

# Can Strong Creditors Inhibit Entrepreneurial Activity?

**Nuri Ersahin**

Michigan State University

**Rustom M. Irani**

University of Illinois at Urbana-Champaign

**Katherine Waldock**

Georgetown University

We examine entrepreneurial activity following the staggered adoption of modern-day fraudulent transfer laws in the United States. These laws strengthen unsecured creditors' rights and are particularly important for entrepreneurs whose personal assets commingle with the firm's. Using administrative data from the U.S. Census Bureau, we document declines in startup entry—particularly among riskier entrants—and closures of existing firms after these laws pass. Firm financial data shows that entrepreneurs lower leverage by reducing demand for unsecured credit. Our results suggest that strong creditor protections can limit entrepreneurs' appetite for risk, which may reduce churning along the extensive margin among the smallest firms in the economy. (*JEL* G21, G33, K22, L26, M13)

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“An understanding of debtor-creditor law, particularly fraudulent transfer law, is critical. A planner who purports to put together asset protection plans who has anything less than a thorough knowledge of the fraudulent transfer law is a fraud.”

—*Asset Protection: Concepts and Strategies for Protecting Your Wealth*, Adkisson and Riser (2004)

An efficient allocation of resources across firms can improve aggregate efficiency and promote economic growth (Hsieh and Klenow 2009). Churning among entrepreneurs along the extensive margin—that is, reallocating resources from inefficient incumbents to qualified entrants—is central to this process, since startups account for the bulk of economy-wide job creation and productivity growth (Decker et al. 2014). In this paper, we study how changes in creditor protections in the United States influence entrepreneurship rates and incumbent firm displacement. A long-standing view is that strong creditor rights are synonymous with financial development and economic growth (for example, King and Levine 1993; La Porta et al. 1997, 1998); however, we show that limits may exist when we consider the smallest firms in the economy.

Consider the unsecured creditors of a failing young business. The high fixed costs associated with Chapter 11 usually destroy any residual firm value they may have received, leaving them in a position of limited authority. Unsecured creditors can file for an involuntary Chapter 7 liquidation of the business, but this often requires coordination, and managers of the business can counter with a conversion to Chapter 11. In fact, most small, entrepreneurial firms deal with insolvency by relying on state rather than federal bankruptcy law. However, state laws, which generally concern secured creditors, can be even less friendly to unsecured creditors. One of the most crucial protections afforded to the unsecured creditors of small, entrepreneurial firms lies in fraudulent transfer law.

By way of example, take a manufacturer whose business is failing. If the owner (or another family member) were to establish a new business entity that acquired the manufacturing equipment of the failing business while its unsecured creditors—say, his parts vendors or professional

service providers—remained unpaid, then this may constitute a fraudulent asset transfer.<sup>1</sup> The vendors would have the right to dispute this transaction in state court under fraudulent transfer law and potentially void this pre-bankruptcy asset sale. Fraudulent transfer laws come in two forms: actual fraud, in which the burden of proof lies on the creditors to prove that the owner intended to defraud them, and constructive fraud, in which the burden of proof lies on the owner to prove that the asset transfer was a “reasonably equivalent exchange of value.”<sup>2</sup> In the example, an unsecured creditor suing under actual fraud law would have the difficult task of proving that the owner intended to defraud them. Under constructive fraud law, in contrast, it would be sufficient for the creditor to demonstrate that the asset sale occurred below the fair market value. Consequently, the courts could void the transfer out of the now-failed firm, allowing the unsecured creditors to recover against the assets of the owner.<sup>3</sup>

Our aim is to understand the equilibrium effects of switching from actual to constructive fraud law for entrepreneurial activity. These laws should have a stronger impact among startups primarily because entrepreneurs’ personal assets have a higher weight both in operations and in the financing of the business.<sup>4</sup> As motivated by the example above, a constructive definition of fraud better positions unsecured creditors to claw back funds from failing firms (for example, by enabling them to quickly undo dubious intra-family asset transfers), thereby increasing their expected returns from lending. From a supply-side perspective, unsecured credit availability should therefore expand and new firm formation should increase. On the other hand, from the borrowers’ perspective, risk-averse entrepreneurs may be deterred from

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<sup>1</sup>Akerlof et al. (1993) discuss how insiders can “loot” a firm through seemingly legitimate transactions.

<sup>2</sup>In practice, this means comparing the market value of the assets transferred out of the firm with the value of what is received.

<sup>3</sup>Secured creditors, on the other hand, can seize specific collateral assets in the event of default, and may maintain priority rights even if these assets are transferred outside of the firm. Security interests may be granted under Article 9 of the Uniform Commercial Code, which has been adopted in all 50 states. Moreover, since small business owners are often required to personally guarantee business debt (including unsecured credit, see Section 3.2), owners’ personal property may also be at greater risk of creditor seizure under a constructive definition of fraud. If an owner tries to shield his personal property by transferring it to a third party prior to bankruptcy (e.g., putting his car in his cousin’s name), then, under constructive fraud law, a bankruptcy trustee could sue to reverse the transfer (have his cousin return the car or face legal penalties) if: (i) the business was insolvent when the transfer was made (e.g., within 90 days of bankruptcy); and (ii) the asset transfer occurred below market value (e.g., the owner gave the car away).

<sup>4</sup>Moreover, large firms are also more likely to reorganize under Chapter 11 or have control over matters of jurisdiction in insolvency. Section 1 describes the nature and applicability of these laws.

opening and closing new businesses because of the extra personal costs of reorganizing the firm’s resources (Heaton 2000; Kihlstrom and Laffont 1979).<sup>5</sup> Empirically analyzing the tension among these competing mechanisms and the overall equilibrium effect of the strengthening of creditor rights for entrepreneurial risk-taking, debt structure, and firm creation is the core focus of this paper.

Fraudulent transfer law in the United States historically relied on an actual definition of fraud. While most states gradually adopted the constructive definition of fraud in the early twentieth century, beginning in the 1980s several states updated their legal definitions. We develop an empirical strategy that capitalizes on the staggered adoption of the Uniform Fraudulent Transfer Act (UFTA), which coded a constructive definition of fraud into state statutory law. Our empirical tests exploit several administrative data sources from the U.S. Census Bureau covering the time period from 1977 until 2007. We utilize the Longitudinal Business Database (LBD), which provides disaggregated establishment-level data enabling us to credibly identify the dynamics of firm entry and exit in response to these law changes. We also draw on the underutilized Quarterly Financial Reports (QFR), which provide novel debt structure data for a representative panel of firms including small, private early-stage businesses.<sup>6</sup>

Our main results can be summarized as follows. We find that treated states experience a significant slowdown in entrepreneurial activity in the years following the adoption of constructive fraud laws. We observe economically meaningful and statistically significant declines in firm entry rates. For example, our estimates indicate an average reduction of 2.7 percentage points in the number of new entrants per year after the passage of the law. Importantly, we only find a lower rate of entry among churning entrants: startups that fail within three years of launching. This is in line with a demand-side mechanism dominating: facing steeper potential costs of failure, entrepreneurs become less willing to launch riskier businesses. Further, we

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<sup>5</sup>This may be especially relevant for “serial entrepreneurs” who operate a string of related businesses over their lifetimes, often within the same industry, until they find a good match between a business model and their human capital (Holmes and Schmitz 1995, 1996).

<sup>6</sup>See Bai, Carvalho, and Phillips (2018) and Crouzet and Mehrotra (2018) for recent finance research using the QFR data.

estimate that firm survival rates increase, which is again consistent with lower risk-taking on the part of entering firms—a selection effect—but also on the part of incumbents.

We exploit several unique aspects of the Census data (that is, establishment location, industry, size, and single-unit status) to support a causal interpretation of our results. We examine the average treatment effect and dynamic response of single-unit startups sorted on the basis of size as compared with establishments of incumbent multi-unit firms within state-year-industry cells.<sup>7</sup> Based on this approach, we find that the slowdown in entry and exit is entirely concentrated—in terms of both statistical and economic significance—among the smallest startup firms (with fewer than twenty employees). Figure 1 compactly shows this key result: the adoption of the UFTA decreases entry and exit rates only among the very smallest startup firms, and only in the years following the law change.

We then provide a collage of evidence supporting our proposed mechanism: that an increase in the personal financial costs of business failure reduces demand for credit and risk-taking by entrepreneurs. First, using rich financial data from the Census QFR, we analyze firm-level adjustments in credit utilization in the years surrounding the adoption of the UFTA. Conditional on entry, we find that firm leverage declines and this is driven by reductions in unsecured debt (but not secured debt). Moreover, we combine the QFR and LBD data to show that small startup firm entry and exit declines only in industries in which entrepreneurial firms are historically dependent on unsecured debt. Second, we examine the importance of personal guarantees of business debt, which is a common way for entrepreneurs’ personal assets to become entangled with the firms’ and at risk of creditor seizure. Using data from the Survey of Small Business Finances, we find lower startup entry rates occur primarily when business owners are more likely to personally guarantee unsecured business credit. Third, we examine whether the law reduced entry by limiting the ability of entrepreneurs to transfer assets out of the business. Based on a measure of asset redeployability developed by Kim and Kung (2017), we indeed find that entry is deterred to a greater extent among startups operating in

<sup>7</sup>As detailed in Section 2, the Census LBD contains firm affiliation data that allow us to separately identify entry by single-unit firms (i.e., entering establishment is entire firm) from incremental expansions of multi-unit firms (i.e., new establishment added to a larger, preexisting organization), where the former is far more likely to represent entrepreneurial activity (e.g., Kerr and Nanda 2009).

industries with easy-to-redeploy assets.

Overall, our findings indicate that expanding laws that provide unsecured creditors with additional protections can discourage startup creation and extend the survival of old firms. We therefore contribute to the strand of the literature on law, credit markets, and growth, which, beginning with the seminal work of La Porta et al. (1997, 1998), has connected strong creditor protections with favorable credit market conditions.<sup>8</sup> More recently, it has been argued that laws protecting creditors could perhaps go too far due to ex post inefficiencies such as liquidation bias (e.g., Aghion, Hart, and Moore 1992), which may deter investment and risk-taking ex ante.<sup>9</sup> Notably, Vig (2013) examines how large corporations in India responded to a securitization reform that caused a quasi-exogenous increase in secured creditors' rights. He finds that the reform led cautious firms to substitute away from secured debt—thus avoiding the threat of early liquidation—and this reduced asset growth along the intensive margin.<sup>10</sup>

Our contribution is to examine a novel shock to creditor rights—the burden of proof in relation to fraudulent asset transfers—that is particularly important for unsecured creditors and the owners of startup firms. We show that cautious behavior from entrepreneurs in response to this shock reduces unsecured credit take up in equilibrium. Thus, the demand response appears to dominate potential increases in credit supply in our context. This leads to a slowdown in startup creation and, more broadly, churning along the extensive margin among entrepreneurial firms. Such effects may be more important than intensive margin effects previously documented among large firms, in light of the outsized role of entrepreneurs in job creation and productivity growth (e.g., Decker et al. 2014).

Our paper is also related to the growing literature on personal bankruptcy exemptions,

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<sup>8</sup>Cross-country evidence suggests that stronger investor and creditor protections have larger and more robust capital markets (Giannetti 2003; Qian and Strahan 2007), and better banking systems with higher credit growth (Djankov, McLiesh, and Shleifer 2007; Levine and Zervos 1998). Haselmann, Pistor, and Vig (2010) demonstrate, more specifically, that countries that improved collateral laws were met with stronger credit markets and increases in economic activity (see also Calomiris et al. 2016; Campello and Larrain 2016).

<sup>9</sup>Acharya, Amihud, and Litov (2011) find that countries with strong creditor rights have lower levels of risk-taking and operating performance. Similarly, Acharya and Subramanian (2009) find that changes to bankruptcy codes in favor of creditors result in lower investment in R&D and levels of innovation.

<sup>10</sup>Also in the Indian context, Visaria (2009) finds that the introduction of debt recovery tribunals improves credit supply, on average, although not in the cross-section of firms (Von Lilienfeld-Toal, Mookherjee, and Visaria 2012).

which began with Gropp, Scholz, and White (1997) showing implications for consumer credit. Within this context, Brown and Severino (2017) have recently highlighted the role of household risk aversion by showing that stronger bankruptcy protections increase household credit demand despite potential decreases in the supply of credit. Conversely, Gross et al. (2019) investigate the insurance role of personal bankruptcy protections, finding that decreases in protections lead to fewer bankruptcy filings among households as well as lower credit card interest rates.

Personal bankruptcy exemptions also protect business owners from having certain assets seized by creditors (e.g., a home or vehicle). Cerqueiro and Penas (2017) show that increases in exemption levels reduce the amount of credit supplied by banks to startups, and Cerqueiro et al. (2017) find that this is associated with less innovation (e.g., patent filings). In contrast, we consider a unique and unexplored aspect of creditor protection—the definition of fraudulent transfers—and show how strong creditors can slow down entrepreneurship in equilibrium through reductions in unsecured credit demand.<sup>11</sup> Fraudulent transfer laws differ from personal bankruptcy exemption laws along important dimensions. In particular, while personal bankruptcy exemptions matter most for sole proprietors who are not subject to limited liability, fraudulent transfer laws apply to all business forms, including limited liability companies and corporations. Perhaps most importantly, fraudulent transfer laws make it harder for business owners to protect going concern value, even in the absence of effective bankruptcy laws for young businesses.<sup>12</sup> By holding back entrepreneurs from reallocating scarce, productive assets into new business opportunities, these laws may therefore have a direct bearing on allocative efficiency. On the other hand, asset transfers out of failing firms may be inefficient or fraudulent attempts to avoid debt repayments coming purely at the expense of creditors. Hence, the welfare implications of these laws remain unclear.

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<sup>11</sup>Heaton (2000) provides a theoretical treatment of the effects of fraudulent transfer law for debt capacity and investment in an incomplete contracting framework.

<sup>12</sup>If exemptions bind, debtors are left with assets that cannot qualify as collateral for future borrowing. Transfers, however, may be used as a mechanism to preserve the valuable components of a failing business.

# 1 Institutional Background

When a business becomes insolvent, all of the transactions made in its recent history become a matter of scrutiny. This is because owners may have undergone such transactions in order to place assets beyond the reach of creditors, either for their own personal gain or so that the business may be able to survive longer. Given these incentives and the ability of most business owners to exert significant control over business assets, fraudulent transfer laws have been established to prevent debtors from absconding with the business's assets in the event of financial distress.

While fraudulent transfer law applies to all debtors, there are several reasons why it is particularly relevant to entrepreneurs. Information asymmetries are extreme because small, young businesses are subject to few, if any, financial reporting requirements and because monitoring costs are high for external lenders. The owner has significant control over business decisions, and does not have to report to a board or to outside shareholders. As discussed, the assets of entrepreneurial firms are often commingled with the owner's personal assets, thus exacerbating incentives to hide assets from creditors when the business is in distress.<sup>13</sup>

## 1.1 Actual fraud versus constructive fraud

This paper studies the response of the owners of small, startup firms to a strengthening of unsecured creditor rights that resulted from a new set of laws that made it easier for unsecured creditors to reclaim funds transferred out of failing businesses. In the older version of the law, the burden of proof lay on unsecured creditors, whereas in the new version, the burden of proof lies on the business owner. Specifically, according to the older version of the law in which actual fraud had to have been established, unsecured creditors challenging business owners had to prove that the business owners acted with fraudulent intent. Under the new version of the law, known as constructive fraud, as long as any transfer of assets out of the business are not an equivalent exchange of value from the perspective of the business and the business was close

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<sup>13</sup>Appendix B further details the relation between entrepreneurial firm failure and asset protection.



to or in a state of insolvency, the transfer can be voided.

Most fraudulent transfer statutes that relied on actual fraud contained the following text: “every gift, grant, conveyance, assignment or transfer... made with the intent to disturb, delay, hinder or defraud creditors... shall be void as against such creditors.”<sup>14</sup> As noted in Ayer et al. (2004), “it is usually difficult to find good, non-circumstantial evidence of ‘actual intent to hinder, delay, or defraud.’ People do not tend to admit to such ‘evil’ intent.” Some judges adopted legal standards that were halfway measures toward a constructive definition of fraud, by acknowledging the existence of badges of fraud. These include transfers to insiders, concealed transfers, transfers of all the debtors’ assets, and transfers in which the business did not receive equivalent value in exchange. However, judges in states with actual fraud laws used discretion to determine the standards of proving fraudulent intent.

States that formally adopted a constructive definition of fraud are those that: (i) added to their fraudulent transfer statute; or (ii) replaced the text of their statutes with a passage allowing for a more expansive definition of fraud. Most fraudulent transfer statutes that rely on constructive fraud contain the following text: “without receiving a reasonably equivalent value in exchange for the transfer” and “was engaged... in a business or a transaction for which the remaining assets of the debtor were unreasonably small.”<sup>15</sup> The insertion of this phrase allowed creditors to attack transactions on the grounds that reasonably equivalent value was not delivered to the business as a result of the transfer.

Because the changes that were made to the definition of constructive fraud happened incrementally across states, and also because of variations in case law across judges, it is difficult to measure the degree to which statutory law on fraudulent transfers has been deemed favorable toward creditors. To overcome this problem, we consider only states that had no statutory or case law acknowledging constructive fraud prior to the adoption of the Uniform Fraudulent Transfer Act (UFTA), introduced below. To identify these states, we read the text of each state’s annotated statutes. Portions of each state’s statutes are grouped by topic and updated every several years based on the frequency of changes. We compared each statute

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<sup>14</sup>See I.L. R.S. 1874, §4.

<sup>15</sup>See N.J. S.A. 1999, §§25:2-20-25:2-34.

regarding transfers in the version immediately before the passage of the UFTA to the version immediately after the passage of the UFTA. We also read the case law for each statute related to fraudulent transfer. Ultimately, we focus on nine states and the District of Columbia. This encompasses every transition from intent-based to constructive-based fraudulent transfer regimes since the early part of the twentieth century.

## 1.2 The history of fraudulent transfer law

Most states in the United States imported their fraudulent transfer laws from England. English fraudulent transfer law was based on the Statute of 13 Elizabeth (1571), which declared void all transfers made with the “purpose and intent to delay, hinder or defraud creditors.” As financial relationships became more complex, however, these statutes became outdated. The archaic text setting out the rules of fraudulent transfer failed to lay out which types of creditors were protected, which transfers were relevant, which transferees were held liable, whether insolvency was a necessary condition, and how exactly to prove fraud.

In 1918, the National Conference of Commissioners on Uniform State Law (NCCUSL) drafted a model law that clarified and standardized fraudulent transfer laws in the United States. They promulgated the Uniform Fraudulent Conveyance Act (UFCA), which was eventually adopted by twenty-five states in the following half-century.<sup>16</sup> The UFCA introduced the concept of constructive fraud. Under the UFCA, it would no longer be necessary to prove intent as a mindset in order to undo a transfer by the debtor.

A version of the UFCA was incorporated into the Bankruptcy Act of 1938 and the Bankruptcy Reform Act of 1978 (1978 Act). In its current form, sections 547–548 of Chapter 11 dictate procedure on fraudulent transfers. Although the Bankruptcy Code is federal, state fraudulent transfer laws may be invoked during a bankruptcy proceeding in place of section 548, if one can prove a creditor would have benefited from the use of state law. Because the statute of limitations is usually longer in state law, many creditors find these laws favorable.

After the passage of the 1978 Act, the NCCUSL was reminded that half of the states still

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<sup>16</sup>The NCCUSL is an umbrella authority that makes recommendations to state legislatures.

retained fraudulent transfer laws dating back to the sixteenth century. In addition, given the rise in complexity of debtor-creditor relations throughout the twentieth century, many states had a multitude of contradictory case rulings. Because of this, judges were left to their own discretion to interpret the statutes as they saw fit. The NCCUSL commented that “there are few legal subjects where there is greater lack of exact definitions and clear understanding” than fraudulent transfer law.<sup>17</sup> In addition to pressure from those involved in the drafting of the 1978 Act, the NCCUSL was also influenced by a number of legal organizations, including the Committee on Corporate Laws and the American Bar Association. A drafting committee for the Uniform Fraudulent Transfer Act (UFTA) was appointed in early 1983, and the law was approved in mid-1984.

The NCCUSL lacks the authority to enact legislation, however, and so following the approval of the UFTA, representatives of NCCUSL contacted state representatives and pressured them to adopt the new uniform act. This initiative was largely successful, and the UFTA was eventually put into law by forty-five states and the District of Columbia. This gradual adoption took place over the twenty-one years from 1985 until 2006. Table 1 presents the timing of the passage of the UFTA.<sup>18</sup> The UFTA was not a major overhaul of the UFCA, and so states that had already enacted the earlier version ended up with a relatively similar law following the change.<sup>19</sup> Of the states that had not already enacted the UFCA, some had adopted measures similar to the constructive fraud provisions in the debtor-creditor relation statutes on their own. Those that retained statutes similar to 13 Elizabeth experienced the greatest change when they switched to the UFTA.<sup>20</sup>

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<sup>17</sup>Uniform Fraudulent Conveyance Act, 7A U.L.A. 428 (1985) (Prefatory note).

<sup>18</sup>Nebraska was a late adopter of the UFCA, passing the law in 1980 without any preexisting case or statutory law regarding fraudulent transfers. Nebraska subsequently passed the UFTA in 1989. Likewise, Louisiana adopted the UFTA in 2003, but adopted a constructive definition of fraud in 1985. In our empirical analysis, we therefore code Nebraska and Louisiana as treated in 1980 and 1985, respectively. Maryland and New York passed the UFCA in the early twentieth century, but never the UFTA. Alaska, Kentucky, South Carolina, and Virginia have yet to adopt a uniform law on fraudulent transfers.

<sup>19</sup>The only major difference was the addition of a new section, §5(b), which invalidated preferential debt payments to insiders. Prior to this addition, states were relatively mixed in their approaches to insider preferences. Some treated it as a separate category of fraud and had explicit statutes on the voidability of this type of transaction, but most did not have any statutory law regarding this area and left it up to interpretations of fraudulent transfer. Several states, upon adopting the UFTA, opted out of this section.

<sup>20</sup>In July 2014, the UFTA was renamed the Uniform Voidable Transactions Act (UVTA). Although the

A key identifying assumption in this paper is that the timing of the passage of the UFTA was unrelated to sources of business cycle variation that could affect entrepreneurship. For example, if late adopters of constructive fraud laws were states with worsening economic growth, then the slowdown in startup activity could reflect economic conditions as opposed to stronger creditors rights. While our empirical tests support this assumption, so do the following two central elements of the historical context. First, a primary impetus of the NCCUSL's decision to revisit fraudulent transfer law in 1983 was the lack of legal cohesion across states, and not any particular attitude toward the business environment. Second, because it originated in the NCCUSL, the legislators who passed the UFTA were probably less invested in the material of the act relative to laws that they drafted themselves. Further evidence for this lies in the fact that the adoption of constructive fraud laws took place in bursts, after the NCCUSL urged the states to do so (in both 1918 and 1984), and not in response to the business cycle.

## 2 Data and Empirical Methodology

### 2.1 Data sources

We compile a series of changes to fraudulent transfer law from a variety of sources. First, we use state historical statutes, available through Hein's Superseded State Statutes and State Session Laws microfiche collections.<sup>21</sup> Superseded State Statutes provides a snapshot of each state's laws through time, while State Session Laws contains all laws passed by each state's general assembly in each year. Because of the incremental nature of changes that were made to the definition of constructive fraud, we construct a timeline of fraudulent transfer law for each state. To construct this timeline, we begin with the session law that introduced the UFTA, obtained from ThomsonWest's Uniform Laws Annotated. We then make use of the references to the prior fraudulent conveyance laws that were either amended or repealed by the UFTA, 

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substance of the law was effectively unchanged, the new name now reflects the fact that the law gives creditors the power to undo a much broader set of transactions than those that fall within the scope of fraud.

<sup>21</sup>These collections were accessed through the New York University Law Library. Some state statutes were supplemented by West's State Statutes Annotated and Harrison Company's State Statutes Annotated.

which is provided in the text of the UFTA for most adopting states. We retrieve the most recent version of the fraudulent conveyance law either amended or repealed by the UFTA from the Superseded State Statutes. We obtain the evolution of each state’s laws due to the fact that, in nearly all states, these statutes are annotated with the history of amendments as well as the relevant case law.<sup>22</sup>

Our establishment-level data set comes from the Longitudinal Business Database (LBD) of the U.S. Census Bureau. The LBD is an administrative register of all private business establishments in the United States that is updated annually. Establishments are identified as locations with at least one paid employee, and could belong to privately held or publicly traded firms. This sample includes establishments in the years from 1977 until 2007. The data contain information on the number of employees, payroll, industry codes, and physical location for each establishment at the annual frequency. The LBD also provides information on corporate affiliation, which helps us identify to which firm an establishment belongs in a given year.<sup>23</sup> Crucially, these affiliation data allow us to draw the distinction between entering establishments that are standalone (that is, new firm has one establishment only) versus incremental expansions of multi-unit firms (that is, one new establishment added among the many other establishments that collectively form a larger organization). In line with the prior literature (e.g., Kerr and Nanda 2009), standalone entrants are far more likely to represent entrepreneurial activity.

We exploit firm-level capital structure data from the Quarterly Financial Reports (QFR), a Census data product that has been underutilized until very recently (e.g., Bai, Carvalho, and Phillips 2018). The QFR is ideally suited for our purposes primarily because it provides detailed debt structure data for a large panel of small, privately held firms including startups

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<sup>22</sup>For Oregon, we retrieve case law on fraudulent conveyances prior to the UFTA from Westlaw Next. For either states that did not adopt UFTA (South Carolina, Alaska, Kentucky, and Virginia) or states where references to repealed statutes were not available in the text of UFTA (Arkansas, Hawaii, Kansas, Missouri), we constructed a legal history by canvassing all laws concerning debtor-creditor relations, statutes of fraud, and bulk transfer laws. All these states except for Hawaii had fraudulent transfer laws resembling 13 Elizabeth.

<sup>23</sup>While the LBD data does assign establishments to firms, it does not assign firms to owners. In addition, the LBD data does not provide comprehensive information on asset transfers. Our tests therefore cannot identify to whom an owner transfers assets (e.g., to themselves or another family member).

that can be matched to the highly granular information in the LBD.<sup>24</sup> The QFR collects detailed income statement and balance sheet information on a quarterly basis at the firm level. The data contains a breakdown of the assets and liabilities of firms, including information on debt structure (bank debt, bonds, etc.) and holdings of financial assets (cash and bank deposits, holdings of marketable securities, etc.). The survey covers firms operating in a subset of industries: manufacturing, wholesale trade, retail trade, and mining. Reporting is mandatory; however, unlike the population LBD data, it covers a random sample of firms. The data are provided to us during Census years beginning in 1977 until 2007 (i.e., 1977, 1982, and so on).<sup>25</sup> We calculate annual data values for these years by taking the average across the four quarters per firm per Census year. We then merge the QFR and the LBD using a common identifier to construct a firm-year panel.

## 2.2 Variable construction and summary statistics

The main independent variable identifies states that define fraud according to the constructive view. This includes states that have passed the UFCA or UFTA, states with “good consideration” or “voluntary conveyance” statutes, or states in which case law exists that allows creditors to reverse transfers based solely on the economic circumstances of the debtor. By contrast, states that do not adopt this view of fraud: (i) have no case law allowing creditors to reverse transfers based solely on the economic circumstances of the debtor; and, (ii) the statutory law either contains no mention of fraudulent transfers or its fraudulent transfer statutes were based on 13 Elizabeth.

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<sup>24</sup>Other relevant publicly available data sources provide similar balance sheet information, but are less ideal. Notably, the Survey of Small Business Finances has less comprehensive coverage, lacks a panel data structure, and begins in 1987, which is after the bulk of our law changes have occurred. However, the SSBF does contain valuable information about personal loan guarantees by owners that we incorporate into our regression analysis (see Section 3.2). Another potential source are the loan-level data for small firms from the Small Business Administration (e.g., Brown and Earle 2017). However, these loans are unlikely to be affected by our state-by-state law changes since they: (i) are government guaranteed and (ii) have pricing schedules set nationwide by the federal government.

<sup>25</sup>The Census provided us with an LBD-QFR match from 1977 until 1997—more precisely, a match between the Business Register (which contains firm identifiers), the LBD, and the QFR. To ensure an identical timeframe for tests based on the LBD and QFR, we extend this match through 2007 (i.e., to include Census years 2002 and 2007).

This strict definition ensures that we identify off of states adopting constructive fraud law for the first time, which occurs in a staggered fashion as shown in Table 1. To illustrate how our independent variable works, consider Alabama (AL) and Iowa (IA). Alabama and Iowa adopted the UFTA in 1990 and 1995, respectively. However, Alabama had either case or statutory law defining fraud constructively, whereas Iowa did not. Thus, the independent variable is always switched on for Alabama, whereas it takes the value of zero before 1995 and switches on after 1995 for Iowa. Under this treatment definition, nine states and the District of Columbia are treated during the period from 1977 to 2007.

We use the LBD to construct four measures of entrepreneurial activity: business starts, the success and failure rates of new businesses, and the closure rates of incumbent firms. These variables are measured at the state-year and state-industry-year levels. We further disaggregate these measures by establishment size (that is, number of employees) and firm single-unit status, where the latter indicates whether entry or exit occurs at a standalone firm or among the facilities of a multi-unit firm. As mentioned earlier, since multi-unit entrants correspond to expansions of potentially large preexisting firms, they are unlikely to represent startup activity.

The first dependent variable is the natural logarithm of the number of new establishments. We define the year of entry to be the first year with positive employment. We define entrepreneurship as the entry of new, standalone firms. The second and third dependent variables are related to the subsequent survival of these entrants. The LBD provides establishment identifiers that allow us to track them over time and identify exits. We focus on a three-year window after entry and define “churning entrants” as the (log) number of establishment entries that enter and subsequently close within this timeframe. We analogously define “long-term entrants” as the (log) sum of those entering establishments that survive three years. By contrasting the entry rates of churning (that is, failing) and long-term entrants, we will be able to measure the entry of safer firms and therefore whether the law change affects entrepreneurial risk-taking. Finally, we examine the (log) number of establishment closures, where the year of closure is the last year with positive employment. This measure captures the closure rate

among both entrant and incumbent establishments.

We measure the debt financing decisions based on firm-level data from the QFR. First of all, firm leverage is defined as the ratio of total debt to assets. In the QFR, firms disclose their long-term debt from both banks and other debt sources, where the latter includes bonds and debentures, loans payable to shareholders, and credit card debt. This breakdown of the debt structure is invaluable as the adoption of the UFTA is designed specifically to improve the expected recovery for unsecured creditors. Conversely, the effect on secured debt—which we proxy for using bank debt—should be limited. We therefore consider the ratio of secured debt to assets, the ratio of unsecured debt to assets, and the ratio of unsecured debt to total debt as dependent variables in our analysis of the law change.

Table 2 presents summary statistics across treated and control state- and firm-years between 1977 and 2007. Panel A presents state-year-level summary statistics based on the LBD for entering establishments. Startup entry indicates that the entering establishment is a new standalone startup firm, whereas multi-unit entry corresponds to expansions of already existing firms. The statistics indicate that startup firms are (approximately) 85% of entrants per year. The majority of entrants survive for longer than three years, with about 62% being long-term versus 38% being churning entrants. The size distribution shows that most (93%) of these new businesses are very small, starting with fewer than 20 employees. The majority of entrepreneurs start their businesses in the Services and Retail Trade industries, with 50% and 20%, respectively.<sup>26</sup> Panel B shows firm-year-level summary statistics on firms' debt structures based on the QFR. On average, firms' debt represents about 31% of total assets. While firms have a greater reliance on secured debt, they still have a substantial utilization of unsecured debt (about 45% of total debt). Comparing treated and control provides suggestive evidence that there may be: (i) fewer churning entrants in treated state-years; and, (ii) lower ratios of unsecured debt-to-total debt among treated firm-years. In the next section, we develop a series of estimators to more precisely measure the effects of treatment (that is, the passage of the UFTA) on these key outcomes.

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<sup>26</sup>Three-digit NAICS codes are mapped into two-digit codes (see [www.census.gov/eos/www/naics/](http://www.census.gov/eos/www/naics/)).



## 2.3 Identification and empirical model

To examine how the staggered introduction of the UFTA and associated strengthening of unsecured creditor rights impacts entrepreneurial activity, we first estimate the following state-year-level difference-in-differences (DiD) specification:

$$y_{st} = \alpha_s + \alpha_t + \beta \cdot UFTA_{st} + \epsilon_{st}, \quad (1)$$

where  $s$  indexes states and  $t$  indexes years. Note that in our main state-year sample has 1,581 observations (51 states times 31 years). The variable  $y$  stands for one of four measures of establishment entry and exit: the (log) total number of entrants, the number of churning entrants, the number of long-term entrants, or the number of closures.  $UFTA_{st}$  captures whether the state has any case or statutory law defining fraud constructively using a linear treatment effect with a long-term effect at four years, which allows for linear growth in the treatment effect.<sup>27</sup>  $\alpha_s$  and  $\alpha_t$  are state and year fixed effects, respectively. Since the analysis is based on a state-year panel, we cluster standard errors by state (Bertrand, Duflo, and Mullainathan 2004).

The coefficient of interest,  $\beta$ , captures the equilibrium response (in percentage points) of entrepreneurial activity among states adopting constructive fraud law for the first time. From a supply-side perspective, if the strengthening of creditor rights improves access to credit for entrepreneurs, then  $\beta$  will be strictly positive for all measures of entry. Alternatively, if risk-averse entrepreneurs facing greater costs of business failure reduce credit demand, then we may instead observe a reduction in entrepreneurial activity—that is, a strictly negative  $\beta$ .

To estimate  $\beta$  in Equation (1) exploits staggered changes in entrepreneurial activity within-state around the first adoption of constructive fraud law. Identification in this DiD framework

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<sup>27</sup>  $UFTA$  equals zero prior to the reform, one in the year of the reform, two in the second year, and so on, and we cap the linear growth in the treatment effect at four years out. The regression also includes an interaction of  $UFTA$  with an indicator for each Census year, since major updates to the Business Register occur in these years, resulting in lumpiness in establishment counts. Both of these steps follow Kerr and Nanda (2009). Note that we obtain very similar results using a simple indicator variable that equals one if the state has any constructive fraud law, and zero otherwise, and likewise when we capture the dynamics using a nonparametric approach (see Section 3.3).

hinges on the usual parallel trends assumption. There are two main concerns with our approach that both relate to this assumption. The first potential issue concerns our definition of treated and control states. Our focus is on those states that underwent the most dramatic change in fraudulent transfer law. In particular, we define constructive fraud (treated) states as those with any precedent in defining fraud in the constructive sense (according to either statutory or case law). Alaska is the only state that does not meet this strict condition by the end of our event window. In other words, the control group consists of already-treated states, eventually-treated states that will adopt the UFTA during the sample horizon, as well as Alaska, which is never treated. This classification of states may present a problem if, for example, early adopters of constructive fraud statutes exhibit different growth trajectories. We examine this concern directly by estimating a dynamic version of Equation (1) with indicator variables showing the timing relative to the passage of the UFTA in each state. This allows us to examine if there are any preexisting differential trends in the startup entry and exit rates between the treated and control groups, and therefore whether the control group provides a reasonable counterfactual.

The second potential concern is that there might be state-level economic shocks correlated with the law change affecting investment opportunities for all firms, including startups. Put differently, we require that the timing of these laws is uncorrelated with changing conditions that could jointly affect entrepreneurial activity. To mitigate this concern, we first note that with the exception of population, which is negatively and significantly associated with the passage of the law, the timing of these laws was uncorrelated with broader macroeconomic trends (see Appendix A). This is consistent with the legal context for the passage of the UFTA, that is, the NCCUSL’s nationwide initiative to revise fraudulent transfer law. To provide further compelling evidence, we exploit the granularity of the LBD and compare activity between single- and multi-unit firms within the same state of location, industry, and year.<sup>28</sup> Since multi-unit entrants correspond to expansions of already-existing firms, they are unlikely to represent startup activity. Thus, we use establishment entry and exit rates of

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<sup>28</sup>In addition to these within-state-industry-year analyses, we also consider two tests to mitigate concerns about state-level economic shocks: based on Equation (1), first, we include state-year control variables, and, second, we use startup firms in bordering states as a control group. These results are described in Section 3.3.

already existing, multi-unit firms as a control group to demonstrate that the strengthening of creditor rights only affects entrepreneurs’ incentives. To this end, we refine Equation (1) to compare the effect for both single-unit startup and multi-unit firms:

$$y_{sitx} = \alpha_{six} + \alpha_{tx} + \alpha_{sit} + \beta \cdot UFTA_{st} \times Startup_x + \epsilon_{sitx}, \quad (2)$$

where  $s$ ,  $i$ ,  $t$ , and  $x$  stand for state, industry, year, and type of firm, respectively.  $Startup_x$  is an indicator variable that equals one for startup (single-unit) firms. Industries are grouped at the three-digit North American Industry Classification System (NAICS) level, and we exclude the financial (NAICS 521–531) and public administration industries (NAICS 221 and  $\geq 920$ ). There are 259,284 observations in the main state-year-industry-firm-type level sample (51 states times 31 years times 82 three-digit NAICS industries times two firm types). We fully saturate the model with fixed effects— $\alpha_{six}$ ,  $\alpha_{tx}$ , and  $\alpha_{sit}$  at the state-industry-type, type-year, and state-industry-type levels, respectively. The state-industry-year fixed effects are included to sweep out common factors affecting the growth opportunities of both startups and multi-unit firms. We continue to cluster standard errors at the state level. The coefficient  $\beta$  now measures the mean percentage point response of entrepreneurs relative to the establishments of multi-unit firms following the passage of the UFTA.

In addition, we estimate Equation (2) on subsamples of single- and multi-unit firms based on their size, as measured by the number of employees. Following Adelino, Ma, and Robinson (2017), we classify the smallest firms as having 1–20 employees and group the remaining firms (21-plus employees) into a separate subsample. We therefore measure effects of the law change on very small startup firms benchmarked against very small multi-unit expansions, holding industry and location constant. This final approach more credibly measures the effect of these law changes, since it requires the (weaker) identification assumption that these very small multi-unit expansions have similar exposures to potential economic shocks, but are less affected by the changes in these laws.

### 3 Effect of the UFTA on Entrepreneurship

The strengthening of creditor rights through the adoption of a constructive definition of fraud has a theoretically ambiguous effect on entrepreneurial activity. It may increase entrepreneurship by expanding access to credit for financially constrained entrepreneurs or slow down entrepreneurship if risk-averse business owners fear personal assets will be clawed back by creditors in the event of default. The net effect of these competing channels is examined in Table 3, where we estimate Equation (1) based on state-year-level data from the U.S. Census LBD for the period from 1977 until 2007.<sup>29</sup> The dependent variables are the (log) number of total, churning, and long-term entrants, and the number of establishment closures. The point estimates show the average effect on establishment entry and exit.

Column (1) shows the effect of the UFTA on the total number of entering establishments. We see that the coefficient on *UFTA* is  $-0.027$ , which is significant at the 5% confidence level. This indicates that the passage of the UFTA yields an economically large effect on entrepreneurship: a 2.7 percentage point decrease in the number of new entrants per year.

Columns (2) and (3) report the effect of the UFTA on the number of churning and long-term entrants, respectively. Churning entrants are entrants that close within three years of entry, whereas long-term entrants are those that survive for at least three years. The point estimates are  $-0.036$  and  $-0.022$  for churning and long-term entrants, respectively. Importantly, the point estimate for churning entrants is greater in magnitude and statistically significant (at the 1% level), which indicates that the reduction in entry is present only among establishments that eventually fail. By contrast, the effect for long-term entrants is statistically indistinguishable from zero. This suggests that there is an important extensive margin effect in play: facing larger costs of business failure, entrepreneurs become less willing to launch riskier businesses.

In Column (4), we examine the effect of the UFTA on establishment closures. We define the year of closure to be the last year with a positive number of employees. The estimated coefficient on *UFTA* is  $-0.025$  and continues to be statistically significant at the 5% confidence

<sup>29</sup>The results in Table 3 can be replicated using a publicly available, aggregated version of our establishment-level LBD data—the Business Dynamics Statistics—provided online by the U.S. Census at [www.census.gov/programs-surveys/bds/data.html](http://www.census.gov/programs-surveys/bds/data.html). We are happy to make our code available upon request.

level. Thus, establishment closure rates decrease following the passage of the UFTA, which is consistent with lower risk-taking on the part of incumbent business owners.

Overall, these average effects indicate that the strengthening of creditor rights not only decreases new business creation—particularly among riskier entrants that ex post fail more often—but also increases the survival of incumbent businesses. These findings are in line with the laws reducing entrepreneurs’ appetites for risk when the personal costs of business failure increase. These extensive margin effects contrast with prior empirical work supporting the argument that strong creditor protection eases financial constraints and promotes firm growth (e.g., Midrigan and Xu 2013), and they are more in line with evidence documenting how excessive protection may hold back investment at large corporations (notably, Vig 2013).

### 3.1 Effects by establishment size

We have shown that the adoption of constructive fraud law decreases both establishment entry and exit rates. Our conjecture is that the law change is most likely to have an impact among startups in which owners’ personal and business assets are often commingled. We therefore estimate Equation (1) separately for establishments belonging to both single- and multi-unit firms, where the former are more likely to capture entrepreneurial activity.

Columns (1) and (2) of panel A of Table 4 report the effect of adopting the UFTA on the number of entrants for single- and multi-unit firms, respectively. We see that strengthening creditor rights decreases startup firm entry by 3.0 percentage points, which is slightly larger than the baseline effect and statistically significant at the 5% level. In stark contrast, there is no meaningful impact on the expansion of already existing, multi-unit firms. The remaining columns of the table clearly show a similar pattern for risky entrants as well as exit in the wake of the law change. In each case, the entry and exit rates of startup firms are more pronounced than the corresponding baseline average effect and statistically significant, neither of which is true for the multi-unit firms. Moreover,  $F$ -tests confirm that the estimated effects on entry (including churning entry) and exit are larger in magnitude among the single-unit

establishments at conventional levels.<sup>30</sup>

We next characterize patterns of entry and exit across the establishment size distribution by estimating Equation (2). This approach confirms the plausibility of results since, as argued earlier, the law change should affect mainly the smallest, youngest businesses. Moreover, from an identification standpoint, it mitigates concerns regarding statewide economic shocks that might jointly affect both the law change and investment opportunities. The (weaker) identifying assumption is that any unobservable economic shock has a similar impact on small startup entry versus small multi-unit expansions within a given state-industry-year combination.

Panel B of Table 4 reports our estimates of entry and exit rates with establishments classified according to their level of employment in the year of entry (or exit). We focus on the small and large size groupings (1–20 versus 21-plus employees).<sup>31</sup> We thus compare the establishment opening and closure rates of the two types of firms, single and multi-unit, at the same state of location, industry, and year. We form our estimates based on Equation (2), which exploits the granularity of the LBD using a state-year-industry-type unit of observation and fully saturates the model with firm type–year, state–industry–year, and state–industry–firm type fixed effects. Coefficients on the  $UFTA \times Startup$  indicator variable captures the relative elasticity of startup entry to facility expansions of multi-unit firms by employment size.

Columns (1) to (3) of the table show the effect of the UFTA on the total number of entrants for different size groups. We see that the effect of the UFTA on business formation is present only among the smallest startup firms; that is, those with fewer than 20 employees. The coefficient is  $-0.017$  (significant at the 5% confidence level), which implies that the number of startups with fewer than 20 employees decreases by 1.7 percentage points relative to the

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<sup>30</sup>To implement these  $F$ -tests, we estimate a single regression that is fully interacted with the subsample group dummy, and test whether the coefficients of interest are statistically distinguishable or not. In particular, rather than estimating state-year-level regressions separately for startup births (Column (1)) and multi-unit expansions (Column (2)), for the full sample of entrants we now estimate the state-year model interacted with a startup dummy:  $Log(Total\ Entrants)_{stx} = \alpha_{sx} + \alpha_{tx} + \beta_1 UFTA_{st} \times Multi_x + \beta_2 UFTA_{st} \times Startup_x + \epsilon_{stx}$ , and formally test whether  $\beta_1$  (state-year level DiD for establishments belonging to multi-units) equals  $\beta_2$  (DiD for startups). The results of the  $F$ -tests ( $F$ -statistic,  $p$ -value) are: Column (1) vs. (2) (5.36, 0.02); (3) vs. (4) (8.29, 0.01); (5) vs. (6) (2.66, 0.10); and, (7) vs. (8) (3.07, 0.08).

<sup>31</sup>For establishment closures, we construct the size groups based on final number of employees, i.e., the last positive number of employees reported in LBD before the closure.

number of facility expansions of the same size by multi-unit firms in the same state, industry, and year. Similar results emerge for churning entry and the exit rates of startups, which reduce relative to multi-unit firms only for the smallest size group. No consistent pattern emerges among startup entrants with more than 20 employees, and we do not find any statistically significant effects for long-term entry. Moreover,  $F$ -tests confirm that the point estimates are larger among the lower employment startups, although the effect on exits is marginally insignificant ( $p$ -value = 0.12).<sup>32</sup>

## 3.2 Evidence on the underlying mechanism

The shift toward a constructive definition of fraud enhances protection for unsecured creditors, as compared with secured creditors that already have priority in selected assets when borrowers default. However, empowering unsecured creditors could increase the personal financial costs of business failure, thus reducing demand for credit and risk-taking by entrepreneurs. We now provide several pieces of evidence consistent with this demand-side mechanism.<sup>33</sup>

### 3.2.1 Unsecured debt

We begin by documenting a decline in unsecured credit use among treated entrepreneurs, and show how this is associated with the slowdown in startup entry and exit. To this end, we examine firm-level financial data from the Census QFR data product, which provides high-quality information on debt structure. These data are available only in Census years—that is, every five years beginning in 1977—and so we conduct a lower-frequency analysis around the state-level adoption of the UFTA. Our data allow us to examine firm-level changes in overall

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<sup>32</sup>For the state-industry-year-type regressions, we implement  $F$ -tests by fully interacting the model with an establishment size dummy and test for equality of the treatment effect across the small and large groups. For panel B of Table 4, the results of the  $F$ -tests ( $F$ -statistic,  $p$ -value) are: Column (1) vs. (2) (3.33, 0.07); (3) vs. (4) (2.74, 0.10); (5) vs. (6) (2.65, 0.11); and, (7) vs. (8) (2.44, 0.12).

<sup>33</sup>Ideally, we could also show a large and quick increase in the observed voiding of pre-bankruptcy transfers, but unfortunately this is challenging to observe. While federal court filings are publicly available (e.g., in PACER), fraudulent transfer cases are usually heard in state trial courts, many of which do not maintain digital records. Typically, only fraudulent transfer cases that are eventually heard at the state appellate court level become a matter of public knowledge. Furthermore, the National Center for State Courts maintains data on caseload statistics, but only at broad levels of aggregation (e.g., civil versus criminal cases).

leverage, and separately for secured debt (that is, borrowings from banks) and unsecured debt (including bonds, personal loans, loans payable to shareholders, credit cards, and so on). Since the law change primarily affects firms’ unsecured credit demand, any observed reduction in firms’ leverage should come through a decrease in the share of unsecured debt in total debt.

We modify the approach of Bai, Carvalho, and Phillips (2018) to estimate firm-level changes in debt structure around the staggered adoption of the UFTA using the following equation:

$$y_{jsit} = \alpha_{it} + \beta \cdot UFTA_{st} + \delta' X_{jsit} + \epsilon_{jsit}, \quad (3)$$

where  $j$ ,  $s$ ,  $i$ , and  $t$  identify firms, states, industries, and (Census) years, respectively. The sample is an unbalanced panel that includes approximately 24,000 firm-year observations.<sup>34</sup> The model includes industry-year fixed effects ( $\alpha_{it}$ ) as well as firm controls (the natural logarithm of total assets and profitability, where profitability is defined as the ratio of income before extraordinary items plus depreciation and amortization to total assets). Standard errors are clustered at the state level. We estimate the DiD coefficient  $\beta$  for the full sample of firms and we also for two subgroups: “New” firms that appear in the current QFR for the first time and “Existing” firms that show up in both the current and previous QFR.<sup>35</sup> This partition allows us to test whether the law change led to a greater contraction in credit demand among the youngest firms in the economy.<sup>36</sup>

Table 5 reports the results for four measures of debt structure both on average and across age groups. Panel A shows that the adoption of the UFTA is associated with a reduction in leverage within firms located in that state. However, this negative relation holds and is statistically significant (at the 1% level) only among new firms. In terms of economic magnitudes, the reduction in leverage is about 2.4% of the average leverage of new firms

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<sup>34</sup>In accordance with the Census Bureau’s reporting requirements—to keep individual firm data confidential—the number of observations in tables showing firm-level responses are rounded to the nearest 500. For this reason, we also cannot report any quantiles in the summary statistics table.

<sup>35</sup>We apply additional age restrictions to ensure that a new firm did not exist at the time of the previous QFR, i.e., firms that are one, two, or three years old in the LBD. Likewise, an existing firm must have age strictly greater than four years to ensure that it did exist at the time of the previous QFR.

<sup>36</sup>We obtain similar results (unreported) when we instead include firm fixed effects and partition firms into young and old age groups (less and more than 10 years old, respectively).



(33.4%). Panel B breaks down leverage into that coming from secured and unsecured debt. Consistent with the previous arguments, we find no meaningful adjustments in secured debt. In stark contrast, we precisely estimate a relatively large reduction in unsecured debt to assets among new firms (4.8% of the mean of 13.4%). Panel C finds identical effects both on average and across age groups when we instead examine the unsecured debt share.<sup>37</sup>

To underscore the relevance of this demand-based explanation, we examine how patterns of firm entry and exit line up with the ex ante utilization of unsecured debt. In particular, based on the QFR financial data, we calculate the average ratio of unsecured debt to assets for each three-digit NAICS industry-census year in our sample. We call this ratio the industry-level unsecured debt intensity. We then split three-digit NAICS industry-census years according to whether the lagged value of its unsecured debt intensity is above (“High”) or below (“Low”) median across all industries in the corresponding year. Given the reduced industry coverage of the QFR (that is, 24 three-digit NAICS industries), the sample size reduces to 75,888 observations. Based on this state-year-industry-firm type panel, we estimate entry and exit separately for industries with high and low reliance on unsecured debt via Equation (2).<sup>38</sup>

The results in panel A of Table 6 are consistent with the proposed mechanism. As indicated in Columns (1) and (2), following the law change, startup entry decreases in industries with a greater utilization of unsecured debt, whereas we see a small and insignificant effect in low-utilization industries. The remaining columns clearly demonstrate that this effect is seen only in high-utilization industries. This is true for both churning and long-term entrants, as well as for establishment closures.<sup>39</sup> Thus, the link between unsecured creditor protection and entrepreneurial activity is present only among industries where unsecured debt plays an important role in financing the business.

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<sup>37</sup>*F*-tests indicate that the treatment effects on leverage, unsecured debt-to-assets, and unsecured debt-to-total debt are larger among new firms as compared with existing firms (at at least the 10% level).

<sup>38</sup>To identify  $\beta$ , we now need the weaker assumption that there are no local economic shocks coincident with the law change and correlated with both startup status and industry-level reliance on unsecured debt.

<sup>39</sup>*F*-tests indicate that the coefficients on entry and exit among the “High” and “Low” unsecured debt intensity groups are always different at the 10% level.

### 3.2.2 Personal loan guarantees

We have thus far argued that law change should matter more for small entrepreneurs because their personal assets are more likely to be tied up in the business. One common way for entrepreneurs' assets to be tied up in the firm is through personal guarantees of business debt. Indeed, according to the 2019 Small Business Credit Survey (SBCS) Report on Employer Firms, 58% of owners mention personally guaranteeing business debt.<sup>40</sup> Moreover, this is true among both the smallest (58.2% among firms with fewer than twenty employees) and youngest startup firms (57.4% among firms less than five years old). Since unsecured business debt may be backed by personal guarantees, the adoption of a constructive definition of fraud could put the personal assets of the owner at greater risk of creditor seizure. For example, a business owner who has personally guaranteed business debt may now find it more difficult to protect personal property from creditors by legally transferring it to another family member (who is not liable to those creditors). To investigate this channel, we now analyze how personal loan guarantees interact with the effects of the UFTA on entrepreneurship.

Our main source of firm financial data (the QFR) does not provide any useful information on personal guarantees, so we instead incorporate data from the Survey of Small Business Finances (SSBF).<sup>41</sup> The SSBF details the financing of the smallest firms in the economy (e.g., Petersen and Rajan 1994), and, as far as we are aware, it is the only public data source that provides information on how each small business loan is secured and if it is personally guaranteed by the owner. Following Avery, Bostic, and Samolyk (1998), we focus on the 1987 SSBF, which includes responses on who provides loan guarantees. In this sample, about 35.9% of loan dollars are backed by personal guarantees from owners. We focus on unsecured business loans for which the owner provides a personal guarantee, since these commitments map directly into our conceptual framework.

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<sup>40</sup>These statistics are drawn from the most recent SBCS, which is after the end of our event window. The survey—available at [www.newyorkfed.org/smallbusiness/](http://www.newyorkfed.org/smallbusiness/)—is assembled by the Federal Reserve System and consists of aggregated responses from U.S. small businesses owners across the distribution of firm sizes (e.g., 1–4 employees) and ages (e.g., 0–2 years).

<sup>41</sup>The survey—available at [www.federalreserve.gov/pubs/oss/oss3/nssbftoc.htm](http://www.federalreserve.gov/pubs/oss/oss3/nssbftoc.htm)—was conducted by the Federal Reserve Board and Small Business Administration.

We cannot match the survey data to the LBD—there is no common identifier—so we instead continue to explore industry-level heterogeneity, this time based on the prevalence of personal guarantees. In particular, three-digit NAICS industries are ranked and split once and for all at the median based on the dollar value of unsecured credit with personal loan guarantees in 1987. Given that we begin in 1987 and the lower industry coverage of the SSBF, the sample size reduces to 57,120 observations. As before, we estimate entry and exit separately for firms in industries with high and low intensity of personal loan guarantees using Equation (2).

The results shown in panel B of Table 6 indicate that, following the passage of the UFTA, lower entry rates among startups occur primarily when business owners are more likely to personally guarantee unsecured business credit. We do not find statistically significant effects in industries where personal loan guarantees are less common. We find similar results for churning and long-term entrants, as well as establishment exits.<sup>42</sup> Thus, our estimates support the hypothesis that the UFTA deterred entry by putting entrepreneurs’ personal assets at a greater risk of seizure by creditors.

### 3.2.3 Asset transferability

As a final source of heterogeneity that can be directly linked to a demand-based mechanism, we explore the ease with which assets can be transferred out of the firm. In particular, the law change may be irrelevant for firms with highly specific assets, since it may be infeasible to transfer such assets out of the firm (e.g., via a secondary market sale, see Gavazza 2011). Conversely, the UFTA might have more bite among firms characterized by easy-to-redeploy assets, since asset transfers may have been feasible prior to the law change.

We operationalize this idea using the Kim and Kung (2017) Asset Redeployability Index (ARI), which measures the transferability of assets both within and between industries. The ARI is constructed from the capital flow tables of the Bureau of Economic Analysis and is available annually beginning in 1985 (reducing our sample size to 65,070).<sup>43</sup> For each year

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<sup>42</sup>*F*-tests indicate that the coefficients on entry and exit among the “High” and “Low” groups are different at conventional levels except for long-term entrants ( $p$ -value = 0.15).

<sup>43</sup>Thanks to Hyunseob Kim for making the ARI available. The ARI lies between zero and one, and has

beginning in 1986, we partition the set of three-digit NAICS industries into those with easily transferable assets (“High” ARI) and less-redeployable assets (“Low” ARI) according to whether the lagged ARI is above or below the median across all industries.

As shown in panel C of Table 6, we find lower establishment entry and exit rates only when assets are more transferable (high redeployability). For example, Column (1) shows a drop of 2.4 percentage points in the establishment entry rate after the passage of the UFTA among startups with easily transferable assets. We do not find statistically significant effects when assets are highly specific. We find similar results for churning and long-term entrants, but insignificant estimates for establishment exits.<sup>44</sup> These findings lend additional support to the idea that the law change increased the personal costs of bankruptcy by reducing owners’ ability to transfer assets out of failing businesses, thereby deterring startup entry.

### 3.3 Analysis of dynamics and robustness checks

In this final section, we provide sensitivity analysis to support the claims made thus far. First, we provide a nonparametric estimation of the treatment effect dynamics. We first do this at the state-year level, modifying Equation (1) to include four indicator variables: the first is for the two years before the law change, the second is for the year of the law change and the following year, the third is for the subsequent two years, and the final indicator is for the fourth and all other years after the law change. The coefficients on each of these indicator variables measure entry and exit rates relative to the corresponding rates in the period at least three years prior to the law change.

Two notable facts emerge from the results in Table 7. First, the effects begin to appear within two years and persist thereafter, and, as in our main specification, we find stronger effects for churning entry. Second, the coefficients on all entry and exit measures are indistinguishable from zero for the two years prior to the law change, confirming that there are no

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meaningful variation across industries with range from 0.031 to 0.884 and standard deviation of 0.130 in 1985. Note also that the ARI has smaller industry coverage and we must map NAICS codes 423–425 (wholesale trade) in the LBD into NAICS code 420 in the ARI data, since this is the only code provided for this sector.

<sup>44</sup>*F*-tests indicate that the coefficients on total, churning, and long-term entry between the “High” and “Low” ARI industries are different at conventional levels. The coefficient difference for exit is insignificant.

preexisting trends between treated and control states.

Figure 1 refines this approach by incorporating information on firm size. We modify Equation (2) by interacting the *Startup* term with dummies capturing the five years before to five years after the adoption of the UFTA. The point estimates now show the differential effect of the law change on small startup firm entry (top panel) and exit (bottom panel) over time, where we now use similar size and same-industry multi-unit firm behavior as a counterfactual. The figure compactly shows the main result of the paper: the adoption of the UFTA decreases firm entry and exit rates, only among the smallest startup firms, and only after the law change.

Second, we examine the sensitivity of our main estimates with respect to the our treatment definition. Thus far, we defined our treatment variable to capture variation within those states undergoing the most drastic change in creditor rights—that is, adopting the UFTA absent any preexisting statutory or case law regarding a constructive definition of fraud. We loosen this treatment definition to allow for some states with prior partial law changes or legal precedent. For example, Indiana did have a (limited) history of case law on constructive fraud prior to the passage of new statutory constructive fraud law in 1994. Overall, we identify thirteen additional states that meet satisfy this looser definition.<sup>45</sup> Our conjecture is that these less dramatic changes in creditor rights will bring about more muted changes in startup entry and exit.

Panel A of Table 8 estimates Equation (1) under this looser treatment definition. The table indicates that the economic effect of the law change on entry and exit weakens relative to the estimates shown in Table 3. For example, the estimate is approximately 19% smaller (−0.022 versus −0.027) for total entry (see Column (1)), 36% smaller for churning entry, and 28% smaller for establishment closures, whereas the magnitude is about the same for long-term entry. Thus, the effect of the UFTA on entrepreneurship is driven primarily by those states undergoing the most intense strengthening of creditor rights.

Third, we consider two further tests to rule out potential state-level macroeconomic trends.

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<sup>45</sup>Alaska (1990), Arkansas (1987), Connecticut (1991), Florida (1988), Illinois (1990), Indiana (1994), Mississippi (2006), Missouri (1992), North Carolina (1997), Rhode Island (1986), Texas (1987), and West Virginia (1986).

Recall that the tests based on the state-industry-year-firm type panel strongly support the notion that startup entry is a response to the law change, as opposed to some coincident statewide shocks. Nevertheless, we consider two additional robustness tests. First, we include state-year control variables in the our main regression specification. These consist of the growth rate of population, number of employees, and total payroll—variables that correlate with the passage of the UFTA (see Appendix A). Second, we include the subset of bordering states as a control group (sample size reduces to 992 state-years), and we proceed under the assumption that nearby states are more likely to experience common macroeconomic shocks. Panels B and C of Table 8 show robust patterns of entry and exit in response to the UFTA under either of these two complementary approaches, which casts further doubt on the interpretation entrepreneurs are responding to some coincident economic trends.<sup>46</sup>

## 4 Conclusion

The passage of the Uniform Fraudulent Transfer Act (UFTA) brought about an important change in business law: it eliminated the burden of proof of fraudulent intent previously needed for creditors to undo asset transfers from distressed businesses. Using administrative data from the U.S. Census Bureau, we document significant reductions in the equilibrium rates of establishment entry and exit following the adoption of these laws. These effects are present only among the smallest and riskiest startup firms. Firm financial data indicates that owners reduce leverage by shying away from unsecured credit once these new laws come into effect. Our evidence points to a natural, but understudied mechanism: by increasing the cost of business failure, stronger creditor rights may limit the risk appetite and credit demand of entrepreneurs. For these firms, owners have more at stake, since their personal assets are entangled with the business’s (for example, via personal guarantees of business debt).

Our evidence contrasts with prior literature, which focuses primarily on large corporations

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<sup>46</sup>We recognize that the effects in panel C could in principle be driven by the comparison of states that are far from each other. Nevertheless, the totality of evidence presented here—along with the within-state-industry-year analyses in Table 4—is consistent with an effect of the law change.

and argues that stronger creditor protections always improve investment by increasing debt capacity. Instead, we find that expanding laws in favor of unsecured creditors—here, allowing them greater access to owners’ assets during insolvency—can inhibit entrepreneurship. One potential implication of this finding is that entrepreneurs may become constrained in their ability to redeploy assets into new and potentially more productive uses, which may impede the churning process that efficiently reallocates resources. This matters because startups and young businesses are the engine of job creation and productivity growth in the U.S. economy (e.g., Adelino, Ma, and Robinson 2017). On the other hand, asset transfers out of failing firms may lead to resource misallocation or simply reflect fraudulent attempts to evade debt obligations—a cost undoubtedly borne by creditors. Understanding these potential trade-offs and efficiency implications remains an important avenue for future research.<sup>47</sup> From a policy standpoint, this is especially important in light of the ongoing discussions on how to reform bankruptcy law to make the system more accessible to small businesses (e.g., Adler, Capkun, and Weiss 2013).

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<sup>47</sup>For example, comprehensive data on asset transfers between firms and individuals (including intra-family transfers) would help researchers to make progress on the potential efficiency implications.

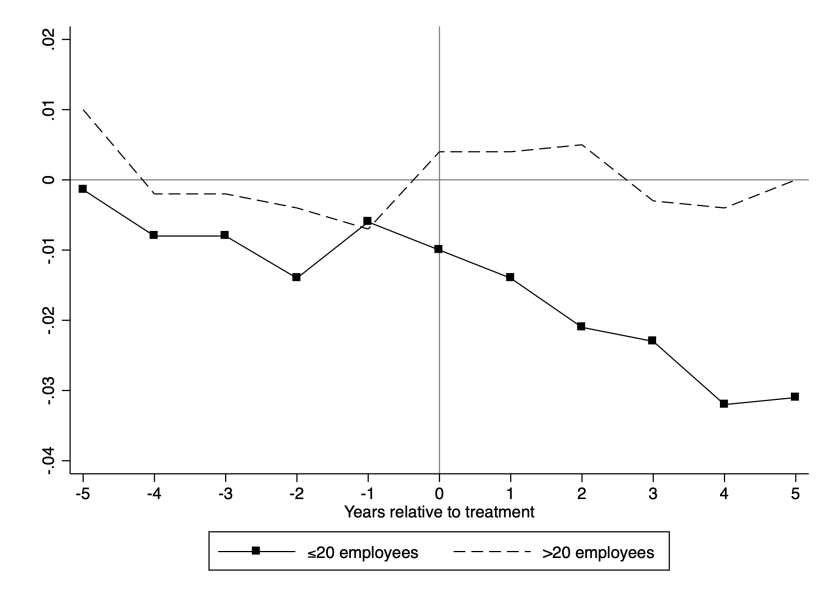
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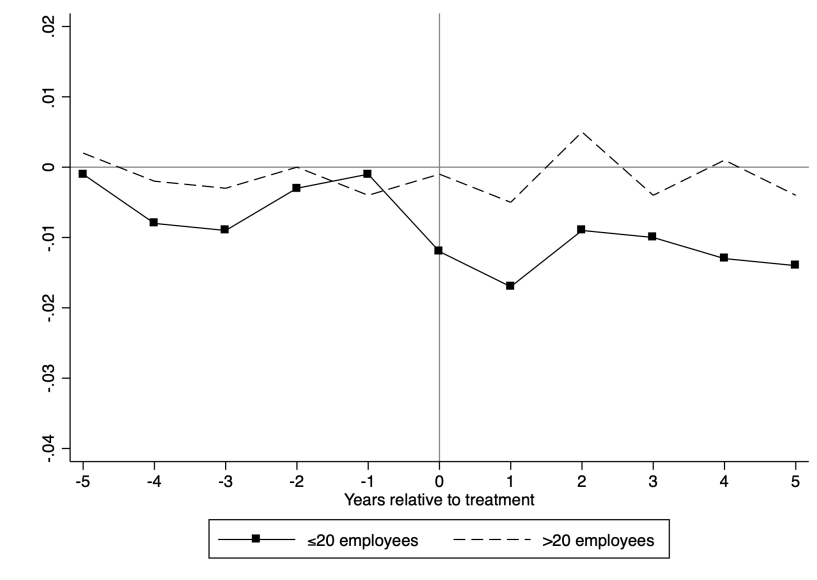


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(a) Entry rate



(b) Exit rate

Figure 1

### Dynamics of establishment entry and exit

This figure shows the dynamic estimates of the treatment effects for establishment entry (top panel) and exit (bottom panel) from five years before to five years after the adoption of the Uniform Fraudulent Transfer Act. Treatment effects are estimated based on Equation (2) for small (1–20 employees) versus large (21+) startups relative to similar-sized establishments of multi-unit firms. Establishment size is measured in the year of entry or exit.

**Table 1**  
**Passage of Uniform Fraudulent Transfer Act by state**

State	UFTA	Pre-existing law	Treatment classification	
			Baseline	Relaxed
AK	-	No	No	No
AL	1990	Yes	No	Yes
AR	1987	Yes	No	Yes
AZ	1990	Yes	No	No
CA	1986	Yes	No	No
CO	1991	No	Yes	Yes
CT	1991	Yes	No	Yes
DC	1996	No	Yes	Yes
DE	1996	Yes	No	No
FL	1988	Yes	No	Yes
GA	2002	Yes	No	No
HI	1985	No	Yes	Yes
IA	1995	No	Yes	Yes
ID	1987	Yes	No	No
IL	1990	Yes	No	Yes
IN	1994	Yes	No	Yes
KS	1999	No	Yes	Yes
KY	-	Yes	No	No
LA	1985	No	Yes	Yes
MA	1996	Yes	No	No
MD	-	Yes	No	No
ME	1986	No	Yes	Yes
MI	1998	Yes	No	No
MN	1987	Yes	No	No
MO	1992	Yes	No	Yes
MS	2006	Yes	No	Yes
MT	1991	Yes	No	No
NC	1997	Yes	No	Yes
ND	1985	Yes	No	No
NE	1980	No	Yes	Yes
NH	1988	Yes	No	No
NJ	1989	Yes	No	No
NM	1989	Yes	No	No
NV	1987	Yes	No	No
NY	-	Yes	No	No
OH	1990	Yes	No	No
OK	1986	Yes	No	No
OR	1986	No	Yes	Yes
PA	-	Yes	No	No
RI	1986	Yes	No	Yes
SC	-	Yes	No	No
SD	1987	Yes	No	No
TN	2003	Yes	No	No
TX	1987	Yes	No	Yes
UT	1988	Yes	No	No
VT	1996	No	Yes	Yes
VA	-	Yes	No	No
WA	1988	Yes	No	No
WI	1988	Yes	No	No
WV	1986	Yes	No	Yes
WY	2006	Yes	No	No

This table lists the effective year of that states adopt a constructive definition of fraud as well as whether there is a preexisting law on fraudulent transfers before the passage of the Uniform Fraudulent Transfer Act (UFTA). Preexisting law encompasses statutory (text that is contained within the legal code of a state) and case law (what courts within a particular state have decided as precedent). States never adopting the UFTA are indicated with a dash (-). Louisiana (LA) and Nebraska (NE) adopted a constructive definition of fraud in 1985 and 1980, respectively, without any pre-existing law on fraudulent transfers. States without preexisting law that eventually adopted the UFTA between 1977 and 2007 are classified as treated under the baseline definition. A subset of states with prior partial law changes or legal precedent are classified as treated under the relaxed definition (see Section 3.3).

**Table 2**  
**Summary statistics**

	Treatment classification	
	Treated	Control
	[1]	[2]
<b>Panel A: State-year level statistics based on LBD</b>		
<i>Type of establishment (%)</i>		
Startup	84.57	85.70
Belongs to multi-unit firm	15.43	15.30
<i>Outcome of entry (%)</i>		
Churning entrant	36.91	38.40
Long-term entrant	63.09	61.60
<i>Size distribution (%)</i>		
1–20 employees	92.44	93.65
21+ employees	7.56	6.35
<i>Sector distribution (%)</i>		
Manufacturing	4.80	4.45
Services	51.46	49.66
Wholesale trade	6.31	6.11
Retail trade	19.13	21.27
Mining	0.46	1.01
Construction	12.00	11.80
Transportation	5.83	5.68
<b>Panel B: Firm-year level statistics based on QFR</b>		
<i>Firm debt structure variables (mean)</i>		
Total Debt/Assets	0.32	0.31
Secured Debt/Assets	0.19	0.18
Unsecured Debt/Assets	0.13	0.14
Unsecured Debt/Total Debt	0.42	0.48
<i>Sector distribution (%)</i>		
Manufacturing	46.36	38.12
Wholesale trade	20.32	16.11
Retail trade	9.79	12.48
Mining	2.83	5.10

Panel A presents state-year-level summary statistics for the Longitudinal Business Database (LBD) for entering establishments between 1977 and 2007. Panel B presents firm-year level summary statistics on debt structure based on the Quarterly Financial Reports (QFR) for the years 1977–2007. State-years are partitioned into treated and control according to the baseline definition shown in Table 1. Firm-years are classified according to whether they are located in a treated or control state-year. Each cell reports the time-series average within each group.

**Table 3**  
**Establishment entry and exit**

Dependent variable:	<i>Log(Total Entrants)</i>	<i>Log(Churning Entrants)</i>	<i>Log(Long-Term Entrants)</i>	<i>Log(Establishment Closures)</i>
	[1]	[2]	[3]	[4]
<i>UFTA</i>	-0.027** (0.013)	-0.036*** (0.013)	-0.022 (0.013)	-0.025** (0.010)
State fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
Observations	1,581	1,581	1,581	1,581

This table presents estimates of the impact of Uniform Fraudulent Transfer Act (UFTA) on the entry and exit of establishments. Establishment entry and exit rates are at the state-year level. Analysis is based on data from Longitudinal Business Database (LBD) for 1977–2007. Total entrants include establishments at their first year of positive employment. Churning entrants are defined to be entrants closing within three years of entry. Long-term entrants include entrants who did not close within three years of entry. *UFTA* captures whether the state has any case or statutory law defining fraud constructively, or not. We use a linear treatment effect with a long-term effect at four years. Estimations include state and year fixed effects. Standard errors (in parentheses) are clustered at the state level. \*\*\*, \*\*, and \* denote 1%, 5%, and 10% statistical significance.

**Table 4**  
**Entry and exit by establishment size**

<b>Panel A: Single- versus multi-unit firms</b>								
Dependent variable:	<i>Log(Total Entrants)</i>		<i>Log(Churning Entrants)</i>		<i>Log(Long-Term Entrants)</i>		<i>Log(Establishment Closures)</i>	
Establishment type:	Startup birth	Multi-unit expansion	Startup birth	Multi-unit expansion	Startup birth	Multi-unit expansion	Startup death	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	
	[8]							
<i>UFTA</i>	-0.030** (0.013)	-0.008 (0.009)	-0.039*** (0.013)	-0.012 (0.012)	-0.025* (0.014)	-0.007 (0.009)	-0.029** (0.012)	-0.013 (0.008)
State fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	1,581	1,581	1,581	1,581	1,581	1,581	1,581	1,581
<i>F</i> -test ( <i>F</i> -stat., <i>p</i> -value)	[1]vs.[2]:(5.36, 0.02)		[3]vs.[4]:(8.29, 0.01)		[5]vs.[6]:(2.66, 0.10)		[7]vs.[8]:(3.07, 0.08)	

<b>Panel B: Establishment employment level</b>								
Dependent variable:	<i>Log(Total Entrants)</i>		<i>Log(Churning Entrants)</i>		<i>Log(Long-Term Entrants)</i>		<i>Log(Establishment Closures)</i>	
Number of employees:	1-20	21+	1-20	21+	1-20	21+	1-20	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	
	[8]							
<i>UFTA</i> × <i>Startup</i>	-0.017** (0.009)	-0.001 (0.004)	-0.015** (0.007)	-0.005 (0.003)	-0.013 (0.009)	0.003 (0.004)	-0.013* (0.008)	-0.001 (0.004)
State-industry-type fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
State-industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Type-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	259,284	259,284	259,284	259,284	259,284	259,284	259,284	259,284
<i>F</i> -test ( <i>F</i> -stat., <i>p</i> -value)	[1]vs.[2]:(3.33, 0.07)		[3]vs.[4]:(2.74, 0.10)		[5]vs.[6]:(2.65, 0.11)		[7]vs.[8]:(2.44, 0.12)	

This table presents estimates of the impact of the Uniform Fraudulent Transfer Act (UFTA) on the entry and exit of establishments sorted on size. Panel A sorts establishments based on their single- or multi-unit firm status. Startups consist of new, single-unit firm creations, whereas multi-units are expansions of already existing firms. Panel B is based on the size (initial number of employees) for total, churning, and long-term entrants and the final number of employees for closures. Establishment entry and exit rates are at the state-year level. Analysis is based on data from the Longitudinal Business Database (LBD) for 1977–2007. Total entrants include establishments at their first year of positive employment. Churning entrants are defined to be entrants closing within three years of entry. Long-term entrants include entrants who did not close within three years of entry. *UFTA* captures whether the state has any case or statutory law defining fraud constructively, or not. We use a linear treatment effect with a long-term effect at four years. Where indicated, estimations include state, year, industry (three-digit NAICS), and type (indicating whether the firm is a startup or multi-unit) fixed effects. Standard errors (in parentheses) are clustered at the state level. \*\*\*, \*\*, and \* denote 1%, 5%, and 10% statistical significance.

**Table 5**  
**Effect of law change on firm leverage and debt structure**

<b>Panel A: Leverage</b>						
Dependent variable: <i>Total Debt/Assets</i>						
Firm age:	All	New	Existing			
	[1]	[2]	[3]			
<i>UFTA</i>	-0.002 (0.003)	-0.008*** (0.003)	0.000 (0.003)			
Firm controls	Y	Y	Y			
Firm fixed effects	Y	Y	Y			
Industry-year fixed effects	Y	Y	Y			
Observations	24,000	3,500	20,500			
<i>F</i> -test ( <i>F</i> -stat., <i>p</i> -value)					[2]vs.[3]:(5.55,0.02)	

<b>Panel B: Secured versus unsecured debt</b>						
Dependent variable:	<i>Secured Debt/Assets</i>			<i>Unsecured Debt/Assets</i>		
Firm age:	All	New	Existing	All	New	Existing
	[1]	[2]	[3]	[4]	[5]	[6]
<i>UFTA</i>	0.001 (0.002)	-0.000 (0.002)	0.002 (0.002)	-0.003* (0.001)	-0.006*** (0.002)	-0.001 (0.002)
Firm controls	Y	Y	Y	Y	Y	Y
Firm fixed effects	Y	Y	Y	Y	Y	Y
Industry-year fixed effects	Y	Y	Y	Y	Y	Y
Observations	24,000	3,500	20,500	24,000	3,500	20,500
<i>F</i> -test ( <i>F</i> -stat., <i>p</i> -value)			[2]vs.[3]:(0.83,0.37)			[5]vs.[6]:(3.69,0.06)

<b>Panel C: Unsecured debt share</b>			
Dependent variable: <i>Unsecured Debt/Total Debt</i>			
Firm age:	All	New	Existing
	[1]	[2]	[3]
<i>UFTA</i>	-0.010* (0.005)	-0.018*** (0.006)	-0.008 (0.006)
Firm controls	Y	Y	Y
Firm fixed effects	Y	Y	Y
Industry-year fixed effects	Y	Y	Y
Observations	24,000	3,500	20,500
<i>F</i> -test ( <i>F</i> -stat., <i>p</i> -value)			[2]vs.[3]:(3.30,0.07)

This table presents estimates of the impact of the Uniform Fraudulent Transfer Act (UFTA) on the leverage and debt structure of firms. Debt structure data are drawn from the Quarterly Financial Reports (QFR) from 1977 to 2007. The unit of observation in each regression is a firm-year. Firm age is defined as follows: “New” firms appear in the current but not previous QFR (and have age less than or equal to four years), whereas “Existing” firms appear in the current and previous QFR (or have age strictly greater than five years). *UFTA* captures whether the state has any case or statutory law defining fraud constructively, or not. We use a linear treatment effect with a long-term effect at four years. Estimations include firm and (three-digit NAICS) industry-year fixed effects, and firm controls (the natural logarithm of total assets and profitability). Standard errors (in parentheses) are clustered at the state level. \*\*\*, \*\*, and \* denote 1%, 5%, and 10% statistical significance.



**Table 6**  
**Further evidence on the mechanism**

Dependent variable: Subsample:	<i>Log(Total Entrants)</i>		<i>Log(Churning Entrants)</i>		<i>Log(Long-Term Entrants)</i>		<i>Log(Establishment Closures)</i>	
	High [1]	Low [2]	High [3]	Low [4]	High [5]	Low [6]	High [7]	Low [8]
<b>Panel A: Unsecured debt intensity</b>								
<i>UFTA</i> × <i>Startup</i>	-0.039*** (0.013)	-0.006 (0.010)	-0.033*** (0.011)	-0.008 (0.009)	-0.026** (0.012)	-0.003 (0.010)	-0.029*** (0.010)	-0.007 (0.010)
Observations	75,888	75,888	75,888	75,888	75,888	75,888	75,888	75,888
<i>F</i> -test ( <i>F</i> -stat., <i>p</i> -value)	[1]vs.[2]:(6.09,0.02)		[3]vs.[4]:(4.95,0.03)		[5]vs.[6]:(5.36,0.03)		[7]vs.[8]:(3.86,0.06)	
<b>Panel B: Personal loan guarantees</b>								
<i>UFTA</i> × <i>Startup</i>	-0.024*** (0.008)	-0.009 (0.011)	-0.017** (0.007)	-0.002 (0.009)	-0.019* (0.010)	-0.008 (0.012)	-0.035** (0.014)	-0.008 (0.013)
Observations	57,120	57,120	57,120	57,120	57,120	57,120	57,120	57,120
<i>F</i> -test ( <i>F</i> -stat., <i>p</i> -value)	[1]vs.[2]:(3.13,0.08)		[3]vs.[4]:(3.01,0.08)		[5]vs.[6]:(2.04,0.15)		[7]vs.[8]:(4.86,0.03)	
<b>Panel C: Asset transferability</b>								
<i>UFTA</i> × <i>Startup</i>	-0.024** (0.009)	-0.009 (0.007)	-0.012* (0.006)	0.002 (0.008)	-0.024** (0.010)	-0.005 (0.008)	-0.011 (0.009)	-0.016 (0.011)
Observations	65,070	65,070	65,070	65,070	65,070	65,070	65,070	65,070
<i>F</i> -test ( <i>F</i> -stat., <i>p</i> -value)	[1]vs.[2]:(5.24,0.03)		[3]vs.[4]:(3.10,0.08)		[5]vs.[6]:(4.58,0.04)		[7]vs.[8]:(0.45,0.51)	
State-industry-type fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
State-industry-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Type-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y

This table explores heterogeneity in the impact of the Uniform Fraudulent Transfer Act (UFTA) on the entry and exit of startup firms. In panel A, we calculate the average ratio of unsecured debt to assets among firms for each three-digit NAICS industry-census year, which we call the unsecured debt intensity. We then split industry-census years according to whether they have above (“High”) or below (“Low”) median lagged unsecured debt intensity. In panel B, three-digit NAICS industries are partitioned once and for all at the median based on the dollar value of unsecured credit with personal loan guarantees in the 1987 SSBF following Avery, Bostic, and Samolyk (1998). In panel C, we classify three-digit NAICS industry-years based on the Kim and Kung (2017) Asset Redeployability Index (ARI), which is available annually beginning in 1985. Industry-years are split at the median based on the one-year lagged ARI. Analysis is based on restricted LBD samples from 1988–2007 and 1986–2007 in panels B and C, respectively. Total entrants include establishments at their first year of positive employment. Churning entrants are defined to be entrants closing within three years of entry. Long-term entrants include entrants who did not close within three years of entry. *UFTA* captures whether the state has any case or statutory law defining fraud constructively, or not. We use a linear treatment effect with a long-term effect at four years. Where indicated, estimations include state, year, industry (three-digit NAICS), and type (indicating whether the firm is a startup or multi-unit) fixed effects. Standard errors (in parentheses) are clustered at the state level. \*\*\*, \*\*, and \* denote 1%, 5%, and 10% statistical significance.

**Table 7**  
**Dynamic effect of law change**

Dependent variable:	<i>Log(Total Entrants)</i>	<i>Log(Churning Entrants)</i>	<i>Log(Long-Term Entrants)</i>	<i>Log(Establishment Closures)</i>
	[1]	[2]	[3]	[4]
<i>UFTA</i> × <i>Year(-2, -1)</i>	-0.011 (0.014)	-0.015 (0.016)	-0.009 (0.013)	-0.011 (0.010)
<i>UFTA</i> × <i>Year(0, 1)</i>	-0.010 (0.013)	-0.010 (0.017)	-0.010 (0.012)	-0.005 (0.013)
<i>UFTA</i> × <i>Year(2, 3)</i>	-0.024* (0.014)	-0.028* (0.016)	-0.021 (0.014)	-0.017 (0.014)
<i>UFTA</i> × <i>Year(4+)</i>	-0.034** (0.016)	-0.045*** (0.015)	-0.028* (0.017)	-0.033*** (0.012)
State fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
Observations	1,581	1,581	1,581	1,581

This table presents dynamic estimates of the impact of the Uniform Fraudulent Transfer Act (UFTA) on the entry and exit of startup firms. Startup firms consist of new, single-unit firm creations. Establishment entry and exit rates are at the state-year level. Analysis is based on data from the Longitudinal Business Database (LBD) for 1977–2007. The independent variables indicate the timing relative to the passage of UFTA laws in each state. Total entrants include establishments at their first year of positive employment. Churning entrants are defined to be entrants closing within three years of entry. Long-term entrants include entrants who did not close within three years of entry. *UFTA* is an indicator variable that equals one if the state has any case or statutory law defining fraud constructively, and zero otherwise. Estimations include state and year fixed effects. Standard errors (in parentheses) are clustered at the state level. \*\*\*, \*\*, and \* denote 1%, 5%, and 10% statistical significance.

**Table 8**  
**Robustness checks**

Dependent variable:	<i>Log(Total Entrants)</i>	<i>Log(Churning Entrants)</i>	<i>Log(Long-Term Entrants)</i>	<i>Log(Establishment Closures)</i>
	[1]	[2]	[3]	[4]
<b>Panel A: Relaxed treatment definition</b>				
<i>UFTA</i>	-0.022** (0.010)	-0.023** (0.010)	-0.021** (0.010)	-0.018** (0.008)
Observations	1,581	1,581	1,581	1,581
<b>Panel B: Neighboring states as control</b>				
<i>UFTA</i>	-0.036** (0.014)	-0.045*** (0.014)	-0.032** (0.015)	-0.029** (0.012)
Observations	992	992	992	992
<b>Panel C: Inclusion of state-year controls</b>				
<i>UFTA</i>	-0.028** (0.012)	-0.036*** (0.012)	-0.023* (0.012)	-0.024** (0.010)
Observations	1,581	1,581	1,581	1,581
State fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y

This table presents robustness checks for the effects of uniform fraudulent transfer (UFTA) laws. Panel A examines state-year establishment entry and exit based on a relaxed treatment definition described in Section 3.3. Panel B restricts the control group to bordering states only. Panel C includes state-year control variables (the lagged growth rates of population, the number of employees, and total payroll). Establishment entry and exit rates are at the state-year level. Analysis is based on data from the Longitudinal Business Database (LBD) for 1977–2007. Total entrants include establishments at their first year of positive employment. Churning entrants are defined to be entrants closing within three years of entry. Long-term entrants include entrants who did not close within three years of entry. *UFTA* captures whether the state has any case or statutory law defining fraud constructively, or not. We use a linear treatment effect with a long-term effect at four years. Estimations include state and year fixed effects. Standard errors (in parentheses) are clustered at the state level. \*\*\*, \*\*, and \* denote 1%, 5%, and 10% statistical significance.

## Appendix A. Determinants of constructive fraud laws

Dependent variable:	<i>UFTA</i>
<i>Log(Total Population)</i>	-1.408** (0.708)
<i>Log(Total Income)</i>	0.597 (0.385)
<i>Log(Deposits)</i>	-0.026 (0.032)
<i>Log(Bank Offices)</i>	-0.089 (0.157)
<i>Log(Housing)</i>	0.077* (0.044)
<i>Log(Employment)</i>	-2.560* (1.346)
<i>Log(Labor)</i>	2.414* (1.252)
<i>Log(Theft)</i>	-0.182 (0.430)
<i>Log(Property Crime)</i>	0.302 (0.435)
<i>Log(Robberies)</i>	0.002 (0.128)
<i>Log(Schools)</i>	0.142 (0.188)
<i>Log(Government Loans)</i>	0.025 (0.030)
<i>Log(Government Salaries)</i>	0.375 (0.233)
<i>Log(Government Expenditures)</i>	-0.075 (0.186)
State fixed effects	Y
Year fixed effects	Y
Observations	912

This table presents estimates of the impact of state-level macroeconomic variables on the passage of constructive fraud laws. The sample horizon encompasses all constructive fraud changes resulting from the passage of the UFTA, from 1983 to 2007. *UFTA* is an indicator variable that equals one if the state has any case or statutory law defining fraud constructively, and zero otherwise. Total population data are from the U.S. Census. Total income data come from the Department of Commerce (Bureau of Economic Analysis). Total deposit and commercial bank and savings institution office data are from the Federal Deposit Insurance Corporation. Total new private housing unit data come from combined U.S. Census and Construction Project Reporting Survey data. Employment and labor force participation data are from the Bureau of Labor Statistics (Current Population Survey). Theft, property crime, and robbery data are from the Department of Justice (Federal Bureau of Investigation). Total school enrollment data are from the Department of Education (National Center for Education Statistics). Government loans, salary, and expenditure data are from the U.S. Census Governments Division. Estimations include state and year fixed effects. Standard errors (in parentheses) are clustered at the state level. \*\*\*, \*\*, and \* denote 1%, 5%, and 10% statistical significance, respectively.

## Appendix B. Legal Appendix

### B.1 Entrepreneurial Firm Failure

Although business failure is often synonymous with bankruptcy, bankruptcy is a distinct legal process that is governed in the United States by federal code. This code is divided into several chapters that relate to different types of bankrupt entities.<sup>1</sup> While Chapter 7 relates to both entrepreneurs as well as individuals wishing to substantially liquidate all of their assets, sole proprietors are often given the option to undergo either Chapter 11 or Chapter 13 proceedings if they hope to reorganize. Partnerships, LLCs, and corporations are not given the option of filing for Chapter 13. Because Chapter 11 is costlier, most sole proprietors that file for bankruptcy choose to file for Chapter 13, although eligibility is dictated by size restrictions on debt.<sup>2</sup>

Bankruptcy is not the only option for entrepreneurs, however. Because of filing fees, legal fees, long bankruptcy durations, loss of control over business operations, the automatic stay, and other indirect costs associated with bankruptcy, both debtors and creditors of small businesses often prefer to avoid bankruptcy if possible.<sup>3</sup> Morrison (2008, 2009) provides a comprehensive overview of the decision whether to file for bankruptcy or cease operations based on other means when faced with insolvency. Using data from 2004 until 2006, these studies show that federal bankruptcy filings were only between 3% and 4% of business closures that took place among indebted businesses. When limited to businesses that closed while financially distressed based on the Dun & Bradstreet financial distress score, the ratio of failing firms filing for bankruptcy jumps to between 10% and 13% for non-corporations and between 21% and 22% for corporations. Even based on stringent definitions, though, the majority of insolvent businesses liquidate or reorganize without filing for federal bankruptcy.

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<sup>1</sup>Chapter 7 concerns asset liquidation, Chapter 9 the reorganization of municipalities, Chapter 11 complex reorganizations (generally of businesses), Chapter 12 reorganizations of family farms or fishermen, Chapter 13 reorganization for individuals, and Chapter 15 cross-border insolvency.

<sup>2</sup>Currently, individuals with more than \$383,175 in unsecured claims and \$1,149,525 in secured claims may not file for Chapter 13 bankruptcy; see [www.nolo.com/legal-encyclopedia/chapter-13-chapter-11-bankruptcy-small-business-owners.html](http://www.nolo.com/legal-encyclopedia/chapter-13-chapter-11-bankruptcy-small-business-owners.html).

<sup>3</sup>Creditors may force debtors into involuntary bankruptcy, but this is not common in practice. Rather, it can be used as a bargaining chip for debtors in a private workout.

What are the alternatives to bankruptcy? The procedures in place typically derive from the laws of contracts, trusts, and secured lending, which are enforced in state courts based on each state's judicial organizational structure. The friendliest option is a private workout that avoids courts altogether. These agreements rely on the debtor's ability to arrange for a plan of asset distribution in a way that satisfies all parties involved. Another option, at least for secured creditors, is to step in and foreclose on any assets in which they have a security interest. They may do so based on state laws set forth in the Uniform Commercial Code. If these actions are taken by secured creditors without impediments by debtors or unsecured creditors, then the process is known as a friendly foreclosure. Alternatively, if a business owner wishes to continue operations, similar to a restructuring under Chapter 11 of the Bankruptcy Code, then he has the option of undergoing a procedure called an "assignment for benefit of creditors" or ABC. In this case, a trustee receives the assets of the business and holds an auction.<sup>4</sup> Proceeds go toward the secured debt holders, unsecured debt holders receive nothing if the secured claimants are not made whole, and the old business ceases to exist as a legal entity. Often, though, the former business owner is able to repurchase most of the assets of the business and establish a new entity.

In any of these situations, aggrieved parties may attempt to delay proceedings or receive higher distributions by bringing suit against another party in state court. One course of action, also used frequently in bankruptcy proceedings, is referred to as an avoidance, and takes place when a previous transaction carried out by the business is undone. Transactions found to be fraudulent—the subject of this paper—are one example of commonly sought avoidances. Preferential transfers, or transfers to a junior class of claim holders or to an equivalent class of claim holders in a way that is not pro rata, are also an important feature of fraudulent transfer law.

## **B.2 Organizational Structure and Personal Wealth Protection**

There are two important features that govern the interactions between a business owner and

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<sup>4</sup>The details of these auctions vary by state. Trustees are not often required to go to great lengths to publicize these auctions, and the business owner may be able to reclaim the business physical assets as the sole bidder in the auction.

outside agents: the establishment of the business as a separate legal entity and the protection of the owner from unlimited liability. The line is generally drawn between sole proprietorships, which are not separate legal entities from the individual owner and do not protect the owner from unlimited liability, and limited liability companies (LLCs) or corporations, which stand on their own as legal entities and offer the owner limited liability protection.<sup>5</sup> The liability status of partnerships depends on whether the partnership is a limited liability partnership (LLP) or a limited partnership (LP), the latter of which may involve general partners who are not protected by limited liability. According to the U.S. Small Business Administration, 72.1% of businesses are sole proprietorships, while 18.5% are corporations (including S types). Furthermore, 79.9% of businesses do not officially retain any employees other than the owner-manager, and 52% are home-based.

In addition to separate legal status and limited liability protection, simplicity is a key factor in corporate organization. To technically register as a sole proprietorship, owners in most states only need to obtain local licenses at the time of business formation.<sup>6</sup> These licenses are usually easy to obtain, are inexpensive, and do not require annual updates. In addition, assets of the business owner are commingled with personal assets, and so it is not necessary to keep separate records. Conversely, LLCs and corporations are more costly and complicated to establish and keep track of. Business owners must pay not only organizational formation fees, but also filing fees and annual state fees. Even though income from LLCs and S corporations may pass through to the business owners for taxation purposes, record-keeping is more complicated because these business forms have their own legal identities.

Regardless of organizational structure, there is a fine line for most entrepreneurs between personal assets and business assets. Even for businesses with limited liability protection, owners often utilize their own wealth as startup capital by transferring titles of assets to the

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<sup>5</sup>LLCs may have an unlimited number of shareholders and can make disproportionate distributions to these investors, while S corporations are limited to 100 shareholders and distributions must be pro rata. Otherwise, these two structures are very similar.

<sup>6</sup>Technically, any freelance income qualifies the earner as a sole proprietor. In general, it is not necessary to take any formal action to register as a sole proprietorship. Various types of business, however, require licenses and permits.

business. They also facilitate external borrowing by providing personal guarantees. Owners continually have to decide whether to reinvest profits into the business or withdraw cash in the form of salary or dividend payments. Because of this, asset protection has become a key component of small business planning.

Exemption planning and strategic transfers are the two main tenets of asset protection planning. The relative importance of these strategies depends on the business's organizational form. For proprietorships, the first line of defense is to make full use of state asset exemption laws. For businesses in states with paltry exemptions, or medium-sized businesses that involve assets that are significantly greater than the exemption threshold, strategic transfers play a more important role. Personal assets that have been transferred to a limited liability structure very rarely qualify for exemptions, and so transfers play a more important role in protecting the assets of LLC or corporation owners.

Each state has its own set of rules governing exemptions that protect certain core personal assets from seizure by creditors. The homestead exemption is the most well known of these, followed by personal property exemptions.<sup>7</sup> Other exemptions include pension and retirement benefits, insurance, tools of trade, earned but unpaid wages, and public compensation benefits such as Social Security. Some states even offer wildcards for any other type of personal property not covered, usually up to a small amount.

Other than direct exemptions, the primary tool that entrepreneurs may use to protect personal property from creditors is through strategic funding, or transfers of assets into and out of the business. For businesses that are not protected by limited liability, this may involve the transfer of assets into trusts or to other individuals. Domestic asset protection trusts (DAPTs) are a form of wealth protection that shield assets from creditors but also allow the transferor to be the beneficiary of the trust. They are legal in fourteen jurisdictions, but transfers of business assets into DAPTs have not received favorable treatment in insolvency proceedings. Offshore trusts used to be a popular form of asset protection, but have fallen out

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<sup>7</sup>Personal property exemptions are often further itemized, and limits are applied to each category, ranging from motor vehicles to burial plots.



of favor more recently following several notorious cases.<sup>8</sup> Alternatively, an individual providing a personal guarantee for a business debt may still legally transfer his home to his spouse and shield it from creditors provided that the spouse is not liable to those creditors and the transfer does not qualify as fraudulent.

For LLC or corporation owners, protecting assets involves legally transferring them from the business to the individual. Cash may be withdrawn in the form of salary, dividend, and personal loan payments. Owner-managers are given the flexibility to determine their salaries, although how much they are able to pay is often governed by external factors.<sup>9</sup> The IRS limits distributions in the form of salary, however, and usually bases its assessment of reasonable compensation to owner-managers on gross receipts, comparable businesses, and payments to non-shareholder employees. Salary payments in excess of the acceptable limit are treated as dividends. Real property may also be transferred from a business entity to an individual through a quitclaim deed. Finally, owners may strategically withdraw cash from LLCs or corporations by giving preference to personal loans made to the business or external loans that have been backed by a personal guarantee.

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<sup>8</sup>After filing for bankruptcy in 1997, Stephen J. Lawrence, founder of a derivatives trading firm, was found in contempt of court for establishing offshore asset protection trusts and served several years in jail. In 1999, Michael and Denyse Anderson were also found in contempt of court after refusing to repatriate funds kept in an offshore trust, and each spent six months in jail.

<sup>9</sup>Corporations, for example, must pay an additional employment tax on salaries distributed to owners, therefore incentivizing distribution through dividends. This tax is levied on earnings of an LLC regardless of salary payments made to owners, while the income of sole proprietorships or partnerships is taxed as personal income regardless.