

# Does U.S. immigration policy facilitate financial misconduct?

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**ABSTRACT:** We examine the impact of U.S. immigration policy, specifically the H-1B visa program, on the likelihood of financial misconduct in companies. We argue that employers have leverage over employees on an H-1B visa because such visa holders must maintain H-1B-eligible employment in order to legally reside in the U.S. We posit that companies relying on H-1B visas to hire workers in accounting roles have an increased ability to misreport their financial statements due to the greater costs H-1B employees face if they are unexpectedly fired for not following the demands of their bosses or for blowing the whistle on misconduct. Using the sharp reduction in the H-1B visa cap in 2004 as a shock to such employment, we find that companies that relied on this visa program for accounting roles pre-shock experience a 2.3 percentage point decline in accounting irregularities post-shock. Cross-sectional tests show that the reduction in irregularities is greater in companies where employees on an H-1B visa have (1) greater influence on financial reporting or (2) fewer outside job opportunities. In addition, the relation between H-1B visa use and irregularities is stronger in companies with greater ownership by short-horizon investors that are more likely to pressure managers to meet near-term earnings targets. We corroborate our findings using the outcome of H-1B visa lotteries as shocks to such employment.

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## 1. Introduction

Financial misconduct and fraud pose a significant threat to the efficiency of capital markets, diminishing the trust stakeholders have in financial statements and stock markets. Despite the regulatory and market-based measures put in place to mitigate misconduct since the high-profile accounting scandals of the early 2000s, the percentage of U.S. listed companies that restated their financial statements after the enactment of the Sarbanes-Oxley Act in 2002 has ranged from a low of 4.8% in 2020 to a high of over 12.5% in 2006 and 2021 (Audit Analytics, 2022). While prior research provides many insights into the factors that incentivize executives to engage in financial misconduct (see Dechow, Ge, and Schrand (2010) and Amiram et al. (2018) for reviews of the literature), much is yet to be learned. In this paper, we examine whether U.S. immigration policy increases the ability of companies to misreport their financial statements.

We hypothesize that the structure of the H-1B visa program, which allows companies to hire high-skilled foreigners in the U.S., increases the ability of companies that rely on this visa program to misreport their financial statements. Our hypothesis is predicated on the idea that employers have significant leverage over employees that are H-1B visa holders because the visa status of the employee is tied to their visa-sponsoring employer. Should employees on an H-1B visa lose their job, they have 60 days to find another job at a company that is willing to sponsor their H-1B visa, or leave the U.S. along with their family members on dependent visas (e.g., H-4 visa), creating a hold-up problem for H-1B employees (Klein, 1980).<sup>1</sup>

We predict that companies that employ H-1B visa holders in accounting and finance positions are more likely to misreport their financial statements for at least two reasons.<sup>2</sup> First, since employees on an H-1B visa cannot quit their job as simply as those not on a visa and face

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<sup>1</sup> All job-switching steps from the initial job search to negotiating an offer and having the new employer sponsor and submit the H-1B application has to be completed within the 60-day window.

<sup>2</sup> For brevity, we refer to any accounting or finance position where the employee can influence the company's financial statements as an "accounting" position, which includes book keeping, general accounting, corporate finance, financial planning and analysis, etc.

greater costs were they to be fired abruptly, managers can more easily pressure H-1B visa holders into performing unethical tasks, including the facilitation of financial misconduct. Second, H-1B visa holders, who face costly consequences if they lose their job, are less likely to blow the whistle on corporate misconduct for fear of retaliation than employees that do not require a visa for employment in the U.S. Considering that employees play a key role in fraud detection (Dyck, Morse, and Zingales, 2010), a lower threat of whistleblowing can embolden managers to manipulate their financial statements.<sup>3</sup> As a result, we predict that firms that employ foreigners on H-1B visas in accounting roles are more susceptible to financial reporting misconduct.

To test our prediction, we make use of a sharp and unanticipated reduction in the cap for H-1B visas in 2004 as a shock to firms' ability to hire foreign professionals on H-1B visas for an accounting position.<sup>4</sup> From 2001 to 2003, the annual cap for H-1B visas was 195,000, which was never binding. In 2004, the annual cap was cut to 65,000, and prior research finds that the reduction in the annual cap reduced the number of visas issued but did not change the demand for visas, implying that the change in the visa cap was a binding constraint for some firms (Chen, Hsieh, and Zhang, 2021). Insofar as the reduction in the H-1B visa quota constrained a firm's ability to hire foreigners, we expect the likelihood of financial misconduct to decrease post-shock for firms that relied on this visa to hire accounting professionals pre-shock.

Following Hennes, Leone, and Miller (2008) and Armstrong, Larcker, Ormazabal, and Taylor (2013), we proxy for financial misconduct using accounting irregularities, which are restatements caused by intentional actions intended to deceive as opposed to restatements caused by unintentional errors. In our primary regression specification, we control for firm-fixed effect

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<sup>3</sup> Changes in whistleblowing likelihood can affect the probability of both misconduct commission and misconduct detection (conditional on its commission). The net effect of H-1B employment on *detected* misconduct (via the whistleblowing channel) is ambiguous because the increased risk of misconduct commission could be offset by a decreased probability of misconduct detection. Empirically, we verify our inferences are robust to using measures of misconduct that do not require detection.

<sup>4</sup> Since the Immigration Act of 1990, there has been an annual cap on the number of H-1B visas that can be issued.

and MSA  $\times$  industry  $\times$  year fixed effects. These fixed effects mitigate the concern that time-invariant firm characteristics (such as the type of firms that rely on H-1B visas) and time-varying industry or geographic factors (such as local economic conditions, regulatory changes, etc.) confound our results. In addition, we control for several time-varying factors that are found to be associated with accounting irregularities in prior research.

We find that companies that relied on the H-1B visa program to fill an accounting position between 2001 and 2003 experience a 2.3 percentage point reduction in the probability of an accounting irregularity after the reduction in the annual visa cap. The trend in the probability of accounting irregularities is similar for treatment and control companies during the pre-shock period, but then diverges from 2006 onwards (an almost two-year lag in effect), mitigating concerns that events leading up to the reduction in the H-1B visa quota explain our results. Our results are also robust to using alternative proxies for financial misconduct that do not require detection – namely, the probability of reporting a small profit and discretionary accruals (Aobdia, 2019). These results are consistent with our hypothesis that the H-1B visa policy exacerbates a firm's ability to engage in financial misconduct.

Next, we conduct two placebo tests to rule out some alternative interpretations of our results. One alternative interpretation is that concurrent events such as the enactment of the Sarbanes-Oxley Act, the inception of the Public Company Accounting Oversight Board (PCAOB) inspections, etc. explain the drop in misstatements to the extent that they differentially affected our treatment companies (those sponsoring H-1B visas for accounting positions) relative to our control companies (those sponsoring H-1B visas for *only* non-accounting positions). Another interpretation is that the H-1B visa program is used by companies to hire lower-cost, potentially lower-quality, labor in place of American labor (as critics of the H-1B program argue), and the post-2003 constraints on hiring foreigners force companies to hire more qualified accounting employees from the U.S. domestic labor market, which leads to fewer misstatements.

To address such concerns, we first examine whether companies that relied on H-1B visas for engineering or human resource (HR) professionals pre-shock are similarly less likely to engage in financial misconduct after the visa cap was cut as companies that relied on H-1B visas for accounting professionals pre-shock. Since engineering and HR professionals are unlikely to be involved with the financial reporting process, we predict that companies that rely on H-1B visas to fill such (non-accounting) jobs will not experience a change in the probability of misconduct post-shock. However, if our results are picking up the effect of confounding factors, then we might observe that even companies that rely on H-1B visas for non-accounting positions experience a decrease in the probability of an accounting irregularity. Consistent with our prediction, we find no significant evidence that companies that relied on H-1B visas for engineering or HR positions before the cut in the visa quota experience a decrease in accounting irregularities.

Second, we examine whether companies that relied on the H-1B visa program to fill an accounting position between 2001 and 2003 experience a change in the likelihood of an accounting restatement caused by an *unintentional* error compared to companies that did not rely on H-1B visa holders to fill accounting positions. If concurrent events (e.g., SOX) led to increased scrutiny of the financial reporting process and thus improved accounting quality, we would not only observe a reduction in intentional misstatements but also a reduction in unintentional errors. But if the post-shock decline in intentional misstatements is because companies were constrained in their ability to hire H-1B visa holders to fill accounting positions, then we would not observe a decline in unintentional errors. Similarly, if H-1B visa holders are of lower quality than domestic labor, then constraints on their hiring would not only reduce the probability of intentional misstatements but also reduce the probability of unintentional errors post-shock. We find that companies that relied on H-1B visas for accounting roles pre-shock do not experience a larger decrease in unintentional errors than companies that did not rely on H-1B visa holders for accounting roles, consistent with our prediction.

We then conduct three sets of cross-sectional tests to further corroborate our inference and shed light on the mechanism through which our proposed effect manifests. First, we exploit cross-sectional variation in the position of the employees hired on an H-1B visa. We argue that accounting employees in a managerial-level position (or higher) and those located at their firm's headquarters are more likely to be involved with the external financial reporting process, giving them greater ability to influence their firm's financial statements. Accordingly, we predict and find that the 2004 cut in the H-1B visa cap leads to a larger reduction in the probability of irregularities in the sub-sample of companies that have a high percent of its accounting H-1B visa holders (1) at a managerial-level position (or higher) or (2) located at the company's headquarters.

Second, we exploit cross-sectional variation in the characteristics of the local labor market for immigrants to provide further support for our inference. H-1B visa holders are likely to have fewer outside employment opportunities if they are located in geographic regions where (1) few other companies (besides their current employer) are willing to sponsor H-1B visas for their workers, (2) the enforcement of non-compete agreements is strong, or (3) a small fraction of permanent residents live. We predict that employees on an H-1B visa located in regions with fewer outside opportunities in the vicinity of their current employer face higher job switching costs, which make them more dependent on their current employer and thus more likely to facilitate misconduct. Consistent with our prediction, we find that the 2004 cut in the H-1B visa cap reduces the probability of irregularities primarily for companies located in regions where H-1B visa holders have fewer outside opportunities. By tying the reduction in misstatements to H-1B visa holders' outside opportunities, this test helps mitigate the concern that cultural differences in attitudes towards misconduct/deception rather than hold-up costs explain our results.

Lastly, we examine whether the relation between H-1B employment and irregularities is stronger for companies that face greater capital market pressure to meet short-term earnings targets. We argue that managers subject to greater investor pressure to meet near-term earnings

targets are more likely to pressure their employees to take measures to meet their goals. Thus, H-1B employees in such companies are likely to come under greater pressure than those employed in companies with less capital market pressure. We identify firms subject to greater capital market pressure to meet short-term earnings target as those (1) with high ownership interest by short-term investors (Bushee, 1998; Derrien, Kecskès, and Thesmar, 2013) or (2) newly added to the Russell 2000 Index (Cremers, Pareek, and Sautner, 2020). Bolton, Scheinkman, and Xiong (2006) theoretically show that short-term investors induce managers to pursue actions that lead to higher reported earnings, and Cremers et al. (2020) provide empirical evidence consistent with their theory, thereby supporting our use of short-term investor ownership as a proxy for capital market pressure. Consistent with our prediction, we find that the 2004 cut in the H-1B visa cap leads to a larger reduction in the probability of irregularities in the sub-sample of firms that have high ownership interest by short-term investors in the pre-treatment period.

Thus far, our analyses rely on the shock to the H-1B visa cap in 2004. We supplement the results from the 2004 natural experiment by using a second one that exploits random variation in a company's probability of winning H-1B visa lotteries. When the demand for visas exceeds the annual cap (as it has since 2004), the United States Citizenship and Immigration Services (USCIS) uses lotteries to allocate H-1B visas to applicants, which results in random variation in the number of visas a company's employees receive.<sup>5</sup> However, a limitation of this research setting is that we do not observe whether the visa applicants that win the lottery are professionals joining the company in an accounting role or a non-accounting role.<sup>6</sup>

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<sup>5</sup> Strictly speaking, only the lotteries for fiscal years 2008, 2009, 2014 and onwards are fully randomized, which are the years we consider in our test. We discuss in more detail in section 7.

<sup>6</sup> As we describe in more detail in section 2, a company begins the process of applying for H-1B visas for its new hires by first submitting a Labor Condition Application (LCA) to the Department of Labor. If the Department of Labor certifies the LCA, the employer can apply for H-1B work visas (which is subject to the lottery if demand exceeds supply) for each foreign employee specified in the certified LCA. We only observe the number of LCAs a company applies for, the job positions that the company would like to fill with a foreign worker (as indicated in the LCA), and the eventual number of visas granted. We do not observe which applicants specified in the LCA win the lottery.

We restrict our sample to the companies that apply for at least one H-1B visa and test our prediction by estimating regressions of accounting irregularities on an indicator variable for whether the company applies for at least one H-1B visa for an accounting role, an indicator variable for companies that have a high percent of their H-1B visa applications win the lottery, and an interaction between these variables. We include the same set of control variables as we did in our previous tests. We find that firms that apply for an H-1B visa for an accounting position and have a high lottery win rate experience a 1.7 percentage point increase in the probability of an accounting irregularity the following year. This result supports our primary inference that companies that hire employees in accounting roles using H-1B visas have an increased likelihood of engaging in financial misconduct.

This paper contributes to the literature by enhancing our understanding of the factors that lead firms to engage in misconduct (see Dechow, Ge, and Schrand (2010) and Amiram et al. (2018) for reviews of the literature). Much of the focus in prior research is on whether factors such as auditor quality, regulation, enforcement, culture, executive characteristics, and compensation policy among other things affect a firm's propensity to misreport. More recently, a few studies examine the role of rank-and-file employee incentives on financial reporting. For example, Dou, Khan, and Zou (2016) argue that changes in unemployment insurance, and thus unemployment risk, leads to changes in earnings management incentives. They go on to show that increases in state unemployment benefits leads to a reduction in long-run earnings management. Similarly, Gao, Zhang, and Zhang (2018) argue that firms manage earnings (in part) to increase employee retention, and show that exogenous increases in employees' job switching costs lower earnings management. This paper contributes to the literature by suggesting, for the first time, that immigration policy related to the use of high-skilled foreign workers creates a hold-up problem for foreign workers and increases a firm's ability to engage in misconduct.

Our paper also contributes to the recent literature on the effect of high-skilled foreign workers on economic outcomes such as firm performance and innovation. Prior research finds mixed evidence on the costs and benefits of allowing high-skilled foreign workers to seek employment in the U.S. through the H-1B visa program. On the one hand, Doran, Gelber, and Isen (2022) find that foreign workers crowd out local workers and has at best modest effects on firm patenting activity. On the other hand, Chen, Hsieh, and Zhang (2021) and Dimmock, Huang, and Weisbenner (2022) find that H-1B workers improve the performance and innovation of start-up firms. Aobdia, Carnes, and Munch (2023) find that startups who successfully hire foreign accounting workers via the H-1B program are more likely to secure funding and successfully exit the private market. Kerr and Lincoln (2010) and Ghosh, Mayda, and Ortega (2016) find that reducing the H-1B quota harms the performance of public firms reliant on H-1B workers. Aobdia, Srivastava, and Wang (2018) find that immigrants help fill gaps in the supply of labor in the U.S. audit industry, and they do not crowd out U.S. workers. Overall, these studies argue that immigrants are highly skilled, motivated to work hard, and fill a skill-gap in the U.S. labor market, which facilitates improvements in firm performance. Our paper contributes to this growing literature by highlighting a negative consequence of the H-1B visa program with hitherto has not been considered. Our evidence is consistent with the argument that H-1B visa holders are beholden to their employers due to the link between their visas and employment status, making them vulnerable and more likely to comply with potentially unethical demands from their bosses.

## 2. The H-1B visa program

The Immigration Act of 1990 initiated the H-1B visa program, a temporary immigration category that allows employers in the U.S. to hire skilled foreigners in “specialty occupations” on a short-term basis. Specialty occupations are defined as those requiring theoretical and practical application of specialized knowledge, including accounting. While the majority of successful H-

H-1B visa applications are from science and engineering related occupations (approximately 60% between 2000 to 2005), many H-1B visas are granted to accounting (Aobdia et al., 2018). Aobdia et al. (2018) report that the Big-Six audit firms in aggregate employed 77,135 people in their assurance practice as of 2011, and applied for at least 18,042 H-1B visas between 2001 and 2012. Their data suggest that roughly 23.4% of the assurance practice at the Big-Six audit firms may have been staffed by immigrants, highlighting the importance of the immigrant labor pool for accounting firms.

To hire a foreign worker under the H-1B visa program, an employer must first submit a Labor Condition Application (LCA) to the U.S. Department of Labor. This procedure ensures compliance with U.S. labor laws. Specifically, employers must provide supporting evidence in the LCA that hiring foreign workers will not displace domestic workers. For example, firms are required to pay the visa holder the higher of (1) the prevailing wage for the position in the firm or (2) the prevailing wage for the occupation in the area of employment. These restrictions are supposed to prevent H-1B employers from abusing their relationships with foreign workers and to protect domestic workers. Once the Department of Labor certifies the LCA, the employer can apply for an H-1B work visa for each foreign employee specified in the certified LCA. To obtain the H-1B visa, the employer must submit an I-129 petition, separately for each foreign worker, to the USCIS office within the U.S. Department of Homeland Security along with the corresponding certified LCA. The H-1B work visa, if granted, is valid for three years and may be extended once for another three years (i.e., a maximum period of six years, unless the visa holder commences an application for legal permanent residence or leaves the country for one calendar year).

Initially, the Immigration Act put in place an annual quota of 65,000 H-1B visas, a level that persisted until 1999. The cap increased to 115,000 in 1999 with the American Competitiveness and Workforce Improvement Act and further increased to 195,000 in 2001 with the American Competitiveness in the Twenty-first Century Act. In 2003, however, Congress and President Bush

drastically cut the annual cap to 65,000, beginning in 2004. In 2006, the program created 20,000 “Advanced Degree Exemption” (ADE) H-1B visas for foreign workers with a master’s degree or higher from a U.S. institution. Since 2006, the annual cap for “regular” and advanced degree H-1B visas has remained at 65,000 and 20,000, respectively. Prior to 2004, demand for H-1B visas was always satisfied, and the annual H-1B visa cap was never reached. But the reduced cap has been binding every year since 2004. Not all H-1B visas are subject to the annual cap. Visa extensions and visa transfers from one employer to another do not count towards the annual cap (e.g., current H-1B visa holders who wish to change jobs need to have prospective employers re-apply for an H-1B visa but this application is not subject to the annual visa quota). In addition, the U.S. has bilateral agreements with some countries (e.g., Chile, Singapore) for additional H-1B visas for citizens of these countries.

On the first business day in April, the USCIS starts accepting I-129 petitions for H-1B visa for the coming fiscal year, which starts in October. The USCIS must keep applications open for at least five business days. If the annual quota is not reached within the first five days, the USCIS processes petitions on a first-come, first-served basis. If the number of submitted I-129 petitions reaches the annual quota within the first five days, the USCIS uses lotteries to allocate all cap-subject H-1B visas to petitions submitted before a cutoff date determined by the USCIS, which is unknown to petitioners at the time that they submit the petition. The USCIS conducts two sequential lotteries. The first lottery allocates the 20,000 advanced degree visas to qualified petitioners in the lottery pool who have a master’s or more advanced degree, and the second assigns the 65,000 “regular” H-1B visas to all remaining petitioners in the lottery pool (including the petitioners with advanced degrees who did not win an advanced degree visa in the first lottery). The quota was reached within five days for fiscal years 2008, 2009, and 2014 to 2020. For fiscal year 2021 and onwards, the USCIS introduced a registration process that opened from March 1 through March 20 requiring only basic information about employers and each requested employee.

The H-1B lottery process, if needed, will then be run on these electronic registrations, and only those that win the lottery will be requested to file a full H-1B petition.<sup>7</sup> The number of registrations has exceeded the annual cap every year thus far (i.e., fiscal year 2024).

### **3. Hypothesis development**

A key feature of H-1B visas is that visa status is tied to the U.S. employer that sponsored the foreign employee. Visa holders must maintain H-1B-eligible employment in order to maintain lawful status in the U.S. If an H-1B employee loses her job, she has 60 days to find new employment *and* have the new employer file a new H-1B petition. If she is unsuccessful in finding another employer that is not only willing to hire her but also sponsor her H-1B visa within the 60-day period, she has to exit the country (8 C.F.R. § 214.1(l)(2)). This short timeline imposes significant hold-up costs on H-1B employees, especially those with deep roots in the U.S. (Klein, Crawford, and Alchian, 1978; Klein, 1980). Immigrant employees that have a strong desire to remain in the U.S. face disproportionately higher costs from losing their job than the cost borne by an employer to replace an immigrant employee, thereby creating a hold-up problem for H-1B employees (Grossman and Hart, 1986). As such, the structure of the H-1B visa system imposes significant job switching costs for H-1B employees, giving employers leverage over employees on H-1B visas. Indeed, prior studies in the legal literature find that the pressure to retain work visas forces H-1B employees to comply with questionable requests from their supervisors in terms of labor abuse and work conditions (e.g., Ontiveros, 2017 and Wang, 2021).

We hypothesize that companies that employ H-1B visa holders for accounting roles are more likely to engage in financial misconduct for two reasons. First, since H-1B workers' right to legally reside in the U.S. is tied to their employment status, they face significant pressure to

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<sup>7</sup> This new process essentially eliminated the need for employers to provide a full H-1B petition before winning the lottery and expanded the sign-up window from five business days to 20 calendar days.

maintain their job status, which consequently makes them more subservient to their boss. Specifically, their revealed preference to stay in the U.S. is a motivating factor that presumably encourages immigrant workers to take on greater risks and cater to their boss's demands to lower their risk of job loss.<sup>8</sup> A desire to please their boss can lead H-1B employees to comply with their boss's demands, even when such demands are unethical. Thus, we argue that H-1B workers that are involved with the financial reporting process at their company can come under pressure from their superiors to help manage earnings and engage in activities that facilitate financial misconduct. Our argument assumes that the incentives of rank-and-file accounting employees affects probability of financial misconduct, which is supported by evidence in prior research (Call, Kedia, and Rajgopal, 2016; Armstrong, Kepler, Larcker, and Shi, 2023).

Second, we argue that H-1B visa holders are less likely to blow the whistle on financial misconduct. Dyck et al. (2010, p. 2245) suggests that “the consequences to being the whistleblower include distancing and retaliation from fellow workers and friends, personal attacks on one’s character during the course of a protracted dispute, and the need to change one’s career...Not only is the honest behavior not rewarded by the market, but it is penalized.” Further, prior research finds that whistleblowers face an increased risk of job loss (e.g., Brickley, 2003). Consequently, we argue that H-1B visa holders are more likely to look the other way when they observe misconduct, considering that H-1B employees would have only 60 days to find a new job before they have to leave the U.S., should they be fired.

The findings from prior studies suggest that employee whistleblowing is an effective mechanism for deterring unethical conduct (e.g., Dyck et al., 2010; Bowen, Call, and Rajgopal, 2010). And prior studies also show that managers indeed weigh the risk that an employee might blow the whistle when engaging in misconduct. For example, Call et al. (2016) find that executives

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<sup>8</sup> Prior research finds that immigrant workers tend to work harder than domestic labor (Kerr, 2018).

grant more options to non-executive employees to discourage whistleblowing during periods of misconduct. As such, if senior management is less concerned about employees blowing the whistle on financial misconduct, they are more likely to engage in misconduct. And we argue that employees on H-1B visas have weaker incentives to blow the whistle, thereby increasing the willingness of senior management to engage in financial misconduct in companies where H-1B visa holders are involved with the financial reporting process. The above said, changes in whistleblowing likelihood have two offsetting effects on the amount of misconduct detected in equilibrium. A higher probability of whistleblowing should decrease the likelihood that managers engage in misconduct but simultaneously increase the likelihood of misconduct detection (conditional on occurrence). Thus, the net effect of changes in whistleblowing likelihood on *detected* misconduct is ambiguous. Notwithstanding changes in the probability of misconduct detection, our hypothesis is as follows:

H: *Companies that employ H-1B visa holders for accounting positions are more likely to engage in financial misconduct.*

#### **4. Research design**

We test our hypothesis by exploiting the exogenous reduction in the legislative cap placed on the total number of H-1B visas issued per year for fiscal year 2004 onwards, which limited the annual number of H-1B visas issued to 65,000 (Xu, 2018; Chen et al., 2021). Since its implementation, the 2004 reduction in the visa quota has restricted the ability of U.S. firms to employ foreign workers via the H-1B visa program. We estimate a difference-in-differences regression to examine whether firms that use immigrant labor to fill accounting positions in the years leading up to the change in the legislative cap have a lower likelihood of misconduct post-shock. We restrict our sample to firms that applied for at least one H-1B visa during the pre-

treatment period to reduce the concern that firms that employ immigrant workers are systematically different than firms that do not. We estimate the following regression:

$$IRREGULARITY_{i,t} = \beta_1 ACC.H1B_i \times POST_t + \sum \gamma Control_{i,t} + \alpha_i + \alpha_{MSA} \times \alpha_{ind} \times \alpha_t + \varepsilon_{i,t} \quad (1)$$

where  $i$ ,  $t$ ,  $MSA$  and  $ind$  indexes firms, years, the metropolitan statistical area a firm is headquartered in, and industry, respectively.<sup>9</sup>  $IRREGULARITY$  is an indicator variable that equals one for the years in which a firm's financial statements are in error (i.e., the violation period) and the firm's subsequent restatement of those financial statements are classified as being subject to an SEC investigation or as fraud, irregularities, or misrepresentations (Hennes et al., 2008; Armstrong et al., 2013). Our focus is on the year(s) in which an irregularity occurs rather than the year in which it is detected and made public.  $POST$  is an indicator variable that equals one for the calendar years 2004 to 2009 and zero for 2001 to 2003.  $ACC.H1B$  is an indicator variable that equals one for firms that submitted at least one LCA for an accounting position in any of the pre-treatment years;  $ACC.H1B$  equals zero for firms that submitted at least one LCA but none for an accounting position.  $\alpha_i$  represents firm-fixed effects and  $\alpha_{MSA} \times \alpha_{ind} \times \alpha_t$  represents MSA-by-industry-by-year fixed effects. These fixed effects subsume the main effects of  $POST$  and  $ACC.H1B$ . We cluster the standard errors at the MSA-level. Figure 1 illustrates our research design.

Following prior studies (e.g., Ashbaugh-Skaife, Collins, Kinney, and LaFond, 2008; Chin and Chi, 2009; Armstrong et al., 2013; Srinivasan, Wahid, and Yu, 2015), we include a battery of control variables in our regression to mitigate the concern that changes in financial performance, risk, business scale, or complexity confound the effect of H-1B visa demand on accounting irregularities. Specifically, we control for the book-to-market ratio ( $BOOKTOMKT$ ), sales growth ( $GROWTH$ ), leverage ( $LEVERAGE$ ), net income ( $PROFIT$ ), percent of pre-treatment years where

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<sup>9</sup> We use the Fama-French 12 industry classifications to define the industries to which the firms belong.

the company reports a loss (*LOSS*), cash holdings (*CASH*), the probability of bankruptcy (*ZSCORE*), accruals (*ACCRUALS*), firm size (*LN(MKT CAP)*), income volatility (*STDEV NI*), cash flow volatility (*STDEV CFO*), existence of an M&A transaction (*M&A*), number of days between a company's fiscal year end and earnings announcement (*REPORTLAG*), an indicator for whether the company engaged in any restructuring (*RESTRUCTURE*), an indicator for whether the company's fiscal year ends on December 31 (*BUSY SEASON*) and number of analysts following the company (*LN(#ANALYSTS)*).

We also control for variables that prior research finds to be associated with the demand for H-1B workers (e.g., Chen et al., 2021; Kerr and Lincoln, 2010). Such variables include the size of labor force (*LN(#EMPLOYEES)*), employee growth (*EMPLOYEE GR*), an indicator for companies with zero R&D and advertising expense (*NO INTANTIBLE*), the proportion of assets that are tangible (*TANGIBILITY*), existence of foreign income (*FOREIGN INCOME*), existence of subsidiaries in India or China (*SUB CHINA/INDIA*), an indicator for companies headquartered in a city that is more dependent on H-1B workers (*CITY H1B*), and per capita income of the state of headquarters (*PER CAPITAL INC.*). Appendix A provides detailed variable definitions.

Our coefficient of interest is that for  $ACC. H1B \times POST (\beta_1)$ , which captures the change in the likelihood of an irregularity from the pre- to post-treatment period for treatment firms (i.e., those that applied for an H-1B visa for an accounting role in the pre-period) compared to that for control firms (i.e., those that applied for an H-1B visa in the pre-period *but not for an accounting role*). We predict  $\beta_1$  to be negative.

## 5. Data

We download the Labor Condition Application (LCA) submission records for 2001 to 2019 from The Foreign Labor Certification Data Center owned by the Department of Labor (DOL).

These records contain the name of the employer submitting the application, job title of the visa applicant, job location, certification date, and some other relevant data fields.<sup>10</sup> We require each LCA to be certified and have non-missing job titles, and non-missing and non-duplicated case numbers. We then merge the employer names from LCA filings with firm names from Compustat for each fiscal year. If a firm-year exists in Compustat but there is no LCA filing by the firm for that year, we regard this firm-year as having no LCA filings.<sup>11</sup>

Table 1 describes our sample selection procedure. We start with 84,547 firm-year observations with non-missing assets and sales from Compustat from 2001 to 2009. We exclude non-U.S. firms as prior research finds that restatement reporting is less reliable for them (Srinivasan et al., 2015). We also exclude financial firms as they are subject to additional monitoring by regulators.<sup>12</sup> After requiring non-missing data to construct control variables, we end up with a sample of 28,913 firm-year observations. Finally, to mitigate the concern that firms that sponsor H-1B visas are systematically different from firms that do not, we restrict our sample to firms that filed at least one LCA in the pre-treatment period, resulting in a final sample of 11,668 firm-year observations.

To identify the firms that file LCAs for accounting positions, the focus of our study, we implement the following procedures. First, we use a computer algorithm to identify LCA filings with key words in their job titles that suggest an accounting role. Examples of the list of key words we search for are “accountant,” “accounting,” “controller,” and “finance” among others. Second,

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<sup>10</sup> For LCAs filed from 2001 to 2007, we downloaded their records from <https://www.flcdatalcenter.com/caseh1b.aspx>. For LCAs filed from 2008 to 2019, we downloaded their records from <https://www.dol.gov/agencies/eta/foreign-labor/performance>. Our download date is July 4, 2022.

<sup>11</sup> LCA approvals do not translate one for one into H-1B grants. Rather, one LCA can include the names of several foreign workers that firm intends to hire as long as their job positions are the same.

<sup>12</sup> Our main results are very similar if we do not exclude these firms.

we manually review each job title identified by our algorithm as being related to an accounting role, and exclude those that we deem as irrelevant.<sup>13</sup>

## 6. Results

### 6.1 Descriptive statistics and main analyses

Table 2 reports the descriptive statistics for the variables used in our analyses. The average value for our outcome variable of interest, *IRREGULARITY*, is 0.031, indicating that 3.1% of the firm-year observations in our sample restate their financial statements, similar to that reported in prior research (e.g., Armstrong et al., 2013). The average value for *ACC. HIB* is 0.430, indicating that, among firms that file at least one LCA in any of the three years in the pre-treatment period, 43% of firm-years submit an LCA for an accounting position. For comparison, 3.8% and 56.9% of the firm-years in our sample submit an LCA for HR and engineering positions, respectively, in the pre-treatment period. The descriptive statistics for other company characteristics are largely consistent with that reported in prior research. For example, the average values for market capitalization, leverage, and existence of foreign income in our sample are similar to those reported in Aobdia (2019).

We begin our analyses by estimating equation 1, which tests whether the 2004 shock to the H-1B visa cap is followed by a reduction in the likelihood of financial misconduct among companies that relied on this visa to fill an accounting position. Table 3, Panel A presents the results. In column 1, we estimate equation 1 with firm- and year-fixed effects and no time-varying control variables. Column 2 includes all our control variables, and column 3 replaces year-fixed effects with MSA-by-industry-by-year fixed effects. Across all three specifications, we find that the coefficient for *ACC. HIB × POST* is negative and statistically significant at 1% level, and

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<sup>13</sup> For example, our initial screen identifies roles such as “financial processing specialist,” “IT controller,” “product controller,” etc. that are unlikely to be related to the financial reporting function.

similar in magnitude. For example, in column 3 (our preferred specification with the full set of control variables and most conservative fixed-effects structure), the coefficient for  $ACC.H1B \times POST$  is -0.023 with a t-statistic of -2.72. These results suggest that companies that employ H-1B visa holders for accounting positions experience a 2.3 percentage point decline in the probability of an accounting irregularity after the cut in the visa cap relative to the change in the probability of an irregularity for companies that do not employ H-1B visa holders for accounting positions.

The average probability and standard deviation of an *IRREGULARITY* in the pre-treatment period for firms comprising the treatment sample (i.e., firms that employ H-1B visa holders for an accounting role) is 0.050 and 0.22, respectively (untabulated). Thus, the coefficient estimate in column 3 implies that the probability of an accounting irregularity drops by 46% ( $=0.023/0.050$ ) relative to the pre-treatment average or roughly 10% ( $=0.023/0.22$ ) relative to its standard deviation. The large economic magnitude (relative to the unconditional average probability of accounting irregularities) is partly a function of having a denominator close to zero. Further, the economic magnitude we find in our setting, while large, is smaller than that reported in prior studies examining other factors that affect the probability of accounting irregularities. For example, Chan, Chen, Chen, and Yu (2012) find that the incidence of accounting restatements drops by 63-92% after firms put in place their initial provision to claw back compensation from executives involved in accounting improprieties. Dou et al. (2016) find that an increase in state-level unemployment insurance is associated with a 98% increase in the probability of a restatement (based on comparing their difference-in-difference coefficient in Table 4 to the unconditional average restatement probability in Table 3).

An important concern with our main analysis is that the change in the H-1B visa cap occurred shortly after the passage of the Sarbanes Oxley Act (SOX) in 2002, and around the same time as the inception of the PCAOB's auditor inspection program. While our main analysis uses

MSA-by-industry-by-year fixed effects to mitigate the effect of such confounding regulations, we recognize that our inferences might still be incorrect if companies that rely on H-1B visas for accounting roles are systematically different from companies that don't, and such systematic differences interact with the effects of PCAOB inspections or SOX (more broadly).

We perform three tests to help assuage the concern above. First, we estimate a modified version of equation 1 where we replace *POST* with eight calendar-year indicator variables, representing each year in our sample period (2003 serves as the base year and is excluded from the regression). Table 3, Panel B shows that companies that relied on H-1B visa holders to fill accounting positions do not experience a significant decline in the probability of an accounting irregularity until 2006 – i.e., two years after the visa cap was reduced. Further, the negative and significant coefficients for *ACC. HIB × 2007*, *ACC. HIB × 2008* and *ACC. HIB × 2009* indicate that the effect of reducing the H-1B visa cap on accounting irregularities is persistent. The years prior to 2004 serve as a placebo and the insignificant coefficients for *ACC. HIB × 2001*, *ACC. HIB × 2002*, *ACC. HIB × 2004*, and *ACC. HIB × 2005* mitigate the concern that confounding regulation passed shortly before the reduction in the visa cap affects our inference. These results also suggest that the parallel trends assumption is not observably violated in our data. Figure 2 plots the coefficients of interest by year along with their 90% confidence intervals.

Second, we examine whether companies that hired H-1B visa holders for engineering and human resource (HR) positions experience a similar decline in the probability of an accounting irregularity post-treatment as those that hired H-1B visa holders for accounting positions.<sup>14</sup> The procedure for and cost of hiring an employee on an H-1B visa is the same regardless of their area

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<sup>14</sup> Similar to the procedure used to identify H-1B visa applications for accounting positions (discussed in the previous section), we identify visa applications related to engineering and HR positions by first conducting a key word search in the job titles of the LCA filings for the following: “eng”, “enqr”, “engineer”, “human re”, “h.r.” and “hr”, and then conducting a manual review of each job title identified by the key word search.

of expertise, and the types of firms willing to hire an H-1B employee for an accounting role are likely to be similar to those willing to hire an H-1B employee for other positions. However, employees hired for engineering or HR roles are unlikely to have much influence on the financial reporting process and thus are unlikely to be participants in financial misconduct. As such, if confounding factors correlated with the reduction in the H-1B visa cap explain the reduction in accounting irregularities post-treatment, then we should see that firms that rely on H-1B visa for any role – accounting related or engineering/HR related – would experience a similar reduction in irregularities. However, if firms that rely on H-1B visa holders for accounting roles but not other non-accounting roles are the only ones that experience a post-treatment decline in irregularities, then it is less likely that a confounding factor affects the interpretation of our results. The assumption underlying this test is that the latent characteristics of firms that hire employees requiring an H-1B visa is similar across firms that hire visa holders for the different types of positions we consider.

We conduct our test by constructing two indicator variables, *HR HIB* and *ENGINE. HIB*, which equal one if the firm files at least one LCA for an HR and engineering position, respectively, in the pre-treatment period. We interact these variables with *POST* and include them as additional independent variables in equation 1. Column 1 of Table 4 presents the result. We find that, while the coefficient for *ACC. HIB × POST* remains negative and significant at the 1% level (coef.=-0.026; t-stat.=-2.99), the coefficients for *HR HIB × POST* and *ENGINE. HIB × POST* are statistically insignificant (coef.=0.012 and 0.017; t-stat.=0.93 and 1.25, respectively). Further, the coefficient for *ACC. HIB × POST* is statistically different than that for *ENGINE. HIB × POST* and *HR HIB × POST*.

Third, we examine whether companies that relied on the H-1B visa program to fill an accounting position between 2001 and 2003 experience a change in the likelihood of an accounting

restatement caused by an *unintentional* error compared to that experienced by companies that did not rely on H-1B visa holders to fill accounting positions. If concurrent events (e.g., SOX, the demise of Arthur Andersen) led to heightened scrutiny of the financial reporting process and thus improved accounting quality, we would not only observe a reduction in intentional misstatements but also a reduction in unintentional errors. However, if the post-treatment decline in intentional misstatements is because companies were constrained in their ability to hire H-1B visa holders to fill accounting positions, then we would not observe a disproportionate decline in unintentional errors. Following Hennes et al. (2008), we identify unintentional errors as restatements that are not classified as subject to SEC investigation or as financial fraud, irregularities or misrepresentations. Accordingly, *ERROR* is an indicator variable that equals one if the firm's restatement of year  $t$ 's financials is not regarded as irregularity. Consistent with our expectation, the coefficient for *ACC*.  
*HIB*  $\times$  *POST* is not statistically significant (coef.=-0.002; t-stat.=-0.10), suggesting that companies that relied on H-1B visas for accounting roles pre-treatment do not experience a larger decrease in unintentional errors than those that did not rely on H-1B visa holders for accounting roles.<sup>15</sup> Overall, the results in Tables 3 and 4 mitigate the concern that confounding factors rather than the reduction in the visa cap explain the reduction in accounting irregularities.

## 6.2 Alternative dependent variables

Although accounting irregularities is our preferred proxy for financial misconduct because it is relatively less susceptible to measurement error, we verify that our results are robust to using two alternative proxies that do not require ex post detection of wrongdoing. One of the reasons why H-1B visa use is purported to increase the likelihood of misconduct is because visa holders

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<sup>15</sup> The finding that accounting errors do not reduce after the 2004 reduction in the H-1B visa cap helps rule out the alternative explanation that firms hire H-1B visa holders as low-cost, low-quality substitutes for American workers, and that constraints on hiring H-1B visa holders post-2003 forces firms to hire better quality (but more expensive) American workers who then improve accounting quality.

are less likely to blow the whistle on misconduct for fear of retaliation. In the context of our setting, the 2004 reduction in the H-1B visa cap increases the likelihood of whistleblowing, which we argue deters misconduct. However, an increase in the likelihood of whistleblowing simultaneously also increases the likelihood of misconduct detection conditional on its occurrence, making its effect on the equilibrium level of accounting irregularities ambiguous. To side step the uncertain conceptual relation between H-1B visa use and detected misconduct, we employ two proxies for misconduct that do not require detection: (1) unsigned discretionary accruals and (2) the propensity to meet or beat a zero earnings threshold. We opt for these two measures of misconduct because Aobdia (2019) finds that they correlate well with practitioner assessments of audit/accounting quality using confidential data from PCAOB inspections.

We measure discretionary accruals ( $|DISC. ACCRUALS|$ ) following the approach in Kothari, Leone, and Wasley (2005) and the propensity to meet or beat zero earnings threshold ( $SMALL\ PROFIT$ ) following Aobdia (2019). We then estimate equation 1 after replacing the dependent variable with the above two proxies. Table 5 presents the results. We find that the coefficient for  $ACC. HIB \times POST$  is negative and significant at 5% level or better using both measures of misconduct. When the dependent variable is  $SMALL\ PROFIT$  ( $|DISC. ACCRUALS|$ ), the coefficient for  $ACC. HIB \times POST$  is -0.039 (-0.007) with a t-statistic of -2.56 (-2.68). These results suggest that companies that employ H-1B visa holders for accounting positions experience a 11.2% decline in the probability of reporting a small profit and an 8.6% decline in unsigned discretionary accruals (compared to their respective sample standard deviations) after the cut in the visa cap. As such, the results in Table 5 show that our inference is robust to using multiple measures of misconduct based on different attributes of financial reporting.

### 6.3 Cross-sectional analyses: Visa holders with greater influence on financial reporting

In this section, we exploit variation in an employee's control/oversight of the financial reporting process. First, we argue that employees at a managerial-level position are likely to have greater influence of the financial reporting process than employees at a lower position. Managers are likely to have larger equity-based incentives and have authority to direct the actions of their subordinates, and prior research finds that equity-based incentives provided to accounting employees can increase the likelihood of misconduct (Armstrong et al., 2023). Accordingly, we predict that companies that hire H-1B accounting workers in managerial roles have a greater propensity to engage in financial misconduct than those that hire H-1B accounting workers for non-managerial roles.

To test our prediction, we identify H-1B visa holders with managerial positions by examining the job titles stated in their LCA submissions. We first use an algorithm to identify the job titles with key words "chief," "head," "supervisor," "manager," "director," "senior," and "president." We then manually review each machine-identified job title to exclude the incorrect ones. We then compute the ratio of the number of LCAs submitted for managerial-level accounting positions to the total number of employees ( $\%ACC. HIB MGR$ ).<sup>16</sup> We then construct two triple interaction terms:  $ACC. HIB \times POST \times HIGH \%ACC. HIB MGR$  and  $ACC. HIB \times POST \times LOW \%ACC. HIB MGR$ , where  $HIGH \%ACC. HIB MGR$  ( $LOW \%ACC. HIB MGR$ ) is an indicator variable that equals one if average  $\%ACC. HIB MGR$  over pre-treatment years belongs to top quintile (bottom four quintiles) of the sample.<sup>17, 18</sup> The coefficients for these triple interaction

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<sup>16</sup> Ideally, we would use the total number of accounting employees as the denominator but do not have data on this variable.

<sup>17</sup> Note that we use a quintile (rather than tercile) cutoff for  $HIGH \%ACC. HIB MGR$  because  $\%ACC. HIB MGR$  is zero for 74% of the observations in our sample.

<sup>18</sup> Since the value of  $\%ACC. HIB MGR$  is, by construction, zero for all control firm-years (i.e., firms that did not submit any LCA for accounting positions in the pre-treatment period), we do not directly interact  $\%ACC. HIB MGR$  with  $ACC. HIB \times POST$ .

terms estimate the effect of accounting H-1B employees on misconduct, conditional on whether the employee is at a managerial-level position or not.

Column 1 of Table 6 reports the results. We find that the coefficients for both  $ACC. HIB \times POST \times HIGH \%ACC. HIB MGR$  and  $ACC. HIB \times POST \times LOW \%ACC. HIB MGR$  are negative and statistically significant but the size of the coefficient for the former is significantly larger than the latter (coef. of -0.045 vs. -0.020;  $p$ -value for significance of difference = 0.080). These results suggest that firms that hire H-1B accounting employees for managerial-level positions have a greater propensity to engage in financial misconduct than firms that hire H-1B accounting employees for lower-level positions. We interpret this result to imply that H-1B employees that have greater control over the financial reporting process are more likely to come under pressure to facilitate misconduct, given their position in the organization.

Next, we examine whether companies that hire H-1B employees for accounting positions at the location of the firm's headquarters are more likely to engage in financial misconduct. The external financial reporting function is typically managed out of a firm's headquarters and thus accounting employees working in the corporate headquarters are likely to have greater influence over the financial reporting process than accounting employees located in other offices of the company. To test this prediction, we use data reported in a firm's LCA submission regarding the city in which an H-1B visa applicant's job will be located. If the job location city is the same as that in which the firm is headquartered, we consider this LCA filling as applying for a job in the corporate headquarters. We first compute the number of LCAs submitted for accounting positions at the headquarters divided by the total number of LCAs submitted for accounting positions regardless of the job location ( $\%ACC. HIB HQ$ ). We then add two triple interaction terms to equation 1:  $ACC. HIB \times POST \times HIGH \%ACC. HIB HQ$  and  $ACC. HIB \times POST \times LOW \%ACC. HIB HQ$ .

$HIB\ HQ$ , where  $HIGH\ %ACC.\ HIB\ HQ$  ( $LOW\ %ACC.\ HIB\ HQ$ ) is an indicator variable that equals one if average  $%ACC.\ HIB\ HQ$  over pre-treatment years is in the top (bottom two) tercile(s).

Column 2 of Table 6 reports the results. We find that the coefficient for both  $ACC.\ HIB \times POST \times HIGH\ %ACC.\ HIB\ HQ$  and  $ACC.\ HIB \times POST \times LOW\ %ACC.\ HIB\ HQ$  are negative and significant but the size of the coefficient for the former is significantly larger than the latter (-0.060 vs. -0.016;  $p$ -value for significance of difference = 0.000). These results suggest that firms that hire H-1B accounting employees for positions located in its corporate headquarters have a greater propensity to engage in financial misconduct than firms that hire H-1B accounting employees for positions located in other offices. As before, these results imply that H-1B employees that have more influence over the financial reporting process are more likely to come under pressure to facilitate misconduct.

#### *6.4 Cross-sectional analyses: Visa holders with fewer outside opportunities*

Our main hypothesis rests on the idea that it is very costly for H-1B visa holders to lose their job (especially abruptly) because H-1B visa holders have only 60 days to find a new job and any prospective employer has to be willing to sponsor their H-1B visa. Further, if an H-1B visa holder were to be fired from their current job, the consequence of not finding another job within 60-days are significantly worse for them than that for non-visa holders; H-1B visa holders would have to leave the U.S. along with their family members on a dependent visa. Thus, the structure of the H-1B visa creates a hold-up problem for workers on this visa, and makes them beholden to their employers. To explore further whether hold-up costs do indeed explain the relation between H-1B employment and irregularities, we devise three cross-sectional tests that vary the outside employment opportunities of H-1B visa holders and thus the extent of the hold-up problem.

First, we argue that immigrant employees have fewer outside employment opportunities if they are located in regions where the size of local labor market for immigrants is thin because few companies in the region are willing to sponsor H-1B visas for their employees. We proxy for the size of the local labor market for immigrant workers (*IMMI. LABOR MKT SIZE*) with the aggregate number of LCAs submitted by all firms within a 50-mile radius of the city in which the firm's headquarters is located. We then construct an indicator variable, *LOW IMMI. LABOR MKT SIZE*, that equals one if average *IMMI. LABOR MKT SIZE* in pre-treatment years is in the bottom tercile of the sample. Second, we follow prior research that argues that job switching costs are higher in states that have strict enforcement of non-compete agreements. We argue that H-1B visa holders face greater hold-up costs when they work in states with stronger enforcement of non-complete contracts. We measure the state-level enforcement strength of non-compete agreements following Garmaise (2011) and Aobdia (2018). We construct an indictor variable, *HIGH NON-COMPETE*, that equals one if average enforcement strength over pre-treatment years in the state in which a firm is headquartered is in the top tercile. Lastly, we use the percentage of permanent residents in the state where the firm's headquarters is located (*%PERMANENT RESIDENT*) to proxy for the job opportunities available to immigrant workers. Our third partitioning variable, *LOW %PERMANENT RESIDENT*, is an indictor variable that equals one if average *%PERMANENT RESIDENT* in pre-treatment years is in the bottom tercile of the sample.

To examine whether companies that employ H-1B visa holders with fewer outside opportunities are more likely to engage in financial misconduct, we modify equation 1 by adding interaction terms between the above three partitioning variables with *ACC. H1B* and *POST*. Table 7 report the results. We find that the coefficient for the triple interaction term between *ACC. H1B*, *POST* and our cross-sectional partition is negative and statistically significant at the 10% level or

better using all three proxies for outside employment opportunities for immigrants. These results are consistent with our hypothesis, and suggest that hold-up costs faced by H-1B visa holders do indeed explain why companies that employ H-1B visa holders are more likely to engage in financial misconduct.

An important benefit of this cross-sectional test is that it helps mitigate the concern that cultural differences in attitudes towards misconduct or perceptions of unethical behavior explain our results. Specifically, one potential alternative explanation for our main results is that immigrant workers originate from countries such as China and India where cultural attitudes towards cheating are perhaps laxer, or workers are simply more subservient to their superiors, which leads them to comply with unethical requests made by their bosses irrespective of their visa status. The cross-sectional tests in Table 7 show that in a sample of H-1B visa holders, it is those with fewer outside opportunities who are more vulnerable and thus more likely to facilitate financial misconduct.

#### *6.5 Cross-sectional analyses: Investor horizon and pressure to meet short-term targets*

Finally, we examine whether H-1B employment has a greater effect on accounting irregularities when companies face investor pressure to meet short-term earnings targets. Prior studies find that short-horizon investors are associated with cuts to long-term investment and increased earnings management (Bushee 1998, 2001; Cremers, Pareek, and Sautner 2020). Bolton, Scheinkman, and Xiong (2006) analytically show that CEOs, incentivized by short-horizon investors through short-term pay, take actions that increase the short-term speculative component of stock prices, at the expense of long-term firm value. Bolton et al. (2006) use the case of research and development cuts that boost short-term earnings as a specific example of actions that temporarily inflate stock prices. To the extent, ownership by short-horizon investors incentivizes managers to boost near-term earnings and stock prices, the managers of such companies are more

likely to pressure their subordinates to take actions to meet the company's earnings targets. Thus, H-1B employees in such companies are more likely to come under pressure to facilitate earnings management, thereby increasing the likelihood of misconduct.

We measure an investor's horizon using the turnover rate of their portfolio, following Bushee (1998) and Derrien, Kecskès, and Thesmar (2013). Investors with a high portfolio turnover are assumed to have shorter horizons than those with a low turnover. Specifically, we follow Derrien et al. (2013) and compute the fraction of an investor's portfolio turned over during the preceding three years and classify investors with a turnover above 35% as short-term oriented investors. We then create an indicator variable that equals one (*HIGH SHORT-TERM INVESTOR*) if the average short-term investor ownership in a stock over pre-treatment period (2001-2003) belongs to the top tercile of its sample distribution.

We recognize that a drawback of the above measure is that investor horizon and their ownership in a stock is potentially endogenous to the firm's financial reporting behavior. Thus, we develop a second proxy for changes in short-horizon investor ownership using firms newly added to the Russell 2000 Index. Cremers, Pareek, and Sautner (2020) show that firms added to the Russell 2000 index from below experience a 22% increase in ownership by short-horizon investors, which is arguably exogenous to their ex-ante reporting behavior. Thus, we create an indicator variable (*RUSSELL 2000 INCLUSION*) that equals one if the firm was added to Russell 2000 Index from below in the pre-treatment period (2001-2003), and zero otherwise.

To examine whether companies that employ H-1B visa holders for accounting positions and also face greater pressure to meet short-term earnings targets are more likely to engage in financial misconduct, we modify equation 1 by adding interaction terms between the above two partitioning variables with *ACC*, *HIB* and *POST*. Table 8 reports the results. We find that the

coefficient for the triple interaction term between *ACC*, *H1B*, *POST* and our cross-sectional partitions are negative and statistically significant at the 10% level using both proxies for ownership by short-horizon investors. These results are consistent with our hypothesis, and suggest that companies that employ H-1B visa holders for accounting positions are more likely to engage in financial misconduct when faced with investor pressure to meet short-term earnings targets.

## 7. H-1B lotteries and financial misconduct

Finally, we exploit the randomized nature of H-1B visa lotteries to test our main hypothesis in the lottery setting. As discussed in section 2, when there is a lottery, not all LCAs turn into actual employment of H-1B workers. After the Department of Labor certifies the LCA, the employer must submit an I-129 petition to the USCIS for the actual H-1B visa. The USCIS starts accepting such petitions on the first business day of April for the coming fiscal year that starts from October 1. If the legislative cap is not reached within the first five business days, the USCIS processes petitions on a first come, first served basis. In this scenario, the USCIS will processes all petitions submitted before the cap is reached and *only* conducts lotteries to allocate the remaining visas to the petitions submitted the day the cap is reached. In other words, the allocation of all the H-1B visas is not fully randomized in this scenario. However, if the legislative cap is reached within the first five business days, the USCIS will conduct a randomized lottery to allocate *all* cap-subject H-1B visas to petitions submitted by certain cutoff date, which is determined by the USCIS and unknown to petitioners at the time of their submission. The legislative cap for H-1B visas was reached within the first five business days in fiscal years 2008, 2009, and 2014 onwards. Following Chen et al. (2021), we only include fiscal years that the legislative cap was reached in the first five business days in our lottery sample (specifically, 2009 and 2014–2019). We do not include 2008 because publicly available lottery outcome data only starts in 2009, and

we end our sample in 2019 to allow time for irregularities of prior years' financials to be detected.<sup>19</sup>

We estimate the following equation using a sample of firms that apply for at least one H-1B visa in the fiscal years when the lottery for H-1B visas was entirely randomized:

$$IRREGULARITY_{i,t+n} = \beta_1 ACC.H1B_i \times HIGH\ WIN\ RATE_{i,t} + \beta_2 ACC.H1B_i + \beta_3 HIGH\ WIN\ RATE_{i,t} + \sum \gamma Control_{i,t} + \alpha_i + \alpha_{MSA} \times \alpha_{ind} \times \alpha_t + \varepsilon_{i,t} \quad (2)$$

where  $i$ ,  $t$ ,  $MSA$  and  $ind$  indexes firms, years, the metropolitan statistical area a firm is headquartered in, and industry, respectively. Figure 3 illustrates the timeline of our variable measurement using the H-1B lottery conducted for government's fiscal year 2009 as an example.  $HIGH\ WIN\ RATE$  is an indicator variable that equals one if the firm's lottery win rate is within the top tercile of year  $t$ , and zero otherwise, where win rate is calculated as the number of H-1B visas the firm eventually obtains through lottery divided by the total number of LCAs filed by the firm regardless of the types of job positions. Ideally, we should use firm-level win rate for accounting positions as our independent variable.<sup>20</sup> However, since the publicly available lottery outcome data from the USCIS only provide aggregated firm-level numbers (i.e., how many visas the firm won in total) without a breakdown for different job positions, we have to make an approximation by using the interaction of  $HIGH\ WIN\ RATE$  and  $ACC.\ H1B$  as our independent variable, where  $ACC.\ H1B$  is an indicator variable for whether the firm submitted an LCA to fill an accounting position. Our assumption is that the probability that a firm hires an H-1B visa holder to fill an accounting role is proportional to its lottery win rate, conditional on applying for an H-1B visa to fill an accounting position. We use the same set of control variables from equation 1 with one exception. We do not control for whether the firm has a subsidiary in China or India ( $SUB$ )

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<sup>19</sup> We downloaded the H-1B visa lottery approval data on Aug 14, 2022 from <https://www.uscis.gov/tools/reports-and-studies/h-1b-employer-data-hub/h-1b-employer-data-hub-files>.

<sup>20</sup> Some prior studies directly use the H-1B lottery win rate as their independent variable because their research questions do not focus on specific types of positions (e.g., Chen et al., 2021; Dimmock et al., 2022).

*CHINA/INDIA*) since the data are not available to us post-2014.<sup>21</sup> Our coefficient of interest is  $\beta_1$ . Based on our main hypothesis, more H-1B accounting employees should be associated with a higher likelihood of financial misconduct; thus, we predict  $\beta_1$  to be positive.

Table 9 reports our results. In column 1, we examine whether firms that apply for an accounting H-1B visa and have a high lottery win rate are more likely to have an irregularity in the following year. We find that the coefficient for *ACC. HIB × HIGH WIN RATE* is positive and significant at 5% level (coef.=0.017; t-stat.=2.13). In column 2, we additionally examine whether firms that apply for an accounting H-1B visa and have a high lottery win rate are similarly more likely to have unintentional accounting errors in the following year. Consistent with our prediction, we find that the coefficient for *ACC. HIB × HIGH WIN RATE* is insignificant (coef.=0.004; t-stat.=0.15). These results suggest that firms that are randomly more likely to have employed an H-1B visa holder to fill an accounting position via the lottery are more likely to report an accounting irregularity in the following year but no more likely than other firms to report unintentional accounting errors. The results in Table 9 provide evidence consistent with our main hypothesis.

## 8. Conclusion

This paper examines the relation between U.S. immigration policy, specifically the H-1B visa program, and financial misconduct in companies. We hypothesize that companies relying on the H-1B visa program to hire employees for accounting and finance roles are more likely to engage in financial misconduct due to the leverage employers have over H-1B visa holders, whose visa status, and thus ability to legally reside in the U.S., is tied to their sponsoring employer. Specifically, we argue that employees on H-1B visas are less likely to blow the whistle on misconduct and are more likely to be subservient to their bosses even when asked to engage in

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<sup>21</sup> We obtain data to compute this variable from Scott Dyring's website, and the data are unavailable post-2014.

ethically questionable tasks because of the significantly higher costs H-1B visa holders face (relative to non-visa holders) if they were to suddenly lose their job.

To test our hypothesis, we examine a sharp and sudden reduction in the H-1B visa cap in 2004, which serves as a shock to firms' ability to hire foreign professionals on H-1B visas. Using accounting irregularities as a proxy for financial misconduct, we find that companies relying on the H-1B visa program to fill accounting and finance positions experience a 2.3 percentage point decrease in the probability of an accounting irregularity after the visa cap reduction. Placebo tests, alternative proxies for misconduct, and an additional natural experiment based on the outcome of H-1B visa lotteries support our main inference.

We conduct several cross-sectional tests to corroborate our inference and shed light on the mechanism through which our proposed effect manifests. Specifically, we find that the 2004 cut in the H-1B visa cap has a larger reduction in the probability of irregularities in the sub-sample of firms where the H-1B visa holders have 1) more influence on the financial reporting process or 2) fewer outside employment opportunities. By tying the relation between the H-1B employment and irregularities to the visa holders' outside employment opportunities, our cross-sectional tests mitigate the concern that cultural attributes of visa holders (who are primarily from China and India) explain our findings rather than the hold-up cost imposed on visa holders by U.S. immigration policy. We also find that the change in the H-1B legislative cap in 2004 has a larger effect on accounting irregularities when the company's investors are short-term oriented and thus more likely to pressure/incentivize managers to meet near-term earnings targets.

This paper contributes to the literature on factors that lead firms to engage in financial misconduct by proposing a role for U.S. immigration policy and the H-1B visa program, which hitherto has not been considered. Our paper also contributes the growing literature examining the

effect of the H-1B visa program on labor market outcomes and productivity. Much of the prior literature examining the costs and benefits of the H-1B visa program, which allows U.S. employers to hire high-skilled foreign workers, focuses on whether this program helps or hinders the productivity and employment of the domestic labor pool in the U.S. One side of the argument is that H-1B visa holders fill skill gaps in the U.S. labor market and thus serve as complements to the domestic labor market. The other side of the argument is that U.S. employers use the H-1B visa program to hire cheaper labor from foreign countries, which displaces the jobs of the domestic labor force. We contribute to this literature by highlighting a different issue: H-1B visa holders are more likely to be beholden to their employers because their visa status is tied to their employment status. As such, our findings have implications for immigration policy, especially as it relates to the structure of the H-1B visa program.

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## Appendix A Variable Definitions

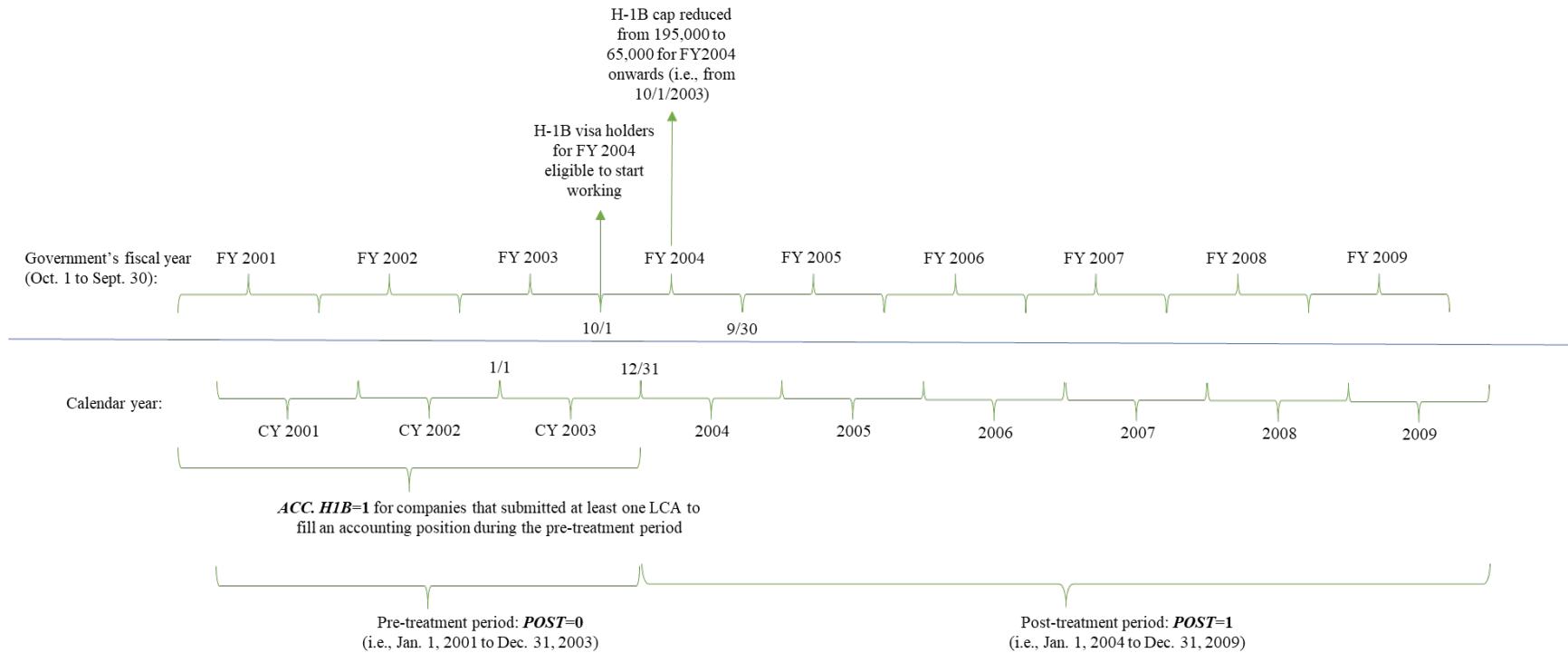
This table provides a detailed description of the procedure used to compute each variable used in our analyses. We obtained financial statement data from Compustat, data on Labor Condition Applications (LCAs) from the Department of Labor, and H-1B visa lottery data from the United States Citizenship and Immigration Services. All continuous variables are winsorized at 1% and 99% of the distribution. The variables are listed in alphabetical order.

<b>Variable</b>	<b>Definition</b>
<i>ACC. HIB</i>	An indicator variable that equals one for firms that have filed at least one Labor Condition Applications (LCA) for accounting positions for any of the years over 2001–2003, and zero otherwise.
<i>ACCRUALS</i>	Change in non-cash assets (data (AT-CHE)) less change in non-debt liabilities (data (LT-DLTT-DLC)) scaled by average total assets in year $t$ .
<i>BOOKTOMKT</i>	Book to market ratio of assets (data AT/(AT+ PRCC_F × CSHO -CEQ - TXDB)) at the end of year $t$ .
<i>BUSY SEASON</i>	An indicator variable that equals one if the firm's fiscal year-end is in December, and zero otherwise.
<i>CASH</i>	Cash (data CH) divided by total assets (data AT) for year $t$ .
<i>CITY HIB</i>	An indicator variable that equals one if the firm's headquarters is located in cities that are most dependent on H-1B visas, and zero otherwise. We obtain firms' historical headquarters location from 10-K header data provided by Professor McDonald ( <a href="https://sraf.nd.edu/data/">https://sraf.nd.edu/data/</a> ). We identify top-15 most dependent cities based on Table 1 of Kerr and Lincoln (2010).
$ DISC. ACCRUALS $	Absolute value of performance adjusted discretionary accruals following Kothari et al. (2005) and Chan et al. (2015). We first obtain unadjusted discretionary accruals by estimating residuals from a modified Jones (1991) model cross-sectionally for each industry-year. Our model regresses total accruals scaled by lagged assets on the inverse of lagged assets, change in sales scaled by lagged assets and PP&E scaled by lagged assets. Our specific method of performance adjustment follows Ashbaugh-Skaife et al. (2008): rank firms within each industry into deciles based on return on assets (ROA) and compute the performance-adjusted discretionary accruals as the difference between the firm's unadjusted discretionary accruals and the median discretionary accruals for firms in the same industry ROA decile.
<i>EMPLOYEE GR</i>	Employee growth as measured by the percentage change in the total number of employees (data EMP) from year $t-1$ to year $t$ .
<i>ENGINE. HIB</i>	An indicator variable that equals one if the firm files at least one LCA for engineering positions over 2001–2003, and zero otherwise. We identify LCAs for engineering positions by first conducting a key word search in the job titles of the LCA filings for the following: “eng,” “engr,” and “engineer,” and then conducting a manual review of each job title identified by the key word search.
<i>ERROR</i>	An indicator variable that equals one if a firm has a restatement of year $t$ 's financial statements and the restatement is not regarded as an irregularity in Audit Analytics (i.e., RES_FRAUD and RES_SEC_INVEST equals zero in Audit Analytics).
<i>FOREIGN INCOME</i>	An indicator variable that equals one if there is non-zero foreign exchange income (data FCA) in year $t$ , and zero otherwise.
<i>GROWTH</i>	The percentage change in sales (data SALE) from year $t-1$ to year $t$ .

<i>HIGH %ACC. H1B HQ (LOW %ACC. H1B HQ)</i>	An indicator variable that equals one if the average $\%ACC.H1B\ HQ$ over pre-treatment period (2001-2003) belongs to the top (bottom two) terciles, where $\%ACC.H1B\ HQ$ is the ratio of the number of Labor Condition Applications (LCAs) filed for accounting positions that are located at firm headquarters to the total number of LCAs submitted for accounting positions regardless of the job location.
<i>HIGH %ACC. H1B MGR (LOW %ACC. H1B MGR)</i>	An indicator variable that equals one if the average $\%ACC. H1B\ MGR$ over pre-treatment period (2001-2003) belongs to the top (bottom four) quintile(s), where $\%ACC.H1B\ MGR$ is the ratio of the number of LCAs filed for managerial-level accounting positions to the total number of employees in thousands. To identify LCAs for managerial-level positions, we first conduct a key word search in the job titles of the LCA filings for the following: “chief,” “head,” “supervisor,” “manager,” “director,” “senior,” and “president.” We then manually review each machine-identified job title to exclude the incorrect ones.
<i>HIGH NON-COMPETE</i>	An indicator variable that equals one if the average $NON-COMPETE$ over pre-treatment period (2001-2003) belongs to the top tercile, and zero otherwise. $NON-COMPETE$ is the measure for the strength of noncompete agreements enforcement by the state in which the firm is headquartered using Table 8 in Aobdia (2018).
<i>HIGH SHORT-TERM INVESTOR</i>	An indicator variable that equals one if the average $SHORT-TERM\ INVESTOR$ over pre-treatment period (2001-2003) belongs to the top tercile of its sample distribution, where $SHORT-TERM\ INVESTOR$ is the percent of shares held by short-term/transient investors based on their portfolio turnovers. We obtain investors’ portfolio data from Thomson’s 13F database and follow the methodology in Derrien, Kecsk��s, and Thesmar (2013) to calculate investor portfolio turnovers and to make the classification.
<i>HIGH WIN RATE</i>	An indicator variable that equals one if the firm’s win rate is within the top tercile of year $t$ , and zero otherwise, where win rate is the number of H-1B visas the firm eventually obtain through lottery divided by the total number of LCAs filed by the firm.
<i>HR H1B</i>	An indicator variable that equals one if the firm files at least one LCA for human resources positions over 2001-2003, and zero otherwise. We identify LCAs for human resources positions by first conducting a key word search in the job titles of the LCA filings for the following: “human re,” “h.r.,” and “hr,” and then conducting a manual review of each job title identified by the key word search.
<i>IRREGULARITY</i>	An indicator variable that equals one if the firm’s restatement of year $t$ ’s financials is classified as subject to SEC investigation or as financial fraud, irregularities or misrepresentations, and zero otherwise. We use variables RES_FRAUD and RES_SEC_INVEST from Audit Analytics to identify such restatements. Our interest lies in the period in which a firm’s financial statements were in error and not the period in which the error was detected and made public.
<i>LEVERAGE</i>	Debt in current liabilities (data DLC) plus Long-term debt (data DLTT) divided by market capitalization (data PRCC_F $\times$ CSHO) at the end of year $t$ .
<i>LN(#ANALYSTS)</i>	The natural logarithm of the number of analysts following based on the most recent IBES consensus EPS forecast before the announcement of year $t$ ’s earnings.
<i>LN(#EMPLOYEES)</i>	The natural logarithm of the number of employees (data EMP).
<i>LN(MKT CAP)</i>	The logarithm of market capitalization (data PRCC_F $\times$ CSHO) at the end of year $t$ .
<i>LOSS</i>	An indicator variable that equals one if the firm reports negative earnings before interest and taxes (data EBIT) for year $t$ , and zero otherwise.

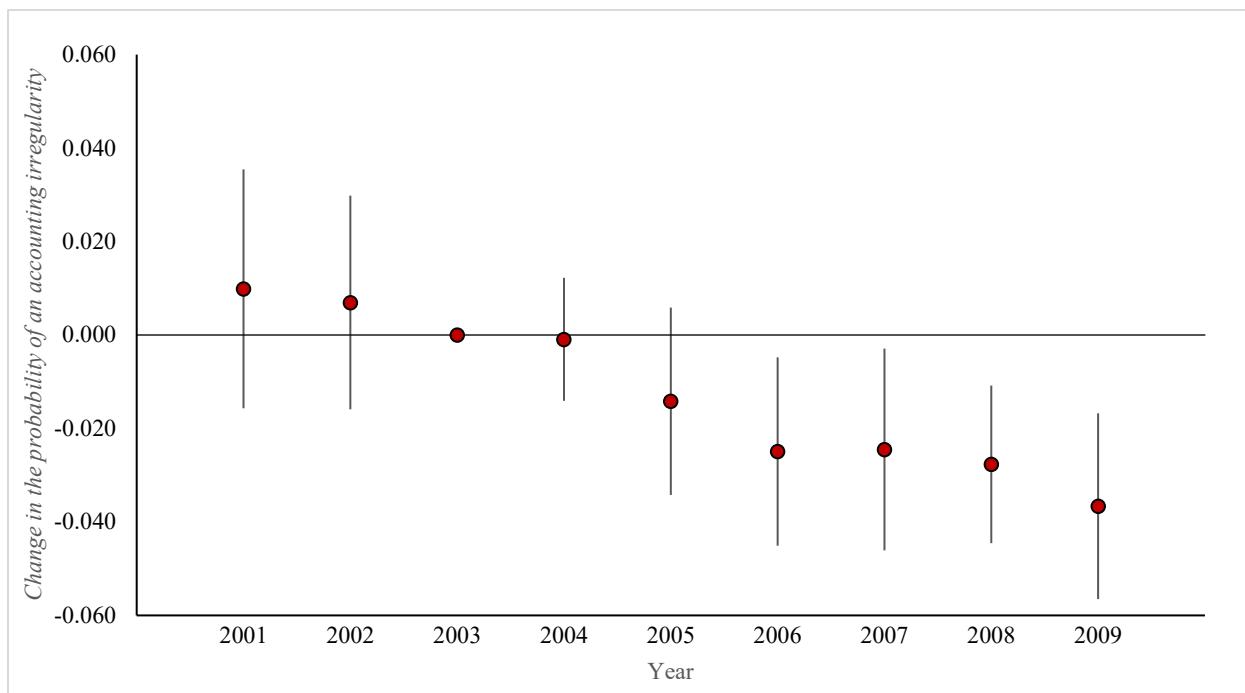
<i>LOW IMMI. LABOR MKT SIZE</i>	An indicator variable that equals one if the average <i>IMMI. LABOR MKT SIZE</i> over pre-treatment period (2001-2003) belongs to the bottom tercile of its sample distribution, where <i>IMMI. LABOR MKT SIZE</i> is the total number of LCAs submitted by all firms within a 50-mile radius of the city in which the firm's headquarters is located.
<i>LOW %PERMANENT RESIDENT</i>	An indicator variable that equals one if the average <i>%PERMANENT RESIDENT</i> over pre-treatment period (2001-2003) belongs to the bottom tercile of its sample distribution, where <i>%PERMANENT RESIDENT</i> is the number of permanent residents in the state where the firm's headquarters is located divided by the total number of permanent residents in the U.S.
<i>M&amp;A</i>	An indicator variable that equals one if the firm goes through an M&A transaction (data SALE_FN="AA" or "AB") in year $t$ , and zero otherwise.
<i>NO INTANGIBLE</i>	An indicator variable that equals one if there is no R&D expense (data XRD) or advertising expense (data XAD) for year $t$ , and zero otherwise.
<i>PER CAPITA INC.</i>	Per capita income in year $t$ for the state where the firm is headquartered. We obtain firms' historical headquarters location from 10-K header data provided by Professor McDonald ( <a href="https://sraf.nd.edu/data/">https://sraf.nd.edu/data/</a> ).
<i>POST</i>	An indicator variable that equals one in 2004-2009, and zero in 2001-2003.
<i>PROFIT</i>	Net income (data NI) divided by market capitalization (data PRCC_F $\times$ CSHO) at the end of year $t$ .
<i>REPORTLAG</i>	The number of days from the end date of fiscal year $t$ to the announcement date of year $t$ 's earnings.
<i>RESTRUCTURE</i>	An indicator variable that equals to one if the firm is involved in a restructuring (data RCA, RCD, RCEPS, or RCP is non-zero) in year $t$ , and zero otherwise.
<i>RUSSELL 2000 INCLUSION</i>	An indicator variable that equals one if the firm has been added to Russell 2000 Index from below in the pre-treatment period (2001-2003), and zero otherwise. Firms are newly added to the Russell 2000 from below when they were previously outside of the Russell 1000 and 2000 but their market capitalization ranks have increased over the past year so that they are now ranked between 1,000 and 3,000. Firms added to the index from below tend to be smaller than the other Russell 2000 firms.
<i>SMALL PROFIT</i>	An indicator variable that equals one if net income (data NI) divided by market capitalization (data PRCC_F $\times$ CSHO) is between 0 and 3%, and zero otherwise.
<i>STDEV NI</i>	The standard deviation of net income (data NI) scaled by equity (data CEQ) from year $t-3$ to year $t$ .
<i>STDEV CFO</i>	The standard deviation of operating cash flow (data OANCF) scaled by total assets (data AT) from year $t-3$ to year $t$ .
<i>SUB CHINA/INDIA</i>	An indicator variable that equals one if the firm operates any subsidiaries in China or India, and zero otherwise. We identify the existence of foreign subsidiaries using data from Scott Dydren's website: <a href="https://sites.google.com/site/scottdydren/Home/data-and-code">https://sites.google.com/site/scottdydren/Home/data-and-code</a> .
<i>TANGIBILITY</i>	Net property, plant, and equipment (data PPENT) scaled by average total assets (data AT) in year $t$ .

**FIGURE 1**  
*Graphical representation of research design for the setting based on the 2004 shock to the H-1B legislative cap*



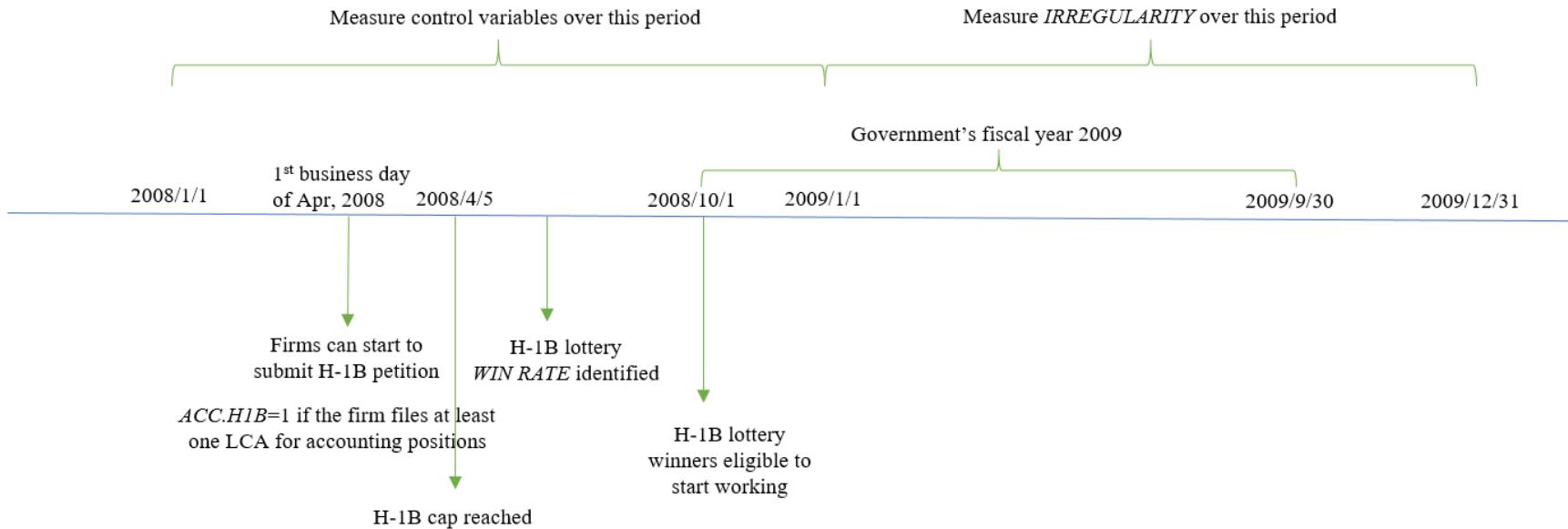
*Notes:* This figure illustrates our research design that uses the 2004 shock to the H-1B legislative cap by showing how our variable of interest in equation 1 ( $ACC.HIB \times POST$ ) is measured. The H-1B visa lottery for fiscal year  $t$  is held in the first week of April of fiscal year  $t-1$ . Employees that win the H-1B lottery are then eligible to begin employment no sooner than October 1 of fiscal year  $t$  (i.e., the earliest start date of employment for workers granted an H-1B visa in the lottery for fiscal year  $t$ ).

**FIGURE 2**  
*Reduction in the H-1B visa cap and accounting irregularities*



*Notes:* In the figure above, the x-axis represents fiscal years around the reduction in the legislative cap on the number of H-1B visa that could be issued from fiscal year 2004 onwards. The y-axis represents the change in the average probability of an accounting irregularity relative to base year of 2003. The figure plots the two-tailed 90% confidence interval around each point estimate of the change in the probability of an accounting irregularity relative to base probability in 2003.

**FIGURE 3**  
*Graphical representation of research design for H-1B lottery setting*



*Notes:* This figure illustrates the timeline of our variable measurement for equation 2 using the H-1B lottery conducted for the government's fiscal year 2009 as an example. For a firm whose fiscal year starts on 2009/1/1, *IRREGULARITY* is measured over the period 2009/1/1 to 2009/12/31. Control variables are measured over the prior year from 2008/1/1 to 2008/12/31. Our indicator variable *ACC. HIB* is defined based on whether the firm submits at least one LCA for accounting positions in early 2008 such that the H-1B applicants that win the lottery in April, 2008 can begin work on 2008/10/1. Our indicator variable *HIGH WIN RATE* is based on the outcome of the lottery conducted in April, 2008.

**TABLE 1**  
*Sample composition*

No.	Sample Selection Procedure	Firm-Year Observations Dropped	Firm-Year Observations Retained
(1)	Firm-year observations in Compustat from 2001 to 2009 with non-missing assets and sales		84,547
(2)	<i>Less:</i> Non-U.S. firms	20,791	63,756
(3)	<i>Less:</i> Financial firms	11,484	52,272
(4)	<i>Less:</i> Observations missing historical headquarter location and missing historical industry	8,394	43,878
(5)	<i>Less:</i> Observations missing data to construct control variables	14,965	28,913
(6)	<i>Less:</i> firms with no LCA in the pre-treatment period	17,245	11,668
Final sample of firm-years available for analyses			11,668

*Notes:* This table describes our sample selection process.

**TABLE 2**  
*Descriptive statistics*

Variables	Mean	SD	P25	P50	P75	N
<b>Dependent variables</b>						
<i>IRREGULARITY</i>	0.031	0.173	0.000	0.000	0.000	11,668
<i>ERROR</i>	0.162	0.369	0.000	0.000	0.000	11,307
<i> DISC. ACCRUALS </i>	0.061	0.081	0.013	0.036	0.075	11,668
<i>SMALL PROFIT</i>	0.141	0.348	0.000	0.000	0.000	11,668
<b>Primary independent variables</b>						
<i>ACC. HIB</i>	0.430	0.495	0.000	0.000	1.000	11,668
<i>HR HIB</i>	0.038	0.191	0.000	0.000	0.000	11,668
<i>ENGINE. HIB</i>	0.569	0.495	0.000	1.000	1.000	11,668
<b>Cross-sectional variables (measured pre-treatment)</b>						
<i>%ACC. HIB MGR</i>	0.024	0.114	0.000	0.000	0.000	11,668
<i>%ACC. HIB HQ</i>	0.123	0.222	0.000	0.000	0.254	11,668
<i>IMMI. LABOR MKT SIZE</i>	58	83	3	28	78	11,668
<i>NON-COMPETE</i>	4	2	2	3	5	11,668
<i>%PERMANENT RESIDENT</i>	0.097	0.103	0.016	0.046	0.264	11,668
<i>SHORT-TERM INVESTOR</i>	0.061	0.057	0.017	0.047	0.092	11,668
<i>RUSSELL 2000 INCLUSION</i>	0.119	0.323	0.000	0.000	0.000	11,668
<b>Control variables</b>						
<i>LN(MKT CAP)</i>	6.067	2.295	4.511	6.124	7.632	11,668
<i>LN(#EMPLOYEES)</i>	7.388	2.129	5.745	7.351	8.975	11,668
<i>EMPLOYEE GR</i>	0.065	0.292	-0.061	0.023	0.131	11,668
<i>BOOKTOMKT</i>	0.661	0.339	0.400	0.627	0.880	11,668
<i>GROWTH</i>	0.182	0.575	-0.032	0.080	0.221	11,668
<i>NO INTANGIBLE</i>	0.239	0.427	0.000	0.000	0.000	11,668
<i>TANGIBILITY</i>	0.230	0.209	0.072	0.158	0.326	11,668
<i>LEVERAGE</i>	0.604	1.742	0.003	0.116	0.425	11,668
<i>PROFIT</i>	-0.202	0.881	-0.092	0.024	0.056	11,668
<i>LOSS</i>	0.323	0.468	0.000	0.000	1.000	11,668
<i>CASH</i>	0.181	0.245	0.034	0.102	0.231	11,668
<i>ACCRUALS</i>	0.023	0.215	-0.054	0.015	0.095	11,668
<i>STDEV NI</i>	0.789	2.304	0.045	0.118	0.394	11,668
<i>STDEV CFO</i>	0.097	0.141	0.027	0.051	0.100	11,668
<i>FOREIGN INCOME</i>	0.250	0.433	0.000	0.000	0.500	11,668
<i>M&amp;A</i>	0.167	0.373	0.000	0.000	0.000	11,668
<i>RESTRUCTURE</i>	0.316	0.465	0.000	0.000	1.000	11,668
<i>BUSY SEASON</i>	0.650	0.477	0.000	1.000	1.000	11,668
<i>REPORT LAG</i>	47.616	23.351	30	42	58	11,668
<i>LN(#ANALYSTS)</i>	1.722	1.112	0.693	1.946	2.639	11,668
<i>SUB CHINA/INDIA</i>	0.303	0.459	0.000	0.000	1.000	11,668
<i>CITY HIB</i>	0.086	0.280	0.000	0.000	0.000	11,668
<i>PER CAPITA INC.</i>	36,483	5,652	32,946	35,408	40,027	11,668

*Notes:* This table presents the descriptive statistics for the variables used in our analyses. See Appendix A for variable definitions.

**TABLE 3**  
*Reliance on H-1B visas and accounting irregularities*

Panel A: Static analyses

Dependent Variable:	<b>IRREGULARITY</b>					
	(1)		(2)		(3)	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
<i>ACC. H1B × POST</i>	-0.030***	-4.17	-0.028***	-3.87	-0.023***	-2.72
<i>LN(MKT CAP)</i>			0.005	0.92	0.010*	1.70
<i>LN(#EMPLOYEES)</i>			0.000	0.05	0.000	0.00
<i>EMPLOYEE GR</i>			-0.005	-0.66	-0.006	-0.64
<i>BOOKTOMKT</i>			-0.002	-0.15	0.005	0.33
<i>GROWTH</i>			-0.001	-0.39	0.001	0.28
<i>NO INTANGIBLE</i>			0.017	0.91	0.008	0.38
<i>TANGIBILITY</i>			-0.033	-1.32	-0.011	-0.39
<i>LEVERAGE</i>			-0.001	-0.28	-0.001	-0.25
<i>PROFIT</i>			-0.004*	-1.70	-0.006*	-1.79
<i>LOSS</i>			0.003	0.54	0.008	1.21
<i>CASH</i>			-0.003	-0.31	-0.008	-1.08
<i>ACCRUALS</i>			0.009	1.11	0.004	0.51
<i>STDEV NI</i>			-0.003**	-2.19	-0.002	-1.30
<i>STDEV CFO</i>			0.026	1.30	0.016	0.67
<i>FOREIGN INCOME</i>			-0.010	-1.06	-0.010	-1.15
<i>M&amp;A</i>			0.007	1.32	0.005	0.65
<i>RESTRUCTURE</i>			-0.003	-0.59	-0.004	-0.56
<i>BUSY SEASON</i>			0.069	0.75	0.163	1.44
<i>REPORTLAG</i>			-0.001***	-3.09	-0.000**	-2.15
<i>LN(#ANALYSTS)</i>			0.007	1.21	0.003	0.48
<i>SUB CHINA/INDIA</i>			0.005	0.58	0.001	0.10
<i>CITY H1B</i>			-0.042	-1.22	-0.016	-0.66
<i>PER CAPITA INC.</i>			0.000	1.40	0.000	1.63
Firm Indicators	Included		Included		Included	
Year Indicators	Included		Included		Not Included	
MSA × Industry × Year Indicators	Not Included		Not Included		Included	
S.E. Cluster	MSA		MSA		MSA	
No. of Observations	11,668		11,668		11,668	
Adj. R-Squared	0.421		0.426		0.418	

**TABLE 3 - continued**

Panel B: Dynamic analyses

Dependent Variable:	<b>IRREGULARITY</b>	
	Coefficient	t-Statistic
<i>ACC. HIB × 2001</i>	0.010	0.64
<i>ACC. HIB × 2002</i>	0.007	0.50
<i>ACC. HIB × 2004</i>	-0.001	-0.12
<i>ACC. HIB × 2005</i>	-0.014	-1.17
<i>ACC. HIB × 2006</i>	-0.025**	-2.05
<i>ACC. HIB × 2007</i>	-0.024*	-1.88
<i>ACC. HIB × 2008</i>	-0.028***	-2.72
<i>ACC. HIB × 2009</i>	-0.037***	-3.05
Control Variables	Included	
Firm Indicators	Included	
MSA × Industry × Year Indicators	Included	
S.E. Cluster	MSA	
No. of Observations	11,668	
Adj. R-Squared	0.418	

*Notes:* Panel A in this table presents the results from regressions of the existence of accounting irregularities on an indicator variable that equals one for firms that filed at least one LCA for accounting positions in pre-shock period (*ACC. HIB*), an indicator variable that equals one for the post-shock period (*POST*), interaction terms between these variables and control variables. In Panel B, we replace *POST* with eight indicator variables that equal one for each year around the shock to the legislative cap on H-1B visas. We exclude 2003, which serves as the base period. See Appendix A for variable definitions. Standard errors are clustered at MSA level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 4**  
*Placebo tests*

Dependent Variable:	<b>IRREGULARITY</b>		<b>ERROR</b>
	(1)		(2)
	Coefficient	<i>t</i> -Statistic	Coefficient
<i>HR HIB × POST</i> [A]	0.012 (0.93)		
<i>ENGINE. HIB × POST</i> [B]	0.017 (1.25)		
<i>ACC. HIB × POST</i> [C]	-0.026*** (-2.99)		-0.002 (-0.10)
		<i>p</i> Value	<i>p</i> Value
[C] ≠ [A]		0.009	
[C] ≠ [B]		0.012	
Control Variables	Included		Included
Firm Indicators	Included		Included
MSA × Industry × Year Indicators	Included		Included
S.E. Cluster	MSA		MSA
No. of Observations	11,668		11,307
Adj. R-Squared	0.419		0.387

*Notes:* Column 1 of this table presents the results from regressions of the existence of accounting irregularities on an indicator variable that equals one for firms that filed at least one LCA for an accounting position (*ACC. HIB*), an HR position (*HR HIB*) and an engineering position (*ENGINE. HIB*) in pre-treatment period, an indicator variable that equals one for the post-treatment period (*POST*), interaction terms between these variables, and control variables. Column 2 presents the results from a regression of the existence of unintentional accounting errors on an indicator variable that equals one for firms that filed at least one LCA for an accounting position in pre-treatment period (*ACC. HIB*), an indicator variable that equals one for the post-treatment period (*POST*), interaction terms between these variables and control variables. See Appendix A for variable definitions. Standard errors are clustered at MSA level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 5**  
*Alternative dependent variables*

Dependent Variable:	<b>SMALL PROFIT</b>		<b> DISC. ACCRUALS </b>
	(1)		(2)
	Coefficient	<i>t</i> -Statistic	Coefficient
<i>ACC. HIB × POST</i>	-0.039** (-2.56)		-0.007*** (-2.68)
Control variables	Included		Included
Firm Indicators	Included		Included
MSA × Industry × Year Indicators	Included		Included
S.E. Cluster	MSA		MSA
No. of Observations	11,668		11,668
Adj. R-Squared	0.090		0.304

*Notes:* This table presents the results from regressions of alternative measures of financial statement manipulation on an indicator variable that equals one for firms that filed at least one LCA for accounting positions in pre-shock period (*ACC. HIB*), an indicator variable that equals one for the post-shock period (*POST*), interaction terms between these variables and control variables. See Appendix A for variable definitions. Standard errors are clustered at MSA level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 6**

*Cross-sectional analyses based on the degree of influence H-1B employees have on external reporting*

Dependent Variable:	IRREGULARITY	
	(1)	(2)
	Coefficient	Coefficient
<i>ACC. HIB × POST × HIGH %ACC. HIB MGR [A]</i>	<i>t</i> -Statistic	<i>t</i> -Statistic
	-0.045***	
	(-2.84)	
	-0.020**	
	(-2.19)	
	-0.060***	
	(-4.62)	
	-0.016*	
	(-1.83)	
	<i>p</i> Value	
[A] < [B]	0.080	
[C] < [D]	0.000	
Control Variables	Included	Included
Firm Indicators	Included	Included
MSA × Industry × Year Indicators	Included	Included
S.E. Cluster	MSA	MSA
No. of Observations	11,668	11,668
Adj. R-Squared	0.418	0.419

*Notes:* This table presents the results from regressions of the existence of accounting irregularities on an indicator variable that equals one for firms that filed at least one LCA for accounting positions in pre-treatment period (*ACC. HIB*), an indicator variable that equals one for the post-treatment period (*POST*), indicator variables for high- and low-level accounting positions, interaction terms between these variables, and control variables. In column 1, the indicator variables for high- and low-level accounting positions (*HIGH* and *LOW %ACC. HIB MGR*, respectively) are based on the ratio of H-1B position that are at the managerial-level or higher. In column 2, the indicator variables for high- and low-level accounting positions (*HIGH* and *LOW %ACC. HIB HQ*, respectively) are based on whether the location of the H-1B job is at the company's headquarters or elsewhere. See Appendix A for variable definitions. Standard errors are clustered at MSA level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 7**  
*Cross-sectional analyses based on employees' outside opportunities*

Dependent Variable:  Cross Sectional Partition	<b>IRREGULARITY</b>		
	<i>LOW IMMI. LABOR MKT SIZE</i>	<i>HIGH NON- COMPETE</i>	<i>LOW %PERMANENT RESIDENT</i>
	(1) Coefficient <i>t</i> -Statistic	(2) Coefficient <i>t</i> -Statistic	(3) Coefficient <i>t</i> -Statistic
<i>ACC. HIB × POST</i>	-0.011 (-1.33)	-0.018** (-2.49)	0.052 (1.19)
<i>POST × Cross Sectional Partition</i>	0.002 (0.15)	0.023 (1.23)	0.021 (0.58)
<i>ACC. HIB × POST × Cross Sectional Partition</i>	-0.027** (-2.11)	-0.071* (-1.79)	-0.075* (-1.76)
Control Variables	Included	Included	Included
Firm Indicators	Included	Included	Included
MSA × Industry × Year Indicators	Included	Included	Included
S.E. Cluster	MSA	MSA	MSA
No. of Observations	11,668	11,668	11,668
Adj. R-Squared	0.418	0.419	0.418

*Notes:* This table presents the results from regressions of the existence of accounting irregularities on an indicator variable that equals one for firms that filed at least one LCA for accounting positions in pre-treatment period (*ACC. HIB*), an indicator variable that equals one for the post-treatment period (*POST*), cross sectional partitioning variables, interaction terms between these variables, and control variables. In column 1, the partitioning variable is an indicator variable that equals one if the size of local labor market for immigrants is small in the city where the company is headquartered (*LOW IMMI. LABOR MKT SIZE*). In column 2, the partitioning variable is an indicator variable that equals one for companies headquartered in states with strong enforcement of non-compete agreements (*HIGH NON-COMPETE*). In column 3, the partitioning variable is an indicator variable that equals one for companies headquartered in states with a small percentage of permanent residents (*LOW %PERMANENT RESIDENT*). See Appendix A for variable definitions. Standard errors are clustered at MSA level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 8**  
*Cross-sectional analyses based on investor pressure to meet short-term earnings targets*

Dependent Variable:	<b>IRREGULARITY</b>	
	<i>HIGH SHORT-TERM INVESTOR</i>	<i>RUSSELL 2000 INCLUSION</i>
	(1) Coefficient <i>t</i> -Statistic	(2) Coefficient <i>t</i> -Statistic
<i>ACC. HIB × POST</i>	-0.011 (-1.05)	-0.016* (-1.73)
<i>POST × Cross Sectional Partition</i>	0.004 (0.23)	0.031 (1.51)
<i>ACC. HIB × POST × Cross Sectional Partition</i>	-0.037* (-1.77)	-0.052* (-1.94)
Control Variables	Included	Included
Firm Indicators	Included	Included
MSA × Industry × Year Indicators	Included	Included
S.E. Cluster	MSA	MSA
No. of Observations	11,668	11,668
Adj. R-Squared	0.420	0.419

*Notes:* This table presents the results from regressions of the existence of accounting irregularities on an indicator variable that equals one for firms that filed at least one LCA for accounting positions in pre-treatment period (*ACC. HIB*), an indicator variable that equals one for the post-treatment period (*POST*), cross sectional partitioning variables, interaction terms between these variables, and control variables. In column 1, the partitioning variable is an indicator variable that equals one for companies with large percent of shares owned by short-term oriented investors (*HIGH SHORT-TERM INVESTOR*). In column 2, the partitioning variable is an indicator variable that equals one for companies that were added to the Russell 2000 Index from below in the pre-treatment period (*RUSSELL 2000 INCLUSION*). See Appendix A for variable definitions. Standard errors are clustered at MSA level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.

**TABLE 9**  
*H-1B lotteries and financial misconduct*

Dependent Variable:	<i>IRREGULARITY<sub>t+1</sub></i>		<i>ERRORS<sub>t+1</sub></i>	
	(1)		(2)	
	Coefficient	t-Statistic	Coefficient	t-Statistic
<i>ACC. HIB</i>	-0.003	-1.58	0.008	0.51
<i>HIGH WIN RATE</i>	-0.016	-1.60	0.015	0.67
<i>ACC. HIB × HIGH WIN RATE</i>	0.017**	2.13	0.004	0.15
<i>LN(MKT CAP)</i>	0.003	0.65	-0.033	-0.71
<i>LN(#EMPLOYEES)</i>	-0.033	-1.34	0.019	0.39
<i>EMPLOYEE GR</i>	0.017	1.05	0.078	1.26
<i>BOOKTOMKT</i>	0.014	0.40	-0.169	-1.42
<i>GROWTH</i>	-0.003	-0.86	-0.016	-0.49
<i>NO INTANGIBLE</i>	0.140	0.81	-0.117***	-2.96
<i>TANGIBILITY</i>	0.004	0.13	0.343	0.77
<i>LEVERAGE</i>	0.007	0.84	-0.046	-0.64
<i>PROFIT</i>	-0.004	-0.34	-0.072	-0.57
<i>LOSS</i>	-0.011	-1.65	-0.083*	-1.89
<i>CASH</i>	-0.008	-1.13	-0.110	-1.30
<i>ACCRUALS</i>	-0.008	-1.06	-0.103***	-2.80
<i>STDEV NI</i>	0.001	0.52	-0.002	-0.24
<i>STDEV CFO</i>	0.012	0.82	-0.227	-1.18
<i>FOREIGN INCOME</i>	0.001	0.24	0.002	0.02
<i>M&amp;A</i>	0.005	1.35	0.026	0.78
<i>RESTRUCTURE</i>	0.003	0.30	-0.016	-0.51
<i>BUSY SEASON</i>	-0.027	-0.93	0.225**	2.51
<i>REPORTLAG</i>	-0.002*	-1.96	-0.005***	-3.93
<i>LN(#ANALYSTS)</i>	0.029	1.42	-0.097*	-1.96
<i>CITY HIB</i>	-0.019	-1.50	-0.170	-0.53
<i>PER CAPITA INC.</i>	-0.000	-0.84	-0.000	-0.50
Firm Indicators	Included		Included	
MSA × Industry × Year Indicators	Included		Included	
S.E. Cluster	MSA		MSA	
No. of Observations	2,724		2,706	
Adj. R-Squared	0.587		0.0581	

*Notes:* This table presents the results from regressions of the existence of accounting misstatements on an indicator variable that equals one for firms that filed at least one LCA for accounting positions in the pre-treatment period (*ACC. HIB*), an indicator variable that equals one for companies with a high win rate in the H-1B visa lottery in the previous year (*HIGH WIN RATE*), interaction terms between these variables and control variables. In columns 1, the dependent variable is the existence of accounting irregularities. In columns 2, the dependent variable is the existence of accounting unintentional errors. See Appendix A for variable definitions. The *t*-statistics are clustered at the MSA level. \*\*\*, \*\*, and \* denote statistical significance at the two-tailed 1, 5, and 10 percent levels, respectively.