The effect of trade secrets protection on disclosure of forward-looking financial information

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Abstract

Using the recognition of the Inevitable Disclosure Doctrine (IDD) by U.S. state courts as an exogenous shock to the risk of losing trade secrets, this study examines the effects of trade secrets on disclosure of forward-looking financial information. We find that management earnings forecast frequency and forecast horizon increases after the U.S. state where a firm is headquartered starts to recognize IDD. We also find that the effect of IDD recognition on management forecasts is more pronounced for firms that have larger market shares, higher product market competition, more intensive R&D, shorter distance to their industry rivals, and more employees who possess knowledge of the firms' trade secrets.

Keywords: Competition; Proprietary Cost; Inevitable Disclosure Doctrine; Knowledge Economy; Trade Secrets; Voluntary Disclosure; Management Forecasts; Knowledge Workers; Product Market Competition; R&D Intensity

JEL Classification: G14, L51, M40, M41

1 INTRODUCTION

Information about a firm's future prospects is valuable, because it can help to reduce information asymmetry in the capital market and enhance firm valuation (Grossman, 1981; Milgrom, 1981). However, firms are unwilling to reveal private information about their future profitability as such revelations may enable their rivals to gauge future industry demand and adopt operational and marketing strategies that threaten the disclosing firms' competitive advantage (e.g., Ali, Klasa, & Yeung, 2014; Clinch & Verrecchia, 1997; Darrough & Stoughton, 1990; Li, 2010; Verrecchia, 1983, 1990; Wagenhofer, 1990).

While competitors can use the disclosing firm's forward-looking financial information to envisage how much they should produce, developing an effective plan to enter the disclosing firm's product market space would require additional information, such as operational and marketing strategies, business plans, technical innovations, customer lists, price lists, and/or cost information, that is, information about a firm's trade secrets. Trade secrets are a firm's most valuable assets (Shapiro & Hassett, 2005) and play a crucial role in maintaining a firm's competitive advantage (e.g., Barney, 1991; Flammer & Ioannou, 2015; Grant, 1996; Helfat et al., 2007; Kogut & Zander, 1992; Mahoney & Pandian, 1992; Png, 2017). Despite the importance of trade secrets for sustaining a firm's competitive advantage, there has been no study examining how trade secret information affects a firm's incentives to disclose forward-looking financial information. In this study, we use the staggered adoption of the Inevitable Disclosure Doctrine (IDD) by individual states in the U.S. to capture firms' risk of losing trade secrets to rivals and examine the impact of trade secret information on firms' incentives to provide forward-looking financial information, one of the most important types of information for investors (Beyer, Cohen, Lys, & Walther, 2010).

Almeling, Synder, Sapoznikow, McCollum, and Weader (2010) report that more than 75% of the trade secret cases in U.S. state courts and over 50% of the cases in U.S. federal courts involve an existing or former employee. The adoption of the IDD by state courts allows an employer to obtain an injunction prohibiting a former employee from working for a competitor. For example, in the court case of PepsiCo, Inc. Vs. V. Redmond, the 7th Circuit ruling states that "Plaintiff PepsiCo, Inc., sought a preliminary injunction against defendants William Redmond and the Quaker Oats Company to prevent Redmond, a former PepsiCo employee, from divulging PepsiCo trade secrets and confidential information in his new job with Quaker and from assuming any duties with Quaker relating to beverage pricing, marketing, and distribution. The district court agreed with PepsiCo and granted the injunction. We now affirm that decision." (PepsiCo 1995: 1263). As adoption of IDD requires a delicate balance between protecting the interest of employees and that of employers, state courts in the U.S. exhibit different attitudes in acceptance or rejection of the doctrine (Kahnke, Bundy, and Liebman 2008). Recent studies show that the adoption of the IDD significantly reduces employee mobility and knowledge spillovers (Png & Samila, 2015), decreases the risk of a firm losing its competitive position in its product market (e.g., Klasa, Ortiz-Molina, Serfling, & Srinivasan, 2018; Png, 2017), increases barriers to entry (Gao & Wang, 2018), and enhances firm value (e.g., Castellaneta, Conti, & Kacperczyk, 2017; Klasa et al., 2018; Qiu & Wang, 2017).

We argue that trade secret protection laws can directly and indirectly affect firms' incentives to provide forward-looking financial information. First, the adoption of the IDD can reduce the risk that competitors obtain trade secrets and design effective production plans or strategies to meet the future industry demand revealed in the disclosing firm's forecasts of future profitability, thus lowering the proprietary costs of disclosing forward-looking financial

information. In particular, in today's knowledge economy, trade secrets have made products highly differentiated (Crittenden, Crittenden, & Pierpont, 2015; Hannah, Parent, Pitt, & Berthon, 2014; Reitzig, 2004), and simply knowing the aggregated demand for products is not sufficient for competitors to initiate effective operational plans to gain the market share of the disclosing firm. For example, in the soft drink market, making information about the future demand for soft drinks public may not hurt the disclosing firm's future profitability if its competitors do not have information about the firm's trade secrets on formulas, which are tailored to the tastes of specific consumers (for example, the soft drink formulas for Pepsi vs. Coca Cola). In other words, in order to win the market share of the disclosing firm, competitors will need both trade secrets and forward-looking financial information to initiate production plans or develop entry strategies. The adoption of the IDD better preserves trade secrets within the disclosing firm and therefore makes it more difficult for rival firms to initiate effective production and/or develop strategies.[1] As a support, Png's (2017) analytical model predicts that strengthened trade secret protection laws deter competitors from developing similar products or reverse engineering products that are similar to those protected by trade secrets.

Second, adoption of the IDD could affect firms' competitive position indirectly by reducing the agency costs between shareholders and managers. As IDD adoption could reduce managers' outside opportunities and managers are bonded with their firms to a greater extent (Garmaise, 2011; Png & Samila 2015), managers tend to focus on long-term performance rather than short-term myopic behavior (Brochet et al., 2015) and on strengthening their firms' competitive position.[2]

[1] Enhanced trade secret protection law also reduces a firm's incentives to reveal proprietary information on their 10Ks filings (Glaeser, 2018; Li et al., 2018), further adversely affecting rivals' ability to gain access to proprietary information and develop operational and marketing strategy effectively.

[2] We thank the referee for suggesting the possible alternative mechanism through which the IDD affects firms' competitive position and management forecasts.

Based on these arguments, we predict that IDD adoption leads to more disclosure of forward-looking financial information (H1). On the other hand, reduced outside opportunities would potentially induce managerial myopic behavior, for example, more earnings management to meet or beat short-term earnings targets and reduction of discretionary spending including R&D and SG&A (Chen, Zhang, & Zhou, 2018). As a result of managerial myopia, firms would experience poor long-term performance and not be able to maintain their competitive position, resulting in less frequent management forecasts. Therefore, the effect of the IDD on management forecasts remains an empirical question.

To empirically test the effect of IDD on management forecasts, we follow Bertrand and Mullainathan (2003) and Armstrong, Balakrishnan, and Cohen (2012) and apply a difference-in-difference design based on the staggered recognition of the IDD by U.S. state courts. We use the frequency of management earnings forecasts and forecast horizons to capture firms' incentives to disclose forward-looking financial information (Ali et al., 2014; Huang, Jennings, & Yu, 2016; Li, 2010). More specifically, we analyze whether recognition of the IDD by state courts increases the frequency and horizon of management earnings forecasts for firms in these states over the 1998–2011 period.[3] We find that recognition of the IDD leads to more frequent management earnings forecasts and forecasts with longer horizons. These results support the hypothesis that the protection of trade secrets potentially strengthens firms' competitive position and reduces the proprietary costs of disclosing forward-looking financial information. Our main results are also robust to alternative research design including comparing forecast of firms that located in the states

[3] We treat firms headquartered in states that recognized the IDD before 1998 as IDD firms for every year in our sample period. This approach follows prior studies on the staggered adoption of state laws (e.g., Armstrong et al., 2012; Klasa et al., 2018).

recognizing the IDD during our sample period with those of firms in neighboring states and examining the timing effect of IDD recognition on management forecasts.

Clinch and Verrecchia (1997) and Verrecchia (1983, 1990) suggest that information about future profitability is most useful to competitors when the information is disclosed by firms that produce the most output of an industry, i.e., when the proprietary content of forward-looking information is higher. If trade secret protection law reduces the proprietary costs of disclosing forward-looking financial information, we expect the effect of the IDD on management forecasts to be stronger among firms with higher market shares (H2). We find evidence consistent with this prediction that the effect of the IDD is significant in firms with market shares in the top 75th percentile of their industry, and is not significant for firms in the bottom 25th percentile.

Competition affects a firm's incentives to voluntarily disclose information (Clinch & Verrecchia, 1997; Verrecchia, 1983, 1990) and trade secrets are crucially important in maintaining a firm's competitive position in a product market (Eisenhardt & Martin, 2000; Flammer & Ioannou, 2015; Helfat et al., 2007). We predict that IDD recognition has a greater effect on the proprietary costs of the management forecasts of firms that face greater product market competition (H3) and firms that have more trade secrets (H4). We use the product fluidity index developed by Hoberg, Phillips, and Prabhala (2014) and industry concentration ratio to gauge product market competition. We find that the effect of IDD recognition on management earnings forecasts is greater when firms face higher product market competition. Using distance to rivals (Klasa et al., 2018) to measure employees' access to job opportunities of competing firms, we find that the effect of the IDD is significant only in the subsample of firms with relatively shorter distance to their rivals; using the intensity of R&D and the proportion of employees possessing trade secrets as proxies for the importance of trade secrets, we find that IDD recognition leads to more frequent earnings forecasts

and earnings forecasts with longer horizons in firms with extensive R&D expenditures and a larger proportion of employees with access to trade secrets.

To assess whether the increased management forecast frequency and horizon is due to the impact of the IDD on managers' incentives, we analyze the effect of the IDD on management forecasts conditioning on CEO duality, CEO age, and CEO tenure. We do not find conclusive evidence to support that the IDD affects management forecasts by enhancing interest alignment between CEOs and shareholders. Finally, we find that after IDD recognition, stock trading liquidity around the announcement of earnings forecasts increases significantly, implying that management forecasts become more informative.

Our study contributes to the literature in several ways. First, we identify an exogenous shock to the risk of losing trade secrets and examine how trade secret information is related to the proprietary costs of disclosing forward-looking financial information. We document that after the adoption of the IDD firms are more willing to reveal forward-looking financial information, and the incentives to provide forward-looking information are greater for firms that have higher proprietary costs of disclosure, face stronger product market competition, and have more trade secrets. Our study is the first to examine the effect of the risk of losing trade secrets on the proprietary costs of disclosing forward-looking financial information.[4]

Second, our study contributes to the disclosure literature by examining the effects of competition on firms' incentives to voluntarily disclose information. Previous studies have used industry concentration (Ali et al., 2014; Bamber & Cheon, 1998; Botosan & Stanford, 2005; Li,

[4] Glaeser (2018) also finds an increase in the frequency of management earnings forecasts after the adoption of the Universal Trade Secrets Act (UTSA). However, Glaeser (2018) focuses on the non-proprietary costs of management forecasts and attributes the increase to increased information asymmetry caused by reduced disclosure of proprietary information. We argue, based on theoretical models (Clinch & Verrecchia, 1997; Verrecchia, 1983, 1990) and empirical evidence (Ali et al., 2014; Huang et al., 2016; Li, 2010), that the proprietary costs of forward-looking information cannot be ignored. IDD adoption offers an excellent setting to examine the complementary role of the different types of information in shaping managers' disclosure decision.

2010), tariff reductions (Huang et al., 2016), and removal of interstate bank branching restrictions (Burks et al., 2018) to study the effect of competition on firms' voluntary disclosure. We study the effect of reduced competition caused by restrictions on knowledge spillover imposed by law, i.e., IDD adoption, on firms' willingness to reveal future profitability. We find evidence that reduced competition leads to more voluntary disclosure.

Third, our study complements recent studies of how the legal protection of trade secrets reduces the public disclosure of trade secrets such as customer lists (Li, Lin, & Zhang, 2018) and other proprietary information on 10Ks (Glaeser, 2018). We show that the legal protection of trade secrets reduces the proprietary costs of disclosing forward-looking financial information, leading to more frequent management forecasts and forecasts with longer horizons. Our evidence implies that the proprietary costs of disclosing forward-looking financial information vary with competitors' access to the disclosing firm's other proprietary information (i.e., trade secrets).

Finally, our study also contributes to recent studies of the effect of trade secret protection laws on employee mobility and knowledge spillover (Png, 2012a, 2012b), patenting (e.g., Dass, Nanda, & Xiao, 2018; Glaeser, 2018; Png, 2017), firms' capital structure (Klasa et al., 2018), cost structure (Gao & Wang, 2018), investment in knowledge assets (e.g., Qiu & Wang, 2017) and corporate social responsibilities (Flammer & Kacperczyk, 2018), and firm value (Castellaneta, Conti, & Kacperczyk, 2017; Klasa et al., 2018; Qiu & Wang, 2017). Our evidence shows that strengthening trade secret protection laws could lead to more disclosure of forward-looking financial information.

The remainder of this paper is organized as follows. Section 2 reviews the literature and develops our main hypotheses. Section 3 describes the sample construction and research design. Section 4 presents the empirical results. Our conclusions are presented in Section 5.

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Trade secret protection laws and their economic consequences

According to the 1979 Uniform Trade Secrets Act (UTSA), a trade secret is information such as a formula, pattern, compilation, program, device, method, technique, or process that derives independent economic value from not being generally known or readily ascertainable by other persons who might obtain economic value from its disclosure and that is the subject of efforts to maintain its secrecy.[5] Trade secrets extend beyond technical innovations to items such as customer lists, price lists, cost information, business plans, and operational or marketing strategies. The revelation of trade secrets can cause significant economic harm. For instance, according to a survey conducted by ASIS International, PricewaterhouseCoopers, and the U.S. Chamber of Commerce in 2001, U.S. firms lose over $50 billion annually due to the exposure of trade secrets.[6] Former employees represent a major channel for the loss of trade secrets. Indeed, Almeling et al. (2010) report that more than 75% of the trade secret cases heard in U.S. state courts and over 50% heard in federal courts involve an existing or former employee.

In the U.S., the protection of trade secrets is a matter of state rather than federal law and is governed by both statute and case law. In 1979, the National Conference of Commissioners on Uniform State Laws approved the Uniform Trade Secrets Act (UTSA) for the states.[7] While the inevitable disclosure doctrine is supported by Section (2) of the UTSA, which allows courts to enjoin "actual and threatened misappropriation of trade secrets", the doctrine is part of case law and hence beyond the scope of the UTSA. Under the doctrine, the owner of a trade secret can

[5] Available at hiip://www.ndasforfree.com/UTSA.html.
[6] Available at hiips://www.uschamber.com/sites/default/files/legacy/issues/technology/files/informationloss2.pdf.
[7] To date, 48 states have enacted a trade secrets statute, mostly confirming or similar to the UTSA. The remaining two states, Massachusetts and New York, have not enacted any trade secrets statute and rely completely on common law. Discussions are available at hiip://www.ndasforfree.com/UTSA.html and in Png (2012b).

obtain an injunction prohibiting an employee from working for a competitor. The use of the doctrine does not rely on the existence of non-compete agreements or any evidence of the actual misappropriation of trade secrets. The plaintiff only needs to show that the employee would "inevitably" disclose trade secrets when performing the new job. Therefore, the IDD substantially strengthens the protection of trade secrets.

A number of recent studies have examined the effects of IDD recognition on labor market, firms' innovation strategies, knowledge spillover, and capital markets. Png and Samila (2015) find that a ruling *against* IDD recognition leads to more mobility for technical workers and a higher return on education for these workers. Flammer and Kacperczyk (2018) show that due to the increased risk of losing knowledge workers, the rejection of the IDD leads firms to increase their corporate social responsibility activities that aim at enhancing employees' loyalty, improving employers' reputations for fostering innovative activities, and encouraging the social and environmental engagement of employees. Trade secret protection laws can also affect firms' innovation activities. Liu (2016) shows that in technology companies the adoption of the IDD leads to greater investment in innovation; Qiu and Wang (2017) document that after IDD adoption firms headquartered in the adoption states invest more in knowledge assets. Gao and Wang (2018) show that firms' cost elasticity increases after the adoption of the IDD, suggesting that the IDD reduces reliance on fixed assets and increases barriers to entry. Png's (2017) analytical model shows that stronger trade secret protection laws reduce competitors' incentives to reverse engineer "all of the secret technologies and the marginal patented technology" and "directly reduce the probability that a competitor would develop a competing product, and so, directly increase the profit." Empirical evidence shows that trade secret protection laws reduce firms' incentives to file patents (Dass, Nanda, & Xiao, 2018; Glaeser, 2018; Png, 2017), and this reduction is greater for firms that have

higher growth margins, spend more on R&D, and face weaker enforcement of non-compete covenants (Png, 2017).

In terms of the capital market consequences of trade secret protection law, Castellaneta, Conti, and Kacperczyk (2017) show that trade secret protection law UTSA increases the value of a merger and acquisition target when the target is in an industry with a high number of knowledge workers. Qiu and Wang (2017) show that adoption (rejection) of the IDD is associated with positive (negative) abnormal stock market returns. Klasa et al. (2018) find that the recognition of the IDD reduces default risk and leads to greater leverage, whereas the rejection of the IDD is associated with lower equity market returns.

Trade secret protection laws affect firms' incentives to reveal proprietary information. Li et al. (2018) document that IDD adoption leads to a reduction in the disclosure of customer identities on 10Ks. Glaeser (2018) finds that the adoption of UTSA and IDD results in a higher likelihood of firms redacting information on their 10Ks and issuing more earnings forecasts. Although both Glaeser (2018) and our study find that the frequency of management earnings forecasts increases after the adoption of trade secret protection laws, we offer different explanations. Glaeser (2018) uses management earnings forecasts as a measure of non-proprietary disclosure and argues that the increase in management forecasts is due to firms' incentives to mitigate the information asymmetry that arises from the reduced disclosure of proprietary information on 10Ks. Our focus is on the proprietary cost of forward-looking financial information (e.g., Ali et al., 2014; Bamber & Cheon, 1998; Huang et al., 2016; Li, 2010). We argue that trade secrets could help rivals to act on forward-looking financial information, and therefore the adoption of the IDD reduces the usefulness of forward-looking financial information for competitors who are seeking to devise an effective production schedule to advance their own

market share. Our cross-sectional analyses of the proprietary costs of forecasts, product market competition, R&D intensity, and knowledge workers supports the hypothesis that management forecasts have proprietary costs and that the IDD reduces the proprietary costs of revealing future profitability.

2.3 Proprietary costs of revealing firms' future profitability and trade secrets

Managers' disclosure decisions are influenced by the conflicting objectives of capital and product markets. While disclosing more information reduces information asymmetry and hence lowers the cost of external financing (Grossman, 1981; Milgrom, 1981), such disclosure can also help competitors to challenge the disclosing firm's competitive advantage, increasing the proprietary costs of voluntary disclosure and deterring full disclosure (Darrough & Stoughton, 1990; Dye, 1985; Verrecchia, 1983, 2001). Information with proprietary costs can be grouped into two types: 1) information that can help competitors to assess future industry demand and profitability, and 2) information that can assist competitors to design an effective production plan or strategy to out-compete the disclosing firms, i.e., trade secrets, including customer lists, product mix, technical know-how, manufacturing process, production plan, market strategy, financing arrangement, etc.

Previous studies have shown that the proprietary costs of each type of information have distinct effects on firms' disclosure decisions. The first type of information can be firms' forecasts of future profitability, sales and cost structure, and segment profitability, which helps competitors to decide whether to increase production or enter a product market. As the usefulness of future profitability or cost information for competitors varies with industry structure and the competitiveness of the market, one strand of research has examined how industry competition affects firms' incentives to provide forward-looking financial information. Bamber and Cheon

(1998) use industry concentration as a proxy for industry competition (i.e., more concentrated industries have fewer players and are less competitive) and find a negative association between industry concentration and the specificity of management earnings forecasts. Ali et al. (2014) find similar results for the relationship between industry concentration and the frequency of management earnings forecasts. However, Li (2010) finds a positive relationship between industry concentration and forecast frequency.[8] Botosan and Stanford (2005) document that the industry concentration ratio for "hidden" segments, which are subsequently revealed through SFAS No. 131 *Disclosure about Segments of an Enterprise and Related Information,* a new disclosure requirements issued by Financial Accounting Standard Board (FASB) in 1997, is significantly higher than the concentration ratio of the firm's primary operation, suggesting that firms use the discretion afforded by the previous segment disclosure standard SFAS No. 14 *Financial Reporting for Segments of a Business Enterprise,* to hide operations in less competitive segments. Alternatively, Huang et al. (2016) use tariff reduction in different industries to capture the variations in industry competition; they document that tariff reduction is associated with a reduction in management earnings forecasts. Dedman and Lennox (2009) directly measure competition through a survey of private firm managers' perceptions of current and future competition in the U.K. They find that managers are less likely to provide information about sales and the cost of sales if their perceived competition is strong or when their firms are more profitable. Interestingly, studies that use a direct measure of competition (i.e., Dedman & Lennox, 2009; Huang et al., 2016) find a negative relationship between competition and disclosure, whereas studies using industry concentration as a measure of competition provide mixed evidence (e.g.,

[8] Bamber and Cheon (1998) and Li (2010) use all of the firms in the Compustat database to calculate industry concentration ratio, whereas Ali et al. (2014) calculate the industry concentration ratio using all of the Compustat firms plus private firms not included in the Compustat database.

Ali et al., 2014; Bamber & Cheon, 1998; Li, 2010). Beyer et al. (2010) conclude that "to date, the evidence of the impact of product market competition as a proxy for proprietary costs on firms' disclosures is mixed" and call for additional research to "understand the importance of proprietary costs on firms' disclosure decisions."

Revelation of the second type of information, i.e., trade secrets, can reduce a firm's ability to compete in product markets and therefore the proprietary costs of disclosing such information are high. As trade secrets are unobservable, a limited number of studies have examined the proprietary costs of revealing R&D activities and customer lists and redacting information on 10K filings. Guo, Lev, and Zhou (2004) use the availability of patent protection for the products under development, the stage of product development, and the availability of venture capital as a measure of the proprietary costs of disclosure. They document a strong and negative relationship between product-related disclosure and these measures of proprietary costs. Verrecchia and Weber (2006) show that firms in more competitive industries are more likely to redact information in their material contracts filings. Ellis, Fee, and Thomas (2012) use multiple measures of intellectual property, such as R&D expenditures, intangible assets, and advertising expenditures, as proxies for proprietary costs. However, the interactive effect of the proprietary costs of financial and trade secret information on firms' incentives to disclose has not been studied.

2.4 Hypotheses development

As discussed in Section 2.2, trade secret protection laws directly reduce the risk of losing trade secrets to rivals by restricting the mobility of knowledge employees and of knowledge transfer (e.g., Flammer & Kacperczyk, 2018; Png & Samila, 2015). These laws also lead to a reduction in the amount of trade secret information publicly revealed by companies (Glaeser, 2018; Li et al., 2018). We argue that restricting competitors' access to the disclosing firms' trade secrets

reduces the usefulness of forward-looking financial information to competitors who are attempting to devise an effective response to the industry demand inferred from management earnings forecasts. Furthermore, as trade secret protection laws reduce competitors' incentives to develop products or reverse engineer products protected by trade secrets (Png, 2017), the IDD leads to a lower level of product market competition, further increasing managers' incentives to release forecasts about future profitability and issue forecasts with longer horizons. Third, as the IDD potentially reduces managers' and employees' outside opportunities (Garmaise, 2011), managers would be motivated to focus on firms' long-term performance rather than engage in short-term myopic behavior, further strengthening firms' competitive position.[9] Hence, we predict that, ceteris paribus, firms are more willing to make earnings forecasts and issue forecasts with longer horizons after the IDD has been recognized by the courts. Thus, our first hypothesis is as follows.

H1: IDD recognition leads firms to provide more frequent earnings forecasts and forecasts with longer horizons.

Extant theoretical models suggest that the proprietary costs of disclosing future profitability are the result of competitors using such information to tailor their production (Clinch & Verrecchia, 1997; Verrecchia, 1983, 1990) or to make decisions about entering a product market (Darrough & Stoughton, 1990). If trade secret protection laws reduce the proprietary costs of management forecasts, we expect that the effect of IDD recognition will be stronger for firms with larger market shares. Accordingly, our second hypothesis is as follows.

[9] Two recent studies show that reduced outside opportunities would induce myopic behavior, leading to more earnings management, reduction of discretionary spending (Chen et al. 2019), and withholding of bad news (Ali et al. 2019). These myopic behavior can have a negative effect on firms' long-term performance and management forecasts. We discuss and test the possible implication of trade secrets protection law on managers' incentives in section 4.5.1.

H2: The effect of IDD recognition on the frequency and horizons of management earnings forecasts is more pronounced for firms that have higher market shares.

Product market competition is a major deterrent against voluntary disclosure (Verrecchia, 1983;Clinch and Verrecchia, 1997). Trade secrets play an important role in protecting the product market space of innovative firms (Eisenhardt & Martin, 2000; Png, 2017). If trade secret protection laws reduce the proprietary costs of management forecasts, the effect of the IDD will be more pronounced among firms in more competitive product markets and firms with more trade secrets or higher risk of losing trad secrets. This leads to the following two hypotheses.

H3: The effect of IDD recognition on the frequency and horizons of management earnings forecasts is more pronounced for firms that face greater product market competition.

H4: The effect of IDD recognition on the frequency and horizons of management earnings forecasts is more pronounced for firms that have more trade secrets or higher risk of losing trade secrets.

3 SAMPLE SELECTION AND RESEARCH DESIGN

3.1 Sample selection

Our initial sample consists of all U.S. non-financial and non-utility public firms between 1998 and 2011 recorded in Compustat. There are 113,103 firm-years for 15,550 unique firms that meet the above criteria. Requiring firms to have non-missing information on assets, sales, and stock returns and information on SIC industry code and headquarters states[10] reduce the sample to 59,966 firm-years for 9,052 unique firms for the sample period. We then match this sample with First Call data, IBES, and Thomas Reuters 13 database to obtain information to construct regression variables. We obtain management forecasts from First Call and start the sample in 1998

[10] The identification of headquarter state is discussed below.

because of limited data coverage by First Call before that year. Following prior studies (e.g., Ali et al., 2014; Li, 2010), we focus on annual earnings forecasts because the horizon for annual forecasts is typically longer than that for quarterly forecasts, which gives competitors more time to respond to the disclosed information that is more proprietary in nature. If a firm does not issue an annual earnings forecast in a particular year, we set its earnings forecast to zero for that year. Our final sample used in the analysis contains 40,532 firm-years with 5,548 firms, of which 10,600 firm-year observations have at least one annual earnings forecast in a fiscal year. The detailed sample selection procedure is presented in Appendix A.

To identify the state in which each firm's headquarters is located, we follow Heider and Ljungqvist (2015) and extract historical headquarters data from 10K filings. For firm-years for which we are not able to identify historical headquarters using COMPHIST or 10K filings, we use the current headquarters information instead.[11] All of our results are insensitive to using firm-years for which we can directly identify historical headquarters information.

3.2 Construction of the IDD indicator

Once a precedent-setting case recognizing the IDD becomes case law in a state, the courts will apply the doctrine to protect firms' trade secrets. Likewise, if a subsequent ruling rejects the IDD, courts in the state will not apply the IDD. Table 1 in Klasa et al. (2018) lists the 21 precedent-setting cases in which state courts adopt the doctrine and three cases in which state courts reject it; this table is reproduced in Appendix B of this paper. The events span decades. The earliest adoption was in New York in 1919, followed by three adoptions in the 1960s. The most recent case was in Kansas in 2006. During our sample period, three states recognized the IDD (Missouri and Ohio in

[11] Among the 40,532 observations in our final sample, we find that the Compustat location data are incorrect for about 8% of the firm-year observations. This is consistent with Heider and Ljungqvist (2015), who find that 10.1% of the total firm-year observations have incorrect headquarters information in Compustat. Their sample period starts in 1989, whereas ours starts in 1998. The older data is more error prone.

2000, and Kansas in 2006), and three states rejected it after having previously recognized it (Florida in 2001, Michigan in 2002, and Texas in 2003). As the precedent-setting cases indicate the start or end of IDD recognition, we use the dates of these cases to construct our indicator variable for whether state courts are likely to invoke the IDD to protect firms' trade secrets. Specifically, for the 21 states with courts that have recognized the doctrine, we set the IDD indicator as equal to zero in each of the years preceding the date of the precedent-setting case, and one for years after that event.[12] For the three cases in which a subsequent court decision reverses the IDD decision, we set the indicator back to zero for each of the years after the rejection date. For the 29 states in which case law has not explicitly recognized or rejected the doctrine, we set the indicator equal to zero for each year.

3.3 Measurement of management earnings forecasts

The frequency of management forecasts variable (*FREQ*) is the natural logarithm of the number of management forecasts of annual earnings issued during a fiscal year, and the horizon of management forecasts variable (*HORIZON*) is the natural logarithm of the average forecast horizon across all of the annual earnings forecasts made during a year, where the forecast horizon of each forecast is the number of days between the forecast issuance date and the end of the forecasting period.

3.4 Baseline regression model

We apply the standard difference-in-difference approach to the setting of the staggered adoption of state laws (e.g., Armstrong et al., 2012; Bertrand & Mullainathan, 2003; Chava, Oettl, Subramanian, & Subramanian, 2013). We estimate the basic regression as follows:

$$Y_{i,j,t} = \alpha_i + \gamma_t + \theta_t + \beta_1 IDD + \delta \boldsymbol{X}_{i,j,t} + \varepsilon_{i,j,t} \quad (1)$$

[12] Following Klasa et al. (2018), we assume that the precedent-setting cases change courts' positions on the IDD in the year the case was heard.

where *i* denotes the firm, *j* denotes the state in which the firm's headquarters is located, and *t* denotes the year. *Y* is the outcome variable, which is the frequency (*FREQ*) or horizon (*HORIZON*) of management annual earnings forecasts. α and γ denote firm and year fixed effects, respectively. θ_t denotes state fixed effects to account for the effect of headquarters change. *IDD* is an indicator variable equal to one if courts recognize the IDD in the state of the firm's headquarters in year *t*, and zero otherwise.[13] $\boldsymbol{X}$ is a vector of control variables, discussed below.

Our control variables are drawn from previous studies of management forecasts (e.g., Ajinkya, Bhojraj, & Sengupta, 2005; Ali et al., 2014; Feng, Li, & McVay, 2009): firm's market risk (*BETA*), which is estimated from a firm-level rolling regression based on monthly returns over the past 60 months; dummy variables indicating whether the firm issues equity (*ISSUEQ*) or debt (*ISSDEBT*) in the subsequent fiscal year; firm size (*SIZE*), measured as the natural logarithm of the market value of equity at the fiscal year-end; market-to-book ratio (*MTB*), calculated as the ratio of the market value to book value of the common equity; profitability (*ROA*), measured by earnings before extraordinary items scaled by average total assets; a loss indicator (*LOSS*) equal to one if income before extraordinary items in the current fiscal year is negative, and zero otherwise; an indicator of earnings growth (*EPS_UP*) equal to one if current earnings are greater than last year's earnings, and zero otherwise; leverage (*LEVERAGE*), measured as the ratio of total debt to total assets at the end of the fiscal year; earnings volatility (*EVOL*), which is the standard deviation of quarterly ROA over the past 12 quarters; analyst coverage (*NAF*), measured as the natural logarithm of (1 + number of analysts covering the firm in the current fiscal year); the complexity

[13] The IDD is applied in the context of employment law, so the relevant jurisdiction should be the state in which employees work. However, due to data restrictions, we cannot identify the location of individual employees, and thus we use the state in which the firm's headquarters is located as a proxy. As Klasa et al. (2018) note, employees with access to the trade secrets of publicly traded firms are likely to be higher-level employees, who are typically located at firms' headquarters.

of the firm's business, measured as the natural logarithm of (1 + number of geographic segments (*GEOSEG*) or business segments (*BUSSEG*)); institutional ownership (*INST*), measured by the percentage of stock held by institutional investors; and a firm's dividend policy (*DIV*), which is equal to one if the firm issued dividends in the current year. Following Klasa et al. (2018), we add to these firm-level controls two state-level controls: the GDP growth rate (*GDPGROW*) and the percentage of a state's members of Congress who belong to the Democratic Party (*D_PARTY*). Appendix C provides a summary of the variable definitions.

As discussed by Armstrong et al. (2012) and Bertrand and Mullainathan (2003), the variable indicating the existence of the regulation of trade secret knowledge (i.e., *IDD* in Equation (1)) captures the change in *Y* between firms in states that adopt regulations in time *t* and firms in states that do not adopt the regulation in time *t*. Accordingly, the control group is not limited to firms in states that have not adopted the regulation; it includes all of the firms in states not experiencing a regulatory change in time *t*, even if the state has already adopted or will later adopt such regulation. Note that, following Armstrong et al. (2012) and Bertrand and Mullainathan (2003), we cluster standard errors by the state of the firms' headquarters. This approach, along with the inclusion of firm and year fixed effects, accounts for various correlations of error terms including cross-sectional correlation, across-firm serial correlation, and within-firm serial correlation.

Hence, *IDD* in Equation (1) captures the change in management forecasts for firms headquartered in states that adopt the IDD in year *t*, relative to the contemporaneous changes in the management forecasts of firms headquartered in states that do not recognize the IDD in year *t*. H1 predicts a positive association between the protection of trade secrets (as proxied by IDD recognition) and management forecasts, i.e., $\beta_1 > 0$.

3.5 Descriptive statistics

Table 1 presents the descriptive statistics for all of the variables in our final sample. The median forecast frequency (*FREQ*) and horizon (*HORIZON*) are both zero, suggesting that the majority of the sample firms do not issue annual earnings forecasts. The statistics are consistent with those documented in previous studies (e.g., Li, 2010).

[Insert Table 1 about here]

4 EMPIRICAL RESULTS

4.1 IDD and management earnings forecasts

4.1.1 Baseline analysis

We begin our multivariate tests with regressions of the management earnings forecast measures on an indicator for the recognition of the IDD and a set of control variables (i.e., Equation (1)). Columns (1) and (2) of Table 2 report the results for *FREQ* and *HORIZON*, respectively, as the dependent variable. All of the regressions control for firm, year, and state fixed effects, and the significance levels are based on standard errors corrected for heteroskedasticity and clustered by the state in which firms' headquarters are located.

[Insert Table 2 about here]

In column (1), where the dependent variable is *FREQ*, the coefficient on *IDD* is positive and significant (*0.059, t-stat = 4.859*). To gauge the economic significance of this result, we need to take the exponential of the coefficient on *IDD*. The results in column (1) indicate that the management forecast frequency of IDD firms is 6% (=$e^{0.059}$-1) higher than that of non-IDD firms. In column (2), where the dependent variable is *HORIZON*, the coefficient on *IDD* is 0.127 (*t-stat = 3.172*), which is significant at the 1% level. Taking the exponential, the magnitude of this

coefficient suggests that the management forecast horizon of IDD firms is 14% (=$e^{0.127}$-1) longer than that of non-IDD firms.

Thus, the results presented in Table 2 are consistent with the hypothesis that increasing the protection of trade secrets by recognizing the IDD encourages managers to issue more earnings forecasts and forecasts with longer horizons.

4.1.2 Comparison of management forecasts between recognition states and neighboring states

In this section, we consider the states that had IDD recognition shocks after 1998 as the treatment states. For each state, we identify neighboring states that did not recognize the IDD during our sample period as control states. The treatment states include Kansas, Missouri, and Ohio, which recognized the IDD in 2006, 2000, and 2000, respectively. The control states are Colorado, Illinois, Indiana, Iowa, Kentucky, Nebraska, Oklahoma, Pennsylvania, Tennessee, and West Virginia.[14] We limit the control states to neighboring states to mitigate the concern that confounding changes in regional economic conditions explain our results, because firms in neighboring states would be affected similarly by a regional economic shock.[15]

We then estimate the following equation:

$$Y_{i,j,t} = \beta_1 IDDSTATE + \beta_2 POST + \beta_3 IDDSTATE \times POST + \delta \boldsymbol{X}_{i,j,t} + \varepsilon_{i,j,t}, \quad (2)$$

where *i* denotes the firm, *j* denotes the state in which the firm's headquarters is located, and *t* denotes the year. *Y* is the outcome variable, which is the frequency (*FREQ*) or horizon (*HORIZON*) of the management earnings forecast. *IDDSTATE* is an indicator variable equal to one if firm *i* is

[14] Our results are robust to expanding the control sample to firms in all of the states that do not recognize IDD at any point in our sample period.

[15] The state-level control variables in Equation (1) should at least partially address the concern that state-level changes might explain our findings. We also control state and industry-state fixed effects in equation (2). W thank the referee for the suggestions on controlling state and industry-state fixed effects

headquartered in one of the three treatment states, and zero otherwise. *POST* is an indicator variable equal to one if year *t* is in or after the IDD recognition year (i.e., 2000 for Missouri and Ohio and their neighbors, and 2006 for Kansas and its neighbors). The variable of interest is therefore the interaction term $IDDSTATE \times POST$, which represents the incremental increase in management earnings forecasts for the treatment firms after their states recognize IDD, relative to the changes in management earnings forecasts for the control firms in the neighboring states during the same period. $\boldsymbol{X}$ is a vector of control variables, which are the same as in Equation (1). We also control for year fixed effects, industry fixed effects, state fixed effects, and pairs of industry-state and year-industry fixed effects.

Panel A of Table 3 reports the regression results for *FREQ* (column (1)) and *HORIZON* (column (2)) as the dependent variables. In both regressions, the coefficient of *IDDSTATE* is negatively significant, suggesting that the management forecasts by firms in the treatment states are, on average, lower than that of the control firms before the treatment states recognize IDD. However, the coefficient of the interaction term, β_3, is positive and significant in both regressions (*coefficient = 0.099, t-stat = 1.801* in column (1); *coefficient = 0.349, t-stat = 1.803* in column (2)), suggesting that after a state recognizes IDD, firms in the treatment states significantly increase the frequency and horizon of management forecasts, whereas their counterparts in neighboring states do not change their forecasting behaviors. Hence, our finding is robust to this alternative research design and unlikely to be caused by any confounding changes in regional economic conditions.

4.1.3 The effect of IDD timing on management forecasts

Equation (1) assumes that IDD recognition affects firms' incentives to provide management forecasts. There may be concerns about reverse causality and hence about the validity

of the difference-in-differences design. To address these concerns, we ensure that there are no differences in frequency of management earnings forecasts and forecast horizons of the treatment and control firms before the recognition of IDD. Following Bertrand and Mullainathan (2003), we examine the timing of the IDD recognition on management forecasts. Specifically, we replace the IDD indicator in Equation (1) with four event-time indicator variables: IDD_n1, IDD_0, IDD_1, and IDD_2P, where IDD_n1 equals one if the firm is headquartered in a state one year before the recognition of IDD, IDD_0 equals one if the firm is headquartered in a state during the year of IDD recognition, IDD_1 equals one if the firm is headquartered in a state one year following IDD recognition, and IDD_2P equals one if the firm is headquartered in a state two or more years following IDD recognition.

Panel B of Table 3 presents the results of our timing tests. Columns (1) and (2) present the results for FREQ and HORIZON, respectively. We find that the coefficients on IDD_n1 and IDD_0 are not statistically different from zero. In contrast, the coefficients on IDD_1 and IDD_2P are all positive and statistically significant. The finding that IDD recognition positively affects management forecasts only after its recognition suggests that IDD recognition is relatively exogenous. Hence, reverse causality is not likely to explain our result that the recognition of the IDD leads to more and earlier management forecasts.

[Insert Table 3 about here]

4.2 Effect of market share on the relationship between IDD and management earnings forecasts (H2)

In this section, we report the differential effects of the proprietary content of management forecasts on the relationship between IDD recognition and management earnings forecasts. We use market share as a measure of the proprietary content of management forecasts, as a firm's

dominant position in an industry implies that the information released by this firm will be more useful to other players seeking to make production or entry decisions than the information released by non-dominating firms. We calculate a firm's market share as sales divided by annual industry total sales, and then separately estimate Equation (1) for subsamples of firms with sales in the top 75th percentile and firms with sales in the bottom 25th percentile. The results are reported in Table 4.

The results in columns (1) and (3) of Table 4 show that for firms with a large market share (*mkt_shr_H*), the IDD has a significant and positive impact on forecast frequency (*coefficient = 0.108, t-stat = 2.447*) and forecast horizon (*coefficient = 0.341, t-stat = 2.656*). In contrast, for firms in the bottom 25th percentile (*mkt_shr_L*), the effect of the IDD on forecast frequency and forecast horizon is not statistically significant. The difference in the coefficients between the *mkt_shr_H* and *mkt_shr_L* samples are statistically significant at the 10% level (two-tailed test). The differential effects of the IDD on earnings forecasts for high and low market share firms suggest that management forecasts have proprietary content and that the IDD has a stronger impact on firms whose forecasts have higher proprietary content, which is consistent with H2.

[Insert Table 4 about here]

4.3 Effect of product market competition on the relationship between the IDD and management forecasts (H3)

In H3, we predict that the effect of the IDD on management forecasts is more pronounced when firms face more intensive product market competition, that is, when similar products are offered by other firms or by many product market players. As trade secret protection laws can deter competitors from developing similar products or from reverse engineering products associated with trade secrets, we first use the product fluidity index developed by Hoberg et al.

(2014) to capture firms' perceptions of the instability, i.e., fluidity, of their product market space. Hoberg et al. (2014) use computational linguistics to analyze firms' product descriptions in 10Ks and compute product market fluidity as the extent to which a firm's product overlaps with other firms' products. The greater the overlap in the product market space, the higher the fluidity index score and the greater the product market competition. Hoberg et al. (2014) show that product market fluidity is negatively associated with dividend payout and share repurchasing, suggesting that product market competition leads firms to adopt more conservative financial policies. Based on H3, we expect that for firms with less stable product market space, i.e., higher fluidity, the IDD has a stronger effect on the reduction of the proprietary costs of disclosing forward-looking financial information.

We obtain the product market fluidity index from Gerard Hoberg's website and analyze the differential effect of the IDD on firms with high vs. low product market fluidity. Firms with a product market fluidity index score greater (less) than the sample median are classified as firms with high (low) product market competition. We report the results for the two subsamples separately in Table 5. As shown in columns (1) and (3), in firms with high product fluidity, the recognition of the IDD leads to a significant increase in earnings forecast frequency (*coefficient = 0.097, t-stat = 3.004*) and forecast horizon (*coefficient = 0.221, t-stat = 2.172*). In contrast, the results in columns (2) and (4) show that for firms with low product market fluidity, the effects of the IDD on forecast frequency (*coefficient = 0.019, t-stat = 1.204*) and forecast horizon (*coefficient = 0.026, t-stat = 0.397*) are not statistically significant. The difference between the coefficients of the high fluidity and low fluidity subsamples is statistically significant at the 5% level for the forecast frequency analysis (two-tailed test) and 10% level for the forecast horizon analysis (one-tailed tests).

[Insert Table 5 about here]

We also use industry concentration to capture product market competition (e.g., Ali et al., 2014; Li, 2010). Unlike the product market fluidity index, which is an ex ante measure of product market competition (Hoberg et al., 2014), industry concentration is an ex post measure of product market competition that reflects the number of market players in an industry. We use both the top four firms' sales in each 3-digit SIC code industry and the Herfindahl index (*HHI*) of each 3-digit SIC code industry to measure industry concentration. The more concentrated the industry, the smaller the product market competition. We report the results in Table 6. The results in columns (2), (4), (6), and (8) suggest that IDD recognition has a positive and significant effect on firms in less concentrated industries (i.e., more competitive industries), and the results in columns (1), (3), (5), and (7) suggest that IDD recognition has a negligible impact on forecast frequency and forecast horizon for firms in more concentrated industries (i.e., less competitive industries). The difference in these coefficients between the high and low *4FirmRatio* and *HHI* subsamples is statistically significant at the 1%, 5%, or 10% level using two-tailed tests, except for the forecast horizon analysis partitioned on *HHI*.

In summary, the results in Tables 5 and 6 support the hypothesis (H3) that the recognition of the IDD has a stronger effect on the proprietary costs of disclosing forward-looking financial information for firms in more competitive product markets than for firms in less competitive product markets.

[Insert Table 6 about here]

4.4 Effect of the access to and the extent of trade secret information on the relationship between the IDD and management earnings forecasts (H4)

H4 predicts that the IDD has a greater effect on the proprietary costs of management forecasts when a firm has more trade secrets or higher risk of losing trade secrets. We test this prediction from two perspectives. First, we test whether the IDD has differential effects on management forecasts in firms with high or low proportions of employees with knowledge of trade secrets and firms with shorter or longer distance to their industry rivals.

The more knowledge workers a firm has, the greater the risk that trade secrets will be leaked to competitors if the firm's headquarters state has not adopted IDD. We expect that the effect of the IDD is greater for firms with a higher percentage of knowledge workers. Following Klasa et al. (2018), we measure a firm's occupational structure at the state-industry level and define knowledge workers as employees with at least a bachelor's degree or with managerial or science careers. We obtain employee characteristics by industry and state from the Integrated Public Use Microdata Series (IPUMS-USA) database. For each state and industry, we compute the fraction of workers who have at least a bachelor's degree, the fractions in managerial occupations (IPUMS codes 4, 13, 22, or 33), and the fractions in science occupations (IPUMS codes 64, 68, 69, 73–79, or 83). We then estimate equation (1) for a subsample of firms with high (above the state and industry median) and low (below the state and industry median) fractions of employees in these three occupational categories.

Panels A and B of Table 7 report the regression results for the three occupational structure measures when the dependent variable is *FREQ* and *HORIZON*, respectively. In Panel A, across all three measures of occupational structure, the coefficients on the IDD indicator are positive and statistically significant for firms that employ an above-median fraction of workers likely to know

the firm's trade secrets (*Edu:High, coefficient = 0.133, t-stat = 3.642; Sci:High, coefficient = 0.135, t-stat = 4.687; Mgmt:High, coefficient = 0.124; t-stat = 7.179*). In contrast, the coefficients on *IDD* for the low knowledge worker sample are a mix of negative and positive and not statistically different from 0. The differences in the coefficients of the high and low knowledge worker subsamples are statistically significant at the 1% level for all three different measures of knowledge workers (two-tailed tests). The same pattern is observed for the *HORIZON* regression. The coefficients on *IDD* for the *Edu:High, Sci:High,* and *Mgmt:High* sample are 0.337, 0.349, and 0.315 and significant at the 5%, 1%, and 1% levels, respectively. The coefficients on *IDD* for the *Edu:Low*, *Sci:Low*, and *Mgmt:Low* subsamples are -0.035, -0.044, and 0.023, respectively and are not statistically significant. The differences in the coefficients between the two subsamples are statistically significant at the 5%, 5%, and 1% levels using a two-tailed test, respectively. Thus, consistent with H4, the results in Table 7 suggest that the impact of IDD recognition on management forecasts is more pronounced for firms that employ a higher proportion of workers who know the firms' trade secrets.

Next, we use the geographic distance between the incumbent firm and its industry rivals to capture the ease of employees with trade secrets leaving for rival firms. The shorter the geographic distance between the incumbent and its rivals, the more easily the incumbent firm could lose its trade secrets to rivals in the absence of IDD. Therefore, we expect that IDD adoption would have larger impact on firms that are closer to their industry rivals. We follow Klasa et al. (2018) and calculate the weighted-average distance between a firm and its 3-digit SIC code industry rivals (weighted by sales) as a measure of the geographic clustering of a firm's industry rivals. We classify a firm as having short distance to its industry rivals (*Dis to Rivals: Short)* if the firm's weighted-average distance to its industry rivals is smaller than the sample median and as having

long distance to its rivals (*Dis to Rivals: Long)* if the weighted-average distance is greater than the sample median. The results are reported in Panel C of Table 7. We show that when a firm is closer to its industry rivals (*Dis to Rivals: Short*), the effects of IDD on management forecast frequency (*coefficient = 0.081, t-stat = 0.015*) and forecast horizon (*coefficient = 0.227, t-stat = 2.726*) are positive and statistically significant. In contrast, when the average distance between the incumbent firms and their rivals is long (*Dis to Rivals: Long)*, the effect of IDD on management forecasts is negligible. The difference in coefficients between the long and short distance sample is significant at the 5% level for both frequency and horizon analysis.

[Insert Table 7 about here]

The second measure of the trade secrets a firm has is R&D intensity. Firms' R&D generates a significant amount of trade secrets, which could be carried to rival firms through the movement of knowledge workers (Bloom, Schankerman, & Van Reenen, 2013). Restrictions on employee mobility, through IDD adoption, could significantly reduce the concerns of R&D intensive firms about the loss of trade secrets. We calculate R&D intensity as the R&D expenditures divided by the total state-industry R&D. A firm is classified as a high (low) R&D firm if its R&D intensity is above (below) the sample median. Table 8 reports the regression results of Equation (1) on the subsamples. Consistent with our prediction, in the frequency regression, the coefficient on the IDD indicator is 0.108 for the *High R&D* firms (*t-stat = 4.217*) and negative for *Low R&D* firms (*coefficient = -0.016, t-stat = -0.503*). The difference is statistically significant at the 1% level. The pattern is similar for the *HORIZON* regressions and the difference in the coefficients on *IDD* for the high R&D and low R&D samples is statistically significant at the 1% level. These results suggest that the effect of IDD recognition on management forecasts is concentrated in R&D-intensive firms.

[Insert Table 8 about here]

4.5 Additional analyses

4.5.1 The effect of the IDD on management incentives and management forecasts

While we posit that the IDD affects firms' incentives to make forecasts via its effect on reduced competition and the proprietary costs of making forecasts, we also acknowledge that the IDD could affect management forecasts via its effect on managers' incentives. On one hand, reduced outside opportunities due to the IDD could motivate managers to focus on firms' long-term performance and strengthen firms' competitive position, resulting in firms making more frequent forecasts and forecasts with longer horizon. On the other hand, recent studies have shown that trade secret protection law can induce managers to engage in myopic behavior. For example, Chen et al. (2018) show that for a sample of U.S. firms, strengthened enforcement of non-competition covenants (NCC) leads to more earnings management and reductions in discretionary spending. Ali et al. (2018) show that adoption of the IDD results in management withholding more bad news. If the effect of trade secret protection law on managers' myopic behavior outweighs the effect of trade secret protection law on firms' competitive position, we expect that the IDD could endanger firms' competitive position, leading to fewer forecasts and forecasts with shorter horizon. To further evaluate this possibility, we conduct additional analyses by focusing on the situation in which managers exhibit greater myopic behavior, that is, firms with non-dual CEOs (i.e., CEOs are not the chairman of the board), young CEOs, and CEOs with shorter tenure (e.g., Ali & Zhang 2015; Boyd, 1995; Brickley et al., 1997; Donaldson & Davis, 1991; Lee, Matsunaga, and Park, 2012; Yang & Zhao, 2014). If the IDD aligns managers' interest with that of shareholders (exacerbating managers' myopic behavior), we would expect the effect of the IDD on management

forecasts could be larger (smaller) for non-dual CEOs, younger CEOs, and CEOs with shorter tenure.

We obtain information about CEO titles, age, and tenure from ExecuComp and analyze the effect of IDD on management forecasts for a sample of firms with and without dual CEOs, with younger and older CEOs, and with CEOs with short and long tenure. CEOs are defined as dual CEOs if a CEO also holds the position of chair of the board of directors at the same time. Young CEOs are aged under 56 years, and old otherwise. CEOs with short tenure are CEOs who have worked for a firm as a CEO for less than 6 years. The results are reported in Table 9. We find that the effect of *IDD* on management earnings frequency is positive and statistically significant for the non-dual CEO sample (*coefficient = 0.076, t-stat = 1.702*), and positive but not statistically significant for the dual CEO sample (*coefficient = 0.094, t-stat = 1.169*). The coefficients on *IDD* are statistically significant for both the young CEO (*coefficient = 0.102, t-stat = 2.984*) and old CEO (*coefficient = 0.095, t-stat = 1.739*) subsamples; and the coefficients on IDD are not statistically significant for either the short or the long tenure CEO subsamples. For the forecast horizon analysis, there is no consistent evidence suggesting the IDD results in greater alignment between managers and shareholders, or the IDD exacerbates managers' myopic behavior. Overall, the evidence suggests that the IDD may have a second order effect on management incentives and management forecasts. This could be because the direct effect of *IDD* on firms' competitive position, investment in human capital (Qiu & Wang 2018), and compensation contracts (Garmaise, 2011) alters or interacts with CEOs' incentives, making it difficult to detect the effect of IDD on management forecasts via the CEO incentive channel.[16]

[Insert Table 9 about here]

[16] In addition, IDD and other trade secret protection laws are applicable to all employees instead of just CEOs. Focusing on CEO characteristics only may reduce the power to detect the effect.

4.5.2 Controlling the effect of UTSA and non-compete enforceability

While UTSA has established a general framework for protection of trade secrets by specifying the scope of trade secrets, defining acts of trade secret misappropriation, and the procedure and time limit to seek remedies for misappropriated trade secrets (Pooley, 1997), trade secret protection falls under the jurisdiction of states, and different states could exhibit substantial variations in the timing and strengths in their approaches to trade secret protections, i.e., adoption of UTSA, IDD, and/or enforcement of non-compete covenants (NCC). For example, Florida had a precedent-setting case of IDD in 1960, adopted UTSA in 1988, and rejected IDD in 2001. However, Florida strengthened its enforcement of NCC over 1997–2004. Texas had an IDD precedent-setting case in 1993, reduced the enforceability of NCC in 1995, and rejected IDD in 2003, but adopted UTSA in 2013. In order to evaluate whether the effect of IDD on management forecasts is due to the adoption of UTSA or strengthening of NCC, we repeat our main analysis by controlling the adoption of UTSA and strength of NCC index. We add Garmaise's (2011) enforceability index (*NCINDEX*) and UTSA adoption indicator (Png, 2017) to Equation (1) to control for the effect of other trade secret protection law at the state level. Table 10 presents the regression results for the *FREQ* regression and *HORIZON* regression, respectively. In both regressions, the coefficients on IDD remain qualitatively similar to those in Table 2 when *UTSA* and *NCINDEX* are not controlled, suggesting that the effect of IDD is incremental to other state level trade secret protection laws. While the coefficient on *UTSA* is statistically significant, the coefficient on *NCINDEX* is negative and significant in the *FREQ* regression but not in the *HORIZON* regression.

[Insert Table 10 about here]

4.5.3 IDD and the informativeness of management earnings forecasts

Our evidence consistently shows that the recognition of the IDD encourages managers to issue more earnings forecasts and issue forecasts with longer horizons. In this section, we test whether earnings forecasts are more informative after the recognition of the IDD. Following Lo (2014), we capture the informativeness of management earnings forecasts using the change in the Amihud (2002) illiquidity measure (*Illiquidity*) around an earnings forecast, that is, the difference in average *Illiquidity* between the three days before and the three days after the forecast announcement date. A more negative change would indicate an increase in liquidity and greater forecast informativeness.

Table 11 reports the regression results of Equation (1) after making the change in illiquidity ($\Delta Illiquidity$) as the dependent variable. The coefficient on the IDD indicator is negative and significant at the 5% level (*coefficient = −0.004, t-stat = −2.016*), suggesting that the recognition of the IDD increases the informativeness of management earnings forecasts, further supporting the view that the increased protection of trade secrets mitigates the concern of the proprietary costs of management forecasts and hence increases managers' willingness to disclose valuable information.

[Insert Table 11 about here]

5 CONCLUSIONS

We examine the effect of the staggered recognition of the inevitable disclosure doctrine by U.S. state courts on management forecasts. We argue that the recognition of the IDD reduces the proprietary costs of disclosing forward-looking financial information. Using a difference-in-difference research design, we find that the frequency and horizon of management earnings forecasts increase after the recognition of the IDD by courts in firms' headquarters states. We also find that the impact of the recognition of the IDD on management earnings forecasts is more pronounced for firms that have higher market shares, face greater product market competition,

have more knowledge workers who possess trade secrets and shorter distance to their industry rivals, and engage in intensive R&D activities. Overall, our findings are consistent with our conjecture that trade secret protection laws reduce the usefulness of forward-looking information for competitors who attempt to devise production and entry plans, and therefore these laws lower the proprietary costs of earnings forecasts.

Our study represents the first effort to explore how different types of proprietary information (i.e., trade secrets and information about future profitability) jointly affect managers' disclosure decisions. We show that a reduction in the amount of trade secret information available to competitors alleviates firms' concerns about the costs of releasing financial information. Our study also contributes to the understanding of how competition affects firms' incentives to disclose information. Prior studies have used industry concentration to measure competition and have reached mixed conclusions on the relationship between the proprietary costs of disclosure and competition (Beyer et al., 2010). Recent studies by Huang et al. (2016) and Burks et al. (2018) use tariff reduction and bank deregulation shock to identify shocks to firms' competitive environments. By identifying a different shock to the competitive environment in the knowledge economy, our study adds to Huang et al. (2016) and Burks et al. (2018) and shows that a reduction in competitive risk leads to more voluntary disclosure of forward-looking financial information.

Appendix A: Sample Selection

	Firm-years	Firms
All Compustat non-financial and non-utility U.S firms in 1998-2011	113,103	15,550
Observations with non-missing headquarter state and SIC industry codes	110,938	15,211
Observations with non-missing assets, sales, and stock returns	59,966	9,052
Observations with all regression variables available	40,532	5,548
with management forecasts	10,600	2,400
without management forecasts	29,932	5,263

Appendix B (Table 1 of Klasa et al., 2018)
Precedent-setting legal cases adopting or rejecting the inevitable disclosure doctrine

The table lists the precedent-setting legal cases in which U.S. state courts adopted the inevitable disclosure doctrine (IDD) or rejected it after it had been adopted. The states not listed in the table never adopted the IDD. The texts of all of the court decisions are available on Google Scholar.

State	Precedent-Setting Case(s)	Date	Decision
AR	Southwestern Energy Co. v. Eickenhorst, 955 F. Supp. 1078 (W.D. Ark. 1997)	3/18/1997	Adopt
CT	Branson Ultrasonics Corp. v. Stratman, 921 F. Supp. 909 (D. Conn. 1996)	2/28/1996	Adopt
DE	E.I. duPont de Nemours & Co. v. American Potash & Chem. Corp., 200 A.2d 428 (Del. Ch. 1964)	5/5/1964	Adopt
FL	Fountain v. Hudson Cush-N-Foam Corp., 122 So. 2d 232 (Fla. Dist. Ct. App. 1960) Del Monte Fresh Produce Co. v. Dole Food Co. Inc., 148 F. Supp. 2d 1326 (S.D. Fla. 2001)	7/11/1960 5/21/2001	Adopt Reject
GA	Essex Group Inc. v. Southwire Co., 501 S.E.2d 501 (Ga. 1998)	6/29/1998	Adopt
IL	Teradyne Inc. v. Clear Communications Corp., 707 F. Supp. 353 (N.D. 111. 1989)	2/9/1989	Adopt
IN	Ackerman v. Kimball Int'l Inc., 652 N.E.2d 507 (Ind. 1995)	7/12/1995	Adopt
IA	Uncle B's Bakery v. O'Rourke, 920 F. Supp. 1405 (N.D. Iowa 1996)	4/1/1996	Adopt
KS	Bradbury Co. v. Teissier-duCros, 413 F. Supp. 2d 1203 (D. Kan. 2006)	2/2/2006	Adopt
MA	Bard v. Intoccia, 1994 U.S. Dist. LEXIS 15368 (D. Mass. 1994)	10/13/1994	Adopt
MI	Allis-Chalmers Manuf. Co. v. Continental Aviation & Eng. Corp., 255 F. Supp. 645 (E.D. Mich. 1966) CMI Int'l, Inc. v. Intermet Int'l Corp., 649 N.W.2d 808 (Mich. Ct. App. 2002)	2/17/1966 4/30/2002	Adopt Reject
MN	Surgidev Corp. v. Eye Technology Inc., 648 F. Supp. 661 (D. Minn. 1986)	10/10/1986	Adopt
MO	H&R Block Eastern Tax Servs. Inc. v. Enchura, 122 F. Supp. 2d 1067 (W.D. Mo. 2000)	11/2/2000	Adopt
NJ	Nat'l Starch & Chem. Corp. v. Parker Chem. Corp., 530 A.2d 31 (N.J. Super. Ct. 1987)	4/27/1987	Adopt
NY	Eastman Kodak Co. v. Powers Film Prod., 189 A.D. 556 (N.Y.A.D. 1919)	12/5/1919	Adopt
NC	Travenol Laboratories Inc. v. Turner, 228 S.E.2d 478 (N.C. Ct. App. 1976)	6/17/1976	Adopt
OH	Procter & Gamble Co. v. Stoneham, 747 N.E.2d 268 (Ohio Ct. App. 2000)	9/29/2000	Adopt
PA	Air Products & Chemical Inc. v. Johnson, 442 A.2d 1114 (Pa. Super. Ct. 1982)	2/19/1982	Adopt
TX	Rugen v. Interactive Business Systems Inc., 864 S.W.2d 548 (Tex. App. 1993) Cardinal Health Staffing Network Inc. v. Bowen, 106 S.W.3d 230 (Tex. App. 2003)	5/28/1993 4/3/2003	Adopt Reject
UT	Novell Inc. v. Timpanogos Research Group Inc., 46 U.S.P.Q.2d 1197 (Utah D.C. 1998)	1/30/1998	Adopt
WA	Solutec Corp. Inc. v. Agnew, 88 Wash. App. 1067 (Wash. Ct. App. 1997)	12/30/1997	Adopt

Appendix C: Variable Definitions

Variables	*Definitions*
Dependent Variables	
FREQ	The natural logarithm of (1 + number of management forecasts of annual earnings issued during a fiscal year). FREQ equals 0 if a firm does not issue an annual forecast during the fiscal year.
HORIZON	The natural logarithm of average forecast horizon of the annual earnings forecasts issued during a fiscal year. The forecast horizon is calculated as the number of days between the forecast announcement date and the forecasting fiscal period end date. HORIZON equals 0 if a firm does not issue an annual earnings forecast during a fiscal year.
Change in illiquidity	The difference in the average Amihud ratio three days before and three days after a management earnings forecast.
Key Independent Variable	
IDD	An indicator variable that equals 1 for a state-year in which IDD is recognized, and 0 otherwise.
IDDSTATE	An indicator variable that equals 1 if firms are from Missouri, Ohio, or Kansas, and 0 if firms are from Oklahoma, Tennessee, Kentucky, Illinois, Iowa, Nebraska, Indiana, Pennsylvania, West Virginia, or Colorado.
POST	An indicator variable that equals 1 if the firm-year observations are after 2000 (for Missouri, Ohio, and their control firms) or 2006 (for Kansas and its control firms in Colorado), and 0 otherwise.
DD_0, IDD_n1, IDD_1,IDD_2P	IDD_0, IDD_n1, IDD_1, and IDD_2P are respectively equal to 1 if the firm is headquartered in a state that adopts the IDD in the current year, will adopt the IDD in the next year, adopted the IDD one year ago, or adopted the IDD two or more years ago, and 0 otherwise.
Control Variables	
BETA	Equity market beta estimated from a rolling regression of 60 months of data requiring at least 35 months of non-missing return data.
BUSSEG	Natural logarithm of (1 + number of business segments).
CONRATIO	Industry concentration ratio measured by the four-firm industry sales ratios obtained from the U.S. Census Bureau. For industries (mining, construction, and management of companies and enterprises) that do not have four-firm sales ratios in the Census Bureau, we compute the ratios using Compustat data.
D_PARTY	The percentage of a state's delegation to the U.S. House of Representatives that belongs to the Democratic Party.
DIV	An indicator variable that equals 1 if a firm issues a dividend in a year, and 0 otherwise.
EPS_UP	An indicator variable that equals 1 if a firm's current earnings are greater than in the previous year, and 0 otherwise.
EVOL	Standard deviation of quarterly earnings before extraordinary items scaled by total assets for the 12 quarters before the current fiscal year.
GDPGROW	The percentage change in GDP from the previous year for each state.
GEOSEG	Natural logarithm of (1 + number of geographic segments).
INST	The percentage of institutional ownership.
ISSUDEBT	An indicator variable that equals 1 if the firm issued debt in the subsequent year, and 0 otherwise.
ISSUEQ	An indicator variable that equals 1 if the firm issued equity in the subsequent year, and 0 otherwise.
LEVERAGE	The ratio of total debt to total assets at the end of the fiscal year.
LOSS	An indicator variable that equals 1 if the income before extraordinary items is negative in the fiscal year, and 0 otherwise.

Appendix C: Variable definitions (continued)

Variables	*Definitions*
UTSA	An indicator variable that equals 1 if the headquarters state of a firm adopted UTSA in a year and 0 otherwise.
ROA	Earnings before extraordinary items, scaled by average total assets.
SIZE	The natural logarithm of sales at the fiscal year-end.
Mediator variables	
mkt_shr_H	Firms with market share in the top 75th percentile of an industry. Market share is calculated as sales divided by the total sales in a 3-digit SIC industry.
mkt_shr_L	Firms with market share in the bottom 25th percentile of an industry. Market share is calculated as sales divided by the total sales in a 3-digit SIC industry.
4FirmRatio	Market shares of the top four firms in each 4-digit SIC industry. *4FirmRatio_H* (*4FirmRatio_L*) indicates whether an industry's 4FirmRatio is greater (less) than the sample median.
HHI	The Herfindahl industry concentration ratio for each 4-digit SIC code industry. *HHI_H* (*HHI_L*) indicates whether an industry's HHI is greater (less) than the sample median.
Product_Competition_H	An indicator variable that equals 1 if the product market fluidity is greater than the sample median, and 0 otherwise. Product market fluidity is a measure of the product market threat provided by Hoberg, Phillips, and Prabhala (2014).
Product_Competition_L	An indicator variable that equals 1 if the product market fluidity is smaller than the sample median, and 0 otherwise. Product market fluidity is a measure of the product market threat provided by Hoberg, Phillips, and Prabhala (2014).
High R&D	An indicator variable that equals 1 if a firm has an R&D share (research-and-development expenditure/the total state-year research-and-development expenditure) greater than sample median.
Low R&D	An indicator variable that equals 1 if a firm has an R&D share (research-and-development expenditure/the total state-year research-and-development expenditure) less than sample median.
High Knowledge worker (*Edu*, *Sci*, *Mgmt*)	An indicator variable that equals 1 if a firm is located in a state and also belongs to a 3-digit NAICS industry in which the state-industry measure of knowledge workers is greater than the sample median, where knowledge workers are workers with a bachelor's degree (*Edu*), working as scientists (*Sci*), or in managerial positions (*Mgmt*).
Low Knowledge worker (*Edu*, *Sci*, *Mgmt*)	An indicator variable that equals 1 if a firm is located in a state and also belongs to a 3-digit NAICS industry with the state-industry measure of knowledge workers less than the sample median, where knowledge workers are workers with a bachelor's degree (*Edu*), working as scientists (*Sci*), or in a managerial position (*Mgmt*).
Dual CEO	Dual CEOs are CEO who hold the chair position and 0 otherwise.
Young/Old CEOs	Young CEOs are CEOs aged less than 56 years and old CEOs are CEOs older than 56 years.
Short Tenure	CEOs with tenure less than 6 years.
Long Tenure	CEOs with tenure longer than 6 years.
Distance to rivals: Long	The sample of firms with distance to industry rivals greater than the sample median. The distance is calculated as the weighted average (weighted by sales) distance between an incumbent firm and its SIC 3-digit industry rivals.
Distance to rivals: Short	The sample of firms with distance to industry rivals smaller than the sample median. The distance is calculated as the weighted average (weighted by sales) distance between an incumbent firm and its SIC 3-digit industry rivals.

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Table 1 Descriptive statistics

Variable	N	Mean	Std.	p25	p50	p75
FREQ	40,532	0.357	0.654	0	0	0.693
HORIZON	40,532	1.338	2.322	0	0	2.944
BETA	40,532	0.866	0.556	0.451	0.801	1.215
ISSUEQ	40,532	0.819	0.385	1	1	1
ISSUDEBT	40,532	0.471	0.499	0	0	1
SIZE	40,532	5.343	2.311	3.865	5.415	6.919
MTB	40,532	2.881	5.842	1.094	1.936	3.488
ROA	40,532	-0.054	0.330	-0.063	0.030	0.079
LOSS	40,532	0.367	0.482	0	0	1
EPS_UP	40,532	0.568	0.495	0	1	1
LEVERAGE	40,532	0.504	0.476	0.276	0.461	0.635
GDPGROW (%)	40,532	4.574	2.996	2.900	4.900	6.300
D_PARTY(%)	40,532	0.539	0.200	0.400	0.545	0.635
EVOL	40,532	0.045	0.137	0.008	0.018	0.044
Analysts	40,532	4.560	5.705	0	2.250	6.764
GEOSEG	40,532	6.434	6.342	3	4	9
BUSSEG	40,532	5.613	4.510	3	3	9
INST_P(%)	40,532	0.347	0.348	0	0.247	0.672
R&D(%)	40,532	0.068	0.134	0	0.008	0.081

Notes: This table presents the descriptive statistics for the variables used in the main regressions. The sample spans the 1998–2011 period and excludes the financial and utilities industries. All of the continuous variables are winsorized at their 1% and 99% percentiles. Variable definitions are presented in Appendix C.

Table 2 IDD and Management forecasts

	Dependent Variable = FREQ	Dependent Variable = HORIZON
	(1)	(2)
IDD	**0.059*** **	**0.127*** **
	[4.859]	**[3.172]**
BETA	-0.012	-0.061
	[-0.947]	[-1.404]
ISSUEQ	0.028***	0.110***
	[3.357]	[4.204]
ISSUDEBT	0.004	0.034
	[0.394]	[1.021]
SIZE	0.069***	0.251***
	[9.416]	[9.209]
MTB	0.001	0.002
	[1.238]	[1.336]
ROA	-0.027*	-0.091
	[-1.765]	[-1.521]
LOSS	-0.102***	-0.317***
	[-12.404]	[-12.254]
EPS_UP	-0.033***	-0.145***
	[-5.893]	[-7.571]
LEVERAGE	-0.020***	-0.064**
	[-2.851]	[-2.442]
GDPGROW	-0.003	-0.014**
	[-1.667]	[-2.508]
D_PARTY	-0.123***	-0.366***
	[-3.156]	[-3.085]
EVOL	-0.065**	-0.253***
	[-2.643]	[-3.461]
NAF	0.069***	0.283***
	[5.926]	[6.173]
GEOSEG	0.009	0.036
	[0.926]	[1.113]
BUSSEG	0.037***	0.110***
	[3.331]	[2.810]
INST	0.092***	0.193
	[3.977]	[1.673]
DIV	0.029*	0.097*
	[1.867]	[1.746]
CONRATIO	-0.001	-0.002
	[-0.800]	[-0.967]
Constant	-0.256***	-0.846***
	[-3.630]	[-3.165]
Observations	40,532	40,532
Adjusted R^2	0.625	0.574

Notes. The dependent variable in column (1) is management forecast frequency measured as the logarithm of (1+ the number of annual earnings forecasts a firm issues during a fiscal year). The dependent variable in column (2) is management forecast horizon measured as the logarithm of the average forecast horizon for all of the annual earnings forecasts issued during a year, where the forecast horizon for each forecast is defined as the number of days

between the forecast announcement date and the fiscal year-end date of the forecasting period. The key independent variable is *IDD*, an indicator variable that equals 1 if a firm is headquartered in a state that has recognized the IDD in year *t*, and 0 otherwise. The definitions of the other variables are in Appendix C. All of the specifications include year, state, and firm fixed effects. Standard errors are corrected for heteroskedasticity and clustered at the state-of-headquarters level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 3 Analyzing the effect of IDD using alternative research design

Panel A: Analyzing firms experiencing IDD adoption shock after 1998

	(1)	(2)
VARIABLES	Dependent Variable = FREQ	Dependent Variable = HORIZON
IDDSTATE	-0.850***	-4.273***
	[-3.231]	[-2.922]
Post	0.021	0.096
	[0.433]	[0.533]
IDDSTATE*Post	**0.099***	**0.349***
	[1.801]	**[1.803]**
BETA	-0.098***	-0.233**
	[-3.275]	[-2.257]
ISSUEQ	0.061**	0.225**
	[2.347]	[2.475]
ISSUDEBT	0.046**	0.184**
	[2.100]	[2.456]
SIZE	0.064***	0.202***
	[5.258]	[5.026]
MTB	0.001	0.004
	[0.602]	[0.669]
ROA	-0.056	-0.126
	[-1.383]	[-0.917]
LOSS	-0.145***	-0.474***
	[-6.984]	[-6.409]
EPS_UP	0.003	0.032
	[0.213]	[0.632]
LEVERAGE	-0.006	-0.058
	[-0.217]	[-0.598]
GDPGROW	-0.004	-0.017
	[-1.031]	[-1.031]
D_PARTY	0.019	-0.117
	[0.160]	[-0.295]
EVOL	-0.005	-0.109
	[-0.085]	[-0.486]
NAF	0.168***	0.568***
	[7.144]	[7.392]
GEOSEG	0.036*	0.152**
	[1.948]	[2.413]
BUSSEG	-0.018	-0.06
	[-0.756]	[-0.777]
INST	0.021	0.108
	[0.311]	[0.504]
Litigation	0.081**	0.229*
	[1.995]	[1.712]
DIV	0.000	-0.037
	[0.001]	[-0.359]
CONRATIO	-0.001	-0.002
	[-1.392]	[-0.740]

Constant	0.563**	2.934**
	[1.980]	[2.047]
Observations	8,025	8,025
Adjusted R^2	0.296	0.26

Panel B: Analyzing the timing effect of IDD recognition

	Dependent Variable = FREQ	**Dependent Variable = HORIZON**
	(1)	(2)
IDD_n1	0.086	0.346
	[0.961]	[1.333]
IDD_0	0.097	0.376
	[0.925]	[1.311]
IDD_1	**0.154***	**0.491***
	[1.710]	**[1.862]**
IDD_2P	**0.234*****	**0.602*****
	[2.722]	[2.706]
BETA	-0.001	-0.035
	[-0.089]	[-1.033]
ISSUEQ	0.004	0.024
	[0.424]	[0.673]
ISSUDEBT	-0.005	0.011
	[-0.495]	[0.305]
SIZE	0.068***	0.232***
	[10.565]	[10.275]
MTB	-0.002***	-0.005***
	[-3.587]	[-2.775]
ROA	-0.001	-0.012
	[-0.093]	[-0.215]
LOSS	-0.074***	-0.236***
	[-9.639]	[-8.034]
EPS_UP	-0.034***	-0.142***
	[-6.173]	[-7.368]
LEVERAGE	0.017**	0.051*
	[2.598]	[1.789]
GDPGROW	-0.009***	-0.026***
	[-3.291]	[-3.331]
D_PARTY	-0.061	-0.276
	[-0.844]	[-1.467]
EVOL	-0.095***	-0.346***
	[-4.593]	[-5.013]
NAF	0.060***	0.264***
	[5.078]	[5.610]
GEOSEG	0.017*	0.059*
	[1.732]	[1.811]
BUSSEG	0.048***	0.135***
	[4.484]	[3.627]
INST	0.242***	0.557***
	[7.381]	[4.518]
DIV	0.016	0.038
	[1.202]	[0.915]
CONRATIO	0.000	-0.001
	[-0.277]	[-0.657]
Constant	-0.271***	-0.663***
	[-3.496]	[-2.964]

Observations	37,384	37,384
Adjusted R^2	0.622	0.573

Notes:. This table reports the regression results using alternative research design. The dependent variable in column (1) is forecast frequency measured as the logarithm of (1+ the number of annual earnings forecasts a firm made during a fiscal year). For firms issuing no forecast, *FREQ* is set to 0. The dependent variable in column (2) is forecast horizon measured as the logarithm of the average forecast horizon for all annual earnings forecasts issued during a year, where the forecast horizon for each forecast is defined as the number of days between the forecast announcement date and the forecasting fiscal period end date. Panel A compares forecasts of firms in recognition states (treatment states) with those in non-recognition states (control states). Treatment states include Missouri, Ohio, and Kansas, which recognized the *IDD* in 2000, 2000, and 2006, respectively. Control states refer to the treatment states' neighbors that do not recognize the *IDD* during our sample period. For Missouri, the control states are Oklahoma, Tennessee, Kentucky, Illinois, Iowa, and Nebraska; for Ohio, the control states are Indiana, Pennsylvania, Kentucky, and Western Virginia; for Kansas, the control state is Colorado. *IDDSTATE* is an indicator variable that equals to 1 if firms are from one of the treatment states (Missouri, Ohio, or Kansas), and 0 if firms are headquartered in the control states. *POST* is an indicator variable that equals to 1 for years after 2000 (for Missouri, Ohio, and their corresponding control states) or 2006 (for Kansas and its control state, Colorado), and 0 otherwise. All of the specifications include year, state, industry, year-industry, and state-industry fixed effects. Panel B estimates the timing effects of the changes in state courts' position regarding the *IDD* on management forecasts. *IDD_0, IDD_n1, IDD_1, and IDD_2P* equal 1 if the firm is headquartered in a state that adopts the *IDD* in the current year, will adopt the *IDD* in the next year, adopted the *IDD* one year ago, or adopted the *IDD* two or more years ago, respectively, and 0 otherwise. All of the specifications include year and firm fixed effects. The definitions of the other variables are given in Appendix C. Standard errors are corrected for heteroskedasticity and clustered at the state-of-headquarters level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 4 Effect of market share on the relationship between IDD and management forecasts

	Dependent Variable = FREQ		**Dependent Variable = HORIZON**	
	(1)	(2)	(3)	(4)
VARIABLES	*mkt_shr_H*	*mkt_shr_L*	*mkt_shr_H*	*mkt_shr_L*
IDD	**0.108****	**0.011**	**0.341****	**0.045**
	[2.447]	**[0.347]**	**[2.656]**	**[0.444]**
BETA	-0.020	-0.000	-0.012	-0.015
	[-0.803]	[-0.041]	[-0.124]	[-0.364]
ISSUEQ	0.023	0.001	0.064	0.013
	[0.629]	[0.083]	[0.506]	[0.373]
ISSUDEBT	-0.004	-0.007	-0.006	-0.006
	[-0.143]	[-0.589]	[-0.068]	[-0.115]
SIZE	0.188***	0.017***	0.608***	0.076***
	[4.023]	[3.358]	[4.373]	[3.714]
MTB	0.000	0.000	0.002	0.002
	[0.321]	[0.445]	[0.481]	[1.027]
ROA	-0.012	-0.002	-0.128	-0.013
	[-0.218]	[-0.251]	[-0.689]	[-0.434]
LOSS	-0.117***	-0.056***	-0.338***	-0.227***
	[-4.530]	[-4.429]	[-3.989]	[-4.650]
EPS_UP	-0.048***	-0.019***	-0.205***	-0.091***
	[-3.401]	[-2.751]	[-4.811]	[-3.048]
LEVERAGE	-0.225***	-0.001	-0.747***	-0.004
	[-3.056]	[-0.127]	[-2.981]	[-0.253]
GDPGROW	-0.007*	-0.001	-0.037***	-0.006
	[-1.844]	[-0.438]	[-2.893]	[-0.823]
D_PARTY	-0.139	-0.065	-0.349	-0.409
	[-1.466]	[-0.968]	[-1.235]	[-1.560]
EVOL	-0.608**	-0.004	-1.809*	-0.016
	[-2.092]	[-0.170]	[-1.892]	[-0.197]
NAF	0.038	0.038*	0.163	0.150*
	[1.286]	[1.806]	[1.534]	[1.893]
GEOSEG	0.004	-0.003	0.054	0.018
	[0.150]	[-0.236]	[0.590]	[0.404]
BUSSEG	0.013	-0.007	0.064	-0.073
	[0.488]	[-0.360]	[0.702]	[-0.935]
INST	-0.032	0.344***	-0.005	0.982***
	[-0.416]	[3.184]	[-0.023]	[2.975]
DIV	0.088*	0.010	0.278*	0.027
	[1.950]	[0.722]	[1.738]	[0.534]
CONRATIO	0.000	0.001	-0.001	0.003
	[0.143]	[0.764]	[-0.356]	[0.939]
Constant	-0.859***	-0.001	-2.394**	0.125
	[-2.713]	[-0.028]	[-2.514]	[0.634]
Observations	8,984	8,984	8,984	8,984
Adjusted R2	0.664	0.612	0.611	0.565

Notes: This table presents the results from regressions of *FREQ* and *HORIZON* for the subsamples with high vs. low product market competition. *FREQ* is the natural logarithm of (1 + number of annual earnings forecasts a firm made during a fiscal year). *HORIZON* is the natural logarithm of the average forecast horizon for all of the annual earnings forecasts issued during a year, where the forecast horizon for each forecast is defined as the number of days between the forecast announcement date and the forecasting fiscal period end date. Columns (1) and (3) report the results for the subsamples with sales in the top 75th percentile of each 3-digit SIC industry and columns (2) and (4) report the estimation results for the subsamples with market shares in the bottom 25th percentile of each 3-digit SIC industry, where market share is calculated as the firm's sales divided by the total sales of the 3-digit SIC industry. The variable of interest is *IDD*, an indicator variable that equals 1 if a firm is headquartered in a state that recognizes the inevitable disclosure doctrine, and 0 otherwise. The definitions of the other variables are provided in Appendix C. All specifications include year, state, and firm fixed effects. Standard errors are corrected for heteroskedasticity and clustered at the state-of-headquarter level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 5 Effect of product market competition on the relationship between IDD and management earnings forecasts

	Dependent Variable = FREQ		Dependent Variable = HORIZON	
	(1)	(2)	(3)	(4)
VARIABLES	*Product Competition_H*	*Product Competition_L*	*Product Competition_H*	*Product Competition_L*
IDD	***0.097****	***0.019***	***0.221****	***0.026***
	[3.004]	**[1.204]**	**[2.172]**	**[0.397]**
BETA	0.001	-0.043**	0.008	-0.210***
	[0.035]	[-2.144]	[0.150]	[-2.969]
ISSUEQ	0.034*	0.018	0.124*	0.095*
	[1.971]	[1.172]	[1.966]	[1.879]
ISSUDEBT	0.005	0.000	0.007	0.043
	[0.473]	[0.024]	[0.172]	[1.066]
SIZE	0.054***	0.135***	0.203***	0.465***
	[6.241]	[6.681]	[5.496]	[6.786]
MTB	0.001	-0.000	0.001	0.004
	[1.642]	[-0.340]	[0.723]	[0.792]
ROA	-0.034*	-0.014	-0.125*	-0.063
	[-1.919]	[-0.477]	[-1.742]	[-0.504]
LOSS	-0.114***	-0.080***	-0.346***	-0.257***
	[-7.147]	[-6.686]	[-7.019]	[-6.168]
EPS_UP	-0.019	-0.045***	-0.099**	-0.173***
	[-1.655]	[-5.895]	[-2.387]	[-5.086]
LEVERAGE	-0.031**	-0.098***	-0.111**	-0.358***
	[-2.322]	[-2.736]	[-2.336]	[-2.858]
GDPGROW	-0.001	-0.004	-0.012	-0.014
	[-0.536]	[-1.550]	[-1.118]	[-1.379]
D_PARTY	-0.128*	-0.092*	-0.421*	-0.228
	[-1.965]	[-1.770]	[-1.899]	[-1.363]
EVOL	-0.055**	-0.164**	-0.241**	-0.491**
	[-2.021]	[-2.139]	[-2.627]	[-2.066]
NAF	0.042**	0.088***	0.213***	0.335***
	[2.538]	[4.848]	[3.386]	[5.156]
GEOSEG	0.004	0.018	0.010	0.059
	[0.330]	[1.156]	[0.238]	[1.119]
BUSSEG	0.037**	0.028**	0.108*	0.096**
	[2.106]	[2.026]	[1.795]	[2.031]
INST	0.180***	0.029	0.474**	-0.069
	[3.464]	[0.536]	[2.574]	[-0.410]
DIV	0.009	0.039*	0.035	0.154**
	[0.542]	[1.850]	[0.593]	[2.129]
CONRATIO	-0.000	-0.000	-0.000	-0.001
	[-0.565]	[-0.083]	[-0.089]	[-0.406]
Constant	-0.219***	-0.648***	-0.802***	-1.982***
	[-2.991]	[-5.233]	[-2.887]	[-4.065]
Observations	19,562	19,562	19,562	19,562
Adjusted R^2	0.646	0.667	0.589	0.623

Notes: This table presents the results from regressions of *FREQ* and *HORIZON* for subsamples with high vs. low product market competition. *FREQ i*s the natural logarithm of (1 + number of annual earnings forecasts a firm made during a fiscal year). *HORIZON* is the natural logarithm of the average forecast horizon for all of the annual earnings forecasts issued during a year, where the forecast horizon for each forecast is defined as the number of days between the forecast announcement date and the forecasting fiscal period end date. Columns (1) and (3) report the

results for the subsamples with high product market competition and columns (2) and (4) report the estimation results for the subsamples with low product market competition, where product market competition is measured by the product market fluidity index provided by Hoberg, Phillips, and Prabhala (2014). The variable of interest is *IDD*, an indicator variable that equals 1 if a firm is headquartered in a state that recognizes the inevitable disclosure doctrine, and 0 otherwise. The definitions of the other variables are provided in Appendix C. All of the specifications include year, state, and firm fixed effects. Standard errors are corrected for heteroskedasticity and clustered at the state-of-headquarter level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively

Table 6: The effect of industry concentration on the relation between IDD and management earnings forecasts

	Dependent Variable = FREQ				Dependent Variable = HORIZON			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	*4FirmRatio_H*	*4FirmRatio_L*	*HHI_H*	*HHI_L*	*4FirmRatio_H*	*4FirmRatio_L*	*HHI_H*	*HHI_L*
IDD	0.011	0.104***	0.024	0.096***	0.034	0.208***	0.064	0.184**
	[0.706]	[4.214]	[1.581]	[3.779]	[0.468]	[3.129]	[0.902]	[2.480]
BETA	0.002	-0.031**	-0.002	-0.031**	-0.013	-0.123**	-0.034	-0.118**
	[0.126]	[-2.316]	[-0.097]	[-2.293]	[-0.196]	[-2.378]	[-0.539]	[-2.157]
ISSUEQ	0.036***	0.015	0.039***	0.011	0.135***	0.079	0.157***	0.054
	[2.968]	[1.207]	[3.343]	[0.702]	[3.550]	[1.644]	[4.451]	[1.000]
ISSUDEBT	0.003	0.009	0.002	0.008	0.048	0.031	0.049	0.027
	[0.187]	[0.668]	[0.188]	[0.570]	[1.014]	[0.749]	[1.103]	[0.609]
SIZE	0.104***	0.059***	0.106***	0.060***	0.368***	0.216***	0.360***	0.222***
	[6.907]	[5.226]	[6.849]	[5.420]	[6.571]	[5.205]	[6.450]	[5.590]
MTB	0.001	0.000	0.001	0.000	0.003	0.001	0.002	0.001
	[0.817]	[0.278]	[0.723]	[0.248]	[1.154]	[0.514]	[0.791]	[0.726]
ROA	-0.033	-0.020	-0.032	-0.020	-0.135	-0.050	-0.093	-0.066
	[-1.500]	[-1.165]	[-1.354]	[-1.270]	[-1.491]	[-0.721]	[-0.889]	[-1.050]
LOSS	-0.097***	-0.103***	-0.101***	-0.099***	-0.312***	-0.308***	-0.329***	-0.284***
	[-9.308]	[-8.799]	[-10.526]	[-8.010]	[-8.524]	[-8.112]	[-9.065]	[-7.533]
EPS_UP	-0.039***	-0.028***	-0.035***	-0.032***	-0.171***	-0.119***	-0.161***	-0.126***
	[-5.045]	[-4.349]	[-4.659]	[-4.250]	[-5.737]	[-4.229]	[-5.857]	[-4.205]
LEVERAGE	-0.021**	-0.021**	-0.023**	-0.020**	-0.076*	-0.067*	-0.073*	-0.066*
	[-2.320]	[-2.356]	[-2.399]	[-2.276]	[-1.900]	[-1.996]	[-1.689]	[-1.992]
GDPGROW	-0.006**	-0.000	-0.007***	0.001	-0.017*	-0.012*	-0.021**	-0.005
	[-2.298]	[-0.040]	[-2.771]	[0.639]	[-1.806]	[-1.719]	[-2.491]	[-0.765]
D_PARTY	-0.045	-0.177***	-0.088*	-0.146**	-0.066	-0.593***	-0.161	-0.554**
	[-0.762]	[-3.167]	[-1.727]	[-2.557]	[-0.354]	[-2.710]	[-1.033]	[-2.393]
EVOL	-0.072**	-0.046	-0.068*	-0.042	-0.263***	-0.207*	-0.252**	-0.193*
	[-2.164]	[-1.623]	[-1.887]	[-1.567]	[-2.789]	[-1.861]	[-2.294]	[-1.757]
NAF	0.115***	0.023*	0.114***	0.024*	0.409***	0.150***	0.415***	0.146***
	[7.549]	[1.836]	[7.286]	[1.881]	[7.139]	[2.755]	[6.996]	[2.950]
GEOSEG	0.020	-0.009	0.020	-0.010	0.048	-0.003	0.052	-0.006
	[1.262]	[-0.836]	[1.222]	[-0.992]	[0.828]	[-0.071]	[0.925]	[-0.148]
BUSSEG	0.032*	0.042***	0.031*	0.043***	0.110*	0.116**	0.098*	0.130**
	[1.867]	[3.273]	[1.956]	[3.215]	[1.904]	[2.364]	[1.837]	[2.586]

INST	0.047	0.159***	0.067	0.146***	0.058	0.380**	0.112	0.352**
	[1.019]	[3.837]	[1.547]	[3.712]	[0.324]	[2.400]	[0.663]	[2.276]
DIV	0.041**	0.021	0.049***	0.015	0.117**	0.098	0.134**	0.077
	[2.349]	[1.058]	[2.705]	[0.765]	[2.151]	[1.312]	[2.414]	[0.988]
CONRATIO	-0.001	0.000	-0.001	0.000	-0.004	0.003	-0.002	0.004
	[-1.338]	[0.216]	[-0.567]	[0.231]	[-1.233]	[0.640]	[-0.714]	[0.910]
Constant	-0.236**	-0.319***	0.254	-0.346***	-0.988**	-1.329***	0.506	-1.405***
	[-2.140]	[-3.521]	[1.496]	[-3.090]	[-2.131]	[-4.131]	[1.269]	[-3.687]
Observations	19,635	20,897	20,063	20,469	19,635	20,897	20,063	20,469
Adjusted R^2	0.633	0.635	0.633	0.634	0.585	0.579	0.585	0.579

Notes: This table presents the results from regressions of *FREQ* and *HORIZON* for subsamples with high vs. low competitive threat from existing rivals. *FREQ* is the natural logarithm of (1 + number of annual earnings forecasts a firm made during a fiscal year). *HORIZON* is the natural logarithm of the average forecast horizon for all of the annual earnings forecasts issued during a year, where the forecast horizon for each forecast is defined as the number of days between the forecast announcement date and the forecasting fiscal period end date. Columns (1), (3), (5), and (7) report the results for the subsamples of firms with low competitive threat from existing rivals (*4FirmRatio_H* and *HHI_H*) and columns (2), (4), (6), and (8) report the estimation results for the subsamples of firms with high competitive threat from existing rivals (*4FirmRatio_L* and *HHI_L)*, where competitive threat is measured by the market shares of the top four firms in each 4-digit SIC industry (*4FirmRatio*) and the Herfindahl index (*HHI*). The variable of interest is *IDD*, an indicator variable that equals 1 if a firm is headquartered in a state that recognizes the inevitable disclosure doctrine, and 0 otherwise. The definitions of the other variables are provided in Appendix C. All specifications include year, state, and firm fixed effects. Standard errors are corrected for heteroskedasticity and clustered at the state-of-headquarter level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 7 Impact of knowledge workers on the relationship between IDD and management earnings forecasts

Panel A: Forecast frequency and knowledge workers

	(1)	(2)	(3)	(4)	(5)	(6)
	Edu: high	*Edu: low*	*Sci: high*	*Sci: low*	*Mgmt: high*	*Mgmt: low*
IDD	**0.133*** **	**-0.000**	**0.135*** **	**-0.000**	**0.124*** **	**0.020**
	[3.642]	**[-0.004]**	**[4.687]**	**[-0.008]**	**[7.179]**	**[1.528]**
BETA	-0.001	-0.039*	-0.006	-0.029	0.001	-0.045*
	[-0.051]	[-1.843]	[-0.516]	[-1.166]	[0.082]	[-1.953]
ISSUEQ	0.039**	0.010	0.031**	0.011	0.050***	0.002
	[2.557]	[0.806]	[2.518]	[0.923]	[3.465]	[0.143]
ISSUDEBT	-0.000	0.012	0.000	0.010	-0.006	0.014
	[-0.031]	[0.882]	[0.013]	[0.718]	[-0.544]	[1.058]
SIZE	0.053***	0.109***	0.047***	0.125***	0.052***	0.107***
	[5.454]	[5.587]	[5.727]	[6.276]	[5.286]	[5.506]
MTB	0.001	-0.000	0.001	-0.000	0.001	-0.000
	[0.912]	[-0.099]	[1.110]	[-0.667]	[1.259]	[-0.353]
ROA	-0.035**	0.013	-0.022	-0.039	-0.028*	0.002
	[-2.293]	[0.413]	[-1.195]	[-1.659]	[-1.862]	[0.056]
LOSS	-0.088***	-0.097***	-0.092***	-0.097***	-0.089***	-0.098***
	[-8.084]	[-6.642]	[-9.718]	[-7.340]	[-9.601]	[-7.088]
EPS_UP	-0.025***	-0.040***	-0.027***	-0.037***	-0.027***	-0.039***
	[-3.853]	[-5.091]	[-4.046]	[-5.782]	[-4.443]	[-5.020]
LEVERAGE	-0.014**	-0.054***	-0.012*	-0.057***	-0.012*	-0.046***
	[-2.137]	[-2.836]	[-1.881]	[-3.084]	[-1.763]	[-2.861]
GDPGROW	0.000	-0.004*	-0.001	-0.004	-0.001	-0.004
	[0.039]	[-1.903]	[-0.529]	[-1.581]	[-0.482]	[-1.666]
D_PARTY	-0.088	-0.149***	-0.089	-0.183***	-0.096*	-0.148***
	[-1.414]	[-2.994]	[-1.599]	[-3.038]	[-1.834]	[-2.729]
EVOL	-0.042*	-0.155**	-0.044*	-0.178***	-0.037	-0.158**
	[-1.788]	[-2.275]	[-2.010]	[-3.802]	[-1.637]	[-2.326]
NAF	0.051**	0.091***	0.046***	0.096***	0.050***	0.090***
	[2.454]	[4.669]	[2.772]	[5.006]	[2.733]	[4.402]
GEOSEG	0.005	0.008	0.013	0.003	0.024**	-0.008
	[0.399]	[0.527]	[1.116]	[0.182]	[2.092]	[-0.551]
BUSSEG	0.010	0.040***	-0.007	0.053***	0.004	0.046***
	[0.748]	[2.681]	[-0.509]	[3.315]	[0.335]	[2.808]
INST	0.175***	0.010	0.145***	0.028	0.136***	0.052
	[3.866]	[0.232]	[4.773]	[0.632]	[3.506]	[1.508]
DIV	0.030	0.011	0.037	0.005	0.028	0.013
	[0.997]	[0.480]	[1.114]	[0.243]	[0.849]	[0.533]
CONRATIO	-0.000	-0.001	-0.000	-0.001	-0.001	-0.000
	[-0.403]	[-0.595]	[-0.541]	[-0.653]	[-1.229]	[-0.081]
Constant	-0.291***	-0.155	0.182	0.004	-0.203	0.316***
	[-2.772]	[-1.111]	[1.208]	[0.027]	[-1.470]	[2.859]
Observations	18,416	18,509	18,400	18,525	18,487	18,438
Adjusted R^2	0.634	0.626	0.637	0.626	0.637	0.625

Panel B: Forecast horizon and knowledge workers

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	*Edu: high*	*Edu: low*	*Sci: high*	*Sci: low*	*Mgmt: high*	*Mgmt: low*
IDD	**0.337****	**-0.035**	**0.349*****	**-0.044**	**0.315*****	**0.023**
	[2.693]	**[-0.274]**	**[3.263]**	**[-0.324]**	**[7.117]**	**[0.321]**
BETA	-0.016	-0.174**	-0.046	-0.136*	-0.006	-0.201***
	[-0.290]	[-2.623]	[-0.992]	[-1.796]	[-0.118]	[-2.815]
ISSUEQ	0.151**	0.071	0.115**	0.079*	0.190***	0.043
	[2.604]	[1.619]	[2.412]	[1.978]	[3.646]	[1.070]
ISSUDEBT	0.006	0.073*	0.001	0.071	-0.010	0.080*
	[0.179]	[1.698]	[0.021]	[1.508]	[-0.298]	[1.715]
SIZE	0.200***	0.355***	0.178***	0.423***	0.192***	0.364***
	[5.988]	[4.957]	[5.965]	[5.963]	[5.558]	[4.816]
MTB	0.001	0.002	0.001	0.001	0.001	0.001
	[0.241]	[0.761]	[0.494]	[0.419]	[0.654]	[0.405]
ROA	-0.130*	0.125	-0.078	-0.083	-0.097	0.008
	[-1.985]	[0.998]	[-1.075]	[-1.041]	[-1.517]	[0.060]
LOSS	-0.269***	-0.289***	-0.275***	-0.301***	-0.260***	-0.310***
	[-7.368]	[-5.059]	[-8.403]	[-6.216]	[-9.020]	[-5.687]
EPS_UP	-0.119***	-0.180***	-0.133***	-0.164***	-0.123***	-0.173***
	[-5.402]	[-5.619]	[-6.049]	[-5.874]	[-4.653]	[-5.626]
LEVERAGE	-0.051*	-0.151**	-0.038	-0.175***	-0.037	-0.163***
	[-1.902]	[-2.137]	[-1.431]	[-2.746]	[-1.230]	[-2.731]
GDPGROW	-0.009	-0.012	-0.013	-0.010	-0.011	-0.012
	[-0.995]	[-1.483]	[-1.311]	[-1.204]	[-1.291]	[-1.489]
D_PARTY	-0.239	-0.448**	-0.157	-0.606**	-0.230	-0.464**
	[-1.163]	[-2.366]	[-0.818]	[-2.621]	[-1.437]	[-2.609]
EVOL	-0.210**	-0.474*	-0.222**	-0.559***	-0.191**	-0.507**
	[-2.168]	[-2.001]	[-2.386]	[-3.336]	[-2.070]	[-2.054]
NAF	0.216***	0.375***	0.209***	0.379***	0.225***	0.358***
	[2.894]	[5.927]	[3.068]	[6.064]	[3.383]	[5.286]
GEOSEG	0.019	0.044	0.037	0.032	0.090**	-0.020
	[0.368]	[0.917]	[0.915]	[0.705]	[2.363]	[-0.404]
BUSSEG	-0.022	0.167***	-0.069	0.201***	-0.043	0.189***
	[-0.401]	[3.299]	[-1.311]	[3.626]	[-0.863]	[3.244]
INST	0.502***	-0.076	0.390***	-0.001	0.394***	0.016
	[3.228]	[-0.534]	[3.481]	[-0.005]	[2.862]	[0.128]
DIV	0.060	0.069	0.063	0.061	0.041	0.086
	[0.700]	[0.818]	[0.648]	[0.703]	[0.434]	[1.003]
CONRATIO	-0.001	-0.003	-0.001	-0.003	-0.004	-0.001
	[-0.278]	[-0.768]	[-0.190]	[-0.994]	[-1.051]	[-0.217]
Constant	-0.752**	-0.875	0.769	-0.424	-0.604	0.598
	[-2.031]	[-1.626]	[1.515]	[-0.706]	[-1.186]	[1.434]
Observations	18,416	18,509	18,400	18,525	18,487	18,438
Adjusted R^2	0.573	0.580	0.573	0.582	0.581	0.575

Panel C: Management earnings forecasts and distance to rivals

	Dependent Variable = FREQ		Dependent Variable = HORIZON	
	(1)	(2)	(3)	(4)
VARIABLES	*Dis to Rivals: Long*	*Dis to Rivals: Short*	*Dis to Rivals: Long*	*Dis to Rivals: Short*
IDD	**0.015**	**0.081*** **	**-0.014**	**0.227*** **
	[1.036]	**[2.905]**	**[-0.162]**	**[2.726]**
BETA	-0.013	-0.038*	-0.049	-0.159**
	[-1.210]	[-1.976]	[-1.173]	[-2.440]
ISSUEQ	0.030**	0.021*	0.109**	0.106***
	[2.387]	[1.864]	[2.632]	[2.790]
ISSUDEBT	-0.006	0.010	-0.006	0.068
	[-0.546]	[0.840]	[-0.157]	[1.661]
SIZE	0.066***	0.068***	0.251***	0.229***
	[12.640]	[4.165]	[12.659]	[4.098]
MTB	0.000	-0.000	0.002	0.000
	[0.501]	[-0.047]	[0.542]	[0.058]
ROA	-0.016	-0.017	-0.055	-0.069
	[-1.249]	[-0.632]	[-1.038]	[-0.661]
LOSS	-0.099***	-0.106***	-0.316***	-0.317***
	[-7.350]	[-7.471]	[-6.864]	[-5.828]
EPS_UP	-0.032***	-0.035***	-0.128***	-0.152***
	[-4.295]	[-3.575]	[-3.609]	[-4.990]
LEVERAGE	-0.010	-0.025*	-0.031	-0.090
	[-1.396]	[-1.722]	[-1.139]	[-1.495]
GDPGROW	-0.002	-0.005*	-0.009	-0.020**
	[-0.992]	[-1.956]	[-1.095]	[-2.359]
D_PARTY	-0.046	-0.122	-0.157	-0.347
	[-0.830]	[-1.558]	[-0.704]	[-1.399]
EVOL	-0.097**	-0.035	-0.410**	-0.126
	[-2.400]	[-0.899]	[-2.257]	[-1.100]
NAF	0.057***	0.077***	0.233***	0.316***
	[5.700]	[4.120]	[5.932]	[4.979]
GEOSEG	0.004	0.009	0.037	0.023
	[0.326]	[0.534]	[0.727]	[0.420]
BUSSEG	0.025	0.043***	0.052	0.146***
	[1.496]	[3.436]	[0.960]	[3.169]
INST	0.143***	0.038	0.363***	0.054
	[3.448]	[0.796]	[3.001]	[0.285]
DIV	0.013	0.044**	0.033	0.161**
	[0.642]	[2.208]	[0.391]	[2.526]
CONRATIO	-0.001	-0.001	-0.003	-0.001
	[-1.017]	[-0.584]	[-1.297]	[-0.369]
Constant	-0.255***	-0.049	-1.027***	0.028
	[-3.239]	[-0.682]	[-3.165]	[0.105]
Observations	20,084	20,084	20,084	20,084
Adjusted R^2	0.625	0.652	0.573	0.608

Notes: This table reports the results for the regressions testing how the effect of the recognition of the IDD on firms' forecast frequency (*FREQ*) (Panel A) and horizons (*HORIZON*) (Panel B) vary with industry occupational structure.

Panel C reports the moderating effect of distance to rivals on the relation between *IDD* and *FREQ* and *HORIZON*. *FREQ* is the natural logarithm of (1 + number of annual earnings forecasts a firm made during a fiscal year). *HORIZON* is the natural logarithm of the average forecast horizon for all of the annual earnings forecasts issued during a year, where the forecast horizon for each forecast is defined as the number of days between the forecast announcement date and the forecasting fiscal period end date. The variable of interest is *IDD*, an indicator variable that equals 1 if a firm is headquartered in a state that recognizes the inevitable disclosure doctrine, and 0 otherwise. A firm is classified as a high knowledge worker firm if its industry-state occupational statistic is above the sample median, and is otherwise classified as a low knowledge worker firm. Columns (1) and (2) partition the sample based on the fraction of workers with at least a bachelor's degree in the firm's 3-digit NAICS industry and state (*Edu*). Columns (3) and (4) partition the sample based on the fraction of workers in managerial occupations in the firm's 3-digit NAICS industry and state (*Mgm*t). Columns (5) and (6) partition the sample based on the fraction of workers in science-related occupations in the firm's 3-digit NAICS industry and state (*Sci*). In Panel C, *Dis to Rivals* is the weighted average distance between the firm's headquarters and each of its industry rivals' headquarters. *Dis to Rivals* is long if the distance is greater than the sample median and is short if the distance is smaller than the sample median. Definitions of other variables are provided in the Appendix C. All specifications include year, state, and firm fixed effects. Standard errors are corrected for heteroskedasticity and clustered at the state-of-headquarters level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 8 Impact of R&D intensity on the relationship between IDD and management earnings forecasts

	Dependent Variable = FREQ		Dependent Variable = HORIZON	
	(1)	(2)	(3)	(4)
VARIABLES	*High R&D*	*Low R&D*	*High R&D*	*Low R&D*
IDD	**0.108*** **	**-0.016**	**0.296*** **	**-0.096**
	[4.217]	**[-0.503]**	**[4.099]**	**[-0.721]**
BETA	-0.007	0.003	-0.053	0.018
	[-0.464]	[0.191]	[-0.945]	[0.253]
ISSUEQ	0.029*	0.029***	0.089*	0.149***
	[1.902]	[2.817]	[1.818]	[3.815]
ISSUDEBT	-0.001	-0.009	0.010	-0.000
	[-0.076]	[-0.721]	[0.236]	[-0.010]
SIZE	0.057***	0.041***	0.217***	0.155***
	[4.090]	[5.786]	[3.944]	[4.899]
MTB	0.001	-0.000	0.003	-0.001
	[1.344]	[-0.404]	[1.227]	[-0.449]
ROA	-0.040	0.010	-0.177	0.054
	[-1.490]	[0.703]	[-1.444]	[1.215]
LOSS	-0.103***	-0.084***	-0.329***	-0.263***
	[-8.120]	[-4.751]	[-7.741]	[-4.536]
EPS_UP	-0.033***	-0.030***	-0.146***	-0.112***
	[-3.709]	[-4.127]	[-5.281]	[-3.037]
LEVERAGE	-0.037**	0.003	-0.137**	0.016
	[-2.030]	[0.647]	[-2.021]	[0.832]
GDPGROW	-0.003	-0.004	-0.012*	-0.028**
	[-1.317]	[-1.569]	[-1.691]	[-2.506]
D_PARTY	-0.115**	-0.068	-0.343**	-0.067
	[-2.089]	[-0.887]	[-2.340]	[-0.223]
EVOL	-0.041	-0.051**	-0.171*	-0.229**
	[-1.494]	[-2.220]	[-1.968]	[-2.160]
NAF	0.055***	0.056**	0.256***	0.215*
	[4.665]	[2.137]	[5.921]	[1.998]
GEOSEG	0.006	0.016	0.020	0.060
	[0.403]	[1.107]	[0.418]	[1.410]
BUSSEG	0.011	0.006	0.047	-0.004
	[0.773]	[0.318]	[0.912]	[-0.068]
INST	0.100**	0.142**	0.171	0.385*
	[2.363]	[2.592]	[1.387]	[1.859]
DIV	0.029	0.023	0.095	0.078
	[1.392]	[0.771]	[1.220]	[0.791]
CONRATIO	0.000	-0.001	0.001	-0.006*
	[0.525]	[-1.497]	[0.410]	[-1.806]
Constant	-0.067	0.254***	-0.686	0.772***
	[-0.701]	[2.746]	[-1.562]	[2.751]
Observations	20,015	11,976	20,015	11,976
Adjusted R^2	0.657	0.640	0.601	0.579

Notes: This table presents the results of the regressions of *FREQ* and *HORIZON* for subsamples with high and low R&D intensities. *FREQ* is the natural logarithm of (1 + number of annual earnings forecasts a firm made during a fiscal year). *HORIZON* is the natural logarithm of the average forecast horizon for all annual earnings forecasts issued during a year, where the forecast horizon for each forecast is defined as the number of days between the

forecast announcement date and the forecasting fiscal period end date. Columns (1) and (3) report the results for the subsamples with high R&D intensities and columns (2) and (4) report the estimation results for the subsamples with low R&D intensities, where high (low) R&D firms are firms with above (below) sample median each year. The variable of interest is *IDD*, an indicator variable that equals 1 if a firm is headquartered in a state that recognizes the inevitable disclosure doctrine, and 0 otherwise. The definitions of the other variables are provided in Appendix C. All specifications include year, state, and firm fixed effects. Standard errors are corrected for heteroskedasticity and clustered at the state-of-headquarter level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 9: IDD and CEO duality, CEO age, and CEO tenure

	Dependent Variable = FREQ						Dependent Variable = HORIZON					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	*Dual CEO =0*	*Dual CEO =1*	*Young CEO*	*OLD CEO*	*Short Tenure*	*Long Tenure*	*Dual CEO =0*	*Dual CEO = 1*	*Young CEO*	*OLD CEO*	*Short Tenure*	*Long Tenure*
IDD	**0.076***	**0.094**	**0.10*****	**0.095***	**0.047**	**0.063**	**-0.009**	**0.296**	**0.226***	**0.152**	**-0.016**	**0.093**
	[1.702]	**[1.169]**	**[2.984]**	**[1.739]**	**[0.796]**	**[1.106]**	**[-0.034]**	**[1.349]**	**[1.881]**	**[0.971]**	**[-0.083]**	**[0.419]**
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,256	9,379	9,119	7,499	8,514	7,066	7,256	9,379	9,119	7,499	8,514	7,066
Adjusted R^2	0.702	0.677	0.685	0.703	0.688	0.720	0.649	0.617	0.628	0.645	0.635	0.657

Notes: This table reports the regression results on how the effect of the recognition of IDD on firms' forecast frequency (Columns (1) to (6)) and horizons (Columns (7) to (12)) varies with CEO duality, CEO age, and CEO tenure. Firms are classified as dual CEO firms if their CEOs are also the chairman of the board. CEOs are classified as young CEOs if their age is below 56 and otherwise old CEO. A CEO is a short-tenure CEO if the CEO has became a CEO within 6 years and otherwise long-tenure CEO. All specifications include year, state, and firm fixed effects. Definitions of other variables are provided in the Appendix C. Standard errors are corrected for heteroskedasticity and clustered at the firm level. *, **, *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 10: IDD, Not to compete enforcement, and UTSA

	(1)	(2)
VARIABLES	**Dependent Variable = FREQ**	**Dependent Variable = HORIZON**
IDD	**0.057*** **	**0.120*** **
	[4.562]	**[2.933]**
NCINDEX	-0.019***	-0.021
	[-4.741]	[-0.933]
UTSA	0.117***	0.310***
	[4.516]	[3.206]
BETA	-0.013	-0.065
	[-1.108]	[-1.534]
ISSUEQ	0.028***	0.111***
	[3.405]	[4.243]
ISSUDEBT	0.004	0.034
	[0.382]	[1.014]
SIZE	0.069***	0.250***
	[9.476]	[9.242]
MTB	0.001	0.002
	[1.210]	[1.314]
ROA	-0.027*	-0.092
	[-1.795]	[-1.540]
LOSS	-0.102***	-0.318***
	[-12.505]	[-12.364]
EPS_UP	-0.033***	-0.145***
	[-5.896]	[-7.599]
LEVERAGE	-0.020***	-0.064**
	[-2.817]	[-2.419]
GDPGROW	-0.003*	-0.015**
	[-1.838]	[-2.606]
D_PARTY	-0.122***	-0.363***
	[-3.229]	[-3.103]
EVOL	-0.065**	-0.253***
	[-2.667]	[-3.482]
NAF	0.069***	0.283***
	[5.887]	[6.158]
GEOSEG	0.009	0.036
	[0.925]	[1.113]
BUSSEG	0.036***	0.109***
	[3.327]	[2.809]
INST	0.091***	0.190
	[3.885]	[1.634]
DIV	0.029*	0.097*
	[1.884]	[1.748]
CONRATIO	-0.001	-0.002
	[-0.818]	[-0.981]
Constant	-0.190**	-0.782***
	[-2.627]	[-2.946]
Observations	40,532	40,532
Adjusted R^2	0.626	0.574

Notes: This table reports the regression results on how the effect of the recognition of *IDD* on firms' forecast frequency (Column (1)) and horizons (Column (2)) after controlling the strength of state-level non-competition enforceability (*NCINDEX*) and adoption of Uniform Trade Secrets Act (*UTSA*). *NCINDEX* is the non-competition enforceability score taken from Garmaise (2011). The higher score the stronger enforcement of non-competition agreement in the state. *UTSA* is coded as 1 if a state has passed *UTSA* in a year and 0 otherwise (Png 2017). All specifications include year, state, and firm fixed effects. Definitions of other variables are provided in the Appendix C. Standard errors are corrected for heteroskedasticity and clustered at the firm level. *, **, *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 11: IDD and firm information environment

VARIABLES	(1) Change in Illiquidity
IDD	**-0.004****
	[-2.016]
SIZE	0.014***
	[8.074]
MTB	-0.000
	[-1.561]
ROA	-0.007
	[-0.496]
LOSS	-0.004
	[-0.645]
RET	-0.008***
	[-3.384]
BETA	0.031***
	[8.553]
STD_ROA	0.038
	[0.871]
RET_VLT	-0.053*
	[-1.763]
NAF	-0.001***
	[-4.639]
ISSUEQ	0.012**
	[2.532]
ISSUEDEBT	-0.006***
	[-2.914]
DIV	-0.005**
	[-2.175]
GDPGROW	-0.001*
	[-1.735]
D_PARTY	-0.002
	[-0.345]
CONRATIO	-0.000*
	[-1.663]
Constant	-0.125***
	[-8.163]
Observations	30,547
Adjusted R^2	0.039

Notes: This table presents the regression results on the effect of recognition of IDD on firms' information environment. The dependent variable is the change in illiquidity, calculated as the difference in average Amihud ratio (2002) three days before and three days after management earnings forecasts. The variable of interest is IDD, an indicator variable equal to 1 if a firm is headquartered in a state with recognition of Inevitable Disclosure Doctrine and zero otherwise. All specifications include year fixed effects. Definitions of other variables are in Appendix B. Standard errors are corrected for heteroskedasticity and clustered at the firm level. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.