Are Some Things Best Kept Secret? The Effect of the Uniform Trade Secrets Act on Financial Leverage[*†]

Scott B. Guernsey
Ph.D. Candidate in Finance, University of Oklahoma
(sguer@ou.edu)

Current Draft: April 17, 2017

Abstract

I isolate the causal effect of an increase in trade secrets protection on financial leverage by examining the staggered implementation of state-level trade secrets laws – the Uniform Trade Secrets Act. First, I show the adoption of these statutes is plausibly exogenous to corporate debt policies. Next, I document that large firms located in states that have passed these laws increase their debt ratios relative to firms in states without such legislation. I also find that better protected large firms experience a reduction in operating leverage, probability of default, and cash flow volatility. Further, my evidence suggests that companies with higher likelihoods of default adjust their debt levels upward after their headquartering state adopts a statute. Overall, the results are consistent with stronger trade secrets protection leading to increases in financial leverage via decreasing bankruptcy costs. Lastly, I show large firms benefit from this trade-off and experience positive long-term value effects.

JEL Classification: G32, G33, K22, O32
Keywords: Financial leverage, Capital structure, Trade secrets protection, Bankruptcy costs, Innovation

Please address correspondence to:

Scott B. Guernsey
Price College of Business
307 West Brooks, 205A Adams Hall
The University of Oklahoma
Noman, OK 73019-4005
e-mail: *sguer@ou.edu*

[*] Acknowledgements: I thank Tor-Erik Bakke, Jeff Black, Leslie Boni, Martijn Cremers, Philip Dybvig, Louis Ederington, Chitru Fernando, Pallab Ghosh, Kose John, Gabriele Lattanzio, Scott Linn, Lubomir Litov, Mary Anne Majadillas, Peter MacKay, William Megginson, Ivan Png, Leonid Pugachev, Steven Xiao, two anonymous conference reviewers, and seminar participants at the University of Oklahoma for useful comments and suggestions. All errors are my own.
[†] This paper is scheduled for presentation at the 2017 European Financial Management Association Meetings, and the 2017 Financial Management Association Meetings.

Are Some Things Best Kept Secret?

The Effect of the Uniform Trade Secrets Act on Financial Leverage

Abstract

I isolate the causal effect of an increase in trade secrets protection on financial leverage by examining the staggered implementation of state-level trade secrets laws – the Uniform Trade Secrets Act. First, I show the adoption of these statutes is plausibly exogenous to corporate debt policies. Next, I document that large firms located in states that have passed these laws increase their debt ratios relative to firms in states without such legislation. I also find that better protected large firms experience a reduction in operating leverage, probability of default, and cash flow volatility. Further, my evidence suggests that companies with higher likelihoods of default adjust their debt levels upward after their headquartering state adopts a statute. Overall, the results are consistent with stronger trade secrets protection leading to increases in financial leverage via decreasing bankruptcy costs. Lastly, I show large firms benefit from this trade-off and experience positive long-term value effects.

JEL Classification: G32, G33, K22, O32

Keywords: Financial leverage, Capital structure, Trade secrets protection, Bankruptcy costs, Innovation

April 17, 2017

1. Introduction

Survey evidence suggests that trade secrets[1] are the *most* important mechanism to protect businesses' intellectual property (IP). The National Science Foundation's National Center for Science and Engineering conducts the annual Business Research and Development and Innovation Survey (BRDIS) which targets responses from for-profit companies with at least five or more paid employees, a minimum of one business establishment in operation during the survey year, and performs some form of R&D activity all within the United States. One of the survey questions asks the respondent to assess "how important to your company were the following types of intellectual property protection?" (Form BRDI-1, 2013, p.45) with answers ranging from "very important", "somewhat important", to "not important." Table 1 reports the most recently published results in which 57.2% of businesses in all industries said trade secrets were a very important form of intellectual property protection, followed by utility patents (51%), trademarks (43.4%), copyrights (27.2%), and design patents (24.3%). The surveyed level of importance of trade secrets for firms in all industries with some R&D expenditure skyrockets to 93.7%[2] for large businesses defined as having 10,000 or more domestic employees.

[**Insert Table 1 Here**]

In addition to this survey evidence, there exists recent empirical work examining the effect of trade secrets protection on innovative activity. Png (2017) finds a positive association between stronger trade secrets laws and R&D among large firms, and firms operating in high-technology industries. Further, Png (2016) and Dass, Nanda, and Xiao (2015), in contemporaneous studies, document a negative relation between increased trade secrets protection and patenting activity. Png shows that firms in complex technology industries covered by strengthened trade secrets laws are associated with 18 percent fewer patents. Meanwhile, Dass et al. find that state-level statutes that augment trade secrets protection results in fewer patent applications for the average firm. What remains an open question in the literature, however, is how do firms finance these increases in non-patented, innovative endeavors?

My study analyzes the impact of trade secrets protection on capital structure decision-making by comparing the debt ratios of firms located in states adopting stronger trade secrets laws with firms headquartered in states without such legislation. In particular, I investigate the effect of a stronger trade secrets environment on large firms' financial leverage, which, given both the survey and empirical evidence, are most likely to be significantly affected by stronger protection. Moreover, secrecy is a form of informal IP designed to protect appropriation of rewards from invention and innovation (Hall, Helmers,

---

[1] Examples of trade secrets include food and beverage recipes, marketing strategies, computer algorithms, business plans, customer contact lists and "leads", and other confidential information that may or may not be patentable and which give the holder of the secret an economic advantage.

[2] Measured by combing the "very important" and "somewhat important" percentages.

Rogers, and Sena 2014).[3] Thus, big firms generating larger sales revenue should be differentially impacted by laws that increase appropriability (Png 2017). Further, small firms disproportionately rely on patents (Figueroa and Serrano 2013) rather than on secrecy as it provides IP protection at a lower cost. This motivates my study to consider how large firms adjust their financial leverage after becoming covered by trade secrets laws.

There are at least two ways in which trade secrets protection could potentially influence large firms' financial leverage. On one hand, prior work finds that firms in which R&D is an important form of investment, fund this activity almost entirely with cash holdings and/or equity capital (e.g., Nelson 1959, Arrow 1962, Bradley, Jarrell, and Kim 1984, Titman and Wessels 1988, Opler and Titman 1994, Alderson and Betker 1996, Chung and Wright 1998, Hall 2002, Brown, Fazzari, and Petersen 2009, Hall and Lerner 2010, Brown, Martinsson, and Petersen 2013, and Chava, Oettl, Subramanian, and Subramanian 2013). This is consistent with theories suggesting that innovative firms plagued by informational problems (Akerlof 1970, Leland and Pyle 1977, Stiglitz and Weiss 1981, Bhattacharya and Ritter 1983, and Anton and Yao 2002), moral-hazard dilemmas (Jensen and Meckling 1976), and limited collateralizable assets (Williamson 1988, Berger and Udell 1990) are less likely to use debt financing. Thus, I might expect large firms experiencing strengthened trade secrets protection to reduce financial leverage.

On the other hand, large firms treated with greater trade secrets protection are less susceptible to a rival firm misappropriating their economically valuable, confidential information. The use of secrecy as a mechanism to protect IP is inherently risky. Trade secrets can be legally acquired if a competitor firm independently discovers or reverse engineers the same coveted information (Png 2017). Consequently, the competitor firm could patent the newly acquired secret, if patentable, thus revoking the initial firm's ability to continue to use the secret, as specified by patent law (Jaffe 1986, and Hall et al. 2014). This would be legal. However, under strengthened trade secrets laws improper means of misappropriation are illegal, reducing the likelihood of diminished future cash flows generated by the secret. Hence, I might expect that large firms affected by increases in trade secrets protection have reduced financial distress costs – i.e., they are less likely to default since they are less likely to lose out on future cash flows – and therefore, trade-off these lowered costs with the benefits of increasing financial leverage (Miller 1977).

I exploit the staggered state-level adoption of the Uniform Trade Secrets Acts (UTSA) between 1975 and 2003 to isolate the causal effect of trade secrets protection on capital structure decision-making. The UTSA increased the protection of firm's trade secrets by codifying the existing common law, precisely defining a "trade secret", enumerating what constitutes misappropriation, and clarifying the rights and remedies of victimized firms (Uniform Law Commission, 1985). Figure 1 depicts the number of states that

[3] Hall et al. (2014) define the main forms of formal IP as patents, trademarks, designs, and copyright, whereas informal IP can take the form of secrecy, confidentiality agreements, lead time, and complexity.

have passed these statutes by decade. Further, I proxy for trade secrets protection using a state-level index constructed by Png (2017) which accounts for pre-existing common law, and represents the change in legal protection resulting from the enacted UTSA.[4] I find that large firms, measured by the natural logarithm of sales, protected by stronger trade secrets laws increase their debt ratios. Specifically, using a difference-in-differences framework, I find that once large firms become covered by UTSA, their book and market leverage ratios are increased by 3.85 (= 0.018 × 2.137) and 2.14 (= 0.010 × 2.137) percentage points, respectively, for every one standard deviation increase in the natural logarithm of sales. The results are robust to alternative definitions of financial leverage, and to alternative proxies for firm size which includes the natural logarithm of total assets and the total number of employees, respectively, and splitting the size proxy into indicator variables based on median and median-year sales. Further, I show that the positive change in the debt ratios transpires *after* the passage of the UTSA law, assuaging concerns of lobbying or anticipatory leverage adjustments. In addition, a Cox proportional hazard analysis shows that firm-level, state-level, and industry-level debt measures do not explain the decision for a state to adopt the UTSA, suggesting that reverse causality does not contaminate the estimates.

[**Insert Figure 1 Here**]

In further tests, I investigate if the interaction of the UTSA and firm-specific innovative activity also determines the level of financial leverage. In particular, I analyze firms affected by the UTSA that are characterized as having high R&D intensity, and existing patent portfolios. This added layer of analysis is beneficial in understanding the underlying relationship governing my main finding that large UTSA protected firms increase debt ratios. The only negative relation I document between leverage and increased trade secrets protection is for high R&D intensity firms. Thus, it appears, without differentiating on size, firms with greater levels of pre-existing R&D expenditure decrease debt after the passage of the UTSA, which is consistent with the extant literature on R&D and its financing (e.g., Bradley, Jarrell, and Kim 1984, among others). In contrast, UTSA protected firms with large pre-existing patent portfolios increase debt. This seems on par with recent work documenting a negative relation between the UTSA and patent applications (Png 2016, and Dass et al. 2015). That is, large innovative firms potentially transition to or increase their usage of secrecy after the passage of these laws, and they do so with debt.

Overall, my results suggest that increased trade secrets protection affects larger firms' debt ratios by decreasing their probability of default. Specifically, I analyze the relationship between the UTSA and the sensitivity of changes in earnings to changes in sales to capture the level of a firms' operating leverage, and find that it is lower following the enactment of the UTSA. Further, I find a significant negative relation

[4] Table A1 in the appendix, which is an exact reproduction of Table A2 from the appendix of Png (2017), provides a full description of the construction of the measure. In addition, I provide a concise explanation of the protection index in Section 4.2.

between large UTSA protected firms and modified Altman's Z-score, and operating cash flow risk, respectively. Next, I investigate the effect of UTSA specific to firms characterized by higher likelihoods of default on debt ratios and find these companies adjust their book and market leverage upward. I conclude that large firms are differentially affected by the UTSA, and as such the inherently risky but rewarding IP protection mechanism of secrecy becomes less dangerous. Accordingly, companies optimally respond by financing increased innovative activity with leverage. Finally, I provide evidence that there exists positive long-term firm value implications for large firms headquartered in these UTSA adopting states.

This paper makes new and important contributions to several strands of the literature. First, I provide new evidence on the impact of the UTSA for large firms and their capital structure decision-making. I am the first to document this specific relationship, but one of two contemporaneous studies to investigate the general effect of an increase in trade secrets protection on leverage. Klasa, Ortiz-Molina, Serfling, and Srinivasan (2017) consider the recognition of the Inevitable Disclosure Doctrine (IDD) by U.S. state courts, which decreases the mobility of workers with trade secrets knowledge from gaining similar employment with a rival firm. They argue that firms in which trade secrets are an important IP mechanism retain unused debt capacity in case a competitor gains access to the secret. Thus, the risk of losing IP to rivals is reduced after rulings in favor of the IDD and as such firms' capital structure decisions are less conservative.

My study differs from Klasa et al. (2017) in the following seven ways. First, I make use of exogenous variation stemming from the staggered passage of the UTSA, whereas they consider the IDD. These experiments are fundamentally different as the former codifies the "rules of the game", which includes the legal remedies for victimized firms and is implemented via the legislative process, while the latter immobilizes employees with trade secrets knowledge and is recognized by state courts. Consequently, they do not necessarily imply the same effect on capital structure decision-making. Second, I find suggestive evidence using a Cox proportional hazard model that the UTSA is a substitute for the IDD, as states with the doctrine in place are less likely to legislate for the statute. This is important as nearly all U.S. states have adopted the UTSA, while less than half recognize the IDD. Again, confirming that these laws are worth studying in isolation. Third, my evidence shows that both laws have separate and significant impacts on debt ratios. That is, I include an IDD indicator variable as a control in all of my tests, and find that the effect of the UTSA on large firms' financial leverage persists. Thus, both experiments have important implications for a firm's capital structure. Fourth, the two studies are methodologically different. I employ an index which accounts for pre-existing common law, whereas Klasa et al. specify a "0/1" dummy. Fifth, I uniquely investigate the impact of trade secrets protection on innovative firms' debt ratios. The evidence from these tests show that companies located in UTSA states with large and meaningful patent portfolios increase their book and market leverage. Sixth, I find evidence that large firms adjust their levels of debt upward because of a reduction in bankruptcy costs. In contrast, Klasa et al. document results consistent with conservatism in unused debt capacity yielding the positive relation between the doctrine and debt ratios. Moreover, they do not find evidence for the trade-off theory of capital structure, and I confirm their result as the IDD does not predict reductions in bankruptcy costs in my sample. Lastly, I find positive long-term value effects for large firms located in UTSA passing states, whereas the IDD indicator is insignificant. On the other hand, Klasa et al. have well-defined event dates which allows them to document positive and significant short-term abnormal returns for firms headquartered in states that recognize the doctrine. Hence, both studies provide incrementally valuable, novel evidence to this important and relatively unexplored strand of literature.

Specifically, my results add to the existing research that uses the UTSA as a source of exogenous variation for secrecy. Other topics of papers in this area include its effect on R&D expenditure (Png 2017), internal patenting (Png 2016, Dass et al 2015), and financial disclosure (Guo, Nanda, and Pevzner 2016). Furthermore, I contribute to the trade secrets protection literature, which thus far has primarily employed the IDD setting. These papers consider the impact of the doctrine on capital structure decision-making and its respective channel (Klasa et al.), short-term value implications (Qui and Wang 2017), employee mobility by level of education (Png and Samila 2015), internal patenting activity (Contigiani, Barankay, and Hsu 2016), M&A activity (Gao and Ma 2016), and operational uncertainty (Lin, Wei, and Wu 2016).

Moreover, I broadly contribute to the literature investigating capital structure and its determinants (Myers 1977, Bradley, Jarrell, and Kim 1984, Titman and Wessels 1988, Rajan and Zingales 1995, Alderson and Betker 1995, Leary and Roberts 2005, Frank and Goyal 2008, and Lemmon, Roberts, and Zender 2008, Kisgen 2009, Hackbarth, Mathews, and Robinson 2014, and DeAngelo and Roll 2015, among others), and specifically to studies finding support for trade-off theory (Danis, Rettl, and Whited 2014, Serfling 2016, Glover 2016, and Reindl, Stoughton, and Zechner 2016, among others). Lastly, I add to the literature on financing and innovation (Stiglitz and Weiss 1981, Bradley, Jarrell, and Kim 1984, Stiglitz 1985, Titman and Wessels 1988, Cornell and Shapiro 1988, Williamson 1988, Blair and Litan 1990, Berger and Udell 1990, Hall 1993, 1994, Opler and Titman 1993, 1994, Alderson and Betker 1996, Chung and Wright 1998, Blass and Yosha 2003, Acharya and Subramanian 2009, Brown, Fazzari, and Petersen 2009, Chava, Oettl, Subramanian, and Subramanian 2013, Acharya, Baghai, and Subramanian 2014, and Sapra, Subramanian, and Subramanian 2014).

2. Hypothesis Development for Trade Secrets Protection and Financial Leverage

It is unclear how an exogenous increase in trade secrets protection will affect financial leverage for large firms. On the one hand, stronger secrecy protection yielding increases in R&D expenditure (Png 2017) might bring about a decrease in debt ratios. Inventive firms choose cash holdings and/or equity capital to avoid debt overhang problems and high borrowing costs (Bradley, Jarrell, and Kim 1984, Titman and Wessels 1988, Opler and Titman 1994, Alderson and Betker 1996, Chung and Wright 1998, Hall 2002, Brown, Fazzari, and Petersen 2009, and Hall and Lerner 2010). These findings suggest that the financing decision for R&D dependent firms is predicted by the challenges they face with information asymmetry (Leland and Pyle 1977, Stiglitz and Weiss 1981, Bhattacharya and Ritter 1983, and Anton and Yao 2002), moral-hazard or hidden action (Jensen and Meckling 1976), and reliance on intangible assets which cannot be used as collateral (Berger and Udell 1990). This leads to the hypothesis that large firms protected by the UTSA will reduce their levels of outstanding debt.

On the other hand, an increase in trade secrets protection for large businesses could relate positively with book and market leverage. The use of secrecy as a mechanism to protect IP is optimal if the confidential information is non-patentable and/or the potential returns from the indefinite future cash flows generated by the secret is greater than the in-flow of legally protected finite rewards granted to successful patent applicants (Hall et al. 2014). However, when comparing the potential infinite streams of future returns garnered by the use of secrecy with finite appropriations from patenting, the former should be probability-weighted (Almeida and Philippon 2007) to account for the likelihood that the confidential information is discovered or misappropriated by a rival firm. If the UTSA decreases the likelihood that secrets will be discovered through improper means, this increases the odds that a firm will be able to capitalize indefinitely on their confidential information and correspondingly reduces the probability of default (Andrade and Kaplan 1998), all else equal. Thus, based on this argument an alternative hypothesis is that large firms significantly affected by the UTSA will increase their financial leverage, taking advantage of the benefits of debt (Miller 1977).

3. Institutional Background

3.1. The Uniform Trade Secrets Act

To assist in the improved protection and codification of trade secrets laws, the Uniform Law Commissioners designed and proposed the Uniform Trade Secrets Act (UTSA) in 1979 for state-level enactment. The UTSA was later amended in 1985 and provided the following three major improvements above the previously established common law procedures.[5] First, it more comprehensively defined a trade secret as meaning "information, including a formula, pattern, compilation, program device, method, technique, or process that derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and is the subject of efforts that are reasonable under the circumstances to

[5] Prior to the UTSA, the primary governing code for trade secrets protection was established in the Restatement (First) of Torts, which is a treaty specific to this subject matter providing guidance to judges and lawyers in a common law system. Under this code a trade secret was defined to "consist of any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it" (Section 757, Comment b (1939)). However, although an important historical event in trade secret protection, this formalization was not legally binding and produced conflicting court decisions across states.

maintain its secrecy" (Section 1.4, p. 5, 1985). The Commissioners further commented on the definition to specify certain refinements. These comments detailed that negative information about failed ideas was valuable and also covered under the act. In addition, works-in-progress, such as ongoing R&D activity, constituted a protected trade secret.

The second major improvement of the UTSA over the general common law of the time, was that it outlined what it meant for a secret to be misappropriated. Section 1.2 of the UTSA prescribes misappropriation of a secret to mean the "acquisition of a trade secret of another by a person who knows or has reason to know that the trade secret was acquired by improper means, or disclosure or use of a trade secret of another without express or implied consent by a person who used improper means to acquire knowledge of the trade secret" (pp. 4-5. 1985). The misappropriation of a trade secret through improper means can include bribery, theft, misrepresentation, breach of duty to maintain secrecy, or espionage. This would be considered a form of unfair competition. However, trade secrets can be legally acquired if the covered company involuntarily disclosed the secret, or a competitor firm independently discovered or reverse engineered the prized, clandestine information. Moreover, as specified by existing patent law, the competitor firm could attempt to patent its newly discovered information, disallowing the use of the secret by the originating firm.

Finally, the third major improvement was that the UTSA clarified rights and remedies for businesses which had secrets wrongly appropriated and used. Remedies for infringement include injunctive relief, damages, reasonable royalties, and, in certain circumstances, attorney fees.[6] The UTSA established a statute of limitations upon which any action under the act must be brought forth within three years after the discovery of the misappropriation. Moreover, the UTSA outlines that courts deciding cases should take reasonable precautions to preserve the secrecy of the contested information, and if the UTSA is enacted it supersedes existing state-specific common laws.

3.2. The Inevitable Disclosure Doctrine

Another important form of state-level trade secrets protection stems from the Inevitable Disclosure Doctrine (IDD). Under this doctrine, firms have the legal ability to obtain an injunction to prevent current or former employees from gaining employment at another company without having to show that the individual actually applied, disclosed or intended to use any of the plaintiffs' trade secrets. Instead, the IDD only requires firms prove that the defendant's new position is one in which trade secrets would inevitably

[6] Anecdotal evidence suggests that protected firms do prosecute suspected perpetrators and earn sizeable awards for their victimization. For instance, Best Buy, the world's largest consumer electronics retailer, was found liable of stealing corporate secrets from an electronics recycling start-up, TechForward, and forced to pay $27 million (see, Kopelman 2012 for details). Further, a back-of the envelope calculation, in Hall, Helmers, Rogers, and Sena (2014), based on a 2011 federal court ruling in *Kolon Industries Inc. v. Dupont Co.*, suggests an average value of $6.3 million per trade secret.

be disclosed (Png and Samila 2015). This key legal distinction, contrasted above, is that of "threatened misappropriation" (Klasa et al. 2017). Thus, if a firm perceives there is a risk of threat of misappropriation by an individual with trade secrets knowledge whom finds work in a similar position at a rival firm, the IDD can be invoked.

By the doctrine, in order for a firm to file suit and obtain an injunction against the individual it must establish the following: (i) the employee worked in some capacity which granted him or her access to the firm's trade secrets, (ii) the role and responsibilities of the employee in their new position is so similar to that which they had at the plaintiff firm, that it would not be difficult to use or disclose the trade secrets, and (iii) the employee and new employer cannot be trusted not to use the trade secrets, and this would cause the former employing firm irreparable economic harm. Again, however, this three-part test does not require the firm to prove any actual wrongdoing.

3.3. Comparing UTSA and IDD

Trade secrecy in the United States is largely governed by state rather than federal law (Pooley 1997-), and the two most important state-level legal precedents, outlined above and considered in the finance and economics literature, are the UTSA and the IDD. The UTSA is passed in the form of a state statute via a legislative process, whereas the IDD is recognized by state courts. Although, the IDD was adopted in some states prior to the UTSA (New York in 1919, Florida in 1960, Delaware in 1964, Michigan in 1966, and North Carolina in 1976), the codification of the UTSA in 1979 strengthened the protective capacity and applicability of the IDD. That is, due to the non-uniformity of general trade secrets common law, prior to the creation of the UTSA, the IDD was subject to state-varying definitions of secrecy and misappropriation which made the doctrine more difficult to cite in judicial proceedings. Hence, IDD adoptions after 1979 follow the same guiding principles specified in the UTSA (Lin, Wei and Wu 2016).

The number of states that have passed the UTSA more than doubles those that recognize the IDD. Figure 2 shows the number of states that have adopted the UTSA and the IDD by year. In total, 46 states have such legislation, whereas the remaining four states without it have either passed their own trade secrets law (North Carolina in 1981, and Wisconsin in 1986) or currently have introduced bills (Massachusetts and New York in their respective 2017 sessions) to adopt this statute. In contrast, 21 states have experienced precedent-setting cases in which their courts recognize the IDD and three instances (Florida in 2001, Michigan in 2002, and Texas in 2003) where judges later reject the doctrine (Klasa et al. 2017). There are no such examples of states later abolishing their UTSA laws. I hypothesize, but do not test, that the reason behind this difference in permanent acceptability is likely due to the controversial nature of the IDD. That is, the UTSA defines secrecy and misappropriability, and, most importantly, the rights and remedies of victimized firms, whereas the IDD reduces employment mobility. There can be a much stronger case made against the equitability and justifiability of the latter than the former, and this likely influenced the three reversals of judicial attitude.

[**Insert Figure 2 Here**]

3.4. Evidence on the Exogeneity of the UTSA

I use the UTSA as an instrument to study the effect of an unobservable predictor, namely, trade secrets protection, on capital structure decision-making. The validity of this identification strategy hinges on two crucial components. First, it is important to rule out any anticipatory effects of the passage of the law. That is, I need to test whether or not firms begin adjusting their leverage ratios prior to the adoption of the statute – a violation of the parallel trends assumption. This could be the case as the legislative process requires at a minimum the introduction of the bill, passage at the House and Senate level, before finally obtaining approval by the Governor. In addition, if lobbying is a concern, then firms with motivating agents might observe private information about the likelihood of the UTSA being passed before actual adoption. I attempt to rule this out in Section 5.3, where I construct falsification tests to analyze the dynamics of the effect.[7] In short, I find that leverage ratios for large firms, increases one year or more after becoming better protected, thus mitigating concerns about preemptive capital structure changes.

The second concern is that states enacted the law for reasons specifically related to corporate debt policy (i.e., reverse causality). While less plausible than the above concern, I attempt to address this possibility in the following two ways. First, I summarize what the literature has found with respect to UTSA adoption and firm-level R&D policy. Lastly, I conduct my own analysis to verify that firm-level, state-level, and industry-level measures of leverage do not explain the passage of the statute.

Png (2017) provides supplemental analyses addressing the concern of reverse causality, but as it relates to R&D expenditure. First, he follows Romanosky, Telang, and Acquisti (2011) and constructs a scatterplot between the lag of UTSA adoption and R&D growth. He finds no apparent relation between the lag in enactment and the growth of R&D. Further, Png estimates a least squares regression of the legislative lag on R&D growth and finds an insignificant relation. Next, he estimates a Cox proportional hazard model to the effective year of the UTSA in the states between 1979 and 1997. His results indicate that the adoption of these trade secrets protection laws are not significantly related to gross state product, population, state industrial structure, R&D, policies to support R&D (such as R&D tax credits), or pro-business orientation (Republican-dominated legislatures). Hence, there is suggestive evidence that the UTSA was exogenous to firms located in states passing these laws, and specifically to R&D.

I follow a similar approach, but focus on the predictive ability of financial leverage. That is, I estimate a Cox proportional hazard model over the period 1975 to 2003 and specify firm-level book

[7] I include this test later in the paper, because I think it makes the most sense organizationally to explore the dynamics of the effect, after first establishing its existence.

leverage, and average state-year book leverage and industry-year book leverage, among other controls, as potential explanatory variables of the state-level adoption of the UTSA. The passage of these laws represents the failure event in the analysis, and therefore firms headquartered in these states are excluded from the sample after they become better protected by trade secrets legislation. The other control variables include average state-year natural logarithm of sales, an indicator variable equal to one for states that recognize the IDD and zero otherwise, R&D expenditure divided by sales, an indicator variable equal to one if a state offers an R&D tax credit and zero otherwise, average state-year natural logarithm of patents, average state-year modified Altman's Z-score, natural logarithm of state GDP per capita, a state's GPD growth rate, the percent of state-level representatives in the U.S. House of Representatives whom belong to the Republican party in a given year, state property crime rate by year, and a state corruption score. Table A2 in the appendix provides detailed account of these measures. Further, for ease of interpretation, I standardize all of the continuous variables to have a mean of zero and unit variance. The independent variables are lagged one-period (*t*-1). I also include year fixed effects in all of the specifications to control for time varying, unobserved heterogeneity, and the continuous variables are winsorized at the 1% level. I present the results in Table 2.

[**Insert Table 2 Here**]

The columns report hazard ratios for varying specifications of the Cox models. These hazard ratios and their corresponding robust standard errors are clustered by state of location. Columns 1 through 4 provide suggestive evidence that firm-level, state-level and industry-level leverage is not significantly correlated with the adoption of the UTSA. This provides some reassuring initial evidence that reverse causality is not a concern for this identification strategy. Further, there is only one independent variable that seems to predict the failure event in my sample, and that is the IDD dummy. Its hazard ratio ranges from 0.105 to 0.116 with 1% to 5% significance in the four separate specifications. These estimates indicate that firms that have already had IDD laws passed at the judicial level are less likely to legislate for the UTSA. Thus, I provide suggestive evidence that the two might be substitutes, further warranting the need to study both laws and their effects on capital structure decision-making. Overall, I have no reason to believe that using the UTSA as an instrument to identify the effect of trade secrets protection on financial leverage is contaminated by endogeneity.

4. Data and Empirical Methodology

4.1. Sample Selection

The main sample is composed of 80,691 firm-year observations based on 9,553 publicly traded industrial firms, excluding utilities and financial companies (SIC codes 4900-4999 and 6000-6999, respectively), headquartered in the U.S.[8], and without missing data for the main variables of interest over the period 1975 to 2003. I combine financial data from Compustat with the UTSA index constructed by Png (2017) by state of location and year. The year of enactment, strength of pre-existing common laws, and change in trade secrets protection after passage of the UTSA are shown in Table 3.

[**Insert Table 3 Here**]

My sample period begins five years before the first state, Minnesota, passes the UTSA, and ends five years after Michigan adopts. Figure 2 depicts the number of states that have enacted the UTSA by year through 2016, and contrasts this with the number of IDD recognizing states. There are five states that pass the UTSA after Michigan: Tennessee in 2000, Pennsylvania in 2004, Wyoming in 2006, New Jersey in 2012, and Texas in 2013. However, I truncate the sample at 2003 and exclude treatment-years for firms headquartered in these states for the following reasons. First, the two most recent states to adopt the UTSA, New Jersey and Texas, are not included because I do not have data on the UTSA trade secrets protection index after 2010. Second, Tennessee, Pennsylvania, and Wyoming treatment-year observations are left out of the sample because there is little gained by their inclusion. Namely, the number of additional treatment observations by including these firms is less than 5% of the total treatment sample, and, further, extending the sample to 2010[9] potentially creates noise that interferes with isolating the effect of trade secrets protection on financial leverage.[10] This is especially true in my empirical framework, which specifies a staggered difference-in-differences methodology.

4.2. The Main Explanatory Variables: Trade Secrets Protection and Firm Size

Trade secrets protection, prior to the UTSA, was derived from common law. Therefore, it would be inaccurate to characterize the level of protection for businesses located in states with and without UTSA laws using a "0/1" indicator variable. This is the case for both treatment and control firms. Namely, there are firms headquartered in states without UTSA, but with pre-existing common law. Therefore, it would be incorrect to specify their level of protection with a "0".[11] Further, most companies covered by the UTSA, similarly, had pre-treatment protection under common law. In order to cleanly identify the effect of trade

---

[8] I obtain data on a firm's state of location from Compustat. Unfortunately, these sample points are specific to the current headquartering state, and do not provide historical information. This would be a concern if firms relocate, as some observations would be wrongly classified as being either a treated or controlled unit, when in fact they are not. However, it does not appear that firms switch headquartering states often. For example, Pirinsky and Wang (2006) find, over a 15-year period, that less than 2.4% of firms changed their state of location.

[9] Png (2016, 2017) constructs the trade secrets protection index from 1970 until 2010. I thank Ivan Png for making this data available: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/BFP2IC.

[10] In robustness checks, I find that my main results hold over the sample periods: 1975 to 2005 excluding PA and WY treatment-years, 1975 to 2009 excluding WY treatment-years, and 1975 to 2010 including all treatment-years.

[11] Karpoff and Wittry (2016) investigate the misspecification of regression models analyzing the effect of business combination laws on various corporate outcome variables, and show that not accounting for legal and institutional context can lead to substantial biases that alter interpretations. Specifying trade secrets protection with Png's index mitigates this potential bias.

secrets protection on financial leverage it is necessary to account for this state and year variation in strength of secrecy.

I follow Png (2016, 2017) and use his state-level index of protection, which represents the *change* in strength of trade secrets protection stemming from enactment of the UTSA. Png constructs the index based on three main dimensions: (1) substantive law, (2) civil procedure, and (3) remedies. Further, within the substantive law and remedies dimensions there are three and two items, respectively, that characterize a state with stronger protection.[12] Png codes four of these items a "0" or "1" dependent on the strength and language of the laws and procedures. The other two are ratios of years allowed in civil procedures or years included in remedy calculations divided by three and six, respectively. Each of these values are summed and then divided by six, yielding a scaled protection index between 0 and 1, with a higher score representing stronger legal protection of trade secrets. The *change* stemming from the UTSA is the difference between the index pre- and post-enactment.[13] This represents half of my main variable of interest.

The other remaining half is size. As noted in the introduction, there is a positive monotonic relation in the BRDIS survey data between the importance of the trade secrets mechanism for IP protection and the number of domestic employees. In addition, Png (2017) finds that UTSA by itself is not significant in determining R&D expenditure, but only once he differentiates on firm size does the relation become significantly positive. Moreover, large firms are more likely to be impacted by the increase in trade secrets protection as they tend to have a greater reliance on secrecy than do small firms who disproportionately sell and acquire patents (Figueroa and Serrano 2013). Following, the lead of Png (2017) I interact the UTSA protection index with the natural logarithm of sales to create the main explanatory variable, $UTSA \times Ln(Sales)$. However, since I am interacting two continuous variables I center $Ln(Sales)$ by differencing firm-year sales with its sample average. This is consistent with Png (2017) and allows for more meaningfully interpretation of the coefficients of interest. For robustness, I also proxy for size using the continuous measures of natural logarithm of total assets (*Ln(Assets)*) and total employees (*Ln(1+Employees)*), both centered by their sample means, respectively, and with indicator variables that equal one for firms with *Ln(Sales)* greater than the sample median, or the sample-year median, respectively, and zero otherwise.

4.3. The Dependent Variables: Book and Market Leverage

In this paper, I measure financial leverage in the following two ways. First, I use *Book Leverage* which is defined as the ratio of total debt to the book value of assets for each firm-year. According to

[12] Please refer to Table A1 in the appendix, which is a reproduction of Table A2 in the appendix of Png (2017), for a detailed account of the dimensions and items.

[13] In robustness tests, I append Png's specification to include the pre-enactment *level* of trade secrets protection, in addition to the *change* variable, *UTSA*, and find the results are nearly identical.

Graham and Harvey (2002), most managers pay particular attention to book leverage as opposed to market leverage when making decisions regarding their firm's capital structure. In addition, Welch (2004) documents that much of the variability in market leverage ratios is derived from changes in market values instead of actual debt policy alterations. However, to provide further robustness to my findings, I also measure *Market Leverage* using the ratio of the book value of total debt divided by the market value of assets for each firm-year. In robustness checks, I also consider the natural logarithm of total debt, net book leverage, and net market leverage as dependent variables, respectively.

4.4. Other Explanatory Variables

The other explanatory variables are those widely accepted and documented by the literature as theoretically and/or empirically showing to significantly associate with leverage (e.g., Harris and Raviv 1991, Rajan and Zingales 1995, Frank and Goyal 2008, Lemmon, Roberts, and Zender 2008, Kisgen 2009, Danis, Rettl, and Whited 2014, Matsa 2010, Agrawal and Matsa 2013, Gormley and Matsa 2014, DeAngelo and Roll 2015, Serfling 2016, and Klasa et al. 2017). I include the log of sales (*Ln(Sales)*), assets (*Ln(Assets)*), or total number of employees (*Ln(1+Employees)*), depending on which variable is interacted with UTSA, to control for firm size. I control for a firm's investment opportunities using its market-to-book ratio (M/B). *Profitability* is specified in the regression model to account for the availability of internal funds. I include *Fixed Assets* to control for firm tangibility. I also specify a dummy variable for whether a firm paid out earnings as a dividend to proxy for the level of financial constraint (*Div Payer*). Modified Altman's Z-score (*Mod Z-score*) is added as a regressor to control for the probability of default; as noted in Mackie-Mason (1990), Altman's Z-score includes the ratio of market equity to book debt, thus he proposes to exclude this term when studying capital structure, as the debt ratio directly enters the analysis as a dependent variable.

Another important independent variable that I specify in the model is an indicator variable equal to one if a state recognizes the Inevitable Disclosure Doctrine (IDD), and zero otherwise. In a contemporaneous paper, Klasa et al. (2017) find that the IDD is a positive, significant predictor of financial leverage. Moreover, in Section 3.2 of this paper I document empirical evidence that IDD states are less likely to legislate for adoption of the UTSA. Hence, to avoid omitting a relevant variable I directly specify this dummy in the model as a control. This is further interesting, as it will provide direct evidence if the UTSA has explanatory power for firm-level financial leverage, above and beyond that of the IDD.

Lastly, to control for state, political, and industry conditions, I follow Serfling (2016), and include state-level GDP per capita (*Ln(State GDPPC)*), one-year state-level growth in GDP (*State GDPG*), and the proportion of state-level representatives in the U.S. House of Representatives whom belong to the Republican party (*Republican*), and, following Giroud and Mueller (2010), I include the average industry-year leverage (*IY Leverage*), and state-year leverage (*SY Leverage*), excluding firm i from both calculations, where industry is defined at the three-digit SIC level. Table A2 in the appendix provides a more precise account of the variables used in the analyses. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles to remove the influence of extreme outliers, and the dollar values have been deflated using 2001 dollars.

4.5. Empirical Methodology

Since the UTSA is adopted in a staggered fashion by different states over different times in the sample, I employ a difference-in-differences framework to study the relationship between the large firms protected by the UTSA and leverage at the firm-year level (Bertrand, Duflo, and Mullainathan 2004). I estimate the following panel regression model:

$$Leverage_{isjt} = \gamma_i + \omega_t + \beta_1 UTSA_{st} + \beta_2 Size_{it} + \beta_3 (UTSA \times Size)_{ist} + \alpha X_{isjt} + \varepsilon_{isjt} \,, \qquad (1)$$

where i indexes firms, s indexes the state of location, j indexes industry, t indexes time, $Leverage_{ist}$ is the dependent variable, which is either $Book\ Leverage$ or $Market\ Leverage$. $UTSA_{st}$ is a continuous variable, scaled between 0 and 1, which accounts for pre-existing trade secrets protection by measuring the change in strength once the UTSA law is enacted in year t in state s.

The main variable of interest is $(UTSA \times Size)_{ist}$ which interacts the index of trade secrets protection with a proxy for the size of firm i, located in state s, in year t, where $Size_{ist}$ is the natural log of sales deflated using 2001 dollars and centered around its sample mean.[14] X_{isjt} is a vector of control variables detailed in the above Section 4.4. I include firm fixed effects γ_i to control for time invariant unobservable heterogeneity within different firms. Further, I control for time variant heterogeneity that could affect leverage for all firms as well as transitory unobservable factors that could impact the likelihood of state adoption of the UTSA using year fixed effects ω_t. I estimate robust standard errors clustered at the state of location level (Bertrand et al. 2004).

5. Empirical Results

5.1. Descriptive Statistics

Panel A of Table 4 reports the summary statistics for the variables used in the main analyses. From this table it is observed that the mean book leverage ratio is 23.4% and the average market leverage ratio is 25.9%. Further, the proportion of treatment-years in my sample is 39.9% where the average *change* in the protection index after the enactment of the UTSA is 0.236. In contrast, the *level* of pre-existing state-level

---

[14] Without centering *Ln(Sales)*, β_1 would represent the effect of the UTSA for a firm with zero sales on leverage. By subtracting the sample mean from firm-year sales, β_1 becomes the effect of UTSA for a firm with average sales on leverage. There is no need to center *UTSA* since there are instances in which firms in both UTSA passing and non-passing states experience zero change in trade secrets protection. Thus, β_2 represents the relation between the *Size* of a firm without any change in protection and financial leverage. Finally, β_3 represents the effect of UTSA on corporate debt policy as firms get larger. For a more in-depth analysis on specifying regression models with continuous interaction terms please refer to Jaccard, Wan, and Turrisi (1990), Aiken and West (1991), and Jaccard and Turrisi (2003).

common law offers a substantially lower 0.116 degree of protection. The other control variables means and medians are similar to other studies (e.g., Kisgen 2009, Danis, Rettl, and Whited 2014, Frank and Goyal 2014, and Serfling 2016).

[**Insert Table 4 Here**]

Panel B of Table 4 provides the temporal distribution of total firm-year and treatment-year observations, as well as the percentage of firms affected by the UTSA in a given year. The pre-treatment period begins in 1975, with a total of 2,177 firm-year sample points. Then, in 1980, 55 firms (2.54% of the sample) headquartered in Minnesota enter the treatment sample. As more and more states implement the UTSA, the number of treatment-year to total firm-year observations grows, reaching more than 51% of the sample in 1990. The final treatment state, Michigan, passes the trade secrets legislation in 1998. Overall, the sample includes 32,153 treatment-year observations.

5.2. UTSA, Firm Size and Financial Leverage

I present the results from the main analysis exploring the relation between large firms covered by the UTSA and book leverage in Panel A of Table 5. First, however, I estimate model 1 without the interaction term to assess the effect of coverage by the trade secrets law for the average firm on book debt policy. Although, as seen from column 1, the UTSA coefficient is insignificant using this specification. This result indicates that the UTSA, by itself, does not impact capital structure decision-making. This finding is consistent with Png (2017), whom finds that the UTSA is an insignificant determinant of R&D expenditure for the average firm, the BRDIS survey evidence which indicates only half of the respondents, who actually perform some form of R&D, found secrecy a "very important" form of IP protection, and Figueroa and Serrano (2013) who show that smaller firms acquire and sell patents disproportionately more than large firms. Meanwhile, the coefficient on the IDD dummy is identical in significance, and nearly in magnitude to that found by Klasa et al. (2017), providing further evidence that my sample is consistent with the extant literature.

Next, I explore the main competing hypotheses of the paper, analyzing the relation between large firms covered by the UTSA and book leverage in columns 2 – 6. Column 2 regresses book leverage on the interaction term, the UTSA index, and natural log of sales, and standard leverage controls (*Size*, *Profitability*, *M/B*, and *Fixed Assets*) along with firm and year fixed effects. The estimated coefficient on the main variable of interest is 0.020 and significant at the 1% level. Next, I sequentially add further leverage determinants, as well as state, political, and industry controls in the remaining columns. Column 3 includes additional firm-characteristic controls (*Div Payer*, and *Mod Z-score*), while column 4 further appends on state and political variables (*IDD*, *Ln(State GDPPC)*, *State GDPG*, and *Republican*). The results are almost identical after including the additional controls, as the coefficient on the UTSA and natural log of sales interaction ranges between 0.019 and 0.020, respectively, and remains significant at the 1% level.

The column 5 regression model drops the state and political controls from the column 4 specification and instead includes the average state-year and industry-year book leverage, where firm i's observation is excluded from the calculations and industry is defined at the three-digit SIC level. Column 6 is the full model specification and includes all controls. The magnitude is reduced to 0.018 in these specifications, but remains significant at the 1% level. Moreover, the estimated coefficients on the control variables are similar to previous studies on financial leverage.[15] Of particular interest, I find that the UTSA has explanatory power for large firms' capital structure, even after controlling for the IDD. Overall, these results suggest an economically significant effect, as an increase in *Ln(Sales)* by one standard deviation is associated with an increase in *Book Leverage* of 0.018 × 2.137 = 0.0385, or 3.85 percentage points.

[**Insert Table 5 Here**]

Panel B of Table 5 provides the same analyses as Panel A, except now I measure debt using the market leverage ratio. Column 1 indicates that using the UTSA index as a standalone exogenous regressor does not significantly relate with market leverage. Columns 2 – 6 provides evidence that with varying leverage controls, the interaction term between the UTSA and natural log of sales is positive, ranging from 0.010 to 0.013, and significant at the 1% level. The findings indicate that protection by the UTSA for large firms results in a 2.14 (=0.010 × 2.137) percentage point increase in *Market Leverage* for a one standard deviation increase in *Ln(Sales)*.

In Table 6, I use four alternative proxies for size in place of the continuous and centered natural logarithm of sales measure. The first two variables are also continuous and they are: the natural logarithm of assets, and the natural logarithm of the number of firm employees. Thus, I center these measures with their respective sample means before interacting with the UTSA index. In addition, I specify two indicator size proxies: the first, *Median Ln(Sales)*, equals one if a firm's natural logarithm of sales is greater than the entire sample's median and zero otherwise, whereas the other, *Median-Year Ln(Sales)*, equals one for firm's that have *Ln(Sales)* above the by year sample median value and zero otherwise. The findings are consistent with Table 5. In both Panel's A and B, where the dependent variable is book and market leverage, respectively, there is a positive relationship between the size of the protected firm and financial leverage. For example, column 2 of Panel A shows that the largest firms, measured by the number of firm-level employees (as in the BRDIS Survey), covered by UTSA increase their leverage by 3.64 percentage points for every one standard deviation increase in *Ln(1+Employees)* (=0.032 × 1.136). Hence, it appears the finding is robust to alternative measures of firm size.

---

[15] The coefficient on *Profitability* is significant and negative in column 2 of Panel A, consistent with the empirically documented "profits-leverage puzzle" (e.g., Fama and French 2002, and Frank and Goyal 2015), but becomes positive and insignificant in the *Book Leverage* regressions once *Mod Z-score* is added as a control. This change in sign and significance occurs because the *Mod Z-score* is composed of a measure of profitability, namely the ratio of EBIT/assets (this is noted by Serfling 2016).

[**Insert Table 6 Here**]

5.3. Anticipatory Leverage Adjustments

I follow Bertrand and Mullainathan (2003), Giroud and Mueller (2010), Atanassov (2013), Roberts and Whited (2013), Fich, Harford, and Yore (2016), and Serfling (2016) and perform a placebo test in order to address concerns of reverse causality and provide evidence that the primary difference-in-differences identification assumption of parallel trends is satisfied. This analysis is conducted by evaluating the timing of changes in debt ratios relative to the timing of the UTSA, and the interaction of the UTSA with size. Thus, the placebo is administered by specifying the model to include an interaction term of the protection index and the natural logarithm of sales a year before the law is actually enacted.

The main variables of interest are $UTSA \times Size^{(-1)}$, $UTSA \times Size^{(0)}$, and $UTSA \times Size^{(1+)}$. These continuous variables are created by interacting the change in trade secrets protection stemming from the UTSA with the centered size proxy if the firm is headquartered in a state that passes the law in the year before actual adoption, the year of actual adoption, and one year and beyond actual adoption, respectively. Thus, the first interaction term falsely assigns treatment a year before it should be assigned, where the remaining measures accurately indicate that treatment is or has already been dispensed. Therefore, if the coefficient on $UTSA \times Size^{(-1)}$ is statistically significant there are serious concerns about differences in trends pre-treatment, and anticipatory leverage adjustments.

[**Insert Table 7 Here**]

The results of the falsification tests are presented in Table 7. The first two columns correspond to measuring the outcome variable using book leverage and columns 3 and 4 employ market leverage. Further, columns 1 and 3 are without state, political, and industry controls, while the even numbered columns include the full set of controls and a state-time trend. It is reassuring to find that the coefficient on the placebo interaction term is both economically and statistically insignificant. This is also the case for the UTSA index as a standalone regressor, as it is not significantly related to capital structure decisions in the year prior to treatment. In all four columns, the treatment effect is positive and significant for large firms in the first year and beyond the enactment of the law. Furthermore, the magnitude and significance of the $[UTSA \times Ln(Sales)]^{(1+)}$ coefficients are almost identical to the estimates reported in Table 5, Panel A and B. In summary, the evidence from Table 7 seems to suggest that lobbying and preemptive leverage changes are not concerns, and the parallel trend assumption is likely satisfied. Thus, the evidence is suggestive that the adoption of the UTSA was an exogenous shock, a requirement necessary for causal implications.

5.4. Alternative Leverage Definitions

In this section, I conduct the following robustness check. I test whether or not the relationship I have documented between large protected firms and UTSA coverage is specific to the book and market leverage measures of debt or if the relation persists using alternative definitions of financial leverage. This includes the natural logarithm of one plus total debt, net book leverage, and net market leverage. In columns 1, 3, and 5 of Table 8, I specify the full model regression with each respective alternative debt measure, but without the interaction of *UTSA* and *Ln(Sales)*. As documented previously, there is not a significant effect of UTSA adoption on financial leverage for the average firm. Columns 2, 4, and 6 of Table 8 employ the full model regression for each alternative measure of debt, respectively, but with the variable *UTSA* × *Ln(Sales)* specified. The results show clear and consistent evidence that a positive and 1% statistically significant relationship holds with the alternative measures of financial leverage. For example, a firm that moves from the 25th percentile to the 75th percentile in *Ln(Sales)* adjusts their net market leverage upward 3.68 (=0.013 × [6.545-3.717]) percentage points after the adoption of the UTSA. Hence, the largest firms located in states with enacted UTSA laws differentially increase their financial leverage. My findings suggests that the relation between the intersection of the UTSA and the natural logarithm of sales is robust to alternative financial leverage measures.

[**Insert Table 8 Here**]

5.5. UTSA, Innovative Activity, and Financial Leverage

Having established the positive relation between large firms with strengthened trade secrets protection and financial leverage, I now turn to examining cross-sectional variation in innovative activity and UTSA, and its effect on firms' debt ratios. These tests are carried out to gain a greater understanding of the mechanisms underlying my main findings detailed in Section 5.2.

In columns 1 - 4 of Panel A, Table 9, I explore the relation between UTSA protection, firm-level innovative activity and book leverage. Following Denis and McKeon (2016), I create an indicator variable set to one if a firm has R&D expenditure greater than 0.02. Column 1 indicates that businesses located in UTSA enacting states that have high levels of R&D intensity reduced book leverage by 2.8 percentage points. Thus, it appears, without differentiating on size, firms highly-dependent on R&D do not finance this activity with debt (e.g., Bradley, Jarrell, and Kim 1984, among others), even after trades secrets laws become stronger.

[**Insert Table 9 Here**]

Columns 2 – 4 consider the interaction of covered firms and three patent measures commonly employed in the corporate innovation literature (e.g., Hall, Jaffe, and Trajtenberg 2005, Atanassov 2013, Bena and Li 2014, Chu, Tian and Wang 2015, Bradley, Kim and Tian 2016, and Kogan, Papanikolaou, Seru, and Stoffman 2016). Specifically, I use the natural logarithm of one plus patents, the natural logarithm of one plus citation-weighted patents, and the natural logarithm of one plus stock-market weighted patents.[16] I find positive and significant coefficients of 0.060, 0.016, and 0.021 for firms with increased protection

[16] I thank Noah Stoffman for making this data available on his website: https://iu.app.box.com/v/patents.

from UTSA and with higher levels of the three respective patent variables. This seems consistent with the findings from Png (2016) and Dass et al. (2015) in that increases in trade secrets protection decreased patent applications. Thus, previously successful patent applicants fund their innovative activity with debt after state-level strengthening of the secrecy mechanism.

In Panel B of Table 9, I find roughly similar results in magnitude and statistical significance using market leverage as the dependent variable. All of the models specified in these tests included the full set of controls, and firm and year fixed effects. I cluster robust standard errors by state of location since treatment is dispensed at this level.

5.6. UTSA, Firm Size and Bankruptcy Costs

My findings appear to indicate that firms which are larger in size, and have pre-existing patent portfolios increase their use of debt financing after becoming better protected by trade secrets laws. This is suggestive that firms whose innovative risk is reduced by the UTSA are less likely to default and therefore take advantage of the benefits of debt (Miller 1977). I attempt to more explicitly test this hypothesis by considering the effect of UTSA on operating leverage as well as the effect the law had on larger firms' probability of default, and operating cash flow volatility using commonly employed proxies.

First, testing the effect of the UTSA on operating leverage, as defined by the composition of a firm's fixed to variable costs, provides insight into how sensitive a company is to general business conditions. If a company has greater amounts of variable relative to fixed costs, its expenses rise and fall with its level of productivity. In contrast, high fixed costs firms are characterized as having higher operating leverage and are more susceptible to negative cash flow shocks. Thus, if a firm experiences a negative change in sales, and as consequence, suffers an even larger reduction in earnings, than this company has greater operating leverage.

Following Eisfeldt and Papanikolaou (2013) and Serfling (2016), I investigate the relation between operating leverage and increases in trade secrets protection using the following regression specification[17]:

$$\Delta\, Ln(EBIT)_{isjt} = \gamma_i + \omega_t + \beta_1 UTSA_{st} + \beta_2 \Delta\, Ln(Sales_{it}) + \beta_3 \big(UTSA \times \Delta\, Ln(Sales)\big)_{ist} + \alpha X_{isjt} + \varepsilon_{isjt}\ , (2)$$

where $EBIT_{it}$ is earnings before interest and taxes, γ_i and ω_t are, respectively, firm and year fixed effects, $UTSA_{st}$ is a continuous variable, scaled between 0 and 1, which accounts for pre-existing trade secrets protection by measuring the change in strength once the UTSA law is enacted in year t in state s, $\Delta\, Ln(Sales_{it})$ is the natural logarithm of the change in firm sales centered by its sample mean, and X_{isjt} is the full set of controls from the main leverage regressions. The standard errors are robust and clustered by the state of location.

[17] My motivation for testing the operating leverage of better protected firms stems from the likelihood that fixed expenses on maintaining secrecy (such as attorney fees and security guards, systems, etc.) are plausibly reduced after the passage of the UTSA.

The main variable of interest is the interaction between the $UTSA_{st}$ protection index and the percentage change in firm sales. Column 1 of Table 10 indicate that earnings sensitivity to changes in sales is significantly less for firms protected by the UTSA. In particular, interpreting the estimated coefficients implies that, prior to state-level enactment of the UTSA, a 1% decrease in sales is associated with a 1.28% decrease in earnings for a firm with an average change in sales. However, UTSA protected firms experiencing a change in sales realize a 0.21% reduction in operating leverage. Column 2 suggests that large firms covered by the UTSA do not experience a differential reduction in operating leverage. Thus, the evidence suggest that the UTSA reduced operating leverage for *all* protected firms, but only the largest companies are able to capitalize (e.g., R&D expenditure (Png 2017), and debt ratios). Moreover, the coefficient on the IDD indicator variable is insignificant.

[**Insert Table 10 Here**]

Next, I investigate the relation between the probability of default and trade secrets protection. If a firm, in which trade secrets are a very important form of IP protection, experiences an increase in the strength of secrecy laws, this should reduce the misappropriability of future cash flows, and, all else equal, reduce the likelihood of bankruptcy. I use the following regression model to test this prediction:

$$Z_{isjt+1} = \gamma_i + \omega_t + \beta_1 UTSA_{st} + \beta_2 Size_{it} + \beta_3 (UTSA \times Size)_{ist} + \alpha X_{isjt} + \varepsilon_{isjt}\,, \qquad (3)$$

where Z_{t+1} is the next period probability of default proxied by modified Altman's Z-score (Mackie-Mason 1990), and the remaining variables are identical to those specified in the full leverage model.

First, however, in column 3 of Table 10, I examine if the UTSA lowers the likelihood of bankruptcy for the average firm in my sample, excluding the interaction term effect, β_3. The coefficient on the protection index is negative but not significantly different from zero. Further, the interaction $UTSA_{st} \times Z_{it}$ is negative but insignificant. Next, I estimate model 3 in column 4, and show that large firms protected by the UTSA are associated with a 10.5 (=0.049 × 2.137) percentage point decrease in next year's probability of default for every one standard deviation increase in *Ln(Sales)*. So far, these findings suggest that large firms located in UTSA passing states increase financial leverage as a response to the reduction in their financial distress costs. In contrast, firms located in IDD passing states do not have lower next period *Mod Z-scores* in my sample.

The next test examines if a reduction in future cash flow volatility is a channel through which trade secrets protection reduces bankruptcy costs. I employ the following model:

$$Vol_{isjt+1} = \gamma_i + \omega_t + \beta_1 UTSA_{st} + \beta_2 Size_{it} + \beta_3 (UTSA \times Size)_{ist} + \alpha X_{isjt} + \varepsilon_{isjt}\,, \qquad (4)$$

where Vol_{it+1} is the rolling standard deviation of firm $i's$ operating cash flows over the past ten years leaded one-year into the future, and the other regressors are identical to the main debt ratio regressions.[18]

[18] In addition, my results are robust to estimating the cash flow volatility measure over the past five years instead.

Columns 5 and 6 in Table 10 indicates that large firms protected by the UTSA associate with a reduction of 1.1 (=0.004 × [6.545-3.717]) percentage points in the volatility of cash flows for a move from the 25th to the 75th percentile in *Ln(Sales)*. I interpret this finding as firms with stronger trade secrets protection are less at risk for rival firms misappropriating secrets and thus more likely to sustain the indefinite stream of future cash flows generated by the economically valuable, confidential information. Overall, the findings in Table 10 are consistent with increased trade secrets protection for larger firms decreasing operating leverage, the probability of default, and the volatility of cash flows. Also of note, consistent with Klasa et al. (2017), I do not find evidence that the positive relation between IDD and financial leverage stems from a reduction in bankruptcy costs, as none of the coefficients of interest predict a significant reduction in any of the three default cost proxy regressions.

5.7. UTSA, Probability of Default, and Financial Leverage

In this section, I further explore if the trade-off theory of capital structure (Myers 1977) is a potential channel that explains my results by testing if firms characterized as having higher likelihoods of default, that become better protected by the UTSA increase their financial leverage. That is, I center the modified Altman's Z-Score with its sample mean, and then interact it with the UTSA index. Then, I regress *Book Leverage* and *Market Leverage*, separately, on *UTSA* × *Mod Z-score* plus control variables to determine if in fact there is a positive and significant relation between financial leverage and default risky firms that experience an increase in trade secrets protection. As in the previous tests, I include the full spectrum of control variables, firm and year fixed effects, and cluster robust standard errors by state of location. The results are presented in Table 11.

[**Insert Table 11 Here**]

Column 1 of Table 11 indicates that current period book leverage is adjusted upward for firms that are located in UTSA passing states and concurrently have higher modified Z-scores. For instance, a one standard deviation increase in *Mod Z-score* leads to a 6.4 (=0.025 × 2.544) percentage point increase in *Book Leverage*. Column 2 finds a qualitatively similar coefficient of 0.019, significant at the 5% level, for a predictive regression in which the dependent variable is leaded one period (t+1). Columns 3 and 4 are identical to those described above with the one exception that market leverage is specified on the left-hand side. Again, the results suggest that firms more likely to file for bankruptcy increase their debt ratios after their trade secrets become better protected. These results, in conjunction with those reported in Section 5.2-6, provide suggestive evidence that large firms located in UTSA adopting states adjust their financial leverage upward because their bankruptcy costs are reduced, consistent with trade-off theory.[19]

5.8. UTSA and Long-term Firm Value

[19] I also run regressions of *Book Leverage* and *Market Leverage*, both contemporaneous and leaded one-period, on the IDD indicator variable interacted with *Mod Z-score* and find insignificant coefficients.

The previous findings indicate that increases in trade secrets protection are met with a proliferation of debt for large firms. To assess the economic significance of these results I explore the firm value implications of the UTSA index interacted with firm size. To the best of my knowledge, I am the first to study the effect of trade secrets protection on long-term firm value. However, previous research has investigated if the IDD was beneficial for shareholders in the short-run using an event study methodology. Klasa et al. (2017) and Qiu and Wang (2017) both find positive and significant abnormal stock returns for firms headquartered in states that announce the adoption of IDD. The latter paper also finds a negative and significant market reaction for firms located in states around the rejection date of the IDD. These findings are not directly comparable to those I present in Table 12 for the following three reasons. First I study an entirely different law which protects trade secrets differently than the IDD. This is evidenced in the findings above as I document that states with IDD are less likely to adopt the UTSA. Further, even after controlling for the doctrine, there is an effect of the statutes for large firms on capital structure decision-making, Second, I am considering the long-term value implications proxied with Tobin's Q and Total Tobin's Q, whereas the other studies focus on short-term stock returns. Lastly, the channel in which Klasa et al. (2017) identifies – conservatism – is different than what I find – trade-off theory – and argue is the reason for the possible changes in long-term firm value.

In order to study the value implications of the UTSA for large firms I estimate the following model:

$$Q_{isjt} = \gamma_i + \omega_t + \beta_1 UTSA_{st} + \beta_2 Size_{it} + \beta_3 (UTSA \times Size)_{ist} + \alpha X_{isjt} + \varepsilon_{isjt}\ , \qquad (5)$$

where Q_{it} is one of two measures for firm i, located in state s, operating within industry j, in period t. The first proxy for firm value is the standard measure of Tobin's Q used frequently by the governance literature (e.g., Straska and Waller 2014, and Cremers, Litov, and Sepe forthcoming) and specified in Fama and French (1992), whereas the second is a new measure introduced by Peters and Taylor (2017)[20], defined at Total Tobin's Q or Total Q for short, which is estimated to account for intangible assets. Table A2 in the appendix provides descriptions of each. In addition, equation 5 identically specifies the other regressors as in the main debt ratio regressions, with the one exception of excluding *M/B* and replacing it with *Book Leverage*. Table 12 reports the staggered DID regression estimates from the above model 5.

[**Insert Table 12 Here**]

Columns 1 and 4 in Table 12 explores if there is any effect of UTSA on firm value for the average firm in my sample. I find a positive and insignificant result with Tobin's Q as the dependent variable, and a negative and insignificant coefficient for the Total Tobin's Q regression. Also of note, I specify the IDD indicator variable and find a positive, but insignificant estimate in both specifications. Thus, while IDD has been found to increase financial leverage (Klasa et al. 2017), I don't find any long-term value implications

[20] I thank Ryan Peters and Lucian Taylor for making their Total Q measure available on WRDS: http://www.whartonwrds.com/datasets/included/luke-taylors-total-q/

for the average firm in my sample. Next, in columns 2 and 5, I interact the UTSA index with the centered *Ln(Sales)* measure, include control variables for *Profitability*, *Book Leverage*, *Fixed Assets*, *Div Payer*, and *Mod Z-score*, and find a positive coefficient, significant at the 1% level. Finally, I append the full spectrum of controls, including state, political, and industry variables, in columns 3 and 6, and find that large firms that become better protected experience increases in long-term value. For example, an increase in *Ln(Sales*) from its median to the 75th percentile yields a 27.6 (=0.198 × [6.545 – 5.153]) percentage point rise in Tobin's Q and a 38.4 percentage point improvement in Total Tobin's Q (=0.276 × [6.545 – 5.153]), respectively. The results from Table 12 indicate that better trade secrets protection, which reduces bankruptcy costs and increases financial leverage for large firms, is incredibly valuable.

6. Conclusion

I examine the effect of increased trade secrets protection on financial leverage. In order to deal with endogeneity and isolate causal relationships, my identification strategy exploits the staggered adoption of state-level trade secrets laws. The UTSA increased the protection of trade secrets for firms by precisely defining a trade secret, outlining what constitutes misappropriation, and clarifying the rights and remedies of firms victimized by competitors, hence decreasing the resources required to prevent theft and recover losses. I find suggestive evidence for its exogeneity as an instrument using a Cox proportional hazard model, in which firm-level, state-level, and industry-level financial leverage ratios are unable to explain its adoption, providing support against reverse causality.

Based on survey evidence from the BRDIS and recent empirical work by Png (2016, 2017), Dass et al. (2015), and Figueroa and Serrano (2013), I consider the impact of the UTSA on large firm's capital structure decision-making. I employ a difference-in-differences framework in order to contrast the book and market leverage ratios of firms with higher levels of sales located in states covered by legislation with firms headquartered in states without such coverage. I find an economically and statistically significant increase in both measures of debt for large UTSA firms. These results hold even after controlling for another trade secrets law, the IDD. Moreover, I document, using a dynamic regression specification, that the effect transpires one year or more after the adoption of the law. Most importantly, there is no significant relation in the year prior to its passage, assuaging concerns of lobbying and anticipatory effects. In addition to the falsification tests, I further use alternative definitions of leverage and size to interpret the findings causally.

I also explore the effect of R&D intensity, and pre-existing patent portfolios on leverage for firms covered by the UTSA. My results suggest that firms with higher levels of R&D expenditure and increased protection decrease leverage, consistent with the literature on financing innovation. Further, I show a positive relation with financial leverage and UTSA covered firms with greater amounts of patents, citation-weighted patents, and stock market-weighted patents, consistent with Png (2016), and Dass et al. (2015). Next, I examine the impact of UTSA on operating leverage, probability of default, and cash flow volatility.

Overall, the results from these tests suggest that the UTSA decreases operating leverage, and large firms protected by these laws have lower likelihoods of bankruptcy and reduced risk in future streams of operating cash flows. I show that firms with higher likelihoods of default adjust their debt ratios upward after becoming protected by the state statute. In tandem, this evidence seems to suggest that large firms are increasing their financial leverage in response to a reduction in bankruptcy costs, consistent with the trade-off theory of capital structure. I find that this relation yields positive long-term firm value effects. Hence, some things might be best kept secret.

References

Acharya, VV, Baghai, RP, Subramanian, KV (2014) Wrongful discharge laws and innovation. *Rev. Financial Stud.* 27(1): 301-346.

Acharya, VV, Subramanian, KV (2009) Bankruptcy codes and innovation. *Rev. Financial Stud.* 22(12): 4949-4988.

Agrawal, AK, Matsa, DA (2013) Labor unemployment risk and corporate financing decisions. *J. Financial Econom.* 108(2): 449-470.

Aiken, LS, West, SG, Reno, RR (1991) *Multiple regression: Testing and interpreting interactions* (Sage, Newbury Park, CA).

Akerlof, GA (1970) The market for "lemons": Quality uncertainty and the market mechanism. *Quart. J. Econom.* 84(3): 488-500.

Alderson, MJ, Betker, BL (1995) Liquidation costs and capital structure. *J. Financial Econom.* 39(1): 45-69.

Alderson, MJ, Betker, BL (1996) Liquidation costs and accounting data. *Financial Management* 25(2): 25-36.

Almeida, H, Philippon, T (2007) The risk-adjusted cost of financial distress. *J. Finance* 62(6): 2557-2586.

Andrade, G, Kaplan, SN (1998) How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed. *J. Finance* 53(5): 1443-1493.

Anton, JJ, Yao, DA (2002) The sale of ideas: Strategic disclosure, property rights, and contracting. *Rev. Econom. Stud.* 69(3): 513-531.

Arrow, KJ (1962) Economic welfare and the allocation of resources for invention. Groves HM, ed. *The Rate and Direction of Inventive Activity: Economic and Social Factors* (Princeton University Press, Princeton, NJ), 609-626.

Atanassov, J (2013) Do hostile takeovers stifle innovation? Evidence from antitakeover legislation and corporate patenting. *J. Finance* 68(3): 1097-1131.

Bhattacharya, S, Ritter, JR (1983) Innovation and communication: Signaling with partial disclosure. *Rev. Econom. Stud.* 50(2): 331-346.

Bena, J., Li, K (2014) Corporate innovations and mergers and acquisitions. *J. Finance* 69(5): 1923-1960.

Berger, AN, Udell, GF (1990) Collateral, loan quality and bank risk. *J. Monetary Econom.* 25(1): 21-42.

Bertrand, M, Mullainathan, S (2003) Enjoying the quiet life? Corporate governance and managerial preferences. *J. Political Econom.* 111(5): 1043-1075.

Bertrand, M, Duflo, E, Mullainathan, S (2004) How much should we trust differences-in-differences estimates?. *Quart. J. Econom.* 119(1): 249-275.

Blair, MM, Litan, RE (1990) *Corporate leverage and leveraged buyouts in the eighties* (Brookings Institution, Washington, DC).

Blass, A, Yosha, O (2003) Financing R&D in mature companies: An empirical analysis. *Econom. Innovation New Tech.* 12(5): 425-447.

Bradley, D, Kim, I, Tian, X (2016) Do unions affect innovation?. *Management Science*, Articles in Advance, 1-21.

Bradley, M, Jarrell, GA, Kim, E (1984) On the existence of an optimal capital structure: Theory and evidence. *J. Finance* 39(3): 857-878.

Brown, JR, Fazzari, SM, Petersen, BC (2009) Financing innovation and growth: Cash flow, external equity, and the 1990s R&D boom. *J. Finance* 64(1): 151-185.

Brown, JR, Martinsson, G, Petersen, BC (2013) Law, stock markets, and innovation. *J. Finance* 68(4): 1517-1549.

Chava, S, Oettl, A, Subramanian, A, Subramanian, KV (2013) Banking deregulation and innovation. *J. Financial Econom*. 109(3): 759-774.

Chu, Y, Tian, X, Wang, W (2015) Learning from customers: Corporate innovation along the supply chain. Working paper, University of South Carolina, Columbia.

Chung, KH, Wright, P (1998) Corporate policy and market value: A q-theory approach. *Rev. Quant. Finance Account.* 11(3): 293-310.

Contigiani, A, Barankay, I, Hsu DH (2016) Trade secrets and innovation: Evidence from the 'Inevitable Disclosure' doctrine. Working paper, University of Pennsylvania, Philadelphia.

Cornell, B, Shapiro, AC (1988) Financing corporate growth. *J. Applied Corp. Finance* 1(2): 6-22.

Cremers, M, Litov, LP, Sepe, SM (forthcoming) Staggered boards and long-term firm value, revisited. *J. Financial Econom*.

Danis, A, Rettl, DA, Whited, TM (2014) Refinancing, profitability, and capital structure. *J. Financial Econom.* 114(3): 424-443.

Dass, N, Nanda, VK, Xiao, SC (2015) Intellectual property protection and financial markets: Patenting vs. secrecy. Working paper, Georgia Tech University, Atlanta.

Dass, N, Nanda, VK, Xiao, SC (2017) Is there a local culture of corruption in the U.S.?. Working paper, Georgia Tech University, Atlanta.

DeAngelo, H, Roll, R (2015) How stable are corporate capital structures?. *J. Finance* 70(1): 373-418.

Denis, DJ, McKeon, SB (2016) Operating losses and cash holdings. Working paper, University of Pittsburgh, Pittsburgh.

Eisfeldt, AL, Papanikolaou, D (2013) Organization capital and the cross-section of expected returns. *J. Finance* 68(4): 1365-1406.

Fama, EF, French, KR (1992) The cross-section of expected stock returns. *J. Finance*, 47(2): 427-465.

Fama, EF, French, KR (2002) Testing trade-off and pecking order predictions about dividends and debt. *Rev. Financial Stud.* 15(1): 1-33.

Fich, EM, Harford, J, Yore, AS (2016) The effect of takeover protection on the value of cash: Evidence from a natural experiment. Working paper, Drexel University, Philadelphia.

Figueroa, N, Serrano, CJ (2013) Patent trading flows of small and large firms. NBER Working Paper 18982, National Bureau of Economic Research, Cambridge, MA.

Frank, MZ, Goyal, VK (2008) Trade-off and pecking order theories of debt. *Handbook of Corporate Finance: Empirical Corporate Finance* (Elsevier, Oxford, UK).

Frank, MZ, Goyal, VK (2015) The profits–leverage puzzle revisited. *Rev. Finance* 19(4): 1415-1453.

Gao, H, Ma, Y (2016) Human capital driven acquisition: Evidence from the Inevitable Disclosure Doctrine. Working paper, Nanyang Technological University, Singapore.

Giroud, X, Mueller, HM (2010) Does corporate governance matter in competitive industries?. *J. Financial Econom.* 95(3): 312-331.

Glover, B (2016) The expected cost of default. *J. Financial Econom.* 119(2): 284-299.

Gormley, TA, Matsa, DA (2014) Common errors: How to (and not to) control for unobserved heterogeneity. *Rev. Financial Stud.* 27(2): 617-661.

Graham, J, Harvey, C (2002) How do CFOs make capital budgeting and capital structure decisions?. *J. Applied Corp. Finance* 15(1): 8-23.

Guo, F, Nanda, VK, Pevzner, M (2016) The effects of trade secret protections on financial reporting opacity: Evidence from a natural experiment. Working paper, University of Kansas, Lawrence.

Hackbarth, D, Mathews, R, Robinson, D (2014) Capital structure, product market dynamics, and the boundaries of the firm. *Management Science* 60(12): 2971-2993.

Hall, BH (1993) R&D tax policy during the 1980s: success or failure?. *Tax Policy Econom.* 7: 1-35.

Hall, BH (1994) Corporate restructuring and investment horizons in the United States, 1976–1987. *Bus. Hist. Rev.* 68(01): 110-143.

Hall, BH (2002) The financing of research and development. *Oxford Rev Econom Policy* 18(1): 35-51.

Hall, BH, Jaffe, A, Trajtenberg, M (2005) Market value and patent citations. *RAND J. Econom*. 36(1): 16-38.

Hall, BH, Lerner, J (2010) The financing of R&D and innovation. *Handbook Econom. Innovation* 1: 609-639.

Hall, BH, Helmers, C, Rogers, M, Sena, V (2014) The choice between formal and informal intellectual property: A review. *J. Econom. Lit.* 52(2): 375-423.

Harris, M, Raviv, A (1991) The theory of capital structure. *J. Finance* 46(1): 297-355.

Jaccard, J, Turrisi, R (2003) *Interaction Effects in Multiple Regression*. (Sage, Newbury Park, CA).

Jaccard, J, Wan, CK, Turrisi, R (1990) The detection and interpretation of interaction effects between continuous variables in multiple regression. *Multi. Behavioral Res.*, 25(4): 467-478.

Jaffe, AB (1986) Technological opportunity and spillovers of R&D. *Amer. Econom. Rev.* 76(5): 984-1001.

Jensen, MC, Meckling, WH (1976) Theory of the firm: Managerial behavior, agency costs and ownership structure. *J. Financial Econom.* 3(4): 305-360.

Karpoff, JM, Wittry, MD (2016) Institutional and legal context in natural experiments: The case of state antitakeover laws. Working paper, University of Washington, Seattle.

Kisgen, DJ (2009) Do firms target credit ratings or leverage levels?. *J. Financial Quant. Analysis* 44(6): 1323-1344.

Klasa, S, Ortiz-Molina, H, Serfling, M, Srinivasan, S (2017) Protection of trade secrets and capital structure decisions. Working paper, University of Arizona, Tucson.

Kogan, L, Papanikolaou, D, Seru, A, Stoffman, N (forthcoming) Technological innovation, resource allocation, and growth. *Quart. J. Econom*.

Kopelman, J (2012) The defunct startup that beat Best Buy in court. *Fortune* (December 5), http://fortune.com/2012/12/05/the-defunct-startup-that-beat-best-buy-in-court/.

Leary, MT, Roberts, MR (2005) Do firms rebalance their capital structures?. *J. Finance* 60(6): 2575-2619.
Leland, HE, Pyle, DH (1977) Informational asymmetries, financial structure, and financial intermediation. *J. Finance* 32(2): 371-387.
Lemmon, ML, Roberts, MR, Zender, JF (2008) Back to the beginning: persistence and the cross-section of corporate capital structure. *J. Finance* 63(4): 1575-1608.
Lin, C, Wei, L, Wu, H. Operational uncertainty and managerial incentives in information production. Working Paper, University of Hong Kong, Pokfulam.
MacKie-Mason, JK (1990) Do taxes affect corporate financing decisions?. *J. Finance* 45(5): 1471-1493.
Matsa, DA (2010) Capital structure as a strategic variable: Evidence from collective bargaining: *J. Finance* 65(3): 1197-1232.
Miller, MH (1977) Debt and taxes. *J. Finance 32*(2): 261-275.
Myers, SC (1977) Determinants of corporate borrowing. *J. Financial Econom.* 5(2): 147-175.
Nelson, RR (1959) The simple economics of basic scientific research. *J. Political Econom.* 67(3): 297-306.
Opler, T, Titman, S (1993) The determinants of leveraged buyout activity: Free cash flow vs. financial distress costs. *J. Finance* 48(5): 1985-1999.
Opler, TC, Titman, S (1994) Financial distress and corporate performance. *J. Finance* 49(3): 1015-1040.
Peters, RH, Taylor, LA (2017) Intangible capital and the investment-q relation. *J. Financial Econom.* 123(2): 251-272.
Pirinsky, C, Wang, Q (2006) Does corporate headquarters location matter for stock returns?. *J. Finance* 61(4): 1991-2015.
Png, IP (2017) Law and innovation: Evidence from state trade secrets laws. Rev. Econom. Stat. 99(1): 167-179.
Png, IP (2016) Secrecy and patents: Evidence from the Uniform Trade Secrets Act. Working paper, National University of Singapore, Singapore.
Png, IP, Samila, S (2015) Trade secrets law and mobility: Evidence from 'Inevitable Disclosure'. Working paper, National University of Singapore, Singapore.
Pooley, J, (1997-) Trade secrets. *Intellectual Property Series* (Law Journal Press, New York, New York).
Qui, B, Wang, T (2017) Does knowledge protection benefit shareholders? Evidence from stock market reaction and firm investment in knowledge assets." Working paper, Finance and Economics Discussion Series 2017-012.
Rajan, RG, Zingales, L (1995) What do we know about capital structure? Some evidence from international data. *J. Finance* 50(5): 1421-1460.
Reindl, J, Stoughton, N, Zechner, J (2016) Market implied costs of bankruptcy. Working paper.
Roberts, MR, Whited, TM (2013) Endogeneity in empirical corporate finance. *Handbook of the Economics of Finance*, *2*, 493-572.
Romanosky, S, Telang, R, Acquisti, A (2011) Do data breach disclosure laws reduce identity theft?. *J. Policy Analysis Management*, 30(2): 256-286.
Sapra, H, Subramanian, A, Subramanian, KV (2014) Corporate governance and innovation: Theory and evidence. *J. Financial Quant. Analysis*, 49(04): 957-1003.
Serfling, M (2016) Firing costs and capital structure decisions. *J. Finance* 71(5): 2239-2286.
Stiglitz, JE, Weiss, A (1981) Credit rationing in markets with imperfect information. *Amer. Econom. Rev.* 71(3): 393-410.
Stiglitz, JE (1985) Credit markets and the control of capital. *J. Money Credit Banking* 17(2): 133-152.
Straska, M, Waller, HG (2014) Antitakeover provisions and shareholder wealth: A survey of the literature. *J. Financial Quant. Analysis* 49(4): 933-956.
Titman, S, Wessels, R (1988) The determinants of capital structure choice. *J. Finance 43* (1988): 1-19.
Uniform Law Commission (1979, am. 1985) Uniform trade secrets act. http://www.uniformlaws.org/shared/docs/trade%20secrets/utsa_final_85.pdf
Welch, I (2004) Capital structure and stock returns. *J. Political Econom.* 112(1): 106-132.
Williamson, OE (1988) Corporate finance and corporate governance. *J. Finance* 43(3): 567-591.
Wilson, DJ (2009) Beggar thy neighbor? The in-state, out-of-state, and aggregate effects of R&D tax credits. *Rev. Econom Stats.* 91(2): 431-436.

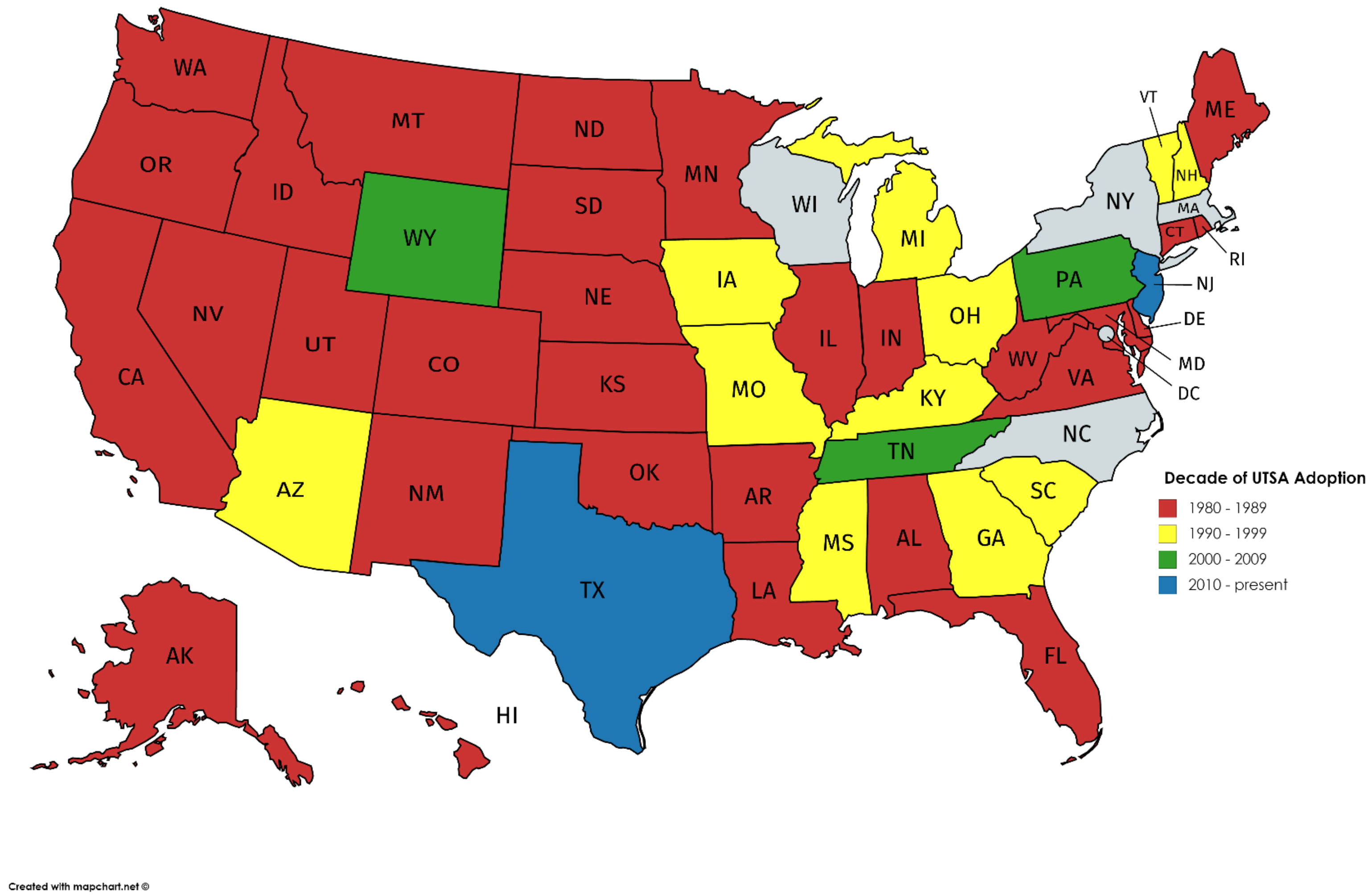

Figure 1: States with a Uniform Trade Secrets Act statute. The chart above shows the states that have adopted a UTSA statute by decade. States colored with red indicates passage of a law during the period 1980 to 1989. Yellow colored states denotes legalization of UTSA from 1990 to 1999. The green colored states adopt UTSA in the 2000 to 2009 period. States in blue passed a UTSA statute from 2010 to the present, and the four grey colored states are without such legislation.

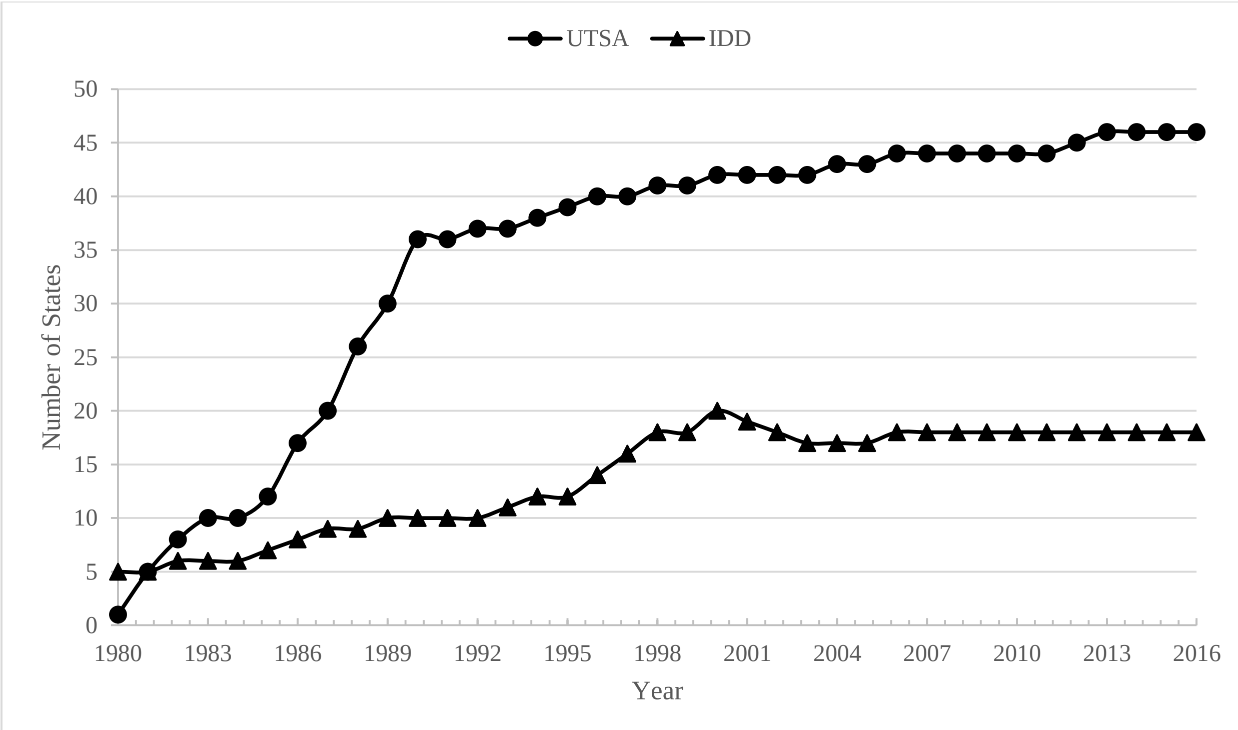

Figure 2. Number of states with trade secrets protection. This figure displays the number of states that have passed the Uniform Trade Secrets Act (UTSA) legislatively, and the number of states that adopted the Inevitable Disclosure Doctrine (IDD) judicially, from 1980 to 2016.

Table 1: Importance of Different IP Mechanisms to U.S. Firms in 2013 (%)

This table reports the most recently published responses to the National Science Foundation's National Center for Science and Engineering's annual Business Research and Development and Innovation Survey (BRDIS) question: "how important to your company were the following types of intellectual property protection?" (Form BRDI-1, 2013, p.45). The target responders, which are composed of for-profit companies with at least five or more paid employees, a minimum of one business establishment in operation during the survey year, and performs some form of R&D activity all within the United States in 2013, are provided the following answer choices: "very important," "somewhat important," and "not important." Size is measured by the number of domestic employees. I average the reported BRDIS percentages for businesses with 5 – 499 and 500 – 999, 1,000 – 4,999 and 5,000 – 9,999, and 10,000 -24,999 and 25,000 or more domestic employees to construct the three size categories shown below. The rows may not sum to one hundred due to rounding.

Source: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2013.

IP mechanism	Importance by size	Very important	Somewhat important	Not important
Trade secrets	All companies	57.2	19.9	22.8
	5 – 999	56.0	23.3	20.8
	1,000 – 9,999	68.3	20.5	11.4
	10,000 or more	80.5	13.2	6.4
Utility patents	All companies	51.0	15.8	33.2
	5 – 999	49.1	18.2	32.8
	1,000 – 9,999	64.7	17.4	18.0
	10,000 or more	73.5	15.0	11.6
Trademarks	All companies	43.4	31.3	25.3
	5 – 999	47.3	29.7	23.1
	1,000 – 9,999	69.7	19.6	10.7
	10,000 or more	81.7	12.9	5.4
Copyrights	All companies	27.2	33.8	39.0
	5 – 999	27.3	34.5	38.3
	1,000 – 9,999	34.6	42.3	23.2
	10,000 or more	43.9	44.2	12.0
Design patents	All companies	24.3	27.4	48.3
	5 – 999	24.3	27.9	47.9
	1,000 – 9,999	26.4	30.6	43.0
	10,000 or more	28.3	41.1	30.7

Table 2: Explaining the Adoption of UTSA Statutes

This table reports Cox proportional hazard model results for the state-level adoption of the Uniform Trade Secrets Act (UTSA) as a function of the level of firm-specific book leverage, the average state-year book leverage, and the average industry-year book leverage, where firm *i* is excluded from the calculation in the latter two measures, and industry is defined by three-digit SIC code, plus other state-level characteristics. The sample is composed of Compustat industrial firms from 1975 to 2003. The dependent variable is an indicator equal to one if a state has passed the UTSA, and zero otherwise. This passage of the statute is the "failure event" and as such all firms headquartered in a UTSA state are dropped from the sample after adoption. The coefficients reported below are the corresponding hazard ratios. All continuous variables have been winsorized at the 1st and 99th percentiles and then standardized to have zero mean and unit variance. The explanatory variables are lagged one period (*t*–1). I estimate robust standard errors clustered by state of location and present in parentheses below the coefficients. The dollar values are expressed in 2001 dollars. Table A2 in the appendix provides variable definitions. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable is an indicator for UTSA adoption				
	(1)	(2)	(3)	(4)
Book Leverage	0.999	0.996	0.998	1.003
	(-0.04)	(-0.13)	(-0.07)	(0.12)
SY Book Leverage	1.356	1.379	1.399	1.414
	(0.98)	(0.89)	(1.20)	(1.07)
IY Book Leverage	0.962	0.964	0.974	0.966
	(-0.79)	(-0.80)	(-0.63)	(-0.91)
SY Ln(Sales)	0.858	0.649	0.699	0.714
	(-1.08)	(-1.45)	(-1.00)	(-0.83)
IDD	0.116***	0.107***	0.105***	0.110**
	(-2.80)	(-2.89)	(-2.84)	(-2.56)
R&D/Sales		1.006	1.011	1.022
		(0.15)	(0.25)	(0.60)
R&D Tax Credit		0.505	0.501	0.429
		(-0.69)	(-0.72)	(-0.68)
SY Ln(Patents)		1.054	1.093	1.175
		(0.12)	(0.18)	(0.32)
SY Mod Z-score		1.541	1.478	1.855
		(0.86)	(0.83)	(1.21)
Ln(State GDPPC)			1.091	1.188
			(0.20)	(0.33)
State GDPG			1.525	1.603
			(1.55)	(1.43)
Percent Republican			1.279	1.338
			(1.27)	(1.45)
State Property Crime Rate				1.246
				(0.55)
State Corruption				0.839
				(-0.40)
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	43,401	43,380	43,380	43,380
Number of Failures	1,376	1,376	1,376	1,376
Pseudo R^2	0.043	0.046	0.055	0.058

Table 3: State-Level Trade Secrets Protection

This table reports the year when the Uniform Trade Secrets Act (UTSA) became effective in each state that passed the legislation.[23] The data on the *level* of common law trade secrets protection is provided by Png (2017) and can be found on the *Review of Economics and Statistics* webpage: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/BFP2IC. Further, the *change* in protection granted by the effective UTSA statute are reproductions of Table 1 from Png (2016). I also provide the number of unique firms located in a given state at any time in the sample, as well as the overall total. For a description of how common law and UTSA protection are measured please see Section 4.2 or Table A1 in the appendix, which gives a reproduction from Png (2017).

State	Effective Year of UTSA	Common Law	Effective Statute (Δ in Protection)	# Firms Located in the State
Alabama	1987	0.25	0	48
Alaska	1988	0	0.47	6
Arizona	1990	0.25	0.22	145
Arkansas	1981	0.5	-0.1	32
California	1985	0.22	0.25	1573
Colorado	1986	0	0.77	307
Connecticut	1983	0	0.47	246
Delaware	1982	0	0.47	28
Florida	1988	0.1	0.37	462
Georgia	1990	0	0.7	251
Hawaii	1989	0	0.47	10
Idaho	1981	0	0.47	20
Illinois	1988	0	0.7	385
Indiana	1982	0	0.47	91
Iowa	1990	0	0.47	40
Kansas	1981	0	0.47	68
Kentucky	1990	0	0.47	47
Louisiana	1981	0	0.4	46
Maine	1987	0	0.5	8
Maryland	1989	0.22	0.25	157
Massachusetts		0.27	0	510
Michigan	1998	0.25	0.15	215

[23] New Jersey and Texas also adopted the UTSA in 2012 and 2013, respectively. However, I only have data on the change in trade secretes protection stemming from the UTSA until 2010, which motivates my decision to end the sample period prior to that year. More recently, Massachusetts and New York have introduced bills to legalize the UTSA, but are yet to be voted on (2017 legislative sessions).

Minnesota	1980	0	0.47	278
Mississippi	1990	0	0.57	25
Missouri	1995	0	0.63	141
Montana	1985	0	0.57	7
Nebraska	1988	0	0.43	28
Nevada	1987	0	0.47	90
New Hampshire	1990	0.025	0.44	47
New Jersey		0.25	0	505
New Mexico	1989	0	0.47	18
New York		0.1	0	881
North Carolina		0	0	179
North Dakota	1983	0	0.47	5
Ohio	1994	0.25	0.28	334
Oklahoma	1986	0.025	0.44	100
Oregon	1988	0	0.47	88
Pennsylvania	2004	0.24	-0.11	379
Rhode Island	1986	0	0.47	29
South Carolina	1992	0	0.47	55
South Dakota	1988	0	0.47	8
Tennessee	2000	0	0.63	120
Texas		0.23	0	921
Utah	1989	0	0.47	92
Vermont	1996	0	0.57	10
Virginia	1986	0.025	0.44	226
Washington	1982	0	0.47	158
West Virginia	1986	0	0.47	11
Wisconsin		0	0	118
Wyoming	2006	0.5	0	5
Total Number of Unique Firms				9,553

Table 4: Summary Statistics

This table reports summary statistics for the main dependent and explanatory variables used in the main leverage regressions. Panel A presents full sample summary statistics. Panel B reports the temporal distribution of total firms, firms located in UTSA passing states, and the percent of firms affected by the trade secrets legislation by year. The sample is composed of Compustat industrial firms (excluding financials and utilities) over the period 1975 to 2003. All continuous variables, with the exception of the *UTSA*, *Common Law*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles to remove the influence of extreme outliers. The dollar values are expressed in 2001 dollars. Table A2 in the appendix provides variable definitions.

Panel A: Full Sample Descriptive Statistics

	N	Mean	Std. Dev.	P25	Median	P75
Dependent Variables						
Book Leverage	80,691	0.234	0.195	0.066	0.210	0.351
Market Leverage	80,691	0.259	0.238	0.045	0.201	0.418
Main Explanatory Variables						
UTSA Index	80,691	0.236	0.198	0.050	0.247	0.333
Common Law	80,691	0.116	0.117	0.000	0.100	0.225
Other Explanatory Variables						
Sales	80,691	1189.1	3199.5	41.13	172.9	695.7
Profitability	80,691	0.039	0.195	0.030	0.083	0.126
M/B	80,691	1.757	1.514	0.977	1.268	1.879
Fixed Assets	80,691	0.308	0.212	0.144	0.262	0.426
Div Payer	80,691	0.412	0.492	0.000	0.000	1.000
Mod Z-score	80,691	1.660	2.544	1.094	2.129	2.958
IDD	80,691	0.409	0.492	0.000	0.000	1.000
State GDPPC	80,691	38.33	6.637	33.62	37.71	42.81
State GDPG	80,691	0.070	0.035	0.046	0.067	0.090
Republican	80,691	0.420	0.180	0.333	0.419	0.500
IY Book Leverage	80,691	0.244	0.093	0.182	0.234	0.291
SY Book Leverage	80,691	0.246	0.048	0.223	0.251	0.275
IY Market Leverage	80,691	0.260	0.127	0.159	0.250	0.338
SY Market Leverage	80,691	0.259	0.075	0.211	0.258	0.311

Table 4 – *(Continued)*

Panel B: Temporal Distribution			
Year	N	UTSA	% of Firms Affected by UTSA in Year
1975	2,177	0	0.00%
1976	2,180	0	0.00%
1977	2,175	0	0.00%
1978	2,108	0	0.00%
1979	2,087	0	0.00%
1980	2,163	55	2.54%
1981	2,265	111	4.90%
1982	2,341	191	8.16%
1983	2,474	298	12.05%
1984	2,472	297	12.01%
1985	2,613	629	24.07%
1986	2,697	842	31.22%
1987	2,672	893	33.42%
1988	2,778	1,193	42.94%
1989	2,919	1,346	46.11%
1990	2,920	1,505	51.54%
1991	2,875	1,480	51.48%
1992	2,940	1,528	51.97%
1993	3,051	1,588	52.05%
1994	3,205	1,822	56.85%
1995	3,438	2,046	59.51%
1996	3,544	2,121	59.85%
1997	3,454	2,080	60.22%
1998	3,486	2,176	62.42%
1999	3,375	2,099	62.19%
2000	3,125	1,987	63.58%
2001	3,113	1,995	64.09%
2002	3,078	1,969	63.97%
2003	2,966	1,902	64.13%
Total	80,691	32,153	39.85%

Table 5: The Uniform Trade Secrets Act, Firm Size, and Financial Leverage

This table reports the results for the panel regressions of financial leverage on the interaction of the Uniform Trade Secrets Act (UTSA) and the natural logarithm of sales for Compustat industrial firms from 1975 to 2003. Panel A provides the OLS estimates with *Book Leverage* as the dependent variable. Panel B reports the results with *Market Leverage* specified as the regressand. *UTSA* is a trade secrets protection index first constructed in Png (2017). It accounts for pre-existing common law by measuring the change in protection granted via passage of the UTSA in state *s* and year *t*. *Ln(Sales)* is a proxy for firm size measured by sales revenue (specified in logarithm as the difference from its sample mean). I center the size proxy for ease of interpretation, since I am interacting two continuous variables. Table A2 in the appendix provides variable definitions. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1^{st} and 99^{th} percentiles. The dollar values are expressed in 2001 dollars. Robust standard errors are clustered at the state of location level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Dependent Variable is Book Leverage

	(1)	(2)	(3)	(4)	(5)	(6)
UTSA×Ln(Sales)		0.020***	0.020***	0.019***	0.018***	0.018***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
UTSA	-0.011	-0.020	-0.019	-0.021	-0.020	-0.021**
	(0.012)	(0.015)	(0.015)	(0.012)	(0.012)	(0.010)
Ln(Sales)	0.038***	0.018***	0.035***	0.035***	0.035***	0.035***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Profitability	0.007	-0.207***	0.009	0.009	0.008	0.008
	(0.009)	(0.019)	(0.008)	(0.008)	(0.008)	(0.008)
M/B	-0.007***	-0.005***	-0.008***	-0.008***	-0.007***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Fixed Assets	0.178***	0.227***	0.181***	0.181***	0.179***	0.178***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Div Payer	-0.048***		-0.047***	-0.047***	-0.047***	-0.047***
	(0.004)		(0.004)	(0.004)	(0.004)	(0.004)
Mod Z-score	-0.034***		-0.034***	-0.034***	-0.034***	-0.034***
	(0.003)		(0.003)	(0.003)	(0.003)	(0.003)
IDD	0.014***			0.013***		0.012***
	(0.004)			(0.004)		(0.003)
Ln(State GDPPC)	0.071***			0.074***		0.065***
	(0.020)			(0.022)		(0.020)
State GDPG	-0.046			-0.052		-0.041
	(0.029)			(0.033)		(0.028)
Republican	-0.001			0.002		0.000
	(0.008)			(0.008)		(0.008)

IY Leverage	0.115***				0.110***	0.111***
	(0.015)				(0.016)	(0.016)
SY Leverage	0.139***				0.142***	0.125***
	(0.038)				(0.039)	(0.035)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	80,691	80,691	80,691	80,691	80,691	80,691
Adjusted R^2	0.687	0.663	0.687	0.687	0.688	0.688

Table 5 – *(Continued)*

Panel B: Dependent Variable is Market Leverage						
	(1)	(2)	(3)	(4)	(5)	(6)
UTSA×Ln(Sales)		0.013***	0.012***	0.011***	0.011***	0.010**
		(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
UTSA	-0.002	0.000	0.001	-0.001	-0.006	-0.007
	(0.013)	(0.016)	(0.015)	(0.014)	(0.012)	(0.011)
Ln(Sales)	0.045***	0.024***	0.041***	0.042***	0.042***	0.043***
	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Profitability	-0.036***	-0.237***	-0.037***	-0.036***	-0.036***	-0.035***
	(0.012)	(0.034)	(0.013)	(0.013)	(0.012)	(0.012)
M/B	-0.034***	-0.033***	-0.035***	-0.035***	-0.034***	-0.034***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Fixed Assets	0.185***	0.234***	0.193***	0.192***	0.186***	0.186***
	(0.014)	(0.015)	(0.015)	(0.014)	(0.015)	(0.015)
Div Payer	-0.071***		-0.071***	-0.071***	-0.071***	-0.071***
	(0.005)		(0.005)	(0.005)	(0.005)	(0.005)
Mod Z-score	-0.031***		-0.031***	-0.031***	-0.031***	-0.031***
	(0.004)		(0.004)	(0.004)	(0.004)	(0.004)
IDD	0.013**			0.014**		0.012**
	(0.006)			(0.006)		(0.006)
Ln(State GDPPC)	0.048**			0.046**		0.046**
	(0.020)			(0.023)		(0.020)
State GDPG	-0.179***			-0.288***		-0.178***
	(0.045)			(0.074)		(0.044)
Republican	0.006			0.016*		0.007
	(0.009)			(0.009)		(0.008)
IY Leverage	0.170***				0.172***	0.170***
	(0.021)				(0.022)	(0.021)
SY Leverage	0.227***				0.262***	0.223***
	(0.036)				(0.043)	(0.036)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	80,691	80,691	80,691	80,691	80,691	80,691
Adjusted R^2	0.720	0.700	0.716	0.717	0.720	0.720

Table 6: The Uniform Trade Secrets Act, Alternative Size Proxies, and Financial Leverage

This table reports the results for the panel regressions of financial leverage on the interaction of the Uniform Trade Secrets Act (UTSA) and alternative definitions for firm size for Compustat industrial firms from 1975 to 2003. Panel A provides the OLS estimates with *Book Leverage* as the dependent variable. Panel B reports the results with *Market Leverage* specified as the regressand. *UTSA* is a trade secrets protection index first constructed in Png (2017). It accounts for pre-existing common law by measuring the change in protection granted via passage of the UTSA in state *s* and year *t*; I provide an explanation for how the variable is measured in Section 4.2. *Ln(Assets)* is measured by total assets, and *Ln(1+Employees)* is defined as the total number of employees (both of these continuous measures are specified in logarithm as the difference from its sample mean in order to center the variable). *Median Ln(Sales)* is an indicator variable equal to one for firms with sales greater than the overall sample period median, and zero otherwise. *Median-Year Ln(Sales)* is an indicator variable equal to one for firms with sales greater than the sample median by year, and zero otherwise. The interaction between these alternative size proxies and *UTSA* yields the main coefficients of interest. I center the size proxy for ease of interpretation, when interacting two continuous variables. Table A2 in the appendix provides variable definitions. The other explanatory variables include *Profitability*, *MB*, *Fixed Assets*, *Div Payer*, *Mod Z-score*, *Log(State GDPPC)*, *State GDPG*, *Republican*, *IY Leverage*, and *SY Leverage*. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles to remove the influence of extreme outliers. The dollar values are expressed in 2001 dollars. Robust standard errors are clustered at the state of location level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Dependent Variable is Book Leverage				
	(1)	(2)	(3)	(4)
UTSA×Ln(Assets)	0.020***			
	(0.004)			
UTSA×Ln(1 + Employees)		0.032***		
		(0.008)		
UTSA×[Median Ln(Sales) Dummy]			0.077***	
			(0.018)	
UTSA×[Median-Year Ln(Sales) Dummy]				0.083***
				(0.015)
UTSA	-0.018*	-0.021*	-0.058***	-0.064***
	(0.010)	(0.012)	(0.017)	(0.016)
Ln(Assets)	0.041***			
	(0.003)			
Ln(1+ Employees)		0.020***		
		(0.004)		
Median Ln(Sales) Dummy			0.016**	
			(0.007)	
Median-Year Ln(Sales) Dummy				0.010*
				(0.005)
IDD	0.012***	0.011***	0.012***	0.012***
	(0.003)	(0.003)	(0.003)	(0.003)
All Control Variables	Yes	Yes	Yes	Yes
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	80,691	79,427	80,691	80,691
Adjusted R^2	0.691	0.682	0.680	0.679

Table 6 – *(Continued)*

Panel B: Dependent Variable is Market Leverage				
	(1)	(2)	(3)	(4)
UTSA×Ln(Assets)	0.010***			
	(0.003)			
UTSA×Ln(1 + Employees)		0.017***		
		(0.006)		
UTSA×[Median Ln(Sales) Dummy]			0.045***	
			(0.015)	
UTSA×[Median-Year Ln(Sales) Dummy]				0.051***
				(0.015)
UTSA	-0.005	-0.008	-0.030*	-0.035*
	(0.012)	(0.013)	(0.015)	(0.017)
Ln(Assets)	0.052***			
	(0.004)			
Ln(1 + Employees)		0.042***		
		(0.005)		
Median Ln(Sales) Dummy			0.032***	
			(0.008)	
Median-Year Ln(Sales) Dummy				0.021***
				(0.007)
IDD	0.012**	0.012**	0.011**	0.011**
	(0.006)	(0.005)	(0.005)	(0.005)
All Control Variables	Yes	Yes	Yes	Yes
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	80,691	79,427	80,691	80,691
Adjusted R^2	0.723	0.715	0.712	0.712

Table 7: The Uniform Trade Secrets Act, Firm Size, and the Timing of Financial Leverage Adjustments

This table reports the results for the panel regressions of financial leverage on the interaction of the Uniform Trade Secrets Act (UTSA) and the natural logarithm of sales for Compustat industrial firms from 1975 to 2003. *Book Leverage* is the dependent variable in columns 1 and 2, and the dependent variable in columns 3 and 4 is *Market Leverage*. $UTSA^{(-1)}$ is the change in trade secrets protection stemming from the UTSA if a firm is located in a state that will pass the law in one year and equal to zero otherwise (i.e., one-year leaded *UTSA*). $UTSA^{(0)}$ is the change in trade secrets protection stemming from the UTSA if a firm is located in a state that passes the UTSA in the current year and equal to zero otherwise (i.e., contemporaneous *UTSA*). $UTSA^{(1+)}$ is the change in trade secrets protection stemming from the UTSA if a firm is located in a state that passed the UTSA one or more years ago and zero otherwise (i.e., one-year or more lagged *UTSA*). Each of these index variables are interacted with the natural logarithm of sales centered by its sample mean, to proxy for the effect of UTSA on large firms. *UTSA* is a trade secrets protection index first constructed in Png (2017). It accounts for pre-existing common law by measuring the change in protection granted via passage of the UTSA in state *s* and year *t*; I provide an explanation for how the variable is measured in Section 4.2. Columns 1 and 3 controls for *Profitability*, *M/B*, *Fixed Assets*, *Div Payer*, and *Mod Z-score*. Columns 2 and 4 includes all financial controls, but in addition, specifies *IDD*, *Ln(State GDPPC)*, *State GDPG*, *Republican*, *IY Leverage*, *SY Leverage*, and a state time trend. Table A2 in the appendix provides variable definitions. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles to remove the influence of extreme outliers. The dollar values are expressed in 2001 dollars. Robust standard errors are clustered at the state of location level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Book Leverage		Market Leverage	
	(1)	(2)	(3)	(4)
$[UTSA \times Ln(Sale)]^{(-1)}$	0.000	0.001	-0.001	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)
$[UTSA \times Ln(Sale)]^{(0)}$	0.001	0.001	-0.003	-0.003
	(0.002)	(0.002)	(0.003)	(0.003)
$[UTSA \times Ln(Sale)]^{(1+)}$	0.020***	0.016***	0.016***	0.012**
	(0.004)	(0.004)	(0.005)	(0.005)
$UTSA^{(-1)}$	-0.003	-0.003	0.004	0.002
	(0.004)	(0.003)	(0.004)	(0.003)
$UTSA^{(0)}$	-0.003	-0.003	-0.004	-0.004
	(0.003)	(0.003)	(0.004)	(0.004)
$UTSA^{(1+)}$	-0.006	-0.005	0.001	0.001
	(0.004)	(0.004)	(0.005)	(0.004)
Financial Control Variables	Yes	Yes	Yes	Yes
State Control Variables	No	Yes	No	Yes
Industry Control Variable	No	Yes	No	Yes
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	80,691	80,691	80,691	80,691
Adjusted R^2	0.681	0.682	0.712	0.716

Table 8: The Uniform Trade Secrets Act, Firm Size, and Alternative Definitions of Leverage

This table reports the results for the panel regressions of alternative definitions of financial leverage on the interaction of the Uniform Trade Secrets Act (UTSA) and a proxy for firm size for Compustat industrial firms from 1975 to 2003. The dependent variable in columns 1 and 2 is *Ln(1+Total Debt)* which is the natural logarithm of one plus the book value of long-term debt plus debt in current liabilities. The dependent variable in columns 3 and 4 is *Net Book Leverage* measured as the ratio of book value of long-term debt plus debt in current liabilities minus the book value of cash and short-term investments over the book value of assets. The dependent variable in columns 5 and 6 is *Net Market Leverage* which is constructed as book value of long-term debt plus debt in current liabilities minus the book value of cash and short-term investments divided by the market value of debt and equity. *UTSA* is a trade secrets protection index first constructed in Png (2017). It accounts for pre-existing common law by measuring the change in protection granted via passage of the UTSA in state *s* and year *t*; I provide an explanation for how the variable is measured in Section 4.2. *Ln(Sales)* is a proxy for firm size measured by sales revenue (specified in logarithm as the difference from its sample mean in order to center the variable). The interaction between the size proxy and *UTSA* yields the main coefficient of interest. I center the size proxy for ease of interpretation, since I am interacting two continuous variables. Table A2 in the appendix provides variable definitions. The other explanatory variables include *Profitability*, *MB*, *Fixed Assets*, *Div Payer*, *Mod Z-score*, *IDD*, *Log(State GDPPC)*, *State GDPG*, *Republican*, *IY Leverage*, and *SY Leverage*. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles to remove the influence of extreme outliers. The dollar values are expressed in 2001 dollars. Robust standard errors are clustered at the state of location level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Ln(1+Total Debt)		Net Book Leverage		Net Market Leverage	
	(1)	(2)	(3)	(4)	(5)	(6)
UTSA	-0.073	-0.145**	-0.007	-0.019*	0.003	-0.003
	(0.070)	(0.055)	(0.012)	(0.010)	(0.016)	(0.015)
UTSA × Ln(Sales)		0.127***		0.021***		0.013***
		(0.021)		(0.004)		(0.005)
Ln(Sales)	0.784***	0.762***	0.076***	0.073***	0.082***	0.078***
	(0.030)	(0.032)	(0.004)	(0.005)	(0.006)	(0.006)
All Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	80,691	80,691	80,691	80,691	80,691	80,691
Adjusted R^2	0.885	0.886	0.767	0.768	0.693	0.694

Table 9: The Uniform Trade Secrets Act, Innovative Activity, and Financial Leverage

This table reports the results for the panel regressions of financial leverage on the interaction of the Uniform Trade Secrets Act (UTSA) and firm-level innovative activity measures for Compustat industrial firms from 1975 to 2003. Panel A provides the OLS estimates with *Book Leverage* as the dependent variable. Panel B reports the results with *Market Leverage* specified as the regressand. *UTSA* is a trade secrets protection index first constructed in Png (2017). It accounts for pre-existing common law by measuring the change in protection granted via passage of the UTSA in state *s* and year *t*; I provide an explanation for how the variable is measured in Section 4.2. The measures of innovative activity include: (1) an indicator for *R&D Intensity* set equal to one if the firm has R&D expenditure greater than 0.02 and zero otherwise; (2) *Ln(1+Patents)* is the natural logarithm of one plus a count variable for firm patents in year *t*; (3) *Ln(1+CW Patents)* is the natural logarithm of one plus citation-weighted patents; and (4) *Ln(1+SM Patents)* is the natural logarithm of one plus stock market-weighted patents; all three continuous measures centered by its sample mean. The other explanatory variables include *Profitability*, *M/B, Fixed Assets, Div Payer, Mod Z-score*, *IDD*, *Log(State GDPPC), State GDPG*, *Republican*, *IY Leverage,* and *SY Leverage*. Table A2 in the appendix provides variable definitions. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles to remove the influence of extreme outliers. The dollar values are expressed in 2001 dollars. Robust standard errors are clustered at the state of location level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Dependent Variable is Book Leverage				
	(1)	(2)	(3)	(4)
UTSA	-0.003	-0.017	-0.017	-0.019*
	(0.013)	(0.012)	(0.011)	(0.011)
UTSA×R&D Intensity	-0.028***			
	(0.011)			
UTSA×Ln(1+Patents)		0.060***		
		(0.019)		
UTSA×Ln(1+CW Patents)			0.016***	
			(0.004)	
UTSA×Ln(1+SM Patents)				0.021***
				(0.005)
R&D Intensity	-0.018***			
	(0.004)			
Ln(1+Patents)		-0.033***		
		(0.008)		
Ln(1+CW Patents)			-0.005***	
			(0.002)	
Ln(1+SM Patents)				-0.008***
				(0.003)
All Control Variables	Yes	Yes	Yes	Yes
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	80,691	58,704	58,704	58,704
Adjusted R^2	0.688	0.676	0.675	0.676

Table 9 – *(Continued)*

Panel B: Dependent Variable is Market Leverage				
	(1)	(2)	(3)	(4)
UTSA	0.006	-0.007	-0.007	-0.010
	(0.016)	(0.013)	(0.013)	(0.013)
UTSA×R&D Intensity	-0.025*			
	(0.015)			
UTSA×Ln(1+Patents)		0.031**		
		(0.013)		
UTSA×Ln(1+CW Patents)			0.008**	
			(0.003)	
UTSA×Ln(1+SM Patents)				0.017***
				(0.003)
R&D Intensity	-0.022***			
	(0.004)			
Ln(1+Patents)		-0.017**		
		(0.007)		
Ln(1+CW Patents)			-0.003*	
			(0.002)	
Ln(1+SM Patents)				-0.015***
				(0.002)
All Control Variables	Yes	Yes	Yes	Yes
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	80,691	58,704	58,704	58,704
Adjusted R^2	0.721	0.717	0.717	0.718

Table 10: The Uniform Trade Secrets Act, Firm Size, and Bankruptcy Costs

This table reports the results for the panel regressions of alternative definitions of financial leverage on the interaction of the Uniform Trade Secrets Act (UTSA) and a proxy for firm size for Compustat industrial firms from 1975 to 2003. The dependent variable in columns 1 and 2 is the change in $Ln(EBIT)_t$ which is measured as the one-year change in the natural logarithm of earnings before interest and taxes over period *t* to *t-1*. The dependent variable in columns 3 and 4 is $Mod\ Z\text{-}score_{t+1}$ measured as the one-year ahead value of 1.2 × working capital over assets plus 1.4 × retained earnings over assets plus 3.3 × EBIT over assets plus 1.0 × sales over assets. The dependent variable in columns 5 and 6 is $CF\ Risk_{t+1}$ which is constructed as the rolling standard deviation of operating cash flows over a 10-year window, where operating cash flows equal income before extraordinary expenses plus depreciation and amortization. *UTSA* is a trade secrets protection index first constructed in Png (2017). It accounts for pre-existing common law by measuring the change in protection granted via passage of the UTSA in state *s* and year *t*. $\Delta\ Ln(Sales)_t$ measures the one-year change in the natural logarithm of sales over the period *t* to *t-1*. The other explanatory variables include *Book Leverage, Profitability, M/B, Fixed Assets, Div Payer, Mod Z-score, Log(State GDPPC), State GDPG, Republican, IY Leverage,* and *SY Leverage*. Table A2 in the appendix provides variable definitions. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles. The dollar values are expressed in 2001 dollars. Robust standard errors are clustered at the state of location level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Δ Ln(EBIT)$_t$		Mod Z-score$_{t+1}$		CF Risk$_{t+1}$	
	(1)	(2)	(3)	(4)	(5)	(6)
UTSA	-0.006	-0.012	0.062	0.057	-0.001	0.001
	(0.032)	(0.030)	(0.148)	(0.013)	(0.004)	(0.004)
Ln(Sales)	-0.074***	-0.075***	0.069***	0.081***	-0.003***	-0.002*
	(0.008)	(0.009)	(0.024)	(0.024)	(0.001)	(0.001)
UTSA × Ln(Sales)		0.006		-0.049***		-0.004*
		(0.015)		(0.019)		(0.002)
ΔLn(Sales)	1.278***	1.278***				
	(0.040)	(0.039)				
UTSA × ΔLn(Sales)	-0.213**	-0.214**				
	(0.095)	(0.095)				
Modified Altman's Z-Score			0.589***	0.585***		
			(0.024)	(0.024)		
UTSA × Modified Altman's Z-Score			-0.019	-0.003		
			(0.056)	(0.051)		
IDD	0.008	0.007	-0.033	-0.028	0.002	0.002
	(0.018)	(0.018)	(0.027)	(0.026)	(0.002)	(0.002)
All Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	51,171	51,171	73,526	73,526	70,604	70,604
Adjusted R^2	0.253	0.253	0.842	0.842	0.851	0.851

Table 11: The Uniform Trade Secrets Act, Probability of Default, and Financial Leverage

This table reports the results for the panel regressions of financial leverage on the interaction of the Uniform Trade Secrets Act (UTSA) and the probability of default for Compustat industrial firms from 1975 to 2003. Columns 1 and 2 are specific to *Book Leverage* as the dependent variables, whereas columns 3 and 4 have *Market Leverage* on the left-hand side of the pooled panel regression. Columns 1 and 3 specify the dependent variable as contemporaneous, while columns 2 and 4 lead the regressand by one period (t + 1). *UTSA* is a trade secrets protection index first constructed in Png (2017). It accounts for pre-existing common law by measuring the change in protection granted via passage of the UTSA in state s and year t; I provide an explanation for how the variable is measured in Section 4.2. *Mod Z-score* is measured as 1.2 × working capital over assets plus 1.4 × retained earnings over assets plus 3.3 × EBIT over assets plus 1.0 × sales over assets. Further, it is centered by subtracting out its sample mean. This is done for ease of interpretation, since I am interacting two continuous variables. The other explanatory variables include *Profitability, M/B, Fixed Assets, Div Payer, Mod Z-score, IDD, Log(State GDPPC), State GDPG, Republican, IY Leverage,* and *SY Leverage*. Table A2 in the appendix provides variable definitions. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles to remove the influence of extreme outliers. The dollar values are expressed in 2001 dollars. Robust standard errors are clustered at the state of location level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Book Leverage$_t$	Book Leverage$_{t+1}$	Market Leverage$_t$	Market Leverage$_{t+1}$
	(1)	(2)	(3)	(4)
UTSA×Modified Z-score	0.025**	0.019**	0.023**	0.018**
	(0.010)	(0.009)	(0.009)	(0.008)
UTSA	-0.020	-0.017	-0.011	-0.007
	(0.013)	(0.013)	(0.013)	(0.013)
Mod Z-score	-0.042***	-0.029***	-0.038***	-0.028***
	(0.004)	(0.004)	(0.005)	(0.004)
All Control Variables	Yes	Yes	Yes	Yes
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	80,691	70,604	80,691	70,604
Adjusted R^2	0.689	0.666	0.721	0.691

Table 12: The Uniform Trade Secrets Act, Firm Size, and Value

This table reports the results for the panel regressions of firm value on the interaction of the Uniform Trade Secrets Act (UTSA) and the natural logarithm of sales for Compustat industrial firms from 1975 to 2003. Columns 1 – 3 specify firm value using the standard measure of *Tobin's Q*, whereas columns 4 – 6 have the proxy variable *Total Tobin's Q*. *Tobin's Q* is measured as the market value of assets (total assets – book equity + market equity) divided by the book value of assets, as in Fama and French (1992). *Total Tobin's Q* is measured as the market value of outstanding equity plus the book value of debt minus the firm's current assets divided by the sum of the book value of property, plant, and equipment, and the replacement cost of intangible capital, as in Peters and Taylor (2017). *UTSA* is a trade secrets protection index first constructed in Png (2017). It accounts for pre-existing common law by measuring the change in protection granted via passage of the UTSA in state *s* and year *t*; I provide an explanation for how the variable is measured in Section 4.2. *Ln(Sales)* is a proxy for firm size measured by sales revenue (specified in logarithm as the difference from its sample mean in order to center the variable). The interaction between the size proxy and *UTSA* yields the main coefficient of interest. I center the size proxy for ease of interpretation, since I am interacting two continuous variables. The other explanatory variables include *Profitability*, *M/B*, *Fixed Assets*, *Div Payer*, *Mod Z-score*, *Log(State GDPPC)*, *State GDPG*, *Republican*, *IY Leverage*, and *SY Leverage*.Table A2 in the appendix provides variable definitions. All continuous variables, with the exception of the *UTSA*, state-level economic and political variables, are winsorized at the 1st and 99th percentiles to remove the influence of extreme outliers. The dollar values are expressed in 2001 dollars. Robust standard errors are clustered at the state of location level and reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Tobin's Q			Total Tobin's Q		
	(1)	(2)	(3)	(4)	(5)	(6)
UTSA×Ln(Sales)		0.195***	0.198***		0.278***	0.276***
		(0.028)	(0.030)		(0.070)	(0.069)
UTSA	0.034	-0.082	-0.068	-0.032	-0.186*	-0.175*
	(0.092)	(0.064)	(0.066)	(0.112)	(0.101)	(0.096)
Ln(Sales)	-0.106***	-0.153***	-0.158***	-0.249***	-0.315***	-0.318***
	(0.022)	(0.026)	(0.026)	(0.052)	(0.060)	(0.060)
IDD	0.074		0.053	0.123		0.094
	(0.059)		(0.058)	(0.078)		(0.074)
Firm and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	80,691	80,691	80,691	80,570	80,570	80,570
Adjusted R^2	0.489	0.488	0.490	0.408	0.408	0.409

Appendix

Table A1: Index of Legal Protection of Trade Secrets

This table is an exact reproduction from Table A1 in the appendix of Png (2017). It provides the criteria used in the construction of the state-level trade secrets protection index. The values specific to each state are summed across the six unique items over time. The first iteration of this summation process yields the level of trade secrets protection provided by common law. Next, if a state passes the UTSA, the items are re-evaluated and a post-enactment index value is calculated. The change in the value of the index captures state-level exogenous variation in trade secrets protection.

Dimension	Item	Coding	Sources
Substantive law	Whether information must be in actual or intended business use to be protected as trade secret.	= 0 if information must be in actual or intended use, = 1 otherwise.	ULA (Uniform Laws Annotated); Pedowitz et al. 1997; Malsberger et al. 2006
Substantive law	Whether reasonable efforts are required to maintain secrecy.	= 0 if reasonable efforts required, = 1 otherwise.	ULA; Pedowitz et al. 1997; Malsberger et al. 2006
Substantive law	Whether information must be used or disclosed for it to be deemed to have been misappropriated.	= 0 if information must be used or disclosed, = 1 if includes mere improper acquisition or no requirement.	ULA; Pedowitz et al. 1997; Malsberger et al. 2006
Civil procedure	Limitation on the time for the owner to take legal action for misappropriation.	Number of years divided by three.	ULA; Pedowitz et al. 1997; Malsberger et al. 2006
Remedies	Whether an injunction is limited to eliminating the advantage from misappropriation.	= 0 if yes, = 1 otherwise.	Pedowitz et al. 1997; Malsberger et al. 2006
Remedies	Multiple of actual damages available in punitive damages.	Number of years divided by six.	Pedowitz et al. 1997; Malsberger et al. 2006

Table A2: Variable Definitions

This table provides definitions for all variables used in the study.

Variable	Description (variable definitions in parentheses refer to Compustat designations where appropriate)
Assets	The value of total book assets (*at*) in millions.
Book Leverage	The book value of long-term debt (*dltt*) plus debt in current liabilities (*dlc*) divided by book value of assets (*at*).
CF Risk	The operating cash flow volatility for a firm, where cash flow volatility is the standard deviation of the ratio of income before extraordinary items plus depreciation and amortization to book assets ((*ib*+*dp*)/*at*) over the preceding 10 years.
Common Law	State-specific common law trade secrets protection. Measured by Png (2017) and described in Section 4.2 and Table A1 in the appendix. https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/BFP2IC
CW Patents	Citation-weighted patents, as constructed in Hall, Jaffe, and Trajtenberg (2005), Atanassov (2013), and Kogan, Papanikolaou, Seru, and Stoffman (2016). https://iu.app.box.com/v/patents
Div Payer	An indicator variable set to one if a firm pays a common dividend (*dvc*) during a fiscal year, and zero otherwise.
EBIT	Earnings before interest and taxes (*ebit*) in millions.
Employees	The number of firm-level employees (*emp*).
Fixed Assets	The ratio of property, plant, and equipment (*ppent*) to book value of assets (*at*).
IDD	Inevitable Disclosure Doctrine indicator variable, which equals one if it is recognized by a state and zero otherwise; Data come from Klasa, Ortiz-Molina, Serfling and Srinivasan (2017).
IY Book Leverage	Control for industry shocks, measured as the mean of *Book Leverage* in the firm's three-digit SIC industry in a given year, excluding the firm itself.
IY Market Leverage	Control for industry shocks, measured as the mean of *Market Leverage* in the firm's three-digit SIC industry in a given year, excluding the firm itself.
M/B	The market value of assets (book value of assets (*at*) plus market value of equity (*prcc_f*csho*) minus book value of equity (*ceq*) divided by book value of assets (*at*).
Market Leverage	The book value of long-term debt (*dltt*) plus debt in current liabilities (*dlc*) divided by market value of debt and equity (long-term debt (*dltt*) plus debt in current liabilities (*dlc*) plus market value of equity (*prcc_f*csho*)).
Median Ln(Sales)	An indicator variable equal to one if a firm has Ln(Sales) greater than the sample median, and zero otherwise, where *Sales* is defined as below.
Median-Year Ln(Sales)	An indicator variable equal to one if a firm has Ln(Sales) in a given year greater than the sample median measured each year, and zero otherwise, where *Sales* is defined as below.
Mod Z-score	The modified Altman's Z-score (1.2*(*wcap/at*)+1.4*(*re/at*)+3.3*(*ebit/at*)+1.0*(*sale/at*)).

Patents	Count variable for patents, as constructed in Hall, Jaffe, and Trajtenberg (2005), Atanassov (2013), and Kogan, Papanikolaou, Seru, and Stoffman (2016). https://iu.app.box.com/v/patents
Profitability	Income before extraordinary items (*ib*) plus depreciation and amortization (*dp*) divided by book value of assets (*at*).
R&D Intensity	An indicator variable set to one if a firm has R&D expenditure greater than 0.02, and zero otherwise, as in Denis and McKeon (2016).
R&D Tax Credit	An indicator variable set to one if a state has adopted a tax credit for research & development expenditure, and zero otherwise; Data comes from Wilson (2009).
Republican	The proportion of state-level representatives in the U.S. House of Representatives whom belong to the Republican party, in a given year; Data from the *Book of the States*.
Sales	The value of sales (*sale*) in millions.
Size	The natural logarithm of the value of total sales (*sale*) in millions, centered by subtracting out its sample mean. I also consider the natural logarithm of the value of total assets (*at*) in millions, centered by subtracting out its sample mean, and the natural logarithm of one plus the total number of employees (*emp*), centered by subtracting out its sample mean.
SM Patents	Stock market-weighted patents, as constructed in Kogan, Papanikolaou, Seru, and Stoffman (2016). https://iu.app.box.com/v/patents
State Corruption	State-by-state corruption measures come from Table 2 in Dass, Nanda and Xiao (Working Paper, 2017), who collect the data from the U.S. Department of Justice's Public Integrity Section Reports over the period 1990 to 2011.
State GDPG	The state-level GDP growth rate over the fiscal year; Data from U.S. Bureau of Economic Analysis.
State Per Capita GDP	A state's GDP (in thousands) divided by its total population; Data from U.S. Bureau of Economic Analysis.
State Property Crime Rate	State-by-state total property crime divided by population every year from 1960 to 2014. *Source:* U.S. Department of Justice and the Federal Bureau of Investigation. Data is retrieved from the Uniform Crime Reporting Statistics website: https://www.ucrdatatool.gov/Search/Crime/State/StatebyState.cfm
SY Book Leverage	Control for local shocks, measured as the mean of *Book Leverage* in the firm's state of location in a given year, excluding the firm itself.
SY Ln(Patents)	Measured as the mean of *Ln(1+Patents)* in the firm's state of location in a given year, excluding the firm itself, where *Patents* is defined as above.
SY Ln(Sales)	Measured as the mean of *Ln(Sales)* in the firm's state of location in a given year, excluding the firm itself, where *Sales* is defined as above.
SY Market Leverage	Control for local shocks, measured as the mean of *Market Leverage* in the firm's state of location in a given year, excluding the firm itself.
SY Mod Z-score	Measured as the mean of *Mod Z-score* in the firm's state of location in a given year, excluding the firm itself, where *Mod S Z-Score* is defined as above.

Tobin's Q	Market value of assets (*at* – book equity + market equity (*prcc_f*csho*)) divided by the book value of assets (*at*). Book equity and this measure, in general, follows Fama and French (1992).
Total Tobin's Q	Market value of outstanding equity (*prcc_f*csho*) plus the book value of debt (*dltt* + *dlc*) minus the firm's current assets (*act*) divided by the sum of the book value of property, plant, and equipment (*ppegt*), and the replacement cost of intangible capital (the sum of the firm's externally purchased and internally created intangible capital), follows Peters and Taylor (2017). This measure (*q_tot*) is available on WRDS from 1950 to 2015: http://www.whartonwrds.com/datasets/included/luke-taylors-total-q/
UTSA Index	The change in state-specific trade secrets protection after the enactment of the Uniform Trade Secrets Act (UTSA). Measured by Png (2016, 2017) and described in Section 4.2 and Table A1 in the appendix. https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/BFP2IC