years, respectively. Management-identified material weaknesses in internal control, indicative of low internal control quality, are identified in 9.8 percent of observations (*ICMW*). Firms in our sample tend to use debt as a source of capital, with a mean (median) leverage ratio (*Lev*) of 34.8 (15.9) percent. Firms also report mean revenue growth (*RevGrowth*) of 16.5 percent, while net losses (*Loss*) are reported in 35.0 percent of firm-years. The mean (median) for *Age* is 19.8 (16.0) years, suggesting that firms in our sample are mature. Finally, 11.0 (14.4) percent of firm-years have a change in their CEO (CFO).

[Insert Table 2 Here]

Table 2, Panel B, displays the relative frequencies for our dependent and test variables for each year in our sample period. The incidences of *Rsm*t and *NonTimely* are all relatively high in the first two years of our sample, stemming from the initial implementation and upheaval due to SOX. Thereafter, restatements (*Rsm*t) decline monotonically from 2011 through 2018. Non-timely filings (*NonTimely*) are relatively stable from 2009 through 2018, ranging between 6.5

percent and 7.6 percent each year. Corporate headquarters relocations to new states (*ChgState*) and new metropolitan areas (*ChgCBSA*) do not exhibit a discernable trend throughout our sample period. Relocations to new states are lowest in 2005 (0.8 percent of firms) and highest in 2014 (1.7 percent of firms). Relocations to new metropolitan areas are also lowest in 2005 (1.2 percent of firms), but not highest until 2018 (2.3 percent of firms).

Figure 1 contains a visualization of net changes in relocations by state from 2004 to 2018. States shaded in red (California), orange (e.g., Louisiana, New York, New Jersey), and yellow (e.g., Michigan, Oregon, Washington) experienced net corporate headquarters departures, with red, orange, and yellow representing extreme, moderate, and mild net departures, respectively. States with a shade of green experienced net corporate headquarters arrivals, with darker shades of green (e.g., Texas, Georgia, Florida) representing a larger number of additions than states with lighter shades of green (e.g., Indiana, Missouri, Wisconsin).

[Insert Figure 1 Here]

4.3 Univariate Tests

Table 3 presents results of univariate tests examining whether our measures of internal control quality (*ICMW*) and financial reporting outcomes (*Rsm* and *NonTimely*) are significantly different between firm-years with and without corporate headquarters relocation (*ChgCBSA* and *ChgState*). We find that all univariate differences are significantly different between the two groups ($p < 0.01$). In economic terms, the differences are greatest for *ICMW* and *NonTimely*. These results provide initial, univariate evidence to support our Hypothesis and suggest that relocation-induced resource disruptions have negative effects on financial reporting.

[Insert Table 3 Here]

4.4 Regression Analysis

Table 4 displays the results of estimating Model 1 as our initial test of our Hypothesis, in which we predict that human and organizational capital disruptions are associated with adverse financial reporting outcomes. Our test variables are *ChgState* (Columns 1 and 3) and *ChgCBSA* (Columns 2 and 4). We find that corporate headquarters relocations are associated with significantly ($p < 0.05$ in Columns 1 and 2, $p < 0.01$ in Columns 3 and 4) higher likelihoods of subsequent restatement (*Rsmt*) and non-timely filing of the annual financial statements (*NonTimely*), providing support for our Hypothesis. Relocating the corporate headquarters to another state (CBSA) makes it 1.4 (1.3) times more likely that the financial statements will be subsequently restated and 1.6 (1.6) times more likely that they will be filed non-timely. In terms of percentage points, relocating to a different state (CBSA) is associated with a 5.2 (5.1) percentage point higher likelihood of restatement and 4.9 (4.7) percentage point higher likelihood of filing non-timely.⁶ We also note that internal control quality (*ICMW*) is positively and significantly ($p < 0.01$) associated with the likelihood of subsequent restatement and non-timely filing, consistent with prior research.

[Insert Table 4 Here]

4.5 Consideration of Internal Control Quality as the Mechanism

We consider the influence of corporate headquarters relocations on internal control quality as the potential mechanism through which our results obtain. Internal control quality is a logical explanatory attribute for several reasons. One, Wang and Li (2006); Chan et al. (2008),

⁶ We calculate the greater odds of a restatement and non-timely filing by exponentiating the coefficient estimates from the logistic estimation. To derive the percentage point increase, we multiply the increase in probability (derived from the odds ratio) by the relative frequencies of *Rsmt* and *NonTimely* for non-relocators. Using the coefficient estimate of 0.301 for *ChgState* from Column 1 as an example, $e^{0.301}$ equals 1.35. The corresponding probability is 0.57 ($e^{0.301}/(1+e^{0.301})$). Multiplying the mean for *Rsmt* among non-relocators of 0.091 (Table 3) by 0.57 yields 0.052, or 5.2 percentage points.

and Ashbaugh-Skaife et al. (2008) all document a link between reporting quality (using lower earnings quality as a proxy) and the likelihood of a material weakness. Two, human behavior is fundamental to the effectiveness of internal control over financial reporting. Succinctly, “internal control is people” (Carmichael 1970). Experienced financial reporting personnel that find relocation unappealing may be inclined to leave the firm (Feldman and Bolino 1998; Sagie et al. 2001), resulting in the loss of valuable knowledge of firm processes. Human failures due to simple errors are a key breakdown in otherwise effective internal control (COSO 2013) that could be prevented by personnel with requisite knowledge and experience. Three, corporate headquarters relocation may be in response to, or in anticipation of, the firm’s increasing complexity and growth. A rapidly growing firm can outgrow its current internal control systems and require new procedures or personnel (Kinney Jr and McDaniel 1989; Stice 1991). New organizational processes may be needed to approve financial transactions or incorporate new or different reporting centers requiring the implementation of new controls to oversee that process. Changes to IT systems and permissions, and related controls, are likely in connection with the relocation and growth. In sum, changes in human capital, firm complexity and growth, and organizational resource allocation may lead to a higher likelihood of material weaknesses in internal control over financial reporting for relocating firms (Doyle et al. 2007).

To examine the influence of internal control quality in our setting, we first estimate a model using logistic regression that posits *ICMW* as the dependent variable, *ChgState* or *ChgCBSA* is the independent variable of interest, and includes all control variables from Model 1. We tabulate the results of this estimation in Table 5. We find that the coefficients on *ChgState* and *ChgCBSA* are both positive and significant ($p < 0.01$), indicating that in the year a firm relocates its corporate headquarters, there is a higher likelihood of reporting a material weakness

in internal control over financial reporting as of year-end. In economic terms, when a firm relocates its headquarters to a different state (CBSA), the odds of reporting a material weakness are 1.79 (1.71) times, or 6.1 (5.9) percentage points, higher compared to firm-years without a relocation. We additionally note, consistent with prior research, that riskier firms, such as those that are distressed (*GC, Loss*), have more inventory and receivables (*InvRec*), more leverage (*Lev*), have higher growth (*RevGrowth*), are younger (*Age*), and have recent executive turnover (*ChgCEO, ChgCFO*), are more likely to report a material weakness in internal control. Larger firms (*Log(AT)*), firms with Big N auditors (*BigN*), auditors with longer tenure (*Log(AudTenure)*), and calendar year-ends (*BusySeason*) are associated with stronger internal control.

[Insert Table 5 Here]

The results displayed in Tables 4 and 5 suggest that corporate headquarters relocations can directly affect both the financial reporting process (Table 4) and internal control quality (Table 5). In Table 4, we also observe a positive and significant ($p < 0.01$) association between *ICMW* as a control variable and financial reporting outcomes. Because corporate headquarters relocations are associated with *ICMW* and both corporate headquarters relocations and *ICMW* are associated with financial reporting outcomes, attempting to quantify the effect of relocation-induced resource disruptions on financial reporting outcomes using logistic regression can be imprecise. Thus, we utilize Structural Equation Modeling (SEM) to better assess how the relocation affects the financial reporting process. SEM enables us to quantify both the indirect, through its effect on internal control quality, and direct effects of corporate headquarters relocations on financial reporting outcomes. We calculate and test the indirect effects of corporate headquarter relocations on financial reporting quality using the product of the direct

effect of *ChgState/ChgCBSA* on *ICMW* from Table 5 and the direct effect of *ICMW* on *Rsm/NonTimely* from Table 4. These indirect and direct relationships are illustrated in Figure 2. We find that the indirect effects are positive and significant ($p < 0.01$) in all estimations, indicating that corporate headquarters relocations have a significant, indirect effect on financial reporting quality through their effects on internal control quality in addition to their direct effects on financial reporting. As expected, the total effects, which are the sum of the direct and indirect effects, are also statistically significant ($p < 0.01$). Overall, we find evidence that human and organizational capital disruptions prompted by corporate headquarters relocations not only directly affect financial reporting outcomes, but also indirectly affect financial reporting through their effects on internal control quality.

[Insert Figure 2 Here]

4.6 Characteristics of Relocating Firms

As evident from Table 2, most firm-years do not have a corporate headquarters relocation. The significant imbalance between the number of firm-years with (treatment observations) and without (control observations) corporate headquarters relocations suggests that relocations are not likely random events and firms that choose to relocate their corporate headquarters may fundamentally differ from non-relocators on observable or unobservable dimensions.⁷ We perform the following additional analyses to assess the influence that covariate imbalance has on our inferences.

First, we re-estimate Model 1 on a propensity score matched sample. Our approach to propensity score matching matches each treatment observation to a control observation on a one-to-one basis without replacement, using all control variables. We estimate our matching model

⁷ Of particular importance to our study, a desire to improve financial reporting outcomes or internal control quality has not previously been identified as a significant motivating factor for corporate headquarters relocation.

separately for *ChgState* and *ChgCBSA*. Given the apparent significant role that internal control quality appears to play in our setting, in this analysis and those that follow, we continue to employ SEM to quantify the indirect and direct effects of corporate headquarters relocations on financial reporting outcomes. As a result, *ICMW* is a dependent variable and variable of interest, rather than a control variable. Table 6, Panel A, presents the means for *ChgState* and non-*ChgState* firm-years and the results of the univariate tests of the mean differences both before and after matching. The means for all control variables are significantly ($p < 0.01$) different before matching. After matching, none of the means are significantly different, indicating that our matching approach effectively eliminates covariate imbalance in the first moment. Panel B shows the like statistics and univariate tests for *ChgCBSA* and non-*ChgCBSA* firm-years, both before and after matching. We similarly find all means to be significantly ($p < 0.05$ for *BusySeason*, $p < 0.01$ for all others) different before matching and not significantly different in the propensity score matched sample.

[Insert Table 6 Here]

Table 6, Panel C, tabulates the results of the SEM re-estimations of Model 1 using the propensity score matched samples. We continue to find that corporate headquarters relocations, when measured using either *ChgState* or *ChgCBSA*, are associated with significantly ($p < 0.01$) lower quality internal control and a greater likelihood of non-timely filing. The direct effect of *ChgCBSA* on *Rsmt* is positive and significant ($p < 0.10$), but *ChgState* is no longer significant. The significant indirect effects of corporate headquarters relocations on financial reporting outcomes persist, but the indirect effect of *ChgState* (*ChgCBSA*) on *Rsmt* is not significant (significant at $p < 0.10$) instead of significant at $p < 0.05$ as in our main analysis. Overall, based

on the results of these analyses, we conclude that covariate imbalance does not change the inferences from our main analyses.⁸

Second, we attempt to address the risk that unmodeled, fundamental differences between relocating and non-relocating firms may contribute to our findings by re-estimating Model 1 on the sub-samples of firm-years for firms with corporate headquarters relocations at any point during our sample period. Thus, the reference (control) group contains the non-relocation years of firms that relocate during our sample period. The results of our re-estimations using this sub-sample of relocators, as tabulated in Table 7, Panel A, are consistent with those presented in Table 6, Panel C, except that *ChgCBSA* is no longer significant when *Rsm*t is the dependent measure. Specifically, firms are significantly more likely to have material weaknesses and file non-timely in the year of relocation, compared to non-relocating years.

[Insert Table 7 Here]

Third, among the subset of large accelerated filer firm-years in our sample (17,135 observations), *ChgState* (*ChgCBSA*) only equals one for 0.7 (1.0) percent of the sample (untabulated). Comparatively, per Table 2, *ChgState* (*ChgCBSA*) equals one for 1.3 (1.8) percent of firm-years in our full sample. Thus, smaller, less mature firms appear to have a higher propensity to relocate their corporate headquarters. To confirm that the low rate of corporate headquarters relocations among the largest firms in our sample does not bias our inferences, we re-estimate Model 1 on the sub-sample of firm-years excluding large accelerated filers. We tabulate the results of these re-estimations in Table 7, Panel B, and note that they are consistent with our main analyses from Tables 4 and 5.⁹

⁸ Our results also hold when we re-estimate our logistic regression models including the weights from Entropy balancing our sample on the first, second, and third moments.

⁹ In untabulated analyses, we estimate our regression models on the sub-sample of large accelerated filers and note that the statistical significance of our results is weaker or non-existent (for *Rsm*t), suggesting that these larger firms

Fourth, and finally, we acknowledge the possibility that the significant associations between corporate headquarters relocations and internal control quality and financial reporting quality could be driven by persistent internal control and financial reporting issues that happen to coincide with corporate headquarters relocations. As such, we re-estimate Model 1 after additionally controlling for the one year lagged values of the dependent variables (e.g., *Rsmf[t-1]*, *NonTimely[t-1]*, and *ICMW[t-1]*). Based on the results tabulated in Table 7, Panel C, we continue to find significant direct effects of corporate headquarters relocations, for both measures, on financial reporting outcomes and internal control quality that are incremental to potentially persistent internal control and financial reporting quality issues. Overall, the results of the tests in Tables 6 and 7 suggest that the inferences from our primary analyses cannot be explained by the unique characteristics of relocating firms and that the act of relocation has actual, negative effects on human and organizational capital that manifest in financial reporting outcomes.

4.7 Material Weakness by Type

Material weaknesses in internal control occur for diverse reasons – some of which may more plausibly be effects of human and organizational capital disruption than others. For example, if relocations disrupt personnel, a material weakness that results from “Accounting personnel resources, competency/training” may be more likely. Conversely, a material weakness stemming from an “Ineffective, non-existent or understaffed audit committee” is not likely to be associated with a corporate headquarters relocation. We leverage Audit Analytics’ assignment of material weaknesses to 15 out of its 21 categories to test whether relocations are associated with

can leverage their relatively greater human capital and organizational resources to reduce the disruptive influence of a relocation on internal control and financial reporting quality.

material weaknesses attributed to specific reasons.¹⁰ We execute this analysis by creating 15 indicator variables that each equal one if management discloses a current year material weakness in internal control for the specific reason identified, and zero otherwise. We then re-estimate Model 1 using each of these dependent variables, for both *ChgState* and *ChgCBSA*. The summary results of this analysis are tabulated in Table 8.

[Insert Table 8 Here]

We find that corporate headquarters relocations are significantly associated with greater likelihoods of material weaknesses attributable to personnel-related reasons, such as due to resources or competency/training, ethical or compliance issues, segregation of duties, and senior management competency/tone/reliability, when relocations are measured using *ChgState* and *ChgCBSA*. We additionally find that inter-state corporate headquarters relocations are associated with greater likelihoods of material weaknesses in the areas of disclosure controls (including timeliness), year-end adjustments, and non-routine transactions. The results of this analysis provide some validation for personnel-related disruptions associated with corporate headquarters relocations contributing to lower quality internal control. Moreover, based on additionally significant results for *ChgState* for select material weakness types, out-of-state relocations can have more disruptive influences on internal control.

¹⁰ We exclude the following six Audit Analytics categories from our analyses: Accounting documentation, policy and/or procedures; Management/Board/Audit Committee investigation(s); Restatement of previous 404 disclosures; SAB 108 adjustments noted; Scope (disclaimer of opinion) or other limitations; and, SEC or other regulatory investigations and/or inquiries. The latter five categories are excluded because they rarely occur in our sample (i.e., fewer than 100 occurrences) and the former category is excluded because all but 57 material weaknesses identify “Accounting documentation, policy and/or procedures” as a contributing factor.

4.8 Untabulated Additional Analyses

4.8.1 Other sources of resource disruption

Corporate headquarters relocations are an appealing setting in which to examine the influence of resources on financial reporting outcomes, as discussed in Section 3.1 above. There are, however, other sources of disruption that can influence resources relevant to financial reporting. Two such disruptions could be when firms implement restructuring programs or experience changes in their leadership (i.e., CEO or CFO turnover). We test whether the effect of corporate headquarters relocations, as a source of resource disruption, on financial reporting outcomes varies with restructuring activities and leadership changes. We implement these tests by separately partitioning our sample on firm-years with and without restructuring charges, with and without changes in CEOs, and with and without changes in CFOs. The direct effects of relocations are significant in all partitions when non-timely filings and material weaknesses are the dependent measures, indicating that corporate headquarters relocations are disruptive to resources irrespective of these other sources of disruption. For subsequent restatements, relocations have an adverse effect when there is concurrent restructuring and when there is not a concurrent change in leadership (either CEO or CFO), indicating that our evidence using restatements is sensitive to the co-occurrence of other events.¹¹ In all analyses, tests of the differences between the coefficients on *ChgState* and *ChgCBSA* across partitions using seemingly unrelated regressions reveals that the magnitudes of the effects are not significantly different across partitions. Overall, the results of these analyses suggest that resource disruptions induced by corporate headquarters relocations are distinct from other likely sources of disruption.

¹¹ The significant effect of relocations in the restructuring partition continues to be significant after controlling for the level of restructuring activities.

4.8.2 Alternative restatement measures

We use the subsequent restatement of the annual financial statements as one of our two measures of financial reporting outcomes. Restatements are a strong proxy for financial reporting quality because the subsequent restatement of the financial statements reveals that the financial statements, as originally filed, contained material misstatements and were therefore, of low quality. Restatements vary, however, in their severity. To examine whether corporate headquarters relocations are associated with restatements of varying severity, we first test whether the corporate headquarters relocation is likely to coincide with the first annual fiscal period restated as part of a subsequently announced restatement. Issues that contribute to a restatement and begin during the year of a relocation provide more direct evidence of the disruptive influence of the relocation. We re-code our restatement variable to equal one only for fiscal-years that represent the first fiscal year in the restated period, and zero otherwise. We find that corporate headquarters relocations are significantly associated with the likelihood of a first-year restatement. This significant effect is evident in both relocation measures and relocations have both direct and indirect effects.

Next, we differentiate non-reliance restatements (i.e., “Big R”), which are disclosed in a Form 8-K filing, from other restatements (i.e., “Little R”). Big R restatements are more severe, by definition, because financial statement users are instructed to no longer rely on such financial statements until the material errors have been corrected through an amended filing. We perform separate analyses in which binary measures of Big R and Little R restatements are used as dependent measures of financial reporting quality. Although we find a significant indirect effect of relocations on both Big R and Little R restatements, the direct effect of relocations only

persists for Little R restatements. Overall, our inferences that disruptions to human and organizational capital are associated with adverse financial reporting outcomes are unchanged.

4.8.3 Auditor opinions on internal control

In our main analyses, we measure internal control effectiveness using assessments provided by management pursuant to the requirements of SOX 404(a). When both management and the independent auditor opine on internal control effectiveness, such opinions are consistent. For more than a quarter of our sample, however, the auditor does not opine on internal control effectiveness. Systems of internal control that are not subject to independent auditor assessment may not be as robust and drive our results. To examine this possibility, we separately estimate our regression model on the sub-samples of firm-years with and without SOX 404(b) opinions. We find results consistent with those from our main analyses in both partitions, indicating that the presence or absence of an opinion from the independent auditor does not affect our inferences.

4.8.4 Influences of California and Texas

California (Texas) has the largest number of corporations relocating their headquarters out of (into) the state. To confirm that our results cannot solely be attributed to relocations from and to these states, respectively, we re-estimate our regression models after excluding all firm-years of firms that relocate out of California or relocate to Texas. We obtain consistent results.

5. Conclusion

In this study, we employ corporate headquarters relocations as disruptive events to a firm's human capital and organizational resources to examine the influences firm resources have on financial reporting outcomes. Using a sample of U.S. public companies over the period 2004

to 2018, we identify firms that relocate their corporate headquarters based on year-over-year changes in the address of the principal executive offices disclosed in the annual report. We consider subsequent restatement of the annual financial statements and reporting timeliness as potentially relevant financial reporting outcomes. We find corporate headquarters relocations to new states and metropolitan areas are associated with significantly higher likelihoods of both restatement and non-timely filing of the annual report, indicating that disruptions to human capital and organizational resources have significant negative effects on the financial reporting process. In additional analyses, we use structural equation modeling to test whether internal control quality may be a mechanism through which human capital and organizational resources disruption affect reporting outcomes. We find that corporate headquarters relocations contribute directly to a higher likelihood of lower quality internal control and indirectly to poor financial reporting outcomes, through their effect on internal control. Thus, internal control appears to be a mechanism through which resource disruptions affect financial reporting outcomes. Our inferences are robust to using propensity score-matched samples, restricting our analysis to firm-years of firms that relocate during our sample period, consideration of the influence of firm size, and persistent financial reporting and internal control issues, among other alternative specifications.

This study extends our understanding of contexts in which the resource-based view of the firm can be applied to include the financial reporting process that is mandatory for all publicly traded firms and requires significant human capital that must be coordinated on a firm-wide basis using organizational resources. Our findings further demonstrate that firm decisions (relocation) that may seem to have little direct relevance to the financial reporting process can have consequences for internal control and financial reporting, reinforcing the view that high quality

financial reporting requires strong firm-wide engagement of human and organizational capital. We also extend our understanding of the consequences of corporate headquarters relocations to include financial reporting-related implications. Management should thus be cognizant of the risks relocations pose to the financial reporting process and take proactive action to minimize the disruption. Finally, our findings should be useful to external users of financial information stakeholders because they suggest that the quality of information publicly released shortly after a disruption to resources may be lower.

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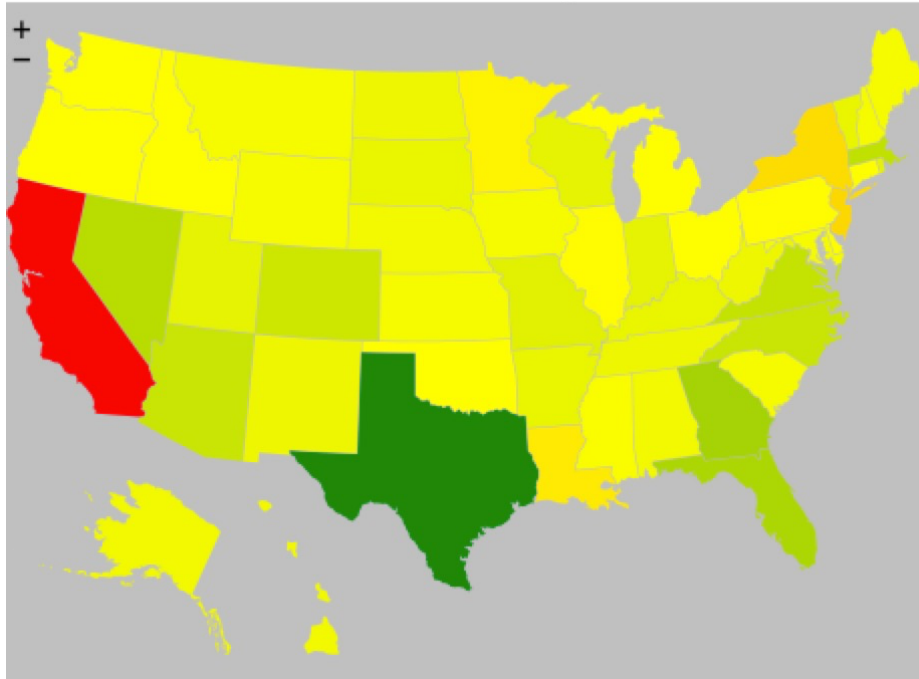
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APPENDIX A Variable Definitions

Variable	Definition
<u>Dependent Variables</u>	
<i>Rsmt</i>	Equals one if the fiscal year is subsequently restated, and zero otherwise
<i>NonTimely</i>	Equals one if the annual report is filed non-timely, and zero otherwise
<i>ICMW</i>	Equals one if the firm reports one or more material weaknesses, and zero otherwise
<u>Variables of Interest</u>	
<i>ChgState</i>	Equals one if the firm relocates its executive offices to a different state and a different CBSA, and zero otherwise
<i>ChgCBSA</i>	Equals one if the firm relocates its executive offices to a different CBSA, and zero otherwise
<u>Control Variables</u>	
<i>GC</i>	Equals one if the auditor's report expresses substantial doubt about going concern, and zero otherwise
<i>BigN</i>	Equals one if the firm has a Big 4 auditor, and zero otherwise
<i>OfficeSize</i>	Audit office size (based on number of public company clients)
<i>AudTenure</i>	Auditor tenure (in years, based on Audit Analytics data beginning in 2000)
<i>AT</i>	Total assets
<i>InvRec</i>	Inventory and accounts receivable scaled by total assets
<i>Lev</i>	Leverage (total debt divided by total assets)
<i>RevGrowth</i>	Year-over-year revenue growth
<i>Loss</i>	Equals one if the firm reports a net loss before extraordinary items, and zero otherwise
<i>NGeoSeg</i>	Number of geographic segments
<i>BusySeason</i>	Equals one if the firm has a December fiscal year-end, and zero otherwise
<i>Age</i>	Firm age, calculated using the number of years of Compustat coverage
<i>ChgCEO</i>	Equals one if the firm changes its CEO in the current year, and zero otherwise
<i>ChgCFO</i>	Equals one if the firm changes its CFO in the current year, and zero otherwise

FIGURE 1
Net Relocations by State



Red = Extreme net corporate departures
Orange = Moderate net corporate departures
Yellow = Mild net corporate departures
Light Green = Mild net corporate arrivals
Green = Moderate net corporate arrivals
Dark Green = Extreme net corporate arrivals

FIGURE 2
Path Diagrams for Main Results

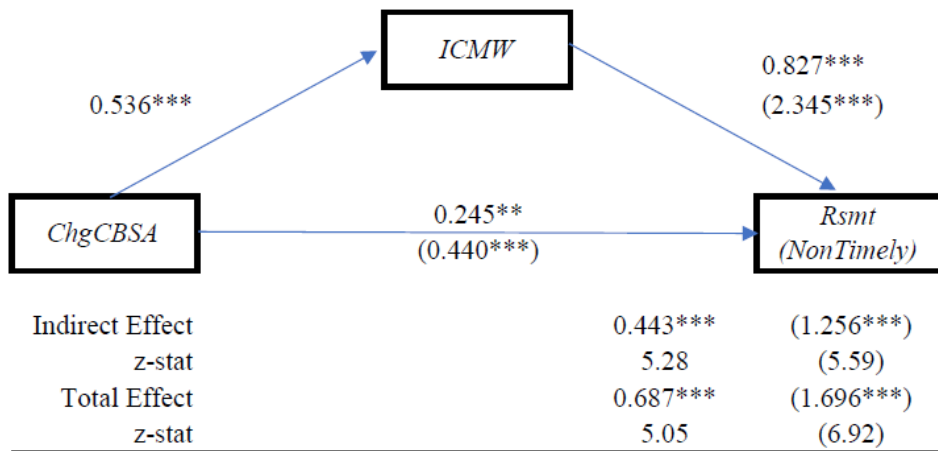
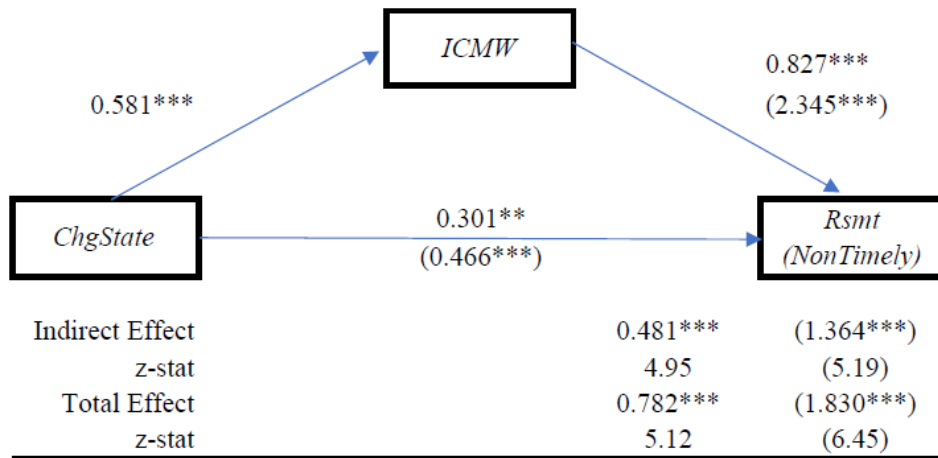


Figure 2 displays direct and indirect paths by which corporate headquarters relocations can affect the likelihoods of restatement (*Rsmt*) and non-timely reporting (*NonTimely*). The coefficient estimates correspond to those presented in Tables 4 and 5. ** and *** denote two-tailed statistical significance at $p < 0.05$ and $p < 0.01$, respectively.

TABLE 1
Sample Selection

Annual reports filed on Form 10-K for 2004 - 2018 by firms with coverage in Audit Analytics	102,925
Less: Firm-years not covered by Compustat	(36,484)
Less: Firm-years for firms with principal executive offices located outside the United States during a portion of the sample period	(5,840)
Less: Firm-years for which the principal executive office could not be extracted from the Form 10-K	(814)
Less: Firm-years missing data necessary to calculate control variables	(8,484)
Final Sample for Main Analyses	51,303

Table 1 summarizes our sample selection procedure.

TABLE 2
Summary Statistics

Panel A. Descriptive statistics						
Variable	Mean	Std. Dev.	P25	P50	P75	
<i>Rsmt</i>	0.092	0.288	0.000	0.000	0.000	
<i>NonTimely</i>	0.082	0.274	0.000	0.000	0.000	
<i>ChgState</i>	0.013	0.115	0.000	0.000	0.000	
<i>ChgCBSA</i>	0.018	0.134	0.000	0.000	0.000	
<i>ICMW</i>	0.098	0.297	0.000	0.000	0.000	
<i>GC</i>	0.075	0.264	0.000	0.000	0.000	
<i>BigN</i>	0.636	0.481	0.000	1.000	1.000	
<i>OfficeSize</i>	22.221	21.405	7.000	15.000	31.000	
<i>AudTenure</i>	6.896	4.538	3.000	6.000	10.000	
<i>BusySeason</i>	0.747	0.435	0.000	1.000	1.000	
<i>AT</i>	5,791.074	30,527.330	118.329	608.208	2,323.722	
<i>InvRec</i>	0.297	0.240	0.099	0.239	0.449	
<i>Lev</i>	0.348	1.146	0.024	0.159	0.354	
<i>RevGrowth</i>	0.165	0.727	-0.040	0.062	0.190	
<i>Loss</i>	0.350	0.477	0.000	0.000	1.000	
<i>NGeoSeg</i>	2.029	2.456	0.000	1.000	3.000	
<i>Age</i>	19.753	14.771	9.000	16.000	26.000	
<i>ChgCEO</i>	0.110	0.313	0.000	0.000	0.000	
<i>ChgCFO</i>	0.144	0.351	0.000	0.000	0.000	

Panel B. Temporal Distribution						
Year	N	<i>Rsmt</i>	<i>NonTimely</i>	<i>ChgState</i>	<i>ChgCBSA</i>	<i>ICMW</i>
2004	2,029	15.23%	13.31%	1.63%	1.92%	14.24%
2005	2,900	13.45%	10.38%	0.79%	1.21%	12.07%
2006	2,944	10.16%	9.10%	1.12%	1.53%	9.34%
2007	3,872	7.95%	10.82%	1.42%	1.99%	10.82%
2008	4,141	8.23%	10.58%	1.52%	2.05%	9.13%
2009	3,931	8.85%	7.35%	1.35%	1.76%	7.73%
2010	3,761	10.58%	6.49%	1.22%	1.68%	6.62%
2011	3,638	11.32%	7.04%	1.18%	1.59%	7.04%
2012	3,572	11.20%	6.61%	1.01%	1.68%	8.12%
2013	3,573	10.41%	7.50%	1.40%	1.93%	9.49%
2014	3,576	8.50%	7.21%	1.71%	2.10%	10.99%
2015	3,502	7.91%	7.62%	1.37%	1.88%	10.57%
2016	3,388	6.73%	7.35%	1.42%	1.86%	11.25%
2017	3,273	5.62%	6.51%	1.25%	1.74%	10.45%
2018	3,203	3.93%	6.65%	1.65%	2.25%	11.83%

Table 2 presents summary statistics for our dependent, test, and control variables. Panel A reports descriptive statistics (mean, standard deviation, 25th percentile, median, and 75th percentile). Panel B tabulates the relative frequencies (means) for our dependent and test variables, for each year in our sample. Refer to Appendix A for variable definitions.

TABLE 3
Univariate Tests

Variable	N	<i>ICMW</i>	<i>Rsmt</i>	<i>NonTimely</i>
<i>ChgState</i> == 1	686	0.308	0.128	0.277
<i>ChgState</i> == 0	50,617	0.095	0.091	0.079
Difference		0.213***	0.037***	0.198***
t-stat		18.70	3.36	18.87
<i>ChgCBSA</i> == 1	933	0.290	0.119	0.263
<i>ChgCBSA</i> == 0	50,370	0.094	0.091	0.078
Difference		0.196***	0.028***	0.184***
t-stat		20.09	2.93	20.45

Table 3 presents the results of univariate tests of the differences between dependent variables for corporate headquarters relocation and non-corporate headquarters relocation firm-years. Refer to Appendix A for variable definitions. *, **, and *** denote two-tailed statistical significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

TABLE 4
Corporate Headquarters Relocation and Financial Reporting Quality

Variable	(1) <i>Rsm</i> t	(2) <i>Rsm</i> t	(3) <i>NonTimely</i>	(4) <i>NonTimely</i>
<i>ChgState</i>	0.301** (2.49)		0.466*** (3.56)	
<i>ChgCBSA</i>		0.245** (2.27)		0.440*** (3.68)
<i>ICMW</i>	0.827*** (14.77)	0.827*** (14.78)	2.345*** (41.16)	2.345*** (41.12)
<i>GC</i>	-0.448*** (-4.49)	-0.449*** (-4.50)	1.201*** (14.12)	1.200*** (14.10)
<i>BigN</i>	0.194** (2.40)	0.194** (2.40)	-0.213*** (-2.83)	-0.213*** (-2.83)
<i>Log(OfficeSize)</i>	-0.031 (-1.19)	-0.031 (-1.20)	-0.006 (-0.23)	-0.006 (-0.23)
<i>Log(AudTenure)</i>	0.002 (0.07)	0.003 (0.07)	-0.219*** (-6.21)	-0.219*** (-6.20)
<i>Log(AT)</i>	0.071*** (4.75)	0.071*** (4.75)	-0.106*** (-5.96)	-0.106*** (-5.94)
<i>InvRec</i>	-0.492*** (-3.52)	-0.492*** (-3.52)	0.244* (1.73)	0.249* (1.76)
<i>Lev</i>	0.038** (2.15)	0.038** (2.16)	-0.003 (-0.19)	-0.003 (-0.19)
<i>RevGrowth</i>	0.048** (2.14)	0.048** (2.14)	-0.028 (-1.29)	-0.028 (-1.29)
<i>Loss</i>	0.160*** (3.25)	0.160*** (3.25)	0.750*** (13.44)	0.749*** (13.43)
<i>Log(NGeoSeg)</i>	0.126*** (2.73)	0.126*** (2.74)	0.010 (0.20)	0.009 (0.19)
<i>BusySeason</i>	-0.053 (-0.87)	-0.052 (-0.86)	-0.307*** (-4.51)	-0.306*** (-4.50)
<i>Age</i>	-0.034 (-0.87)	-0.033 (-0.86)	0.028 (0.69)	0.030 (0.74)
<i>ChgCEO</i>	-0.025 (-0.49)	-0.023 (-0.47)	0.081 (1.31)	0.081 (1.30)
<i>ChgCFO</i>	0.138*** (3.16)	0.139*** (3.17)	0.261*** (4.73)	0.260*** (4.72)
Constant	-2.620*** (-13.38)	-2.622*** (-13.39)	-1.185*** (-5.26)	-1.195*** (-5.30)
Observations	51,303	51,303	51,303	51,303
Area Under ROC	0.65	0.64	0.89	0.89

Table 4 presents results from estimating Model 1 using logistic regression. The significance of the indirect effect is estimated using the Sobel (1982) test statistic (z-stat). Refer to Appendix A for variable definitions. Standard errors are clustered by firm. Industry and year controls are included. *, **, and *** denote two-tailed statistical significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

TABLE 5
Corporate Headquarters Relocation and Internal Control Quality

Variable	(1) <i>ICMW</i>	(2) <i>ICMW</i>
<i>ChgState</i>	0.581*** (5.241)	
<i>ChgCBSA</i>		0.536*** (5.646)
<i>GC</i>	1.076*** (14.729)	1.076*** (14.729)
<i>BigN</i>	-0.374*** (-5.548)	-0.375*** (-5.557)
<i>Log(OfficeSize)</i>	0.079*** (3.088)	0.080*** (3.095)
<i>Log(AudTenure)</i>	-0.420*** (-13.574)	-0.419*** (-13.541)
<i>Log(AT)</i>	-0.158*** (-9.888)	-0.158*** (-9.845)
<i>InvRec</i>	0.239* (1.847)	0.244* (1.880)
<i>Lev</i>	0.052*** (2.973)	0.052*** (2.969)
<i>RevGrowth</i>	0.075*** (4.492)	0.074*** (4.472)
<i>Loss</i>	0.635*** (12.481)	0.634*** (12.459)
<i>Log(NGeoSeg)</i>	0.069 (1.608)	0.068 (1.601)
<i>BusySeason</i>	-0.289*** (-4.675)	-0.287*** (-4.644)
<i>Age</i>	-0.087** (-2.284)	-0.085** (-2.234)
<i>ChgCEO</i>	0.138*** (2.732)	0.138*** (2.721)
<i>ChgCFO</i>	0.485*** (11.230)	0.485*** (11.246)
Year Controls	Included	Included
Industry Controls	Included	Included
Constant	-0.062 (-0.309)	-0.076 (-0.378)
Observations	51,303	51,303
Area Under ROC	0.80	0.80

Table 5 presents the results of our estimations of Model 1 with *ICMW* as the dependent variable using logistic regression. Refer to Appendix A for variable definitions. Standard errors are clustered by firm. *, **, and *** denote two-tailed statistical significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

TABLE 6
Propensity Score Matched Sample Analysis

Panel A: Univariate Tests of Control Variables Before and After Matching on <i>ChgState</i>								
Variable	<u>Before Matching</u>				<u>After Matching</u>			
	Relocate Mean	Stay Mean	Diff.	t-stat	Relocate Mean	Stay Mean	Diff.	t-stat
<i>GC</i>	0.249	0.073	0.176***	17.43	0.249	0.246	0.003	0.12
<i>BigN</i>	0.450	0.638	-0.188***	-10.17	0.450	0.450	0.000	0.00
<i>OfficeSize</i>	2.428	2.608	-0.180***	-4.31	2.428	2.374	0.054	0.90
<i>AudTenure</i>	1.312	1.673	-0.361***	-11.91	1.312	1.311	0.001	0.03
<i>AT</i>	4.580	6.176	-1.596***	-16.63	4.580	4.628	-0.048	-0.28
<i>InvRec</i>	0.212	0.299	-0.087***	-9.44	0.212	0.220	-0.009	-0.79
<i>Lev</i>	0.840	0.341	0.499***	11.34	0.840	0.848	-0.008	-0.06
<i>RevGrowth</i>	0.338	0.163	0.175***	6.27	0.338	0.285	0.053	0.74
<i>Loss</i>	0.657	0.346	0.312***	17.06	0.657	0.659	-0.001	-0.06
<i>NGeoSeg</i>	0.782	0.855	-0.073***	-2.72	0.782	0.790	-0.008	-0.22
<i>BusySeason</i>	0.794	0.746	0.049***	2.90	0.794	0.776	0.019	0.85
<i>Age</i>	2.530	2.781	-0.251***	-8.79	2.530	2.542	-0.012	-0.27
<i>ChgCEO</i>	0.340	0.107	0.233***	19.47	0.340	0.347	-0.007	-0.28
<i>ChgCFO</i>	0.356	0.141	0.214***	15.90	0.356	0.366	-0.010	-0.39

Panel B: Univariate Tests of Control Variables Before and After Matching on <i>ChgCBSA</i>								
Variable	<u>Before Matching</u>				<u>After Matching</u>			
	Relocate Mean	Stay Mean	Diff.	t-stat	Relocate Mean	Stay Mean	Diff.	t-stat
<i>GC</i>	0.240	0.072	0.168***	19.32	0.240	0.245	-0.005	-0.27
<i>BigN</i>	0.453	0.639	-0.186***	-11.71	0.453	0.460	-0.006	-0.28
<i>OfficeSize</i>	2.444	2.609	-0.165***	-4.60	2.444	2.499	-0.055	-1.05
<i>AudTenure</i>	1.314	1.675	-0.360***	-13.86	1.314	1.324	-0.010	-0.26
<i>AT</i>	4.603	6.184	-1.580***	-19.16	4.603	4.818	-0.214	-1.47
<i>InvRec</i>	0.224	0.299	-0.075***	-9.48	0.224	0.227	-0.003	-0.29
<i>Lev</i>	0.780	0.340	0.440***	11.63	0.780	0.748	0.031	0.29
<i>RevGrowth</i>	0.342	0.162	0.180***	7.50	0.342	0.349	-0.007	-0.11
<i>Loss</i>	0.638	0.344	0.293***	18.67	0.638	0.614	0.024	1.05
<i>NGeoSeg</i>	0.767	0.856	-0.088***	-3.84	0.767	0.763	0.004	0.14
<i>BusySeason</i>	0.775	0.746	0.029**	2.01	0.775	0.764	0.011	0.55
<i>Age</i>	2.509	2.783	-0.273***	-11.16	2.509	2.503	0.007	0.18
<i>ChgCEO</i>	0.301	0.106	0.195***	18.95	0.301	0.322	-0.020	-0.95
<i>ChgCFO</i>	0.320	0.141	0.179***	15.49	0.320	0.347	-0.027	-1.23

(continued on the next page)

TABLE 6 (continued)

Panel C: Re-Estimations of Models 1 and 2 Using the Propensity Score Matched Samples						
Variable	(1) <i>ICMW</i>	(2) <i>Rsmt</i>	(3) <i>NonTimely</i>	(4) <i>ICMW</i>	(5) <i>Rsmt</i>	(6) <i>NonTimely</i>
<i>ChgState</i>	0.628*** (4.27)	0.190 (1.05)	0.535*** (3.13)			
<i>ChgCBSA</i>				0.510*** (3.94)	0.278* (1.69)	0.419*** (2.87)
<i>ICMW</i>		0.480** (2.13)	1.873*** (10.71)		0.549*** (2.61)	1.777*** (10.44)
Constant	0.026 (0.04)	-2.312*** (-3.15)	-1.752** (-2.56)	0.620 (1.04)	-2.457*** (-3.68)	-1.565** (-2.45)
Observations	1,372	1,372	1,372	1,866	1,866	1,866
Area Under ROC	0.82	0.70	0.89	0.83	0.71	0.88
Indirect Effect		0.301*	1.176***		0.280**	0.907***
z-stat		1.81	3.98		2.19	3.80
Total Effect		0.491**	1.711***		0.558***	1.326***
z-stat		2.13	4.94		2.69	4.75

Table 6 displays the results of re-estimating Model 1 on a propensity score matched sample. Panel A presents the univariate differences between firm-years that Relocate ($ChgState=1$) and Stay ($ChgState=0$) before and after matching using *ChgState* as our measure of corporate headquarters relocation. Panel B presents the univariate differences between firm-years that Relocate ($ChgCBSA=1$) and Stay ($ChgCBSA=0$) before and after matching using *ChgCBSA* as our measure of corporate headquarters relocation. Panel C presents the results of estimating Model 2 using SEM using the propensity score match samples for *ChgState* (Columns 1 – 3) and *ChgCBSA* (Columns 4 – 6). Control variables and year and industry controls are included in all estimations, but omitted for brevity. Refer to Appendix A for variable definitions. Standard errors are clustered by firm. *, **, and *** denote two-tailed statistical significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

TABLE 7
Robustness Tests

Panel A: Restricted to Relocator Firms						
Variable	(1) <i>ICMW</i>	(2) <i>Rsmt</i>	(3) <i>NonTimely</i>	(4) <i>ICMW</i>	(5) <i>Rsmt</i>	(6) <i>NonTimely</i>
<i>ChgState</i>	0.372*** (3.55)	0.169 (1.42)	0.376*** (3.03)			
<i>ChgCBSA</i>				0.349*** (3.73)	0.122 (1.13)	0.443*** (3.90)
<i>ICMW</i>		0.639*** (4.49)	1.963*** (13.91)		0.657*** (5.20)	1.971*** (15.53)
Constant	-0.060 (-0.12)	-2.774*** (-5.16)	-0.391 (-0.62)	-0.176 (-0.40)	-2.847*** (-6.10)	-0.668 (-1.27)
Observations	5,275	5,275	5,275	6,971	6,971	6,971
Area Under ROC	0.82	0.65	0.88	0.83	0.64	0.88
Indirect Effect		0.237***	0.730***		0.230***	0.689***
z-stat		2.75	3.41		2.97	3.60
Total Effect		0.407***	1.106***		0.351***	1.131***
z-stat		2.90	4.54		2.71	5.20
Panel B: Excluding Large Accelerated Filers						
Variable	(1) <i>ICMW</i>	(2) <i>Rsmt</i>	(3) <i>NonTimely</i>	(4) <i>ICMW</i>	(5) <i>Rsmt</i>	(6) <i>NonTimely</i>
<i>ChgState</i>	0.613*** (5.14)	0.320** (2.30)	0.450*** (3.31)			
<i>ChgCBSA</i>				0.564*** (5.54)	0.294** (2.38)	0.416*** (3.39)
<i>ICMW</i>		0.847*** (13.83)	2.190*** (36.36)		0.847*** (13.83)	2.189*** (36.32)
Constant	-0.095 (-0.42)	-3.012*** (-13.04)	-1.157*** (-4.66)	-0.111 (-0.49)	-3.018*** (-13.06)	-1.167*** (-4.69)
Observations	33,472	33,472	33,472	33,472	33,472	33,472
Area Under ROC	0.80	0.65	0.89	0.80	0.64	0.89
Indirect Effect		0.519***	1.342***		0.478***	1.235***
z-stat		4.85	5.07		5.19	5.48
Total Effect		0.839***	1.792***		0.771***	1.651***
z-stat		4.81	6.22		5.00	6.66

(continued on the next page)

TABLE 7 (continued)

Panel C: Controlling for Lagged Dependent Variables						
Variable	(1)	(2)	(3)	(4)	(5)	(6)
	<i>ICMW</i>	<i>Rsmt</i>	<i>NonTimely</i>	<i>ICMW</i>	<i>Rsmt</i>	<i>NonTimely</i>
<i>ChgState</i>	0.600*** (5.08)	0.357** (2.29)	0.485*** (3.58)			
<i>ChgCBSA</i>				0.548*** (5.41)	0.269* (1.92)	0.451*** (3.66)
<i>ICMW</i>		-0.296*** (-4.42)	2.166*** (39.29)		-0.294*** (-4.40)	2.165*** (39.25)
<i>ICMW[t-1]</i>	2.455*** (48.36)			2.455*** (48.34)		
<i>Rsmt[t-1]</i>		3.380*** (81.57)			3.379*** (81.56)	
<i>NonTimely[t-1]</i>			1.442*** (22.04)			1.442*** (22.04)
Constant	-0.373** (-2.27)	-3.251*** (-19.88)	-1.459*** (-7.07)	-0.388** (-2.36)	-3.253*** (-19.90)	-1.470*** (-7.10)
Observations	50,706	50,706	50,706	50,706	50,706	50,706
Area Under ROC	0.85	0.82	0.90	0.85	0.82	0.90
Indirect Effect		-0.177***	1.300***		-0.161***	1.186***
z-stat		-3.29	5.03		-3.37	5.33
Total Effect		0.180	1.785***		0.108	1.637***
z-stat		1.10	6.16		0.74	6.48

Table 7 tabulates the results of robustness tests. In Panel A, we re-estimate Model 1 on a sub-sample restricted to firm-years of relocators, which are firms that relocate their corporate headquarters during our sample period. Panel B displays the re-estimations of Model 1 on the sub-sample of non-accelerated filer firm-years. In Panel C, we augment Model 1 with one year lagged (denoted $[t-1]$) value of the dependent variable. Control variables and year and industry controls are included in all estimations, but omitted for brevity. Refer to Appendix A for variable definitions. Standard errors are clustered by firm. *, **, and *** denote two-tailed statistical significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

TABLE 8
Material Weaknesses by Type

Reason	n	<i>ChgState</i>	<i>ChgCBSA</i>
Accounting personnel resources, competency/training	3,331	***	***
Ethical or compliance issues with personnel	130	*	**
Inadequate disclosure controls (timely, accuracy, completeness)	761	*	
Ineffective regulatory compliance issues	105		
Ineffective, non-existent or understaffed audit committee	391		
Information technology, software, security & access issues	1,116		
Insufficient or non-existent internal audit function	132		
Journal entry control issues	400		
Material and/or numerous auditor/YE adjustments	2,569	**	
Non-routine transaction control issues	863	*	
Restatement or nonreliance of company filings	748		
Segregations of duties/design of controls (personnel)	1,922	**	**
Senior management competency, tone, reliability issues	182	**	**
Treasury control issues	136		
Untimely or inadequate account reconciliations	766		

Table 8 summarizes the results of our estimations of Model 1 when using indicator variables that capture material weaknesses by types as dependent variables. In the Column labeled n, we denote the number of firm-year observations with material weaknesses of corresponding type, based on our full sample of 51,303 observations. Control variables and year and industry controls are included in all estimations, but omitted for brevity. Refer to Appendix A for variable definitions. Standard errors are clustered by firm. *, **, and *** denote two-tailed statistical significance of *ChgState* and *ChgCBSA* (as applicable) at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively. All statistically significant coefficients have positive signs.