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The Impact of Corporate Governance Mechanisms on the Commitment of Managers in an IPO Setting: Evidence from Korean Small and Venture Firms

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Abstract: Managers' commitment and dedication crucially affect the sustainable growth of firms. When private companies first offer their shares to the public in an initial public offering (IPO), an IPO lockup is one way of revealing managers' commitments. IPO lockups are agreements that promise not to sell the shares retained by pre-IPO shareholders for a specified period in the market after the IPO. This paper investigates the impact of corporate governance mechanisms on the length of the lockup period. The paper's sample consists of IPO firms that have gone public in Korea's KOSDAQ market, which is a listing venue for small and venture companies. The major findings of this paper are as follows: first, the length of the lockup period increases with the number of outside directors and, second, IPO firms with audit committees have longer lockup periods than those without them. These results indicate that managers of firms with greater board independence choose a longer lockup period when going public. This paper also finds that the lockup period is positively related to the presence of venture capitalists serving as directors of IPO firms, which suggests that venture capital directors may ensure that managers have longer lockups. Overall, these findings suggest that, when small and venture companies go public, managers may use the IPO lockup as a commitment device that complements corporate governance mechanisms in reducing investor concern about the moral hazard problem of managers.

Keywords: IPO lockup; corporate governance; commitment of managers; board independence; venture capital

1. Introduction

Private companies raise a large amount of capital when they first offer their shares to the public in an initial public offering (IPO) [1]. IPOs are critical for the sustained growth of small and venture enterprises, which need capital for their projects until the firms generate stable revenue and income [2]. The IPO markets involve various stakeholders, including shareholders and employees of issuers, outside investors, financial intermediaries, media, and the government. In IPO markets, outside investors face the adverse selection problem because insiders of IPO firms possess superior information about the firms than outsiders [3]. Prior literature presents theoretical models that demonstrate how financial intermediaries that serve as underwriters in the IPO markets alleviate the adverse selection problem by discounting the offering prices of issuers from their fair values [4–6]. Through laws and interventions, regulators also play a role in protecting unsophisticated investors who participate in the IPO markets.

In an environment in which investors face the adverse selection problem, managers of IPO firms may attempt to devise strategies to convince investors to subscribe to the IPO. For example, Chemmanur and Yan [7] demonstrate that firms choose a higher level of product market advertising when they are planning to issue new equity and that product market advertising and underpricing are substitutes for a firm issuing new equity. This paper focuses on IPO lockup agreements, which promise not to sell the shares owned by pre-IPO shareholders for a specified period in the market after the IPO. Brav and Gompers [8] claim

that an IPO lockup is a commitment and bonding device to reduce incentives for managers pursuing their own interest at the expense of shareholders (the moral hazard problem of managers). Prior literature investigates the determinants of the lockup periods based on the information asymmetry hypothesis and the moral hazard hypothesis [8–11]. These analyses, however, do not consider corporate governance structure as a factor that may affect lockup length. This paper seeks to contribute to the existing literature by filling this gap through investigating the interaction between corporate governance and lockup length.

Prior literature demonstrates that corporate governance is positively related to a firm's long-term performance. Empirically, Gompers et al. [12] find that firms with a higher score on the corporate governance index have higher firm value, higher profits, higher sales growth, lower capital expenditures, and make fewer corporate acquisitions. Bhagat and Bolton [13] also show that better corporate governance is significantly positively correlated to better contemporaneous and subsequent operating performance. Recent research finds that corporate governance also affects corporate sustainability. For example, Walls et al. [14] argue that firms with high board diversity exhibit stronger environmental performance. Brammer and Pavelin [15] find that larger and less indebted companies with dispersed ownership characteristics are more likely to make voluntary environmental disclosures. Hussain et al. [16] show that a board with a higher proportion of independent directors positively impacts environmental and social performance. Baker and Gompers [17] contend that establishing effective corporate governance that protects minority shareholders is arguably the most important at the time of an IPO, because the IPO represents the first time that most firms raise equity from dispersed investors. The purpose of this paper is to investigate whether a better corporate governance structure leads to longer lockup periods, which are considered indicators of the commitment level of managers of IPO firms.

This paper uses a sample collected from among IPO firms that went public in Korea's KOSDAQ market. Typically, KOSDAQ IPO firms are small venture firms that are inherently subject to large information asymmetry. In addition, in these companies, ownership is generally concentrated on managers. Concentrated ownership may create an entrenchment problem that allows managers to engage in self-dealing. In such instances, independent directors and venture capitalists may be important governance mechanisms for limiting the power of entrenched managers [18,19]. Therefore, this paper focuses on board independence and venture capital (VC) backing as corporate governance mechanisms that may affect lockup lengths. Specifically, the magnitude of board independence is measured by the number of outside directors and the existence of an audit committee, which is a subcommittee of the board and contains a majority of outside directors. Venture capital backing is measured by the existence of a venture capital fund which owns more than 5% of the firm's shares before the IPO and by the presence of a venture capitalist who serves on the board of directors. This paper contributes to literature by providing novel evidence that the lockup periods are positively related to board independence and venture capitalist representation on the board of directors. The main objective of this research is to provide insights to corporate managers of private companies who plan to issue new shares and to investors who participate in IPO markets regarding how a corporate governance structure and managers' commitments interact to solve the adverse selection problem in IPO markets.

The remainder of this paper is organized as follows. Section 2 reviews prior literature. Section 3 describes the data and explains the hypotheses and research methodologies. Section 4 discusses the main results and Section 5 concludes this paper.

2. Literature Review

This section reviews prior literature on IPO lockups and corporate governance. First, I examine the explanations pertaining to why IPO firms voluntarily restrict pre-IPO shareholders from selling their shares in the aftermarket. I also summarize the empirical findings on the determinants of lockup length. Finally, I review prior literature on corporate governance focusing on board independence and venture capital.

2.1. The Roles of IPO Lockups

Prior literature provides several explanations on the roles of IPO lockups. Field and Hanka [20] claim that lockups serve the following purposes: (1) they reassure the market that key employees will continue to exert themselves throughout the lockup period; (2) they provide a credible signal that insiders are not attempting to cash out in advance of imminent bad news; and (3) they may aid the underwriters' price support efforts by temporarily constraining the supply of shares. Brav and Gompers [8] provide three alternative hypotheses on the roles of lockups. First, a longer lockup may reduce information asymmetry because it can be an effective signal about the firm's quality. This explanation is based on the signaling model developed by Courteau [21] and Brau et al. [22]. Second, lockups are used to reduce the moral hazard problem of managers because managers' interest will be aligned with investors' interest during the lockup period. Third, lockups may be enforced by underwriters who try to extract additional compensation from issuing firms. Yung and Zender [11] claim that the signaling hypothesis and the moral hazard hypothesis are not mutually exclusive and each is dominant for a different set of firms.

Empirically, Brav and Gompers [8] find that smaller firms, firms that are not backed by venture capital, firms underwritten by less reputable underwriters, and firms that sell smaller secondary shares are more likely to have longer lockup periods. The authors interpret the findings as evidence that firms with significant information asymmetry about managers' actions increase the lockup length. Similarly, Goergen et al. [9] document that both younger firms and smaller firms have more stringent lockup provisions. Arthurs et al. [10], Yung and Zender [11], and Hoque [23] also report that the length of the lockup period is negatively related to firm size, venture capital and reputable underwriter backing, and the proportion of secondary shares. In summary, the findings presented by the prior literature suggest that lockup length is affected by a firm's characteristics, which are related to the degree of information asymmetry and the certification by third-party specialists (e.g., venture capitalists and reputable underwriters). However, there is a lack of evidence regarding the relationship between lockup length and the corporate governance structure of IPO firms.

2.2. Board Independence and Venture Capital for IPO Firms

Ownership structure and board structure have been viewed as integral parts of the governance structure of corporations [24,25]. Empirical findings are mixed regarding the impact of ownership structure on firm performance. A significant positive effect of insider ownership on firm performance is reported in Morck et al. [26], McConnell and Servaes [27], and Core and Larcker [28], whereas Himmelberg et al. [29] and Demsetz and Villalonga [30] do not find a significant relationship between ownership structure and performance.

The board of directors, which has the power to hire, fire, and compensate senior management teams, serves to resolve conflicts of interest among managers and shareholders [31]. In order to understand the role of board structure, many papers investigate the metis of board independence [31–36]. Specifically, Weisbach [35] finds that poor-performing companies are more likely to replace CEOs if their board is dominated by outsider directors. Baysinger and Butler [31] find evidence that firms perform better when their boards include more outsiders, but Hermalin and Weisbach [36] find no significant relationship between board independence and firm performance. In another strand of literature, the focus is on the role of the audit committee, which is a subcommittee of the board with a majority of outside directors; the literature documents that audit committees may effectively monitor managers [37–39]. Regarding corporate governance in Korea, Kim and Lim [40] provide evidence that outside directors have a positive impact on firm performance.

While many studies examine the importance of corporate governance in well-established companies, a smaller number of studies pay attention to the corporate governance of IPO firms. For example, Mikkelson et al. [41] investigate how the shareholdings of officers and directors affect operating performance of IPO firms and find that post-IPO operating performance is unrelated to officers' and directors' ownership. Berry et al. [42] examine how

governance mechanisms interrelate following an IPO and argue that, as inside ownership decreases after IPOs, alternative governance mechanisms evolve to help mitigate the resulting increase in agency costs. Khurshed et al. [43] document that IPO underpricing in the Chinese market decreased significantly after the split-share structure reform, which suggests that removing legal obstacles from the transfer of state-owned shares to private agents reduced the agency problem. Baker and Gompers [17] examine the board at the time of the IPO. Specifically, they find that the representation of independent outsiders on the board decreases with the power of the CEO and increases with the power of outside investors. Kang et al. [44] examine the behavior of controlling shareholders of Korean IPO firms, finding that, when controlling shareholders increase their ownership during pre-IPO periods, the probability of insiders selling shares after lockup expirations and the amount sold both increase. The authors interpret the results as evidence that controlling shareholders behave strategically in the IPO process.

As venture capital investments became an important financing source for startups, a growing body of research has investigated the roles of venture capitalist as a corporate governance mechanism. Venture capitalists provide financing to venture enterprises and they, generally, take an equity-linked stake, thus sharing both upside and downside risks [45]. Barry et al. [46] claim that venture capitalists help their portfolio companies in forming management teams, constructing boards of directors, and providing contacts with potential suppliers or customers. In an IPO setting, Hochberg [19] finds that VC-backed firms have lower levels of earnings management, a more positive reaction to the adoption of shareholder rights agreements, and a more independent board structure than similar non-VC-backed firms. Lee and Masulis [47] also find that reputable venture capitalists reduce earnings management and Ivanov and Xie [48] document that venture capitalists increase a firm's valuation at the IPO. Jain and Kini [49] and Krishnan et al. [50] demonstrate that VC-backed IPOs have superior post-IPO performance than non-VC-backed IPOs. These findings support the monitoring role of venture capitalists.

Prior literature investigates the relationship between venture capital backing and lockup periods based on the information asymmetry hypothesis. For example, using data from U.S. IPO firms, Brav and Gompers [8], Arthurs et al. [10], and Yung and Zender [11] find that VC-backed firms have shorter lockup periods than non-VC-backed firms. They interpret the results as evidence that VC-backed firms may be able to have shorter lockups because venture capital certifies the value of the firms and, thus, reduces information asymmetry. In contrast, using data from U.K. IPO firms, Espenlaub et al. [51] document that lockup periods are particularly long for VC-backed, high-tech companies. To my knowledge, there is no literature investigating the impact of board independence on lockup length.

3. Data, Hypotheses, and Methodologies

3.1. Data

I identify IPO firms that went public in the KOSDAQ market over the period from July 2014 to December 2019. The sample period starts with July 2014 because the Korean government reduced the mandatory lockup period imposed on insiders from 12 months to 6 months in June 2014. Before this regulatory change, only a small number of IPO firms had lockup periods exceeding the mandatory lockup period. Therefore, the lockup period before the reform would not be effective for the purposes of this study, which investigates the relationship between the lockup period and corporate governance mechanisms.

From among a total of 450 newly listed companies during the sample period, I exclude 161 IPOs that are closed-end funds, REITs, SPACs, and foreign firms from the study sample. During this sample period, some IPO firms are subject to the 12-month mandatory lockup instead of the newer 6-month lockup. Typically, these firms are in the research and development stage with little operating performance. Therefore, I exclude the 62 IPO firms held to the 12-month mandatory lockup to ensure that research-oriented firms, which are subject to different listing requirements, do not drive the results of this study. The final

sample consists of 227 firms, which account for 78.5% of IPOs that are not closed-end funds, REITs, SPACs, and foreign firms. It seems that my sample fairly represents the average IPO firm listed on the KOSDAQ.

I hand-collect IPO-related data from IPO prospectuses submitted to the Korean Financial Supervisory Committee. The data include lockup periods of insiders, the composition of boards of directors, and the subcommittees of boards of directors. Financial data are obtained from the database of the Nice Information Service, Korea's major financial data provider. Table 1 exhibits the distribution of IPO firms by year (Panel A) and by industry (Panel B). The number of IPO firms included in the sample ranges from 28 to 48 annually. The majority of the sample firms (74.5%) belong to the manufacturing industry, followed by publishing, video, broadcasting, and telecommunication (15.0%).

Table 1. Distribution of IPO firms.

	No	%
Panel A. Distribution of IPOs by year		
2014.7~12	28	12.33
2015	39	17.18
2016	33	14.54
2017	48	21.15
2018	41	18.06
2019	38	16.74
Total	227	100.00
Panel B. Distribution of IPO firms by industry		
Manufacturing	169	74.45
Construction	1	0.44
Commerce	9	3.96
Transportation	1	0.44
Publishing, video, broadcasting, and telecommunication	34	14.98
Technology service	8	3.52
Management service	1	0.44
Education service	2	0.88
Leisure	2	0.88
Total	227	100.00

3.2. Testable Hypotheses

IPO firms taken public on the KOSDAQ are typically young and focus on technological development and innovation. These companies are likely to have greater information asymmetry than well-established firms because they lack credible operating performance; furthermore, the knowledge and the technologies developed by such firms are often difficult for external stakeholders to understand [2]. In addition, the greater information asymmetry makes it difficult for outsiders to assess whether managers will act in the best interest of the shareholders after the IPO. By testing investors' preference over local IPOs, Baschieri et al. [52] show the importance of information asymmetry in whether investors decide to participate in the IPO. Brav and Gompers [8] find that larger firms, firms with higher-quality underwriters, and firms backed by venture capital have shorter lockups on average. They argue that each of the variables is likely associated with less informational asymmetry.

The KOSDAQ has different IPO lockup rules than western capital markets such as the U.S. and the U.K. In the latter two, IPO lockups are generally voluntary agreements between issuers and underwriters. Bradley et al. [53] document that lockup periods are most often 180 days for the majority of U.S. IPO firms [53], whereas Espenlaub et al. [51] find that lockup contracts in the U.K. are more varied and diverse than U.S. contracts. In contrast, the KOSDAQ enforces a 6-month lockup period on insiders of IPO firms to protect investors from the opportunistic sales of pre-IPO shareholders. Other markets that require a mandatory lockup period include Germany's Neuer Markt, France's Nouveau Marche, Singapore's SESDAQ, and Turkey's Borsa Istanbul [9,54,55]. Goergen et al. [9]

and Chong and Ho [54] document that IPO firms have diverse lockup periods even when they face a mandatory lockup period. The mandatory lockup may help reduce the moral hazard problem to some extent. However, if a firm has significant information asymmetry, 6 months may not be long enough to assure outside investors to purchase the shares offered by the firm. In that case, managers may decide on a lockup period longer than 6 months. Goergen et al. [9] and Chong and Ho [54] provide evidence that information asymmetry affects the lockup length even for IPO firms subject to mandatory lockups.

To be consistent with the prior literature that investigates the determinants of the lockup length in terms of the information asymmetry hypothesis, I first test whether the lockup length is positively related to information asymmetry proxied by the characteristics of IPO firms.

Hypothesis 1. *Firms with significant information asymmetry will have a longer lockup period.*

Compared to well-established public companies in which ownership is widely dispersed, private firms are typically owned by a small number of controlling shareholders who are, generally, senior managers of the firms. In an agency model for separate owners and managers, ownership concentration is considered to help reduce the agency problem of managers. However, Liao et al. [18] claim that tight ownership control is likely to create an entrenchment problem that allows for controlling shareholders' self-dealing to go unchallenged either internally by the board of directors or externally by the takeover market. Hu et al. [56] also argue that conflicts of interest between controlling shareholders and minority shareholders arise as a governance issue to be addressed when the firms decide to go public. When a manager is entrenched, the role of the board of directors is more important in limiting the manager's power. However, the manager influences the composition of the board of directors. Therefore, a firm's board structure could serve as an important indicator of whether the manager is committed to good corporate governance or is entrenched [57].

The KOSDAQ requires IPO firms to have at least one outside director if the firms' total assets exceed 100 billion Korean Won (KRW) and to establish an audit committee if the total assets exceed KRW 2 trillion. However, there are very few IPO firms listed on the KOSDAQ that reach this threshold. In this environment, some firms may voluntarily elect outside directors and establish an audit committee before going public, whereas other firms go public without outside directors. As Yeh and Woidtke [57] suggest, voluntarily improving board independence may indicate that the firm's managers are committed to good corporate governance. In this case, outside directors may play their monitoring role effectively, thus possibly restricting the managers' incentive to expropriate minority shareholders through enforcing a longer lockup period. Thus, I test the following hypothesis.

Hypothesis 2. *The lockup is positively related to board independence.*

Prior literature offers mixed results pertaining to the relationship between venture capital backing and lockup length. For example, Brav and Gompers [8] and Arthurs et al. [10] document that VC-backed firms have shorter lockups than non-VC-backed firms. They interpret the results as evidence that the presence of venture capital reduces information asymmetry and, thus, reduces the need for longer lockups. In contrast, Espenlaub et al. [51] find that high-tech companies, which are usually backed by venture capital, have longer lockups than non-technology companies.

This paper considers venture capital as a part of governance structure. In the KOSDAQ, pre-IPO shares owned by venture capital funds are subject to a mandatory lockup if the holding period is less than 2 years. However, the minimum mandatory lockup period for venture capital funds is only one month. In the U.S. market, venture capitalists typically agree to a 180-day lockup period, which is similar to managers; additionally, venture capitalists retain their shareholdings even after the lockup period ends [20]. In contrast, venture capitalists in the KOSDAQ generally quickly exit in the aftermarket, which implies

that the monitoring role of venture capitalists in the aftermarket is limited [58]. Within this institutional context, I hypothesize that venture capitalists who act as monitors may ensure that managers of IPO firms have longer lockups to reduce the possibility of managers' self-serving actions in the aftermarket. In this way, venture capitalists may protect their reputation as responsible investors and make their exit easier. Therefore, I present the following hypothesis.

Hypothesis 3. *Firms backed by venture capital may have longer lockup periods than firms that are not backed by venture capital.*

3.3. Research Design and Variables

Prior literature uses a regression analysis to investigate the determinants of lockup length [8,10,11]. Brav and Gompers [8] explain that they use the regression model to test the commitment hypothesis. In their model, the length of the lockup period is used as a dependent variable, and market capitalization, ownership retained by insiders, cash flow margin, book-to-market ratio, venture capital backing, underwriter ranking, and the fraction of primary shares are used as independent variables. Similarly, Arthurs et al. [10] use the length of the lockup period as a dependent variable and age of firm, size of firm, percent of shares agreed in lockup agreement, R&D intensity, patent intensity, VC backup, underwriter reputation, and going-concern risk as independent variables. Yung and Zender [11] regress the length of the lockup period on IPO proceeds, insider ownership, high-tech dummy, VC backup, underwriter ranking, volatility, and the fraction of primary shares. In this paper, I also use a regression analysis to investigate whether lockup length is related to board independence and venture capital backing even after controlling for other characteristics considered as determinants of the lockup period in the prior literature. The multiple regression model is specified in Equation (1).

$$Length\ of\ Lockup_i = \beta_0 + \beta CG_i + \gamma Information\ Asymmetry_i + \delta Control_i + \epsilon_i \quad (1)$$

where the subscript i denotes firm i. *Length of Lockup$_i$* is the total length of the lockup period imposed on controlling shareholders. *CG_i* is a vector of corporate governance mechanisms including board independence and venture capital backing. *Information Asymmetry$_i$* is a vector of firm characteristics related to the magnitude of information asymmetry. *Control$_i$* is a vector of control variables. Following prior literature [8,11], I also include year dummies and industry dummies in the regression model to account for year and industry fixed effects.

Board independence is measured by the number of outside directors (*Outside Director*) and the existence of an audit committee (*Audit Committee*). Venture capital backing is proxied by the following two variables: (1) *VC Backup* is a dummy variable indicating the presence of venture capitalists as pre-IPO investors and (2) *VC Board* is a dummy variable indicating whether a venture capitalist serves on the board.

Following the prior literature mentioned above, I use the logarithm of firm age (*Log Age*), the logarithm of IPO proceeds (*Log Proceeds*), an affiliation to a high-tech industry (*Hightech*), and the sale of secondary shares (*Secondary Shares*) as proxies for information asymmetry. Brav and Gompers [8], Arthurs et al. [10], and Yung and Zender [11] argue that it is more difficult for outside investors to assess managers' actions when firms are younger, smaller, and more high-tech oriented. In addition, Brav and Gompers [8] claim that firms may be able to sell secondary shares in IPOs when they have low information asymmetry.

As control variables, I include ownership retained by insiders (*Insider Ownership*), underwriter ranking (*Top UW*), return on assets (*ROA*), and debt-to-asset ratio (*Leverage*) for the following reasons. First, prior literature suggests that ownership retained by insiders may help reduce the agency costs of managers [24,25]. Yung and Zender [11] find that lockup length is negatively related to insider ownership. Second, there is evidence that reputable underwriters may certify the quality of IPO firms [5,59] and Brav and Gompers [8] demonstrate a negative association between the lockup periods and underwriter ranking.

Third, according to the theory of agency costs of free cash flow [60], the costs of managers' self-dealing behavior are greater in firms with high cash flow and firms that finance projects internally. Therefore, to account for the effects of the capability to generate cash flow and capital structure, I include the return on operating income and financial leverage as control variables. A detailed explanation of the variables is presented in Table A1 in Appendix A.

Most of the variables used in this paper are measured based on the definitions as they are in the prior literature [8,10,11]. However, there are a few differences to be noted. First, due to missing data regarding depreciation and amortization, I use operating income as a proxy for operating cash flow and compute ROA instead of cash flow margin. Second, rather than the fraction of primary shares, which is one minus the fraction of secondary shares, I use a dummy variable indicating the sale of secondary shares because Brav and Gompers [8] demonstrate that having secondary shares sold at the IPO indicates a lower likelihood of information asymmetry problems. Third, while the prior literature measures underwriter ranking following the procedure described in Carter and Manaster [59], which determines the ranking of underwriters by examining the tombstone announcements, I measure underwriter ranking based on the market share of lead underwriters following Cho and Lee [61], which examine the Korean IPO market. Lastly, as a proxy for firm size, Brav and Gompers [8] use the log of market capitalization, Arthurs et al. [10] use the log of total assets, and Yung and Zender [11] use the log of IPO proceeds. In unreported analyses, I alternatively used each of these variables as a proxy for firm size and found that the log of market capitalization and the log of total assets are not significantly related to the lockup length in any specifications, whereas the log of IPO proceeds is significantly related to the lockup length in some specifications. Therefore, I use the log of IPO proceeds as a proxy for firm size.

Table 2 presents descriptive statistics of the variables. The mean (median) length of the lockup period is 10.6 (6.0) months. I find that 74.4% of the sample accepts the mandatory 6-month lockup period as their lockup period, whereas 25.6% choose a longer lockup period. More specifically, 6.6% of the sample chooses a lockup period between 6 months and 12 months; 12.8% chooses a period between 12 months and 24 months; and 6.5% decides on a period greater than 24 months. The mean (median) number of outside directors is 1.4 (1.0) with the maximum of 4.0. The fraction of the sample firms that has an audit committee is 5.7%, and 39.6% is backed by venture capital. Firms in which at least one venture capitalist serves on the board account for 22.0% of the sample. The mean (median) value of insider ownership is 51.5% (51.7%), which suggests that insiders hold a majority of the firm's shares after the IPOs. The sample firms have a mean (median) age of 14.6 (14.0) years, with a mean (median) ROA of 17.0% (14.7%) and a mean (median) leverage of 44.2% (44.2%). The proportion of the sample that is affiliated with a high-tech industry is 13.2%. The fraction of firms that offers secondary shares in the IPO is 38.8%. IPO firms that are handled by the top three largest underwriters account for 46.3% of the sample.

The sample IPOs raise, on average, KRW 35.6 billion as gross proceeds, which is equivalent to EUR 27.4 million (USD 30.2 million) based on the exchange rate at the end of 2019. Yung and Zender [11] document that the average gross proceeds of U.S. IPO firms used in their study is USD 61.0 million. This indicates that the findings of this paper are related more to the literature focusing on small IPO firms, for which the commitment of pre-IPO shareholders may be more important for the survival of the firms. I also report market capitalization computed by post-IPO outstanding shares multiplied by offer prices. The mean market capitalization is KRW 158.0 billion, which is equivalent to EUR 121.8 million (USD 136.5 million).

Table 2. Descriptive statistics.

	Mean	Std.	Minimum	Median	Maximum
Lockup period					
Length of lockup (in months)	10.573	9.572	6.000	6.000	60.000
Fraction of firms with lockups for:					
6 months	0.744	0.437	0.000	1.000	1.000
6 to 12 months	0.066	0.249	0.000	0.000	1.000
12 to 24 months	0.128	0.35	0.000	0.000	1.000
Greater than 24 months	0.062	0.241	0.000	0.000	1.000
Corporate governance mechanisms					
Outside Director	1.374	0.801	0.000	1.000	4.000
Audit Committee	0.057	0.233	0.000	0.000	1.000
VC Backup	0.396	0.490	0.000	0.000	1.000
VC Board	0.220	0.475	0.000	0.000	1.000
Insider Ownership	0.515	0.143	0.139	0.517	0.786
Firm characteristics					
Firm Age (in years)	14.586	8.346	2.000	14.000	49.000
ROA	0.170	0.113	−0.100	0.147	0.794
Leverage	0.442	0.190	0.064	0.442	0.988
Hightech	0.132	0.339	0.000	0.000	1.000
Secondary Shares	0.388	0.488	0.000	0.000	1.000
Top UW	0.463	0.500	0.000	0.000	1.000
IPO Proceeds (in billion KRW)	35.571	58.067	3.704	20.275	62.238
Market Capitaliazation (in billion KRW)	157.989	263.981	16.729	87.284	2949.079

Note: This table exhibits the descriptive statistics of the variables used in this study.

4. Empirical Results

4.1. Univariate Test

To investigate whether firms with lockup periods longer than the mandatory lockup period have significantly different characteristics from firms that do not extend their lockup period, I conduct the univariate tests and display the results in Table 3. I find that IPOs with longer than 6-month lockups have more outside directors and are more likely to have an audit committee, venture capital backup, and venture capitalist representation on the board compared to IPOs with 6-month lockups. However, statistical significance from the difference tests using the *t*-test and the Wilcoxon signed rank test is only found in *Outside Director* and *Audit Committee*. Regarding firm characteristics, IPOs with longer than 6-month lockups are smaller in size, are more likely to be affiliated with a high-tech industry, and are less likely to sell secondary shares. However, the results from the difference tests indicate that the two sub-samples are not significantly different.

4.2. Information Asymmetry and the Lockup Period

The information asymmetry hypothesis predicts that an IPO firm has a longer lockup period when it is subject to greater information asymmetry. To test this hypothesis, I run the regression of Equation (1) without including the measures for corporate governance. I document the results from the regression in the first column of Table 4. I find that the coefficients on the proxies for information asymmetry have expected signs. For example, the coefficients of *Log Age*, *Log Proceeds*, and *Secondary Shares* are negative and the coefficient of *Hightech* is positive. However, I do not find statistical significance for these coefficients.

The coefficient of *Insider Ownership* is negative at the 10% level, which weakly supports that the lockup length may be a substitute for ownership retention. A lack of statistical significance in column 1 may imply that the lockup length may be determined by other factors, such as corporate governance mechanisms, which are discussed in the next section.

Table 3. Descriptive statistics by lockup period.

| | Lockup Period | | | | Difference Test | |
| | =6 Months | | >6 Months | | | |
	Mean	Median	Mean	Medain	t-Value	Z-Value
Outside Director	1.266	0.000	1.690	2.000	3.22 ***	3.40 ***
Audit Committee	0.036	0.000	0.121	0.000	1.87 *	2.40 **
VC Backup	0.391	0.000	0.414	0.000	0.31	0.31
VC Board	0.195	0.000	0.293	0.000	1.26	1.38
Insider Ownership	0.511	0.504	0.523	0.529	0.53	0.79
Firm Age	14.704	15.000	14.241	13.000	−0.35	−0.63
ROA	0.175	0.153	0.156	0.143	−1.01	−1.26
Leverage	0.443	0.454	0.438	0.428	−0.16	−0.62
Hightech	0.118	0.000	0.172	0.000	0.97	1.04
Proceed	38.054	21.912	28.333	18.895	−1.46	−1.11
Secondary Shares	0.396	0.000	0.362	0.000	−0.46	−0.46
Top UW	0.473	0.000	0.431	0.000	−0.56	−0.56
Obs.	169	169	58	58		

Note: The sample is split into two groups: IPO firms with longer than 6-month lockups, and IPO firms with 6-month lockups. The differences between the two groups are tested using the *t*-test and the Wilcoxon signed rank test and t-values and Z-values are reported. *, **, *** denote 1%, 5%, and 10% significance level, respectively.

Table 4. Regressions of the length of the lockup period on information asymmetry and board independence.

	(1)	(2)	(3)	(4)
Constant	28.425 ***	28.624 ***	32.424 ***	29.392 ***
	(3.49)	(3.58)	(3.75)	(3.77)
Log Age	−0.929	−1.092	−0.808	−0.774
	(−0.94)	(−1.16)	(−0.81)	(−0.96)
ROA	−7.376	−4.761	−3.962	−1.298
	(−1.08)	(−0.69)	(−0.58)	(−0.44)
Leverage	−2.347	−1.878	−1.839	−2.365
	(−0.56)	(−0.46)	(−0.46)	(−0.41)
Hightech	4.218	4.597	5.251 *	5.560 *
	(1.37)	(1.49)	(1.74)	(1.73)
Log Proceeds	−0.654	−0.987	−1.192 *	−1.565 *
	(−1.04)	(−1.45)	(−1.69)	(−1.80)
Secondary Shares	−0.883	−1.041	−1.243	−1.196
	(−0.61)	(−0.71)	(−0.87)	(−0.87)
Top UW	−1.124	−1.335	−1.243	−1.223
	(−0.94)	(−1.14)	(−1.08)	(−1.18)
Insider Ownership	−8.114 *	−8.623 *	−7.561 *	−7.956 *
	(−1.69)	(−1.85)	(−1.63)	(−1.77)
Outside Director		2.111 **		1.279
		(2.20)		(1.39)
Audit Committee			8.625 **	6.194 *
			(2.35)	(1.80)
Industry Dummy	Included	Included	Included	Included
Year Dummy	Included	Included	Included	Included
Adj. R²	0.041	0.061	0.077	0.082
Obs.	227	227	227	227

Note: This table exhibits the results from the regression of the length of the lockup period on the proxies for information asymmetry and board independence. The figures in parentheses are t-values computed based on heteroscedasticity-consistent standard errors. *, **, *** denote 1%, 5%, and 10% significance level, respectively.

4.3. Board Independence and the Lockup Period

To test the hypothesis that higher board independence leads to longer lockup periods, I include *Outside Director* as a measure for board independence in column 2. I find that the coefficient of *Outside Director* is significantly positive at the 5% level. *Audit Committee*

is used as a measure for board independence in column 3 and the coefficient of *Audit Committee* is also significantly positive at the 5% level. The results are consistent with *H2*.

Lastly, I include both *Outside Director* and *Audit Committee* in column 4, and I find that the coefficient of *Outside Director* is positive but loses significance, whereas the coefficient of *Audit Committee* is significantly positive at the 10% level, which suggests that the existence of an audit committee may be a stronger indicator of board independence than the number of outside directors. In addition, in column 4, I find that the coefficient of *Hightech* is significantly positive, and the coefficient of *Log Proceeds* is significantly negative at the 10% level, respectively. These results weakly support *H1* that a firm with greater information asymmetry has a longer lockup period.

4.4. Venture Capital and the Lockup Period

In this section, I examine how venture capital backing affects IPO firms' decisions regarding lockup length. Backup by venture capital (*VC Backup*) and venture capitalist board representation (*VC Board*) are used as corporate governance mechanisms in the regression models. The results from the regression analyses are presented in Table 5. In column 1, I find that the coefficient of *VC Backup* is positive but insignificant. In contrast, in column 2, I find that the coefficient of *VC Board* is positive and significant at the 1% level. These results suggest that venture capitalists, when they serve as a member of board of directors, may influence managers of IPO firms to have longer lockups, which is consistent with *H3*.

Table 5. Regressions of the length of the lockup on venture capital backing and all governance mechanisms.

	(1)	(2)	(3)	VIF
Constant	27.959 *** (3.41)	31.877 *** (3.72)	33.458 *** (3.90)	0
Log Age	−0.912 (−0.91)	−0.9271 (−0.94)	−0.772 (−0.94)	1.215
ROA	−7.150 (−1.07)	−9.473 (−1.44)	−3.724 (−0.76)	1.578
Leverage	−2.425 (−0.57)	−3.374 (−0.79)	−3.131 (−0.66)	1.339
Hightech	4.245 (1.37)	4.201 (1.36)	5.514 * (1.73)	2.407
Log Proceeds	−0.648 (−1.03)	−1.174 * (−1.78)	−1.950 ** (−2.51)	1.510
Secondary Shares	−0.899 (−0.62)	−1.092 (−0.81)	−1.420 (−1.11)	1.320
Top UW	−1.119 (−0.94)	−0.875 (−0.78)	−1.012 (−1.01)	1.219
Insider Ownership	−7.587 (−1.43)	−5.810 (−1.24)	−5.507 (−1.11)	1.497
VC Backup	0.442 (0.29)		0.113 (0.16)	1.343
VC Board		2.932 *** (2.65)	2.637 *** (2.81)	1.198
Outside Director			0.909 (1.26)	1.443
Audit Committee			7.336 ** (1.98)	1.450
Industry Dummy	Included	Included	Included	
Year Dummy	Included	Included	Included	
Adj. R^2	0.037	0.078	0.119	
Obs	227	227	227	

Note: This table displays the results from the regressions of the length of the lockup period on venture capital backing (columns 1 and 2) and all governance mechanisms (column 3). The variance inflation factors for the regression model in column 3 are reported in the last column. The figures in parentheses are t-values computed based on heteroscedasticity-consistent standard errors. *, **, *** denote 1%, 5%, and 10% significance level, respectively.

In column 3 of Table 5, I include all corporate governance mechanisms in the regression model. I find that the coefficient of *Log Proceeds* is significantly negative at the 5% level, and the coefficient of *Hightech* is significantly positive at the 10% level. The coefficient of *VC Board* remains significant at the 1% level, and the coefficient of *Audit Committee* is also significant at the 5% level. Overall, these results indicate that independent board of directors and venture capital directors exert a significant influence on IPO firms' lockup length. To address the concern of multicollinearity, variance inflation factors (VIFs) for the regression model in column 3 are reported in the last column. The VIFs are between 1.215 and 2.407, which suggests that multicollinearity may not be a serious concern.

4.5. Discussion

This paper finds that firms with smaller size and firms that are affiliated with a high-tech industry have longer lockup periods, which is consistent with the information asymmetry hypothesis. The result of the size effect is consistent with the findings by Yung and Zender [11]. However, in contrast to this study, Yung and Zender [11] find a negative relationship between the high-tech industry and the lockup period. The authors argue that the positive association can be explained in that high-tech firms are more likely to be backed by venture capital, which may act as a guarantee of the firm's value. In contrast to Brav and Gompers [8], I do not find a negative relationship between the sale of secondary shares and lockup length.

Both Brav and Gompers [8] and Yung and Zender [11] find a negative relationship between venture capital backing and the length of the lockup period. A negative relationship suggests that venture capital backing may reduce information asymmetry of IPO firms. However, I do not find that a significant association between them exists. Rather, I find that lockup length is significantly positively related to the presence of a venture capitalist serving on the board. Such different effects of venture capital may be driven by different institutional backgrounds. For example, prior literature provides evidence that U.S. venture capitalists may provide oversight of managers of their portfolio firms even after the IPOs because they remain as investors after the lockup period ends [20]. However, there is little evidence that Korean venture capitalists play such a role for IPO firms. Therefore, in the Korean market, the presence of venture capitalists as pre-IPO investors may not reduce investors' concern about the moral hazard problem of managers after the IPOs. In contrast, this paper provides evidence that venture capitalists who serve as directors may exert an influence on managers to have longer lockups.

This paper documents that the length of the lockup period is positively related to board independence, which is new evidence in the existing body of literature on IPO lockups. The prior literature pays little attention to the effect of governance structure on IPO lockups except for the effect of ownership concentration. The results on the relationship between ownership concentration and lockup length are mixed. Brav and Gompers [8] find no significant relationship, whereas Yung and Zender [11] find a negative association between them. I find a weakly negative association between ownership structure and the lockup period. Two limitations of the analyses presented in this paper should be noted. First, this paper's sample is constructed from IPO firms that are taken public after the recent regulatory change regarding the mandatory lockup period. As a result, the sample covers a relatively short-time span, which may not represent the population. Second, although I control various firm characteristics and the industry-year level fixed effect, such an approach may not entirely exclude the potential bias induced by omitted variables.

5. Conclusions and Discussion

Managers' commitment and dedication crucially affect the sustainable growth of the firms they oversee. An IPO lockup is a way to reveal managers' commitment to their firms undergoing an IPO. In environments in which an IPO lockup is mandatory, extending a lockup beyond the mandatory period can be costly to managers because managers usually retain significant ownership even after the IPO; as such, their personal wealth is

concentrated in their firms. If bad news is released during the lockup period, managers bear the greatest loss. Therefore, an IPO lockup can be considered as an effective device to reduce the moral hazard problem of managers. Managers may also be incentivized to improve the corporate governance structure when they plan to go public because a good governance structure reduces outside stakeholders' concerns about the firm's quality and sustainability. Prior literature investigates why managers of IPO firms voluntarily promise not to sell their shares for a specified period despite such an agreement being costly. However, the governance structure of IPO firms has not yet been considered in the analyses of the determinants of the lockup period.

This paper extends literature by investigating the relationship between corporate governance mechanisms and the lockup period. This paper provides new evidence that lockup length increases with the number of outside directors. It also finds that IPO firms with an audit committee have longer lockup periods than those without an audit committee. These results suggest that the managers' decision regarding lockup length may be influenced by an independent board of directors. Based on the commitment explanation that an IPO lockup is a device used to reduce the moral hazard problem of managers, my findings suggest that an independent board of directors may carry out its duties by strengthening managers' commitment when the firm goes public. This paper also extends literature on the roles of venture capitalists in an IPO setting by finding that lockup periods are positively related to the presence of venture capitalists serving as directors of IPO firms. My finding indicates that the monitoring role of venture capitalists may be effective when they intervene in management as directors and that their influence may be materialized through increasing the lockup length.

This paper has implications for corporate managers and investors. Although a longer lockup is costly for existing shareholders of IPO firms, this paper's finding indicates that a non-trivial proportion of IPO firms voluntarily extend their lockup length beyond the mandatory period. In particular, small and high-tech companies have longer lockups than large and non-high-tech companies, which indicates that managers of firms with large information asymmetry may have to bear the burden of the under-diversification of their wealth longer than managers of other types of companies. Therefore, managers of private firms may need to factor in the diversification level of their wealth when deciding to go public. This paper's findings also show that outside directors and venture capital directors play important roles in determining lockup length, which suggests that these boards of directors may carry out their fiduciary duties by increasing managers' commitment at the time of the IPO. Another implication of this paper's findings for investors who participate in the IPO market is that longer lockups imposed on managers may indicate that the firm is ensuring a good governance structure.

This paper has several limitations. Due to the short sample period, this paper does not directly test whether longer lockups increase the sustainability of newly listed firms after IPOs. For example, if longer lockups are, indeed, an effective solution for reducing the moral hazard problem of managers, I expect firms with longer lockups to be more likely to survive long-term. However, in my sample, only four firms are delisted during the sample period. Thus, future research on this topic could be undertaken as the sample period increases. Another limitation is that this paper excludes research-based, special IPO firms that are subject to a 12-month mandatory lockup due to the small sample size. The role of IPO lockups for research-oriented firms facing the longer mandatory lockup period would be an interesting future research topic.

Conflicts of Interest: The author declares no conflict of interest.

Appendix A

Table A1. Definition of variables.

Variables	Definition	Explanation
Length of Lockup	• The lockup period imposed on insiders of IPO firms expressed as the number of months.	• If a firm does not extend the lockup period, the lockup length is 6 months. If a firm extends the lockup period, its length is 6 months plus the extended months.
Outside Director	• The number of outsider directors.	
Audit Committee	• Dummy variable which equals one if a firm establishes an audit committee before the IPO and zero otherwise.	
VC Backup	• Dummy variable which equals one if a firm is backed by venture capital and zero otherwise.	• A firm is defined as a VC-backed firm if there is a venture capital fund that owns more than 5% of the firm's shares at the time of the IPO.
VC Board	• Dummy variable which equals one if a venture capitalist serves as a member of board of directors and zero otherwise.	
Log Age	• The logarithm of firm age.	• Firm age is measured as the number of years between the date of founding and the date of listing on the KOSDAQ.
Log Proceeds	• The logarithm of IPO proceeds.	• IPO proceeds is computed as the number of shares offered in the IPO multiplied by the offer price.
Hightech	• Dummy variable that equals one if a firm is affiliated with a high-tech industry and zero otherwise.	• Following Field and Hanka [20], computing machines, electronic components and machines, instruments for detecting and testing, surgical and medical instruments, and computer programming and data processing are defined as high-tech industries.
Secondary Shares	• Dummy variable that equals one if a firm sells secondary shares in the IPO and zero otherwise.	
Insider Ownership	• The number of shares retained by insiders after the IPO divided by the total outstanding shares after the IPO.	
Top UW	• Dummy variable that equals one if a firm hires one of top three underwriters as a lead underwriter and zero otherwise.	• Total gross proceeds by each lead underwriter over the sample period is computed and underwriters are ranked based on total proceeds. The first three underwriters that raised largest proceeds are defined as top underwriters.
ROA	• The ratio of operating income to total assets.	• ROA and leverage are computed based on financial data in the fiscal year-end preceding the IPO.
Leverage	• The ratio of long-term debt to total assets.	

References

1. Ritter, J.R.; Welch, I. A review of IPO activity, pricing, and allocations. *J. Financ.* **2002**, *57*, 1795–1828. [CrossRef]
2. Wang, T.; Qureshi, I.; Deeds, D.; Ren, Y. How do technology ventures signal IPO quality? A configurational approach. *J. Bus. Res.* **2019**, *99*, 105–114. [CrossRef]
3. Myers, S.C.; Majluf, N.S. Corporate financing and investment decisions when firms have information that investors do not have. *J. Financ. Econ.* **1984**, *13*, 187–221. [CrossRef]
4. Rock, K. Why new issues are underpriced. *J. Financ. Econ.* **1986**, *15*, 187–212. [CrossRef]
5. Beatty, R.P.; Ritter, J.R. Investment banking, reputation, and the underpricing of initial public offerings. *J. Financ. Econ.* **1986**, *15*, 213–232. [CrossRef]
6. Michaely, R.; Shaw, W.H. The pricing of initial public offerings: Tests of adverse-selection and signaling theories. *Rev. Financ. Stud.* **1994**, *7*, 279–319. [CrossRef]
7. Chemmanur, T.; Yan, A. Product market advertising, heterogeneous beliefs, and the long-run performance of initial public offerings. *J. Corp. Financ.* **2017**, *46*, 1–24. [CrossRef]
8. Brav, A.; Gompers, P.A. The role of lockups in initial public offerings. *Rev. Financ. Stud.* **2003**, *16*, 1–29. [CrossRef]
9. Goergen, M.; Renneboog, L.; Khurshed, A. Explaining the diversity in shareholder lockup agreements. *J. Financ. Intermediation* **2006**, *15*, 254–280. [CrossRef]
10. Arthurs, J.D.; Busenitz, L.W.; Hoskisson, R.E.; Johnson, R.A. Signaling and initial public offerings: The use and impact of the lockup period. *J. Bus. Ventur.* **2009**, *24*, 360–372. [CrossRef]
11. Yung, C.; Zender, J.F. Moral hazard, asymmetric information and IPO lockups. *J. Corp. Financ.* **2010**, *16*, 320–332. [CrossRef]
12. Gompers, P.; Ishii, J.; Metrick, A. Corporate governance and equity prices. *Q. J. Econ.* **2003**, *118*, 107–156. [CrossRef]
13. Bhagat, S.; Bolton, B. Corporate governance and firm performance. *J. Corp. Financ.* **2008**, *14*, 257–273. [CrossRef]
14. Walls, J.L.; Berrone, P.; Phan, P.H. Corporate governance and environmental performance: Is there really a link? *Strateg. Manag. J.* **2012**, *33*, 885–913. [CrossRef]
15. Brammer, S.; Pavelin, S. Voluntary environmental disclosures by large UK companies. *J. Bus. Financ. Account.* **2006**, *33*, 1168–1188. [CrossRef]
16. Hussain, N.; Rigoni, U.; Orij, R.P. Corporate governance and sustainability performance: Analysis of triple bottom line performance. *J. Bus. Ethics* **2018**, *149*, 411–432. [CrossRef]
17. Baker, M.; Gompers, P.A. The determinants of board structure at the initial public offering. *J. Law Econ.* **2003**, *46*, 569–598. [CrossRef]
18. Liao, W.M.; Lu, C.C.; Wang, H. Venture capital, corporate governance, and financial stability of IPO firms. *Emerg. Mark. Rev.* **2014**, *18*, 19–33. [CrossRef]
19. Hochberg, Y.V. Venture capital and corporate governance in the newly public firm. *Rev. Financ.* **2012**, *16*, 429–480. [CrossRef]
20. Field, L.C.; Hanka, G. The expiration of IPO share lockups. *J. Financ.* **2001**, *56*, 471–500. [CrossRef]
21. Courteau, L. Under-diversification and retention commitments in IPOs. *J. Financ. Quant. Anal.* **1995**, *30*, 487–517. [CrossRef]
22. Brau, J.C.; Lambson, V.E.; McQueen, G. Lockups revisited. *J. Financ. Quant. Anal.* **2005**, *40*, 519–530. [CrossRef]
23. Hoque, H. Role of asymmetric information and moral hazard on IPO underpricing and lockup. *J. Int. Financ. Mark. Inst. Money* **2014**, *30*, 81–105. [CrossRef]
24. Jensen, M.C.; Meckling, W.H. Theory of the firm: Managerial behavior, agency costs and ownership structure. *J. Financ. Econ.* **1976**, *3*, 305–360. [CrossRef]
25. Shleifer, A.; Vishny, R.W. A survey of corporate governance. *J. Financ.* **1997**, *52*, 737–783. [CrossRef]
26. Morck, R.; Shleifer, A.; Vishny, R.W. Management ownership and market valuation: An empirical analysis. *J. Financ. Econ.* **1988**, *20*, 293–315. [CrossRef]
27. McConnell, J.J.; Servaes, H. Additional evidence on equity ownership and corporate value. *J. Financ. Econ.* **1990**, *27*, 595–612. [CrossRef]
28. Core, J.E.; Larcker, D.F. Performance consequences of mandatory increases in executive stock ownership. *J. Financ. Econ.* **2002**, *64*, 317–340. [CrossRef]
29. Himmelberg, C.P.; Hubbard, R.G.; Palia, D. Understanding the determinants of managerial ownership and the link between ownership and performance. *J. Financ. Econ.* **1999**, *53*, 353–384. [CrossRef]
30. Demsetz, H.; Villalonga, B. Ownership structure and corporate performance. *J. Corp. Financ.* **2001**, *7*, 209–233. [CrossRef]
31. Baysinger, B.D.; Butler, H.N. Corporate governance and the board of directors: Performance effects of changes in board composition. *J. Law Econ. Organ.* **1985**, *1*, 101–124.
32. Rosenstein, S.; Wyatt, J.G. Outside directors, board independence, and shareholder wealth. *J. Financ. Econ.* **1990**, *26*, 175–191. [CrossRef]
33. Byrd, J.W.; Hickman, K.A. Do outside directors monitor managers?: Evidence from tender offer bids. *J. Financ. Econ.* **1992**, *32*, 195–221. [CrossRef]
34. Combs, J.G.; Ketchen Jr, D.J.; Perryman, A.A.; Donahue, M.S. The moderating effect of CEO power on the board composition–firm performance relationship. *J. Manag. Stud.* **2007**, *44*, 1299–1323. [CrossRef]
35. Weisbach, M.S. Outside directors and CEO turnover. *J. Financ. Econ.* **1988**, *20*, 431–460. [CrossRef]

36. Hermalin, B.E.; Weisbach, M.S. The effects of board composition and direct incentives on firm performance. *Financ. Manag.* **1991**, *20*, 101–112. [CrossRef]
37. Wild, J.J. The audit committee and earnings quality. *J. Account. Audit. Financ.* **1996**, *11*, 247–276. [CrossRef]
38. Cohen, J.R.; Krishnamoorthy, G.; Wright, A. The corporate governance mosaic and financial reporting quality. *J. Account. Lit.* **2004**, *23*, 87–152.
39. Ghafran, C.; O'Sullivan, N. The governance role of audit committees: Reviewing a decade of evidence. *Int. J. Manag. Rev.* **2013**, *15*, 381–407. [CrossRef]
40. Kim, H.; Lim, C. Diversity, outside directors and firm valuation: Korean evidence. *J. Bus. Res.* **2010**, *63*, 284–291. [CrossRef]
41. Mikkelson, W.H.; Partch, M.M.; Shah, K. Ownership and operating performance of companies that go public. *J. Financ. Econ.* **1997**, *44*, 281–307. [CrossRef]
42. Berry, T.K.; Fields, L.P.; Wilkins, M.S. The interaction among multiple governance mechanisms in young newly public firms. *J. Corp. Financ.* **2006**, *12*, 449–466. [CrossRef]
43. Khurshed, A.; Tong, Y.; Wang, M. Split-share structure reform and the underpricing of Chinese initial public offerings. *Eur. J. Financ.* **2018**, *24*, 1485–1505. [CrossRef]
44. Kang, S.K.; Kang, H.C.; Kim, J.; Kim, N. Insiders' pre-IPO ownership, underpricing, and share-selling behavior: Evidence from Korean IPOs. *Emerg. Mark. Financ. Trade* **2015**, *51*, 66–84. [CrossRef]
45. Campbell II, T.L.; Frye, M.B. Venture capitalist monitoring: Evidence from governance structures. *Q. Rev. Econ. Financ.* **2009**, *49*, 265–282. [CrossRef]
46. Barry, C.B.; Muscarella, C.J.; Peavy Iii, J.W.; Vetsuypens, M.R. The role of venture capital in the creation of public companies: Evidence from the going-public process. *J. Financ. Econ.* **1990**, *27*, 447–471. [CrossRef]
47. Lee, G.; Masulis, R.W. Do more reputable financial institutions reduce earnings management by IPO issuers? *J. Corp. Financ.* **2011**, *17*, 982–1000. [CrossRef]
48. Ivanov, V.I.; Xie, F. Do corporate venture capitalists add value to start-up firms? Evidence from IPOs and acquisitions of VC-backed companies. *Financ. Manag.* **2010**, *39*, 129–152. [CrossRef]
49. Jain, B.A.; Kini, O. Venture capitalist participation and the post-issue operating performance of IPO firms. *Manag. Decis. Econ.* **1995**, *16*, 593–606. [CrossRef]
50. Krishnan, C.N.V.; Ivanov, V.I.; Masulis, R.W.; Singh, A.K. Venture capital reputation, post-IPO performance, and corporate governance. *J. Financ. Quant. Anal.* **2011**, *46*, 1295–1333. [CrossRef]
51. Espenlaub, S.; Goergen, M.; Khurshed, A. IPO lock-in agreements in the UK. *J. Bus. Financ. Account.* **2001**, *28*, 1235–1278. [CrossRef]
52. Baschieri, G.; Carosi, A.; Mengoli, S. The decision to go public and the IPO underpricing with locally biased investors. *Eur. J. Financ.* **2021**, *27*, 1489–1532. [CrossRef]
53. Bradley, D.J.; Jordan, B.D.; Yi, H.C.; Roten, I.C. Venture capital and IPO lockup expiration: An empirical analysis. *J. Financ. Res.* **2001**, *24*, 465–493. [CrossRef]
54. Chong, B.S.; Ho, K.W. Lockup and voluntary earnings forecast disclosure in IPOs. *Financ. Manag.* **2007**, *36*, 63–80. [CrossRef]
55. Tutuncu, L. Lock-up provisions and valuation of Turkish IPOs. *Eurasian Bus. Rev.* **2020**, *10*, 587–608. [CrossRef]
56. Hu, H.W.; Tam, O.K.; Tan, M.G.S. Internal governance mechanisms and firm performance in China. *Asia Pac. J. Manag.* **2010**, *27*, 727–749. [CrossRef]
57. Yeh, Y.H.; Woidtke, T. Commitment or entrenchment?: Controlling shareholders and board composition. *J. Bank. Financ.* **2005**, *29*, 1857–1885. [CrossRef]
58. Song, C.S.; Lee, Y. Monitoring role of venture capital in the initial public offerings: Evidence from Korea. *Emerg. Mark. Financ. Trade* **2018**, *54*, 2382–2399. [CrossRef]
59. Carter, R.; Manaster, S. Initial public offerings and underwriter reputation. *J. Financ.* **1990**, *45*, 1045–1067. [CrossRef]
60. Jensen, M.C. Agency costs of free cash flow, corporate finance, and takeovers. *Am. Econ. Rev.* **1986**, *76*, 323–329.
61. Cho, J.; Lee, J. The venture capital certification role in R&D: Evidence from IPO underpricing in Korea. *Pac.-Basin Financ. J.* **2013**, *23*, 83–108.