



Managerial Stability and the Pricing of New Equity Issuances: The Effects of State Enforcement of Noncompetition Agreements

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Abstract. In this paper, we empirically investigate the relationship between managerial stability induced by the legal enforcement of noncompetition agreements and the pricing of new equity issuances. Making use of the variation in the enforceability of noncompetition contracts across states in the U.S., we find that managerial stability is negatively related to underpricing and price revision for our sample of new equity issuing firms. Our results demonstrate that the stability of management is important for an issuing firm to convey its intrinsic value credibly to the market.

Keywords: noncompetition agreements, managerial stability, new equity issuances

Funding: This project is supported by the Research Bureau at People's Bank of China, and the Major Program of the National Natural Science Foundation of China (Grant 13&ZD016), and the Key Program of the National Natural Science Foundation of China (Grant 12AZD095).

1. Introduction

The decision on transition from a private company to a public one is one of the most important events in the life of an entrepreneurial firm (Pagano *et al.*, 1998). The going-public process is surrounded by significant uncertainties, which necessitates certain mechanisms to mitigate the information asymmetries and

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certify the value of issuing firms (Carter *et al.*, 1998; Saunders and Stove, 2004). Human capital has long been recognized as a key asset, and plays a crucial role in value creation and sustainable competitive advantages (Black and Boal, 1994; Lepak and Snell, 1999). Nonetheless, human capital, especially that of management teams, represents an important source of uncertainties in the initial public offering (IPO) process (Chemmanur and Paeglis, 2005).

Chemmanur and Paeglis (2005) investigate the management quality of newly public firms and provide strong evidence that the quality and reputation of the management can function as certification of firm value and affect various aspects of the IPO process. Initial public offerings present a key liquidity event for insiders including top executives to harvest their entrepreneurial success. Typically, the IPO firms will disclose the use of proceeds in their IPO prospectus which often specify the future deployment of cash capital to finance various long-term investment projects (Dittmar and Thakor, 2006; Pagano *et al.*, 1998; Ritter and Welch, 2002). Potential investors evaluate the future cash flows and riskiness of an issuing firm and price the newly offered equities with the belief that the subsequent financial and operational strategies will be carried out by the same management team (Chemmanur and Paeglis, 2005). If the management of a particular issuing firm chooses to cash out and leave the firm, the quality of the management itself cannot credibly convey the intrinsic value of the IPO firm to the market. In other words, the possibility that the incumbent management may leave an issuing firm creates tremendous amount of uncertainties (Virany and Tushman, 1986, Furtado and Karan, 1990), and affects the pricing of new equity issuances. To advance understanding of the IPO process and fill the void in the existing literature, in this study, we explore the relationship between managerial stability and the pricing of new equity issuances.

In practice, it is increasingly common for companies to use covenants in employment contracts that put restrictions on post-employment activities. Typically, contracts with noncompetition clauses prevent (key) employees from competing with employers “within a geographic region for a specified length of time after the relationship has been ended” (Whitmore, 1990).² Such contractual terms intend to protect firm investments in human capital and its associated competitive advantages by binding employees to their employers. The direct effect of noncompetition agreements is to increase managerial stability by reducing their opportunities in the external labor markets (Fama, 1980; Garmaise, 2011). However, the legal enforcement of such contractual terms varies greatly across jurisdictions in the U.S. Thus, the variation in enforceability of noncompetition agreements provides a natural setting to apply the insights of the law and finance literature (La Porta *et al.*, 1997; Beck *et al.*, 2003).

In this paper, we use the state enforceability of noncompetition contracts as a proxy for managerial stability (Garmaise, 2011). Building on the existing

2. In this paper, we use the terms covenants not to compete, CNCs and noncompetition clauses interchangeably.

literature, we propose that increased managerial stability helps to mitigate the information asymmetry problem and reduce the uncertainties of issuing firms, and test our hypotheses relating managerial stability to the pricing of newly issued equities. We rely on the Thomson Financial SDC Platinum (SDC) Global New Issue database to retrieve information on IPOs and construct a sample of 3,338 IPOs from 1991 to 2000. We document strong evidence that state enforceability of noncompetition agreements is negatively related to underpricing and price revision.

2. Theory and Hypotheses

2.1. Legal Background of Noncompetition Agreements

Human capital has long been recognized as a core asset of most firms and an important source of sustained competitive advantage (Barney, 1991). Human capital is a substantial part of the consequence of deliberate investments (Schultz, 1961) by both employers and employees who typically share the cost and return of such investments (Becker, 1962; Hashimoto, 1981). Nonetheless, the inalienability of human capital (Hart and Moore, 1994) as a basic human right suggests that employers may experience loss on their investments when the relationship is terminated at employees' will. Consequently, firms will have less incentive to make investments in human capital over which they cannot exercise sufficient ownership.

In practice, noncompetition clauses are widely used in restricting the post-employment activities of employees. According to Garmaise (2011), around 70% of top executives of firms have noncompetition clauses in their contracts with employers. Kaplan and Strömberg (2003) report that more than 70% venture-backed companies impose noncompetition agreements in their labor contracts. Recently, Starr *et al.* (2015) provide estimation that approximately 18% of all employees working in a wide range of industry segments in the U.S. are bound by noncompetition agreements in their labor contracts (Dynam, 2016). Such contractual terms generally forbid an employee to form competition with the employer, either through working for rival companies or through starting her own business. Such labor contracts may also restrict the behavior of an employee with the customers of her former employer. Economic explanations for noncompetition clauses can be multifold and may coexist. For example, noncompetition agreements can prevent net loss of firms' investments in human capital, protect trade secrets and confidential information, and even function as a mechanism of sorting employees (Hertog, 2003).

The direct effect of noncompetition agreements is to bind employees to a firm and to increase the managerial stability (Garmaise, 2011). Empirical evidence

shows that strong enforceability of noncompetition contracts substantially reduces the managerial mobility and increases the likelihood of managers being nominated as board members (Garmaise, 2011). Nevertheless, the legal enforcement varies widely across jurisdictions in the U.S. For instance, the majority of the states allow noncompetition clauses as long as they are “reasonable and necessary”, whereas California virtually forbids such covenants in local courts. Thus the state enforceability of noncompetition agreements reflects the strictness of how such contracts will be enforced by local courts at state level. In this paper, we make use of the variation in legal enforcement of noncompetition contracts across different states to draw a link between managerial stability and the pricing of new equity issuances by IPO firms.

2.2. Related Literature and Hypotheses Development

Undertaking an IPO moves an issuing firm from the private domain to the public domain. Consistent with the requirement of the Securities and Exchange Commission (SEC), any firm’s file for IPO must provide detailed information on both the current operations and the potential usage of the capital raised from the IPO. The IPO process is characterized by great amount of uncertainties and a high level of information asymmetry (Welch, 1989; Chemmanur, 1993; Chemmanur and Yan, 2009; Ritter and Welch, 2002), which makes it difficult to value accurately a particular IPO firm as well as its human capital (Junkunc and Eckhardt, 2009). Initial public offerings present a very important opportunity for entrepreneurs, insiders and senior managers to liquidate at least part of their investments and opt to leave the issuing firms (Junkunc and Eckhardt, 2009). Given that the value of human capital can only be valued in conjunction with physical capital (Gibbons and Waldman, 2004), the potential turnover of human capital, especially that of top executives, impose significant ambiguity in evaluating the firm value at IPO stage. As such, managerial stability becomes a critical component in the pricing of an IPO firm.

Issuing firms underpricing their shares and “leaving a large amount of money on the table” have sparked voluminous research. New issuances may be underpriced to induce uninformed investments (Rock, 1986, Hunt-McCool *et al.*, 1996), compensate for private information (Benveniste and Spindt, 1989), avoid future litigation risk (Lowry and Shu, 2002) and ensure the successfulness of the issuances (Dunbar, 1998). Regardless of the motives of issuing firms to underprice their stocks, several streams of literature share the argument that the level of underpricing is directly related to the divergent opinions arising from uncertainties associated with issuing firms (Houge *et al.*, 2001, Ritter and Welch, 2002).

One important source of uncertainties is the lack of exposure of the management of issuing firms. Chemmanur and Paeglis (2005) measure the

quality and reputation of management teams and document the significant effects of management quality on firms' going-public process. In this study, we propose that managerial stability is equally important. If the incumbent managers choose to cash out without any further commitment to the newly public firms, their decisions to leave may add considerable uncertainty on the future prospects of the issuing firms.

During the entrepreneurial process, executives of issuing firms make significant amount of investments in their own human capital which is subject to assessment by the external labor market at the IPO stage (Fama, 1980). Strong enforceability of noncompetition contracts reduces the opportunities of key employees in the external job market, thus increases managerial stability (Gaimaise, 2011). Moreover, management tends to make cautious investment decisions if managers are bound to the issuing firms and have to bear the long-term consequences of their decisions (Kobeissi *et al.*, 2009; Köhler, 2015, Song and Wang, 2009). IPO firms raise cash capital to carry out long-term investment projects that affect both the cash flows and riskiness of issuing firms (Harris and Raviv, 1996). The concern of management turnover after IPO events by investors results in significant difficulty of pricing the new equities. We hypothesize that increased managerial stability induced by strong legal enforcement of noncompetition agreements can alleviate the uncertainty of issuing firms because of the potential management turnover after IPO events, which, in turn, results in lower underpricing.

Hypothesis 1: The strength of legal enforcement of noncompetition agreements is negatively related to the level of underpricing.

When filing for IPOs, issuing firms and investment banks normally specify an initial range of offering prices with upper and lower bounds, the middle point of which is viewed as the expected offer price. During the bookbuilding process, underwriters gather information on the demand of the shares of issuing firms and set a final offer price accordingly. The well-documented partial-adjustment phenomenon (Benveniste and Spindt, 1989; Hanley, 1993; Bradley and Jordan, 2002) reflects the fact that the final offer price may deviate from the expected offer price (also known as price revision). The level of price revision is positively related to the degree of uncertainty associated with a particular issue. Increased managerial stability facilitates the management to better convey the intrinsic value of the issuing firms to investment banks and institutional investors because of reduced uncertainty. In other words, investment banks tend to factor managerial stability into the price formation with more accuracy, which results in less price revision relative to the expected offering price. In line with prior research (Bradley *et al.*, 2004), we propose that increased managerial stability induced by stricter enforcement of noncompetition contracts can help issuing firms to negotiate a higher expected offer price and request less input from

investors to price the issues. Therefore, we predict a negative relationship between the state enforceability of noncompetition clauses and the price revision in the bookbuilding process.

Hypothesis 2: The strength of legal enforcement of noncompetition agreements will be negatively related to price revision in the bookbuilding process.

3. Data, Sample and Measures

3.1. Data and Sample

In this study, we rely on Thomson Financial SDC Platinum Global New Issue Database to retrieve information on initial public offerings made by U.S. firms. The SDC database contains detailed deal information on publicly placed firm-commitment new equity offerings. We collect information on issuing dates, offering price, initial filing range, total number of shares offered, venture capital involvement, and industry segments. In addition, we obtain stock price information from the Center for Research in Security Prices (CRSP) database to calculate initial returns for our sample IPOs. Following the convention in IPO research, we exclude unit and rights offers and issues by utility companies, financial institutes and real estate investment trusts (REITs). We also exclude IPOs with offering price less than 5 dollars. Our sample procedure yields a sample of 3,338 IPOs in the time period from 1991 to 2000. Note that our sample is stratified in the sense that the sample IPOs are not evenly distributed across different states, with California having 875 IPOs and Wyoming having only one IPO.³

3.2. Dependent Variables

We predict that the state legal enforcement of noncompetition contracts will affect the IPO pricing. Specifically, we measure underpricing as the percentage difference between the closing price on the first day of trading (p_1) and the offering price (p_0), i.e., $underpricing = \frac{p_1 - p_0}{p_0}$. We measure price revision in the bookbuilding process as the percentage difference between the final offering price (p_0) and the expected offering price ($\bar{p} = (p_{high} + p_{low})/2$), where p_{high} and p_{low} are the upper bound and lower bound of the initial filing range, respectively. Hence, $price\ revision = \frac{p_0 - \bar{p}}{\bar{p}}$.

3. Note that there are 47 states in our sample.

3.3. Main Explanatory Variable

In this paper, we adopt the measure developed by Garmaise (2011) to gauge the strength of state legal enforcement of noncompetition agreements. Malsberger (2004) analyzes the noncompetition law in the fifty states and the District of Columbia in the United States. Garmaise (2011) quantifies the answers to the 12 questions proposed by Malsberger (2004), and assigns a score of 1 to each jurisdiction for each question if the jurisdiction's enforcement of that dimension of noncompetition law exceeds a given threshold. For example, as detailed by Garmaise (2011), one of the questions is "Is there a state statute of general application that governs the enforceability of covenants not to compete?" If, in a particular state, noncompetition agreements are enforced outside a sale-of-business context, that state receives a score of 1. Answers to the 12 questions are aggregated to construct a set of indexes to determine the strength of legal enforcement of noncompetition agreements for each state. Note that, theoretically, the maximum score for a particular state will be 12. Because no state passes all the thresholds of the 12 questions, the enforceability index (*enforceability*) ranges from 0 to 9, with 0 indicating no enforcement and 9 indicating the highest level of enforceability.

We report in Appendix A the noncompetition enforceability score for each state in the U.S., and the enforceability index is used as our main explanatory variable throughout the paper. One advantage of using this measure as the proxy of managerial stability is that it is an *ex ante* measure determined by state regulations. An *ex ante* measure is more appropriate than an *ex post* measure such as management turnover for the following reasons. First, the actual management turnover cannot be observed at the time of an IPO. Second, the actual management turnover may be the consequence of IPO performance rather than the cause. Moreover, we are concerned about whether the enforceability index can be treated as exogenous. For example, firms can choose their locations of headquarters, and thus there will be an endogenous match between the location of a company's headquarters and its desire for noncompetition enforcement. Prior literature has identified natural resources, the supply of skilled labor, unionization levels, state taxes (Bartik, 1985) and energy cost as the main considerations for business location. It is unlikely that noncompetition enforceability is a first-order determinant of business locations. Therefore, following existing studies (Garmaise, 2011; Marx *et al.*, 2009), we treat the enforceability index as exogenous throughout our analysis.

3.4. Control Variables

In our regression analysis, we also control for a set of variables capturing other important determinants of firms' going-public process. *Offering size* is measured

as the dollar amount of the proceeds, and we take natural logarithm to normalize the distribution. We obtain the founding dates of our sample issuing firms from Jay Ritter's website and calculate *firm age* as the year difference between the founding year and the IPO year, and take the natural logarithm to normalize the distribution. *Underwriter reputation* is measured using a 0-9 scale developed by Carter and Manaster (1990) and Carter *et al.* (1998) and updated by Jay Ritter.⁴ Additionally, we use an indicator variable to capture whether an issuing firm is backed by venture capital investment (*venture-backed IPO*). We follow Loughran and Ritter (2004) to classify issuing firms according to their technological attributes, and use a dummy variable (*tech-IPO dummy*) to define whether an IPO is a tech-IPO according to its 4-digit SIC code. Similarly, we include a dummy (*internet-IPO dummy*) to classify whether an IPO is related to internet business. We also hand-collect data on IPO firms' from IPO prospectus, and measure *risk factors* as a nonnegative count of risk factors to capture the riskiness of our sample IPO firms.

4. Results

Table 1 presents the descriptive statistics and pairwise correlations of variables used in our regression analysis.

Table 1. Summary statistics and pairwise correlation matrix

Variables	N	Mean	St. Dev	Min	Max	1	2	3	4	5	6	7	8	9	10
1 Underpricing	3,338	0.24	0.42	-0.36	1.86	1.00									
2 Price revision	3,338	0.03	0.25	-0.66	1.44	0.58	1.00								
3 Enforceability	3,338	3.55	2.55	0.00	9.00	-0.16	-0.13	1.00							
4 Offering size (\$mil)	3,338	67.34	164.35	3.5	5470	0.21	0.29	-0.03	1.00						
5 Firm age (year)	3,338	2.15	0.97	0.00	5.02	-0.13	-0.08	0.06	0.09	1.00					
6 Underwriter reputation	3,338	7.56	1.92	1.10	9.10	0.17	0.15	-0.09	0.32	0.09	1.00				
7 Venture-backed dummy	3,338	0.50	0.50	0.00	1.00	0.17	0.10	-0.18	0.01	-0.13	0.23	1.00			
8 Tech-IPO dummy	3,338	0.37	0.48	0.00	1.00	0.24	0.20	-0.17	0.01	-0.10	0.08	0.29	1.00		
9 Internet-IPO dummy	3,338	0.13	0.33	0.00	1.00	0.43	0.28	-0.11	0.17	-0.20	0.10	0.17	0.24	1.00	
10 Risk factors	3,338	4.33	2.07	1.00	9.00	0.45	0.28	-0.19	0.10	-0.19	0.11	0.29	0.33	0.45	1.00

Note: Numbers in bold are significant at 5% level.

4. We obtain this information from Professor Jay Ritter's website (<https://site.warrington.ufl.edu/ritter/>).

4.1. Underpricing and Noncompetition Enforceability

In this section, we conduct regression analysis relating IPO initial returns (i.e., underpricing) to the state legal enforcement of noncompetition contracts, controlling for a set of variables that are important determinants of IPO pricing. For all model specifications, we include year fixed effects to control for the time trend and economy-wide shocks. We also enter industry fixed effects at 2-digit SIC levels to control for the time-invariant heterogeneity across different industries. The empirical results are reported in Table 2.

In columns 1-3 of Table 2, we report the regression results based on ordinary least square (OLS) estimator. Note that our main explanatory variable, the enforceability index, is measured at state level. Hence, it is plausible that the error terms of issuing firms headquartered in the same states may be correlated, and thus bias our estimation of the standard errors and statistical inferences. We thereby clustered the standard errors by state to address this issue. In column 1, we report that the noncompetition enforceability index is significantly and negatively correlated to the level of underpricing ($p < 0.01$). We further evaluate the economic significance of our finding. The result in column 1 reveals that a one-point increase in the enforceability index results in a one-percent point decrease in IPO initial return, which is obviously economically significant. In columns 2 and 3, we partition our sample according to the hotness of the equity market, and focus on two sub-samples covering the 1991-1998 and 1999-2000 time periods. Our main results still hold for the two sub-samples. More specifically, we report that the magnitude of the coefficient for the noncompetition enforceability index is significantly larger in a “hot” market (i.e., the time period from 1999 to 2000) than that in the period from 1990 to 1998 (Ljungqvist *et al.*, 2006). The result indicates that managerial stability is more important to facilitate the pricing of new equities when the market is hot and the issuing firms are subject to high information asymmetry.

We recognize that our data have a multi-level structure in that individual issue firms are nested in both states and industries. Therefore, it is suitable to employ hierarchical linear models (HLM) to test our hypotheses as a robustness check (Raudenbush and Bryk, 2002). Specifically, we add random errors at state and firm levels to capture the unobserved heterogeneity to explore the nested data structure in our sample, and report our results in columns 4-6 of Table 2. Controlling for the same set of variables along with year fixed effects, we document similar findings using HLM method in that the noncompetition enforceability is significantly and negatively correlated with underpricing of our sample IPOs. Particularly, we report the variances that are explained by state random effects and industry random effects. Using column 4 as an example, we conclude that roughly 17% $((0.0061+0.0193)/(0.0061+0.0193+0.1214))$ of the variation of underpricing can be explained by state random effects and industry random effects.

Regarding the other control variables, we find that the age of a particular issuing firm is negatively related to the initial returns because older firms have longer trackable records and are less subject to asymmetric information. Moreover, the larger the offer size, the greater the downward pressure on the demand side of newly issued stocks, which necessitates a higher level of underpricing. We report a positive and significant correlation between underwriter reputation and underpricing. It is plausible that issuing firms may use underpricing to purchase analyst coverage from their underwriters (Cliff and Denis, 2004). We document that tech stocks and internet stocks are significantly underpriced because of their great uncertainties and associated riskiness. In addition, we find that underpricing is positively associated with our proxy of the riskiness of issuing firms. These findings are generally consistent with the existing literature (Brau and Fawcett, 2006; Ritter and Welch, 2002; Wagner, 2004).

Table 2. Regressions relating underpricing to state enforceability of noncompetition agreements

Independent variables	Dependent variable: Underpricing					
	Entire sample		1991-1998		1999-2000	
	(1)	(2)	(3)	(4)	(5)	(6)
Enforceability	-0.0094*** (0.0033)	-0.0071*** (0.0021)	-0.0175** (0.0081)	-0.0063** (0.0028)	-0.0048*** (0.0018)	-0.0197** (0.0097)
Offering size (logged)	0.0493** (0.0204)	0.0206* (0.0105)	0.1716*** (0.0399)	0.0455*** (0.0093)	0.0188*** (0.0060)	0.1436*** (0.0391)
Firm age (logged)	-0.0143** (0.0054)	-0.0124** (0.0048)	-0.0170 (0.0257)	-0.0132** (0.0067)	-0.0125*** (0.0041)	-0.0157 (0.0350)
Underwriter reputation	0.0074** (0.0034)	0.0068** (0.0026)	0.0249* (0.0126)	0.0070 (0.0043)	0.0064** (0.0027)	0.0281 (0.0214)
Venture-backed dummy	0.0131 (0.0195)	-0.0082 (0.0116)	0.1066 (0.0731)	0.0064 (0.0139)	-0.0114 (0.0088)	0.0902 (0.0601)
Tech-IPO dummy	0.0577*** (0.0198)	0.0476*** (0.0096)	0.0608 (0.0622)	0.0556*** (0.0163)	0.0442*** (0.0116)	0.1148** (0.0563)
Internet-IPO dummy	0.2455*** (0.0319)	0.1500*** (0.0391)	0.2753*** (0.0563)	0.2437*** (0.0245)	0.1497*** (0.0235)	0.2470*** (0.0606)
Risk factors	0.0427*** (0.0031)	0.0243*** (0.0027)	0.0849*** (0.0132)	0.0430*** (0.0041)	0.0244*** (0.0027)	0.0910*** (0.0154)
Constant	-0.9759** (0.3801)	-0.3892** (0.1745)	3.6951*** (0.8248)	-0.8476*** (0.1481)	-0.3070*** (0.0945)	-2.9554*** (0.6457)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	No	No	No
Cluster standard errors	State	State	State	No	No	No
Observations	3,338	2,668	670	3,338	2,668	670
Estimation methods	OLS	OLS	OLS	HLM	HLM	HLM
F-statistics/Wald statistics	19.10***	7.64***	3.99***	1083.46***	301.61***	151.03***
Adjusted r-squared	0.3166	0.1790	0.2358			
Random effects (variance)						
State				0.0061	0.0058	0.0088
Industry				0.0193	0.0093	0.0351
Residual				0.1214	0.0391	0.2147

Note: ***, ** and * denote significance level at 0.01, 0.05 and 0.1, respectively.

In addition, to ensure the robustness of our findings reported in Table 2, we employ a stratified random sampling method (Wooldridge, 2002). Because our sample IPOs are essentially stratified, certain states (e.g., California) tend to have higher representation in our sample and are likely to dominate our estimation. Therefore, we randomly draw 1,000 IPOs out of our sample IPOs and assign a weighting score to each observation which is equal to the inverse of sampling probability across different strata. We re-run the regression analysis taking into

consideration the weighting score to obtain more accurate estimations. Table 3 presents the regression results based on the stratified random sampling method. In column 1, we treat each state as a stratum, whereas in column 2, we treat each level of enforceability score as a stratum. In general, we find that managerial stability induced by the legal enforcement of noncompetition contracts is negatively associated with underpricing ($p < 0.01$) across all the model specifications.⁵

Table 3. Stratified random sampling: Robustness checks

Independent variables	Dependent variable: Underpricing	
	Stratified by enforceability index	Stratified by state
	(1)	(2)
Enforceability	-0.0247*** (0.0070)	-0.0206*** (0.0067)
Offering size (logged)	-0.0349* (0.0197)	-0.0385 (0.0239)
Firm age (logged)	-0.0187 (0.0131)	-0.0185* (0.0102)
Underwriter reputation	0.0319* (0.0167)	0.0271** (0.0109)
Venture-backed dummy	0.0525 (0.0326)	0.0427 (0.0392)
Tech-IPO dummy	0.0558 (0.0546)	0.0510 (0.0375)
Internet-IPO dummy	0.2993*** (0.0747)	0.3148*** (0.0551)
Risk factors	0.0786*** (0.0111)	0.0741*** (0.0119)
Constant	-0.5346** (0.2160)	-0.6396** (0.2848)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Cluster standard errors	State	State
Observations	1,000	1,000
Estimation methods	OLS	OLS
F-statistics/Wald statistics	12.05***	10.08***
Adjusted r-squared	0.5012	0.4834

Note: ***, ** and * denote significance level at 0.01, 0.05 and 0.1, respectively.

5. We notice that some results for control variables based on the stratified random sample are not consistent with findings reported in Table 2. For example, the Tech-IPO dummy loses its significance, and the sign of the coefficient for offering size changes from positive to negative ($p < 0.10$).

Taken as a whole, our results reported in Table 2 and Table 3 lend strong support to Hypothesis 1. The findings in this section reveal that increased managerial stability due to the stricter legal enforcement of noncompetition contracts can reduce the uncertainties surrounding issuing firms' going-public process, and result in lower underpricing.

4.2. Price Revisions and Noncompetition Enforceability

During the bookbuilding process, underwriters indicate an initial price range, and obtain information about the market demand for the new issues through roadshows to set the final offer price. The price revision, defined as the percentage difference between the final offering price and expected offering price, captures the degree of information obtained from institutional investors during the roadshows. In this section, we conduct regression analysis relating price revision to managerial stability proxied by state noncompetition enforceability index, and report our findings in Table 4. We include the noncompetition enforceability index along with a set of controls, year fixed effects and industry fixed effects. Columns 1-3 and columns 4-6 of Table 4 are based on OLS estimation and HLM estimation, respectively. Across all the model specifications, we report a significantly negative correlation between price revision and the enforceability index of noncompetition agreements, which supports our Hypothesis 2. The results indicate that managerial stability has been factored into the price formation during the bookbuilding process.

Regarding other control variables, we generally find results that are consistent with existing literature (Loughran and Ritter, 2004). For example, variables capturing various aspects of uncertainties associated with issuing firms (e.g., Tech-IPO dummy, Internet-IPO dummy and risk factors) are associated with higher price revisions. In addition, issuing firms with longer track records and more reputable underwriters experience less price revision.

Table 4. Regressions relating price revision to state enforceability of noncompetition agreements

Independent variables	Dependent variable: Price revision					
	Entire sample	1991-1998	1999-2000	Entire sample	1991-1998	1999-2000
	(1)	(2)	(3)	(4)	(5)	(6)
Enforceability	-0.0072*** (0.0019)	-0.0076*** (0.0019)	-0.0051** (0.0025)	-0.0066*** (0.0016)	-0.0061*** (0.0016)	-0.0076* (0.0048)
Offering size (logged)	0.1026*** (0.0186)	0.0861*** (0.0130)	0.1822*** (0.0321)	0.1006*** (0.0059)	0.0852*** (0.0054)	0.1559*** (0.0191)
Firm age (logged)	-0.0131*** (0.0042)	-0.0139*** (0.0041)	-0.0013 (0.0206)	-0.0126*** (0.0042)	-0.0132*** (0.0038)	-0.0069 (0.0173)
Underwriter reputation	-0.0150*** (0.0030)	-0.0105*** (0.0021)	-0.0389** (0.0191)	-0.0151*** (0.0027)	-0.0108*** (0.0024)	-0.0355*** (0.0106)
Venture-backed dummy	0.0116 (0.0141)	0.0064 (0.0097)	0.0337 (0.0361)	0.0088 (0.0087)	0.0032 (0.0081)	0.0298 (0.0296)
Tech-IPO dummy	0.0452*** (0.0139)	0.0452*** (0.0099)	0.0411 (0.0335)	0.0455*** (0.0111)	0.0439*** (0.0112)	0.0410 (0.0264)
Internet-IPO dummy	0.0855*** (0.0141)	0.0606*** (0.0189)	0.0900*** (0.0261)	0.0877*** (0.0154)	0.0611*** (0.0214)	0.1108*** (0.0282)
Risk factors	0.0184*** (0.0025)	0.0132*** (0.0026)	0.0310*** (0.0084)	0.0191*** (0.0026)	0.0136*** (0.0025)	0.0365*** (0.0076)
Constant	-1.7596*** (0.3425)	-1.4393*** (0.2222)	-3.5250*** (0.6074)	-1.6301*** (0.0932)	-1.3776*** (0.0866)	-2.6596*** (0.3153)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	No	No	No
Cluster standard errors	State	State	State	No	No	No
Observations	3,338	2,668	670	3,338	2,668	670
Estimation methods	OLS	OLS	OLS	HLM	HLM	HLM
F-statistics/Wald statistics	12.83***	9.48***	3.62***	658.18***	430.43***	144.58***
Adjusted r-squared	0.2372	0.2130	0.2187			
Random effects (variance)						
State				0.0011	0.0012	0.0014
Industry				0.0032	0.0036	0.0034
Residual				0.0471	0.0324	0.1024

Note: ***, ** and * denote significance level at 0.01, 0.05 and 0.1, respectively.

In addition, we perform other robustness checks. First, to validate the appropriateness of enforceability index as the proxy for managerial stability, we

use issuing firm annual reports (10-k forms) to track management teams of our sample IPOs for up to 3 years. The assumption is that the *ex ante* managerial stability, proxied by noncompetition enforceability index, should coincide with the *ex post* management turnover of issuing firms. We calculate the correlation between the number of leaving executives and the noncompetition enforceability index, and report that the correlations are -0.5 ($p < 0.10$) and -0.7 ($p < 0.05$) for 1 year and 3 years after the issuing firms' going public, respectively. Consistent with the findings reported by Garmaise (2011), we conclude that firms located in states with strong legal enforcement of noncompetition clauses do have higher management stability. Second, Chemmanur and Paeglis (2005) investigate the management quality of newly public firms and provide empirical evidence that the quality of the management can function as a certification of firm value and affect various aspects of the IPO process. It is plausible that our *ex ante* measure of management stability also captures the quality of management because managers with different quality may self-select into different employment contracts. Following Chemmanur and Paeglis (2005), we collect data on management quality from IPO prospectus. In untabulated results, we conclude that our main findings are robust to the inclusion of the additional controls of management quality.

5. Summary and Conclusion

As a common human resource management (HRM) practice, many employers require their employees to enter into noncompetition agreements to limit the loss of valuable human capital (Motta and Roende, 2002). Such contractual terms also function as a powerful binding mechanism that significantly increases labor stability. In this paper, we proxy managerial stability of IPO firms by the variation in state level enforceability of noncompetition agreements across the U.S., and examine its effects on the pricing of new equities of entrepreneurial firms. In this study, we treat the variations of state regulation on noncompetition clauses in the U.S. as exogenous to make causal inferences because it is unlikely that any individual firm will affect state-level regulations (Podsakoff, *et al.*, 2003) or that noncompetition enforceability is a first-order determinant of business locations. Our analyses utilize a large sample of IPO firms from 1991 to 2000, and reveal striking results that managerial stability of IPO firms is associated with lower underpricing and price revision of newly issued equities.

Prior research has emphasized the importance of human capital as an important source of competitive advantage for entrepreneurial firms (Lopez-Cabrales, *et al.*, 2009; Prahalad and Hamel, 1990). Various HRM practices have been implemented to build human capital stock and sustain competitive advantage (Ulrich, 1998; Useem, 1993). We believe our novel findings cast important insights on the link between the stability of human capital possessed by

executives and the harvest of entrepreneurial success through new equity issuances. In this paper, we demonstrate that the stability of management is important for an issuing firm to convey its intrinsic value credibly to the market. Moreover, as Baumol (1990) points out, the relative payoffs that societies offer can heavily influence incentives for individuals to pursue their entrepreneurial visions, which highlights the importance of policies and regulations in shaping the outcomes of entrepreneurship (see also Elert and Henrekson, 2017). In line with Baumol's notion, we establish a robust link between the legal environment and firms' going public process.

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Appendix A. Noncompetition enforceability index

State	Score	State	Score
Alabama	5	Missouri	7
Alaska	3	Montana	2
Arizona	3	Nebraska	4
Arkansas	5	Nevada	5
California	0	New Hampshire	2
Colorado	2	New Jersey	4
Connecticut	3	New Mexico	2
Delaware	6	New York	3
District of Columbia	7	North Carolina	4
Florida 1992-1996	7	North Dakota	0
Florida 1997-2004	9	Ohio	5
Georgia	5	Oklahoma	1
Hawaii	3	Oregon	6
Idaho	6	Pennsylvania	6
Illinois	5	Rhode Island	3
Indiana	5	South Carolina	5
Iowa	6	South Dakota	5
Kansas	6	Tennessee	7
Kentucky	6	Texas 1992-1994	5
Louisiana 1992-2001,2004	4	Texas 1995-2004	3
Louisiana 2002-2003	0	Utah	6
Maine	4	Vermont	5
Maryland	5	Virginia	3
Massachusetts	6	Washington	5
Michigan	5	West Virginia	2
Minnesota	5	Wisconsin	3
Mississippi	4	Wyoming	4

Data Source: Garmaise (2011).