Does diversification of share classes increase firm value?*

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Abstract

Firms can issue stocks classified in many ways, including in terms of voting rights, dividend rights, redemption rights, and conversion rights. This study investigates the desirability of giving firms greater freedom to choose their share classes. Making use of the setting created by the 2011 Commercial Act amendment that significantly relaxed regulation over share classes in Korea, we study the motivation behind and effect of adopting two newly emergent classes: preferred stocks convertible to voting stocks at the discretion of management and preferred stocks redeemable at the discretion of investors. We find that firms adopt the former for managerial entrenchment purposes and destroy firm value by doing so, while firms adopt the latter in times of financial constraint but fail to arrest the decline in firm value by doing so.

Keywords: share class, convertible preferred stock, redeemable preferred stock, entrenchment, financial constraint
JEL classification: G30, G32, G33, G34

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1. Introduction

In the absence of agency conflict and market frictions, it is beneficial to allow greater freedom to firms in their choice of corporate financial policy. Unconstrained optimization is always better than constrained optimization. However, if management is standing ready to pursue its own self-interest at the expense of shareholders, granting greater freedom can be suboptimal. Likewise, if information asymmetry between the firm and the market is severe, granting greater freedom may signal bad news or aggravate the adverse selection problem.

This study examines whether granting firms greater freedom to choose different share classes—that is, allowing firms to adopt whichever type of share classes they wish—is desirable. The literature on share classes is limited. It is also heavily tilted toward studies on dual-class stocks and convertible preferred stocks.[5] However, firms can issue stocks classified in many other ways, including in terms of voting rights, dividend rights, redemption rights, and conversion rights. Moreover, we are not aware of a study that makes of use of a policy experiment that allows greater freedom to firms in their choices of share classes.

This study makes use of the 2011 Commercial Act amendment, which significantly relaxed the regulation over share classes in Korea. Prior to the 2011 amendment, Korea allowed only a limited number of share classes: common stocks, preferred stocks, convertible preferred stocks (where the conversion right is bestowed only on shareholders), and redeemable preferred stocks (where the redemption right is bestowed only on issuing companies). The amendment allows firms to adopt new types of share classes. Among these, two classes have become particularly popular. One is convertible preferred stocks, the conversion rights for which are bestowed on management. The other is redeemable preferred stocks, the redemption rights for which are bestowed on

[5] For dual class stocks, see Gompers, Ishii, and Metrick (2009) and Johnson, Karpoff, and Yi (2015), among others. For convertible preferred stocks, see Schmidt (2003), among others.

investors. They account for 45 percent and 49 percent, respectively, of the newly introduced share classes (384 in total) adopted from 2012 to 2015.

Korea's 2011 Commercial Act amendment created an ideal setting for our study for two reasons. First, it allows us to estimate the valuation effect of adoption with less bias. It is reasonable to expect that the market will learn over time which firms will eventually adopt entrenchment or financing stocks. If this is the case, firms assessed as being highly probable to adopt them will be priced before any actual adoption takes place, and the magnitude of the market reaction on the day of adoption may be biased downward. However, this bias may be almost entirely absent during the first few years after the amendment, which makes our empirical setting ideal.

Second, we do not have the shadow pill problem à la Coates (2000) that makes event studies meaningless. In Korea, the adoption of share class requires the amendment of articles of incorporation. As a special resolution item, this requires the approval of shareholders who own at least one third of outstanding shares (excluding treasury stocks) and two thirds of the shares participating in the shareholders' meeting. Given the difficulty of obtaining shareholder approval, it is hard to imagine market participants viewing as if such share classes are already in place before their actual adoptions.

We call convertible preferred stocks, the conversion rights for which are bestowed on management, "entrenchment stocks," and redeemable preferred stocks, the redemption rights for which are bestowed on investors, "financing stocks." Entrenchment stocks are so named because they can be used as an entrenchment device. They are initially issued as non-voting or limited-voting stocks but can later be converted into voting stocks at the discretion of management. After conversion, entrenchment stock holders gain voting power at the expense of other shareholders. Financing stocks are so named because they are likely to be used as a financing means of last resort. The fact that redemption rights are in the hands of investors suggests that the adopting firms were

in urgent need of external capital at the time of adoption. Moreover, the fact that investors hold redemption rights (a put option in nature) in lieu of conversion rights (a call option in nature) suggests that they are pessimistic about the firm's prospects.

We investigate the motivation behind and the effect of adopting these two share classes and find several noteworthy results. First, we find that entrenchment stocks are adopted by firms that have weak managerial control (low inside ownership) or that are more likely to have agency conflicts (high cash holdings or low outside director ratios). Second, our results show that financing stocks are adopted by firms that lack alternative means of financing. They are financially weak and have low foreign ownership.

Third, we find that the market reacts negatively to the adoption of entrenchment stocks. This finding is consistent with our hypothesis that managerial entrenchment from outside takeover threats and the private consumption of corporate resources should lower future cash flows to outside shareholders. The negative market reaction is mitigated, however, in firms with high R&D intensity or with inside ownership of less than 25 percent. This suggests that there is a benefit to adopting entrenchment stocks for firms that engage in long-term investment but have weak managerial control.

Fourth, we find that the market reacts negatively to the adoption of financing stocks. This result is consistent with our prediction that the adoption of financing stocks may reveal adverse changes that were not fully known to the public and may raise suspicions that share prices are overvalued. We also find that the negative market reaction is stronger for financially weaker firms. Also noteworthy is our finding that the adopters' share prices fall even before adoption occurs. This result is not surprising given that financing stocks are more likely to be adopted by financially weaker firms. Such prior weakness may cause the share prices to fall even before adoption takes place.

Fifth, the negative market reaction we report remains intact when comparing against the market movement of non-adopting matching firms. We use covariate matching and propensity score matching (PSM) to construct counterfactuals. Our key findings are also robust to the use of several alternative event windows ([-5, 10], [-10, 10], [-20, 20]).

The remainder of this paper is organized as follows. Section 2 discusses share classes in Korea. Section 3 develops our hypotheses. Section 4 explains the study's data. Section 5 provides the analysis results. Finally, Section 6 concludes the paper.

2. Share Classes in Korea

2.1. 2011 Commercial Act Amendment

Prior to the 2011 amendment, Korea allowed only a limited number of share classes: common stocks, preferred stocks, convertible preferred stocks (with conversion rights bestowed only on shareholders), and redeemable preferred stocks (with redemption rights bestowed only on issuing companies). In the mid-2010s, however, Korean firms and academics began demanding that firms be allowed greater freedom to choose share classes. This was partly influenced by Japan's significant relaxation of regulations on share classes through amendments to its Commercial Law in 2001 and 2002 and the enactment of its Company Law in 2005.

The amendment to the Commercial Act passed the National Assembly in April 2011 and came into force in April 2012. Under the amendment, Korean firms were able to adopt new types of share classes. For example, Korean firms can adopt non-voting common stocks, which have no voting rights nor priority claims over the firm's assets and earnings. They can also adopt stocks whose voting rights are restricted for certain resolution items. The amendment also allows Korean firms to adopt convertible preferred stocks, the conversion rights for which are bestowed on management, and redeemable preferred stocks, the redemption rights for which are bestowed on

investors. Prior to the amendment, the conversion rights were bestowed only on investors and the redemption rights only on management.

The adoption of new classes of shares, as for any other class, requires the amendment of articles of incorporation. As a special resolution item, this requires the approval of shareholders who own at least one third of outstanding shares (excluding treasury stocks) and two thirds of the shares participating in the shareholders' meeting.

Among the newly introduced classes, the two most popular classes are redeemable preferred stocks, where the redemption rights are bestowed either exclusively on management or on both management and investors, and convertible preferred stocks, where the conversion rights are bestowed either exclusively on investors or on both investors and management. Table S1 in our Supplementary Material (available upon request) shows that they account for 49 percent and 45 percent, respectively, of the newly introduced share classes (384 in total) adopted from 2012 to 2015. Table S2 shows that they account for 36 percent and 33 percent, respectively, of all share classes (521 in total) adopted during the sample period.

2.2. Entrenchment Stocks

We call stocks that are initially issued as non-voting or limited-voting stocks but that can be later converted into voting stocks at the discretion of management "entrenchment stocks." Table 1 shows how we identify entrenchment stocks from the group of share classes adopted from 2012 to 2015 with either conversion or redemption options (431 in total). These come in many different names, such as "non-voting convertible stocks," "non-voting convertible preferred stocks," "limited-voting convertible preferred stocks," "convertible stocks," "non-voting redeemable convertible stocks," "non-voting redeemable convertible preferred stocks (RCPS)," and "redeemable convertible stocks." Some entrenchment stocks bestow conversion rights exclusively

on company management, whereas others give them to both parties.

Two features make them entrenchment stocks (i.e., stocks that can insulate management from outside takeover threats). First, the conversion dilutes the voting power of existing shareholders; second, the conversion takes place only when it is in favor of management. A typical convertible preferred stock lacks these two features. It is instead designed to attract investors wishing to share the upside gain. Thus, endowing investors with conversion rights gives them the chance to profit by converting preferred stocks into common stocks when the firm is growing. They have no entrenchment effect.

According to the Commercial Act, adopting firms must prescribe in their articles of incorporation the reasons for conversion.[6] These reasons clearly demonstrate their intent to adopt such stocks. In most cases, conversion is allowed when a threat to management rights emerges. Some articles even specify the minimum voting rights outside investors must hold for management to make a conversion.

It is also worth noting that these stocks can operate as poison pills. When outside raiders challenge the incumbent management, managers can easily dilute their voting power by converting the nonvoting convertible preferred stocks held by friendly shareholders into voting common stocks. Such preferred stocks were used as an early form of poison pill in the United States in the 1980s (Houston and Houston, 1990). They are no longer found in the United States, as a better type of poison pill has been legalized and is readily available to U.S. firms. Nor are they found in Japan, as Japan also introduced its own poison pill in 2005.

[6] Adopting firms must also stipulate the conditions for conversion, the period within which the conversion may be requested, and the number and particulars of the shares to be issued as a result of conversion.

2.2. Financing Stocks

We call preferred stocks that can be redeemed at the discretion of investors "financing stocks." Table 1 shows how we identify financing stocks from the group of share classes adopted from 2012 to 2015 with either conversion or redemption options (431 in total). These come in many different names, such as "non-voting redeemable stocks," "non-voting redeemable preferred stocks," "limited-voting redeemable preferred stocks," "voting redeemable preferred stocks," "redeemable stocks," "non-voting redeemable convertible stocks," "non-voting redeemable convertible preserred stocks," "voting redeemable convertible preserred stocks," and "redeemable convertible stocks." Some financing stocks bestow redemption right exclusively on shareholders, whereas others give them to both parties.

These financing stocks have two features, from which we can infer the adopting firms' situation and investors' expectations. First, the fact that the redemption rights are in the hands of investors suggests that the adopting firms were in urgent need of external capital at the time of adoption. If they were not desperate, they would not have relinquished redemption rights to investors. Second, the fact that investors hold redemption rights (a put option in nature) in lieu of conversion rights (a call option in nature) suggests that they are pessimistic about the firm's prospects. This inference is in line with the argument that investors favor debt over equity if they are pessimists (Alchian and Demsetz, 1972).

3. Hypothesis Development

3.1. Entrenchment Stocks

In this subsection, we outline the empirical predictions consistent with the view that the stocks we labeled "entrenchment stocks" are indeed adopted for the purpose of managerial entrenchment and

the consumption of private benefits. When necessary, we complement this discussion by laying out predictions based on the alternative view that entrenchment stocks are adopted to enable managers to pursue long-term projects. Our predictions are organized into two groups: one on the determinants of entrenchment stock adoption and the other on the stock market reaction to entrenchment stock adoption.

Regarding the determinants, we first predict that firms with lower inside ownership are more likely to adopt entrenchment stocks, because they are in greater need for entrenchment than firms with higher inside ownership. This prediction is in line with the findings in the United States that pill-adopting managers hold fractions of shares significantly smaller than the average fraction held by managers of other firms in the same industries (Malatesta and Walkling, 1988).

Further, if the purpose of insulation is to enjoy the private consumption of corporate cash flows, firms with greater cash holdings should be more likely to adopt entrenchment stocks. Lastly, if entrenchment stocks are against the interests of shareholders and if outside directors can play their monitoring role effectively, firms with high outside director ratios should be less likely to adopt entrenchment stocks. Based on these predictions, we propose three hypotheses regarding the determinants of entrenchment stock adoption:

H1a. Firms with lower inside ownership are more likely to adopt entrenchment stocks.

H1b. Firms with greater cash holdings are more likely to adopt entrenchment stocks.

H1c. Firms with higher outside director ratios are less likely to adopt entrenchment stocks.

Regarding market reaction, we expect the share price of common stocks to drop upon the announcement of entrenchment stock adoption. Managerial entrenchment from outside takeover threats and the private consumption of corporate resources should lower future cash flows to outside shareholders. Moreover, the possibility of voting rights dilution should also lower the share

price. This prediction is in line with Malatesta and Walkling (1988), who find a statistically significant drop in stock price when firms adopt a poison pill. We thus propose the following:

H2a. Stock price reacts negatively to the adoption of entrenchment stocks.

We expect the degree of negative market reaction to vary along with firm characteristics. First, we predict that there is nonlinearity between inside ownership and market reaction. We predict that the market will react most negatively to firms with inside ownership of between 25 and 50 percent. This is based on our conjecture that the costs and benefits of entrenchment stocks may vary depending on the inside ownership level. Such prediction is in line with Morck, Shleifer, and Vishny (1988). They distinguish the entrenchment (cost) and incentive (benefit) effect of higher ownership and show non-monotonic relationship between management ownership and firm value.

For firms with inside ownership of less than 25 percent, we expect the benefits to offset the costs. At this level of inside ownership, managers may not be fully entrenched via the issuance of entrenchment stocks. The managers of such firms are also those most in need of entrenchment stocks to protect their long-term projects. This argument is consistent with Stein (1988) that managers sacrifice long-term profit in order to increase current profit under takeover pressure. For firms with inside ownership of between 25 and 50 percent, we expect the costs to outweigh the benefits. With the issuance of entrenchment stocks, the managers of these firms will be completely entrenched. A vast number of studies in the literature point that managers take value-decreasing activities when they are fully entrenched (Jensen and Ruback, 1983; Sheifer and Vishny, 1989). For firms with inside ownership greater than 50 percent, we expect both the benefits and costs of entrenchment stocks to disappear.

Second, we expect the negative market reaction to disappear for firms experiencing financial constraints. These firms may not have enough slack for management to pursue private

benefits. By contrast, we expect the negative market reaction to be pronounced for firms with higher cash holdings. Excessive cash provides the slack with which management can pursue private benefits.

Third, we explore the question of whether antitakeover defenses encourage valuable innovation. While Manso (2011) proposed a theoretical model that managerial entrenchment motivates innovation by providing high tolerance to short-term underperformance, empirical findings are mixed. Atanassov (2013) find poorer innovative performance in states that pass antitakeover laws, whereas Chemmanur and Tian (2018) find positive effect of entrenchment devices especially in firms that are subject to greater information asymmetry and product market competition. In this study, we add to the literature by investigating how entrenchment stocks affect the value of the firm with differing levels of R&D intensity. We expect the negative market reaction to be mitigated for firms with high R&D expenditures; if there is a benefit to issuing entrenchment stocks, these are the firms that are most likely to enjoy it.

Lastly, we expect the negative market reaction to be amplified for firms with higher outside director ratios. Before entrenchment stock adoption, these firms could have been assigned higher firm value due to the expectation that the outside directors would be effective in protecting shareholder interests. Upon the adoption of entrenchment stocks, however, such an expectation would dissipate, as the adoption would signal the opposite. The fall in share price would be sharper than that experienced by firms that had not inspired such expectations. Based on these predictions, we propose the following hypotheses:

H2b. The negative market reaction in **H2a** is pronounced in firms with inside ownership of between 25 and 50 percent.

H2c. The negative market reaction in **H2a** disappears in firms experiencing financial constraints. By contrast, it is pronounced in firms with higher cash holdings.

H2d. The negative market reaction in **H2a** is mitigated in firms with high R&D expenditures.

H2e. The negative market reaction in **H2a** is pronounced in firms with higher outside director ratios.

3.2. Financing Stocks

In this subsection, we outline the empirical predictions regarding financing stocks—redeemable preferred stocks where the redemption rights are bestowed on investors exclusively or on both parties. On the determinants of adoption, we predict that financing stocks are adopted by financially weak firms. This prediction flows from three key features of financing stocks.

First, financing stocks are stocks, not debt. Their dividends are not deductible, and holders cannot force issuing firms into bankruptcy.[7] They are thus more likely to be adopted by less profitable firms or firms with higher bankruptcy risk. This prediction is in line with the findings of Lee and Figlewicz (1999), who compare convertible preferred stocks against convertible debt and find that firms relying on convertible preferred stocks have a weaker financial position from which to cover interest obligations, a poorer profit position from which to utilize the tax benefits of debt financing, higher debt ratios, and a higher probability of bankruptcy.

Second, financing stocks bestow redemption rights on investors. For this reason, issuing firms are subject to refinancing risk, which makes financing stock a security that firms would issue only when they are financially weak and have no alternative means of financing. Third, financing stocks give their owners the right to redeem (a put option in nature), not the right to convert (a call option in nature). They are thus mainly purchased by investors who are pessimistic about the firm's prospects. We thus propose the following:

[7] One feature makes financing stocks resemble debt: Like debt holders, financing stock holders can be paid with a fixed monetary amount specified in the contract.

H3a. Financially weaker firms are more likely to adopt financing stocks.

It is well-documented in the literature that foreign investors have a strong tendency to cherry-pick local stocks (Kang and Stulz, 1997). We thus expect that firms with less foreign ownership are more likely to adopt financing stocks. We therefore propose the following:

H3b. Firms with less foreign ownership are more likely to adopt financing stocks.

If adopting financing stocks is an optimal response to the firm's situation, the stock price should react positively upon the announcement of adoption. However, we predict that the market will react negatively, for several reasons. First, the adoption may reveal adverse changes that were not fully known to the public, which may lower the share price. According to Miller and Rock (1985), any unexpected outside financing conveys negative information about the firm's prospects. The larger the unexpected funding, the larger the decline in value, since the issue size reveals the extent of the divergence between the actual and expected internally generated cash flows. Given the nature of financing stocks described above, we expect this negative signaling effect to be greater than that of other securities.

Second, the announcement of financing stock adoption may raise suspicions that share prices are overvalued, which may also lower them. According to Myers and Majluf (1984), managers have the incentive to time the market. However, the market, knowing this, reacts negatively upon the announcement of new security issues. Given the nature of financing stocks, we expect this effect to be greater than that of straight debt. As mentioned, financing stocks are stocks, not debt. Firms have no legal obligation to pay out dividends and cannot be forced into bankruptcy for not doing so. We thus propose the following:

H4a. Stock price reacts negatively to the adoption of financing stocks.

Among the adopters of financing stocks, we conjecture that financially weaker firms (e.g., financially constrained firms) will experience greater negative market reactions, as they are more likely to reveal negative information to the public by adopting financing stocks. We thus propose the following:

H4b. The negative market reaction in **H4a** is pronounced for financially weaker firms.

If we accept the prediction that financially weaker firms are more likely to adopt financing stocks (**H3a**), the adopter's share price should fall even before adoption occurs. We thus propose the following:

H4c. The stock price of financing stock adopters falls even before adoption takes place.

4. Data

4.1. Sample Construction and Data Sources

We first identify all share class adoptions from 2012 to 2015. We manually check Data Analysis, Retrieval, and Transfer System (DART), an electronic disclosure system similar to in the United States, and identify firms that amended their articles of incorporation to adopt new share classes.

Our initial sample comprises 521 share class adoptions. This sample excludes financial firms; because of their unique regulatory environment (e.g., fit and proper test, deposit insurance), their motivation for adopting entrenchment or financing stocks may differ from that of non-financial firms. For the sake of the event study, we also exclude adoptions by firms that were privately held. Finally, we exclude 16 firms that did not exactly specify the type of share classes they were adopting in the articles of incorporation.

Out of the 521 share classes, 431 have either conversion or redemption rights attached. Depending upon the holder of such rights, we identify 173 entrenchment stocks and 188 financing

stocks. Table 1 presents details on how we identify them. Note that 21 shares are classified as both: They are RCPS that can be converted into voting stocks by management and can also be redeemed by shareholders. However, the number of distinct adoption events is smaller, as a non-trivial number of firms adopt multiple share classes at the same shareholders' meeting. This gives 137 distinct entrenchment stock adoption events and 150 distinct financing stock adoption events.

We obtain financial statement and stock return data from DataGuide (compiled by Fnguide, a major financial information database agency in Korea), shareholder meeting notification dates from DART, and shareholder meeting dates from DART (for adopting firms) and TS2000 (for matching firms). The TS2000 database is compiled and managed by the Korea Listed Companies Association.

4.2. Adoptions over Time and Concurrent Adoptions

Table 1 shows that entrenchment and financing stocks predominate among the share classes with conversion or redemption rights adopted during our sample period (2012–2015). Out of 235 share classes with conversion rights that are initially issued as non-voting (or limited-voting) stocks, 173 (73.6 percent) bestow the rights either exclusively on management or on management and shareholders, whereas 62 (26.4 percent) bestow them only on shareholders. Likewise, out of 240 share classes with redemption rights, 188 (78.3 percent) bestow the rights either exclusively on shareholders or on shareholders and management, whereas 52 (21.7 percent) bestow them only on management. This predominance is not surprising given the time period we are investigating. Our sample period (2012–2015) covers the first four years after the Commercial Act amendment that allowed entrenchment and financing stocks for the first time. Figure 1 shows this more effectively. Panel A shows that entrenchment and financing stock adoption peaks in 2012, the year the amendment came into effect. This is also shown in Panel B, which indicates the number of

entrenchment (financing) stock adoption events, treating concurrent adoptions of multiple entrenchment (financing) stocks at the same shareholders' meeting as a single event.[8]

It is also worth noting that a considerable number of firms in our sample adopt entrenchment and financing stocks concurrently at the same shareholders' meeting. Table S3 in our Supplementary Material (available upon request) shows the details. Panels A and B show that firms adopt entrenchment and financing stocks concurrently in 98 cases. This poses an empirical challenge, as it makes it difficult for us to isolate the effect of one share class from the other. We address this challenge by constructing a narrower sample exclusive of the 98 concurrent adoptions. This produces a sample of 39 (= 137 – 98) exclusive entrenchment stock adoption events and a sample of 52 (150 – 98) exclusive financing stock adoption events. Figure 1 Panel C shows, year by year, the number of entrenchment (financing) stock adoption events with no concurrent financing (entrenchment) stock adoption at the same shareholders' meeting.

In the absence of concurrent adoption events, this approach allows us to isolate the effect of one share class from the other. However, this approach uses a smaller sample. In subsequent analyses, we test our hypotheses using both samples: that comprising all adoption events and that exclusive of adoption events.

4.3. Definition and Summary Statistics of Key Covariates

We define our key covariates in Table 2 and report their summary statistics in Table 3. When computing for ownership, we adjust for the existence of treasury stocks, as they do not come with any voting rights. The KZ Index is the financial constraint measure suggested by Kaplan and Zingales (1997). Firms with greater financial constraint have higher KZ Index values. All variables are winsorized at the upper and lower 5 percentile values, if not log-transformed.

[8] For example, some firms adopt non-voting convertible stock and limited voting convertible preferred stock concurrently at the same shareholders' meeting.

Table 3 allows us to compare the firms adopting entrenchment stocks (Panel A) against the firms adopting financing stocks (Panel B). Regardless of the sample we use, financing stock adopters have a higher KZ Index than entrenchment stock adopters. This suggests that they were more financially constrained at the time of adoption than entrenchment stock adopters were. Note that we treat multiple entrenchment (financing) stock adoptions by the same firm at the same shareholders' meeting as a single adoption but treat multiple adoptions at different meetings as separate observations.[9]

5. Results

5.1. Which Firms Adopt Entrenchment and Financing Stocks?

In this subsection, we investigate the factors behind the adoption of entrenchment and financing stocks. In Tables 4 and 5, we present the results of probit regressions. Covariates include ownership variables, financial variables, industry fixed effects, year fixed effects, and others.[10] Covariates are measured at the prior year's end. The regressions in Columns (1) to (3) test for the adoption of all entrenchment (financing) stocks, whereas the regressions in Columns (4) to (6) test for the adoption of entrenchment (financing) stocks exclusive of concurrent financing (entrenchment) stock adoptions.

The sample includes adopters during our sample period (2012–2015), treating multiple entrenchment (financing) stock adoptions by the same firm at the same shareholders' meeting as a single adoption but treating multiple adoptions at different meetings as separate observations, and their respective non-adoptions by matching firms. We use year, industry, size, and book-to-

[9] A total of 137 entrenchment stock adoption events come from 131 distinct firms, and 150 financing stock adoption events come from 144 distinct firms.

[10] For manufacturing firms, we use two-digit codes (10-34) to classify their industries. For all other firms, we use divisions (A–U).

market ratio as matching covariates.[11] Point estimates are average marginal effects on probability, and standard errors are clustered at the firm level, as some firms adopt entrenchment (financing) stocks more than once during our sample period.

5.1.1. Entrenchment Stocks

In Table 4, consistent with our hypothesis (**H1a**), we see that firms with lower inside ownership are more likely to adopt entrenchment stocks. The coefficients on inside ownership are negative and statistically significant across all specifications. The coefficient results suggest that a one-percent-point increase in inside ownership decreases the probability of entrenchment stock adoption by 0.7 to 2.5 percent. The coefficient on inside ownership squared is positive throughout but is statistically significant only in the exclusive adoption sample.

We also partially confirm our hypothesis (**H1b**) that firms subject to greater financial constraint are less likely to adopt entrenchment stocks. When using the exclusive adoption sample, the coefficient on KZ Index is negative and statistically significant, suggesting that firms with greater financial constraints are less likely to adopt entrenchment stocks (Column 4). We do not find this, however, when using the all-adoption sample, presumably because this sample also includes firms that concurrently adopt financing stocks. It is not uncommon to see firms amending its charter to allow multiple classes shares. Some classes may be included because they are urgently in need, but some are included simply for future use. If financially constrained firms adopt entrenchments stocks in addition to the much needed financing stocks, the negative relationship between the KZ Index and the adoption of entrenchmenbt stocks weakens.

In Columns (2) and (5), we replace KZ Index with its components to find out which

[11] We construct a set of matched firms for each adopter of interest from the firms that did not adopt any share class during the entire period but were affiliated with the same industry and the same Fama-French 5x5 size and B/M portfolios.

component of the Index especially matters. In Columns (3) and (6), we use alternative measures of KZ Index components. Consistent with the previous finding, firms with greater cash holdings and greater dividend payout are more likely to adopt entrenchment stocks. The coefficient on cash holdings is positive and statistically significant in the all-adoptions sample (Column (3)) and the coefficient on Dividend/PP&D(beg.), which stands for dividend payout relative to investment, is positive throughout both sample groups (Columns (2) and (5)). Lastly, our results support the monitoring role of outside directors (**H1c**). For the exclusive-adoptions sample, the coefficient on outside director ratio is negative and statistically significant.

5.1.2. Financing Stocks

In Table 5, consistent with our hypothesis (**H3a**), we find that financially weaker firms are more likely to adopt financing stocks. The coefficients on KZ Index are positive and statistically significant. They are also economically significant. For the exclusive-adoptions sample in Column 4, a one-standard-deviation increase in the Index (3.3) increases the probability of financing stock adoption by 3 percent (= 3.3 × 0.009). In Columns (2) and (5), we replace KZ Index with its components to find out which component of the Index especially matters. In Columns (3) and (6), we use alternative measures of KZ Index components. Among the elements of financial constraint, we find that low cash holdings, low profitability, and low dividend payout lead to the adoption of financing stocks.

We also confirm the hypothesis (**H3b**) that firms with less foreign ownership are more likely to adopt financing stocks. The coefficients on foreign ownership are negative and statistically significant. For the exclusive adoptions sample, a one-percent increase in foreign ownership decreases the probability of financing stock adoption by 1.47 to 1.6 percent.

5.2. Market Reaction to Entrenchment and Financing Stocks

In this subsection, we investigate market reactions to entrenchment and financing stocks in three different ways. First, we conduct event studies. Figures 2 and 3 plot the cumulative average abnormal stock returns (CAARs) of entrenchment and financing stock adoption (in solid lines). We use a window of [-10, 10] around the day entrenchment (financing) stocks are adopted at the shareholders' meeting (Day 0). The sample includes events from 2012 to 2015. Abnormal returns are estimated using a market model over a window of [-260, -21].[12] To isolate the effect of entrenchment or financing stock adoption from other factors that may have influenced stock price changes on the day of adoption, we also conduct event studies using non-adopting matching firms (dotted lines). The matching covariates include year, industry, firm size, and book-to-market ratio.

Second, we conduct event studies for several subsamples. Tables 6 and 8 show how market reactions to the adoption of entrenchment or financing stocks differ according to firm characteristics. The sample includes adoptions of entrenchment (financing) stocks, exclusive of concurrent financing (entrenchment) stock adoptions. Columns (1) to (6) use subsamples with differing levels of inside ownership, whereas Columns (7) to (10) use subsamples with differing levels of R&D intensity. Columns (11) to (14) use subsamples with differing level of financial constraint. We measure financial constraint using the KZ Index (a higher index indicates greater constraint). High (Low) R&D intensive adopters are firms whose R&D intensity is above (below) their industry's upper (lower) 30 percentile values. Likewise, High (Low) KZ index adopters are firms whose index values are above (below) their industry's upper (lower) 30 percentile values. These classifications are carried out year-by-year.

Third, in Tables 7 and 9, we further investigate the determinants of market reaction by running multivariate regressions across different windows of CAR; [-5, 5] and [-10, 10]. To control

[12] For the market index, we use the Korea Composite Stock Price Index (KOSPI) for firms in the Stock Market Division and the KOSDAQ Composite Index for firms in the KOSDAQ Market Division. Returns are computed using dividend and stock-split adjusted returns.

for any normal relationship that would exist in the absence of entrenchment or financing stock adoptions between potential determinants and stock price changes, we also include non-adopting matching firms in our regressions and interact every potential determinant with an indicator variable that takes a value of 1 for adoption and 0 for non-adoption. The matching covariates include year, industry, firm size, and book-to-market ratio. The coefficients on the interaction term between this indicator variable (named "Adopter") and the determinants capture how important the determinants are for adoption events relative to non-adoption events.

5.2.1. Entrenchment Stocks

In Figure 2, Panel A uses the all-adoptions sample (137 adoption events and 579 non-adoption events), whereas Panel B uses the exclusive-adoptions sample (39 adoption events and 163 non-adoption events). Consistent with our hypothesis (**H2a**), the market regards the adoption of entrenchment stocks as harmful to corporate value. The CAAR for entrenchment stock adoptions over a window of [-10, 10] is approximately -3 percent, whereas that for non-adoptions is virtually 0 (see Panel A) or only -1 percent (see Panel B). One possible explanation for this upward trend before Day 0 can be drawn from our earlier finding that entrenchment stocks are more likely to be adopted by financially healthy firms (e.g., those with higher cash holdings or lower KZ Index values).

Table 6 shows how market reaction differs according to firm characteristics. Three findings support our hypotheses. First, consistent with **H2b**, negative market reaction is most pronounced for firms with inside ownership of between 25 and 50 percent (see Columns 3 and 4). For firms with inside ownership of less than 25 percent (see Columns 1 and 2), we observe positive CAARs, suggesting that the benefit of adopting entrenchment stocks (e.g., securing long-term projects) is greater than the cost (e.g., entrenchment effect) for these firms. However, none of the CAARs is

statistically significant. For firms with inside ownership of more than 50 percent (see Columns 5 and 6), we observe negative but statistically insignificant CAARs. Second, we also confirm in Table 6 that the negative market reaction disappears for firms with financial constraint (**H2c**). Negative market reaction is statistically significant only for firms with a low KZ Index (see Columns 9 and 10). Lastly, we find that negative market reaction is pronounced in low R&D intensive firms (see Column (13) and (14)), whereas we observe positive CAAR for firms with high R&D intensive firms (see Column (11) and (12)). This is consistent with our hypothesis (**H2d**) that market favors the adoption of antitakeover device only if it is adopted by firms with high R&D intensity.

In Table 7, we further investigate the determinants of market reaction by running multivariate regressions and controlling for any normal relationship that would exist in the absence of entrenchment stock adoptions between potential determinants and stock price changes. We use two different windows of CAR to check the robustness of the results. Columns (1) to (3) use [-5, 5] window and Column (4) to (6) use [-10, 10] window. The sample includes entrenchment stock adoptions exclusive of concurrent financing stock adoptions and their respective non-adoptions by matching firms.

First, from the coefficients on (inside ownership × Adopter) and (inside ownership^2 × Adopter), we can see that the relationship between CAAR and inside ownership is convex and that CAAR hits bottom at the inside ownership level of 44.5 percent.[13] This is in line with our earlier finding, shown in Table 6, that the negative market reaction to entrenchment stock adoption is most pronounced in firms with inside ownership between 25 and 50 percent (**H2b)**. The nonlinear relationship between inside ownership and market reaction holds robustly across different CAR windows. Second, the positive coefficients on (KZ Index × Adopter) show that the negative market

[13] This is computed using the coefficients in Column 4: $2.33/(2 \times 2.62) \approx 0.45$

reaction is mitigated in firms with a high KZ Index (i.e., that are more financially constrained) (**H2c**). We also find that the negative market reaction is pronounced in firms with higher cash holdings.

The results in Table 7 also show that the negative market reaction to entrenchment stock adoption is mitigated in firms with high R&D expenditures. This finding is consistent with our hypothesis (**H2d**) that the market appreciates the benefit of entrenchment stocks when firms engage in long-term projects. Lastly, Table 7 shows that the negative market reaction is pronounced in firms with higher outside director ratios. This result is in line with our hypothesis (**H2e**) that firms with higher outside director ratios could have been overvalued before entrenchment stock adoption occurred due to the false expectation that their board monitoring would work more effectively than that of firms with lower outside director ratios.

The results are consistent with our hypotheses in the sample that better identifies entrenchment stocks (i.e., exclusive of current financing stock adoptions). The coefficients have weaker significance in the all adoption sample, presumably because it includes other share class adoptions that confounds the effect of entrenchment stock adoptions. The regression results using the all adoption sample is provided in Supplementary Material (available upon request).

5.2.2. Financing Stocks

In Figure 3, Panel A uses the all-adoptions sample (150 adoption events and 627 non-adoption events), whereas Panel B uses the exclusive-adoptions sample (52 adoption events and 211 non-adoption events). Consistent with our hypothesis (**H4a**), the market reacts negatively to the adoption of financing stocks. The CAAR for financing stock adoptions over a window of [-10, 10] is either -5 percent (all-adoptions sample) or -10 percent (exclusive-adoptions sample), whereas that for non-adoptions is virtually 0 (Panel A) or only -2 percent (Panel B). Table S4 in our

Supplementary Material (available upon request) shows that the negative market reaction to financing stock adoptions is statistically significant. It should be noted, however, that the adopters' share prices fall even before the adoption takes place. This is not surprising given our earlier finding that financing stocks are more likely to be adopted by financially weaker firms (**H3a**). Such prior weakness may have led the share prices to fall even before the adoption occurred. Thus, we confirm **H4c**. However, this does not mean that there is no separate information effect of adopting financing stocks. In later analyses, we find that adopters experience greater share price reduction than their matched counterparts (see Table 10 Panel B).

Table 8 shows how market reaction differs according to firm characteristics. Two findings support our hypotheses. First, the market reacts negatively regardless of the level of inside ownership (see Columns 1 to 6), suggesting that inside ownership does not determine the level of market reaction for financing stocks. This result is in contrast to the result for entrenchment stocks (see Table 6). It also strengthens our finding for entrenchment stocks, as the test for financing stocks can be seen as a falsification test (**H2b**). Second, the market reacts negatively, with statistical significance, only to firms with either high financial constraints (see Columns (7) and (8)) or low cash holdings (see Columns (13) and (14)). This finding supports our hypothesis (**H4b**) that negative market reaction is pronounced for financially weaker firms. We conjecture that they are more likely than financially stronger firms are to reveal bad information to the public when adopting financing stocks.

In Table 9, we further investigate the determinants of market reaction by running multivariate regressions and controlling for any normal relationship that would exist in the absence of financing stock adoptions between potential determinants and stock price changes. We use two different windows of CAR to check the robustness of the results. Columns (1) to (3) use [-5, 5] window and Column (4) to (6) use [-10, 10] window. The sample includes financing stock

adoptions exclusive of concurrent entrenchment stock adoptions and their respective non-adoptions by matching firms.

Consistent with our hypothesis (**H4b**), the negative market reaction is pronounced in firms with greater financial constraints. The coefficient (KZ Index × Adopter) is negative and statistically significant at the 5 percent level for CAR [-5, 5] and at the 1 percent level for CAR [-10, 10]. Among the elements of financial constraint, low cash holdings is most responsible for negative market reaction (Column (2) and (5)). This is in contrast to the result for entrenchment stocks, where the negative market reaction is more pronounced in firms with higher cash holdings. The results are consistent with our hypotheses in the sample that better identifies financing stocks (i.e., exclusive of current entrenchment stock adoptions). The coefficients have weaker significance in the all adoption sample, presumably because it includes other share class adoptions that confounds the effect of entrenchment stock adoptions. The regression results using the all adoption sample is provided in Supplementary Material (available upon request).

5.3. Robustness Check

5.3.1. Alternative Matching Method

In our earlier analyses, we use year, industry, size, and book-to-market ratios as matching covariates. This limited number of covariates might not be sufficient for constructing counterfactuals (i.e., a set of non-adopters that are identical to adopters in every respect except they did not adopt entrenchment or financing stocks). It is also reasonable to expect that the market will learn over time which firms will eventually adopt entrenchment or financing stocks. If this is the case, firms assessed as being highly likely to adopt will be priced before any actual adoption takes place, and the magnitude of the market reaction on the day of adoption may be biased downward. This bias may not have existed in 2012, when Korean firms were first allowed to adopt

such stocks. However, the latter part of our sample period may not be free from this problem.

Thus, we use PSM as an alternative way of constructing matching samples. PSM has two desirable features. First, it allows us to match on as many firm characteristics as possible. We do not need to be confined to a handful of matching covariates. Second, it allows us to control for any expectation the market may have about the probability of adoption and to correct for any downward bias such market expectations may have caused. We follow Austin (2011) and compute propensity scores using logit and include the five nearest neighbors (with replacements) within a caliper width of 0.2 × (pooled standard deviation of propensity scores of treated and non-treated samples). The logit covariates include all the variables used in our earlier probit tests (see Tables 4 and 5).

In Table 10, we investigate if the two matching methods produce different results for the average treatment effect on the treated (ATT). Panel A reports the results for entrenchment stocks, whereas Panel B reports the results for financing stocks. We compute ATT as the difference in CAAR [-10, 10] between adopters (treatment group) and non-adopting matching firms (control group). Columns (1) and (3) use covariate matching (industry, size, and book-to-market ratio), whereas Columns (2) and (4) use PSM. The results show that the two different matching methods produce similar results. Under both methodologies, ATT is negative and is mostly statistically significant.

In Table S9 of the Supplementary Material (available upon request), we reproduce Table 7 using PSM. Similar to our earlier results shown in Table 7, we find that inside ownership, cash holdings, and R&D intensity are important determinants of market reactions to entrenchment stock adoptions. The KZ Index and outside director ratios are, however, no longer statistically significant. In Table S10 of the Supplementary Material (available upon request), we reproduce Table 9 using PSM. Similar to our earlier results shown in Table 9, we find that the KZ Index is an important

determinant of market reactions to financing stock adoptions. In addition, we find that foreign ownership, Tobin's *q*, and leverage are statistically significant. Their coefficient signs suggest that foreign ownership and Tobin's *q* mitigate the negative market reactions to financing stock adoption, whereas leverage aggravates them.

5.3.2. Alternative Event Windows

In our earlier analyses, we use an event window of [-10, 10]. In our Supplementary Material (available upon request), we show that our key results are robust to two alternative event windows: [-5, 10] and [-20, 20]. First, in Figures S1 to S4, we plot CAARs using the alternative event windows. Overall, the results are virtually identical to our baseline result from using [-10, 10]. One exception is the result for entrenchment stocks when using a window of [-20, 20]. The upward trend in CAAR before Day 0 is larger than before, offsetting most of the downward trend in CAAR after Day 0 and making CAAR over the entire event window smaller. One possible explanation for this upward trend before Day 0 can be drawn from our earlier finding that entrenchment stocks are more likely to be adopted by financially healthy firms (e.g., those with higher cash holdings or lower KZ Index values).

Second, in Tables S4 to S6, we tabulate the event study results using three different event windows: [-10, 10], [-5, 10], and [-20, 20]. The t-stats we report alongside the CAARs show that the market reaction to financing stock adoptions is always negative and statistically significant. However, the t-stats are not statistically significant for the market reaction to entrenchment stock adoption. Again, this is attributable to the upward trend in CAAR before Day 0.

Third, in Tables S7 and S8, we reproduce Tables 6 and 8 using an event window of [-5, 10]. Overall, the results are similar to our findings in Tables 6 and 8. The negative market reaction to entrenchment stocks is most pronounced in firms with inside ownership between 25 and 50

percent, whereas negative market reaction to financing stocks is prevalent regardless of the inside ownership level. We also find that the negative market reaction to entrenchment stocks disappears for firms with financial constraints, whereas the negative market reaction to financing stocks strengthens for firms experiencing financial constraints.

6. Conclusion

This study contributes to the literature in two ways. First, we find that it is not always desirable to grant firms the freedom to choose new share classes. Second, we go beyond the analysis of dual class stocks or convertible preferred stocks and study other share classes that have been neglected in the literature. Making use of the setting created by the 2011 Commercial Act amendment that significantly relaxed the regulation of share classes in Korea, we study the motivation behind and the effect of adopting two new share classes—preferred stocks convertible to voting stocks at the discretion of management and preferred stocks redeemable at the discretion of investors. We find that firms adopt the former for managerial entrenchment purposes and destroy firm value by doing so. We also find that firms adopt the latter in times of financial constraint but fail to stop the decline in firm value by doing so.

Our study can be extended in two meaningful ways. First, one can go beyond adoption (i.e., articles of incorporation amendments) and study the actual issuance of entrenchment and financing stocks. This would involve investigating offering prices, the characteristics of holders, and the exercise of conversion or redemption rights, among others. This extension will soon be possible, as the number of issuances accumulate to a level sufficient for a meaningful study. Second, one can study the long-term outcome of adoptions and issuances. We study the valuation effect at the time of adoption—in other words, what market participants at the time of adoption anticipate about the future effect of adoption. However, these expectations may not be realized. It is also important

to study the actual outcomes by investigating whether firms become more entrenched by issuing entrenchment stocks or if firms survive their financial difficulties by issuing financing stocks.

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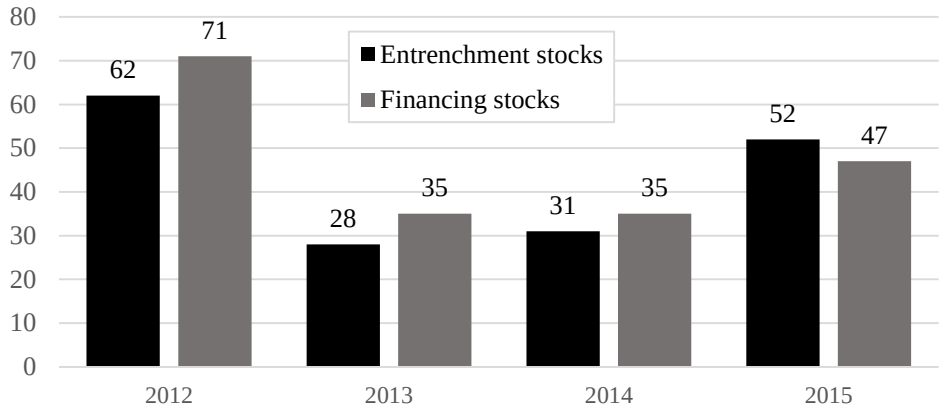
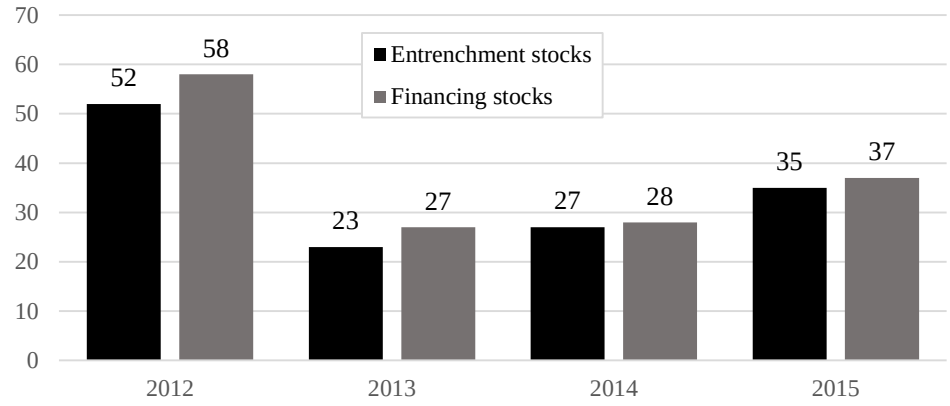
Figure 1. Entrenchment and financing stock adoption over time

This figure shows the number of entrenchment (n = 173) and financing stock (n = 188) adoptions over time in three different ways. Panel A shows the number of stocks adopted, separately for entrenchment and financing stocks. Panel B shows the number of entrenchment (financing) stock adoption events, treating concurrent adoptions of multiple entrenchment (financing) stocks at the same shareholders' meeting as a single event. Panel C shows the number of entrenchment (financing) stock adoption events with no concurrent financing (entrenchment) stock adoption at the same shareholders' meeting.

Panel A. No. of Stocks Adopted



Panel B. No. of Adoption Events



Panel C. No. of Exclusive Adoption Events

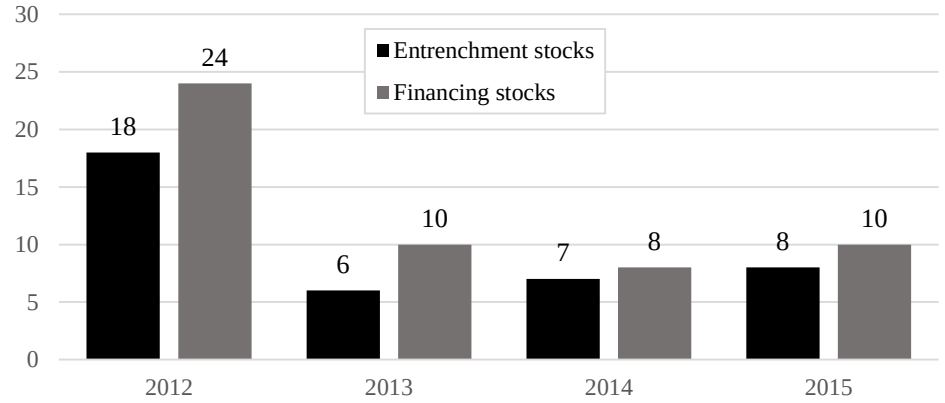
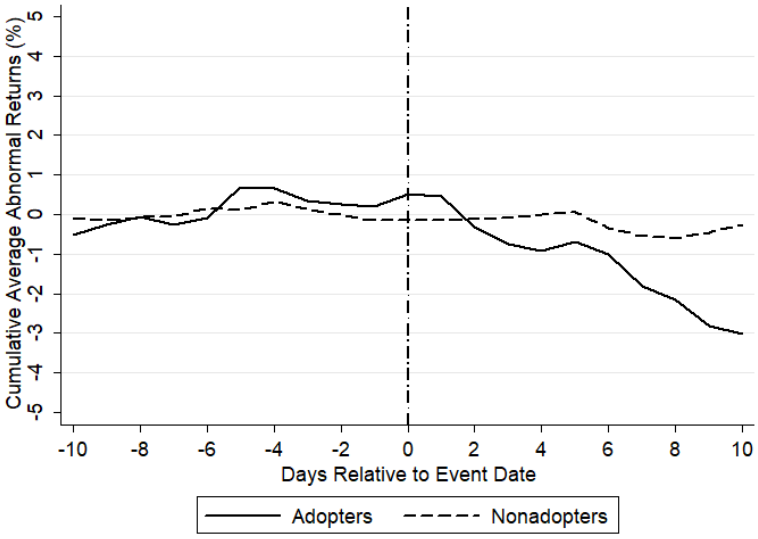


Figure 2. Market reaction to entrenchment stock adoption

The figures provide cumulative average abnormal stock returns (CAARs) of entrenchment stock adoptions (solid line) along with those of non-adoptions by matching firms (dotted line). We use a window of [-10, 10] around the day entrenchment stocks are adopted at the shareholders' meeting (Day 0). The sample includes events during 2012–2015. Abnormal returns are estimated using a market model over a window of [-260, -21].

Panel A. All Adoption Events



Panel B. Exclusive Adoption Events

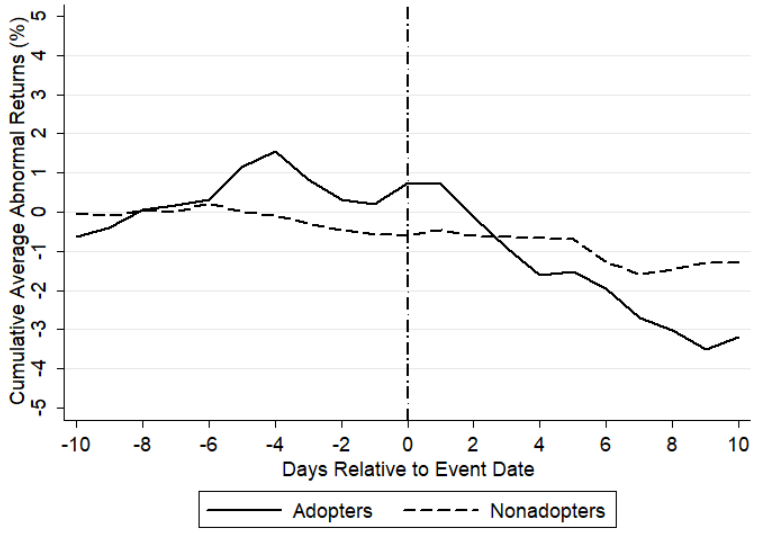
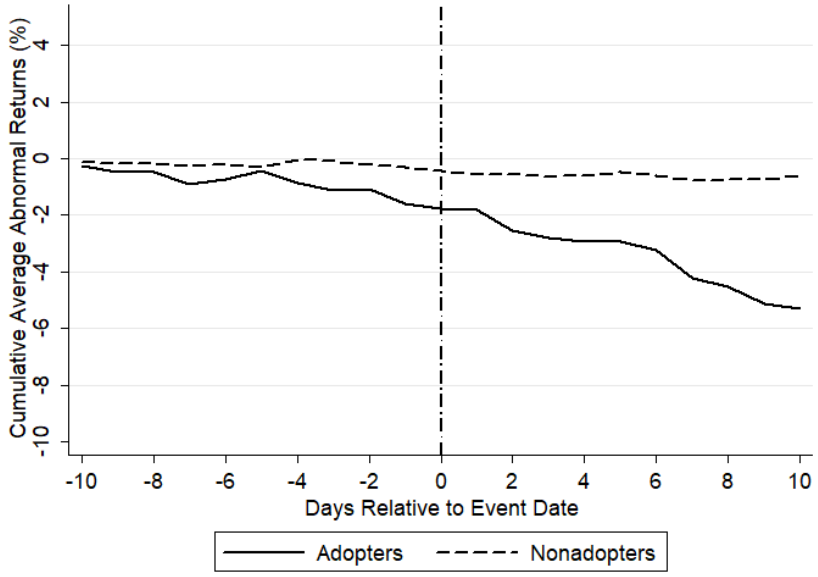


Figure 3. Market reaction to financing stock adoption

The figures provide CAARs of financing stock adoptions (solid line) along with those of non-adoptions by matching firms (dotted line). We use a window of [-10, 10] around the day financing stocks are adopted at the shareholders' meeting (Day 0). The sample includes events during 2012–2015. Abnormal returns are estimated using the market model over a window of [-260, -21].

Panel A. All Adoption Events



Panel B. Exclusive Adoption Events

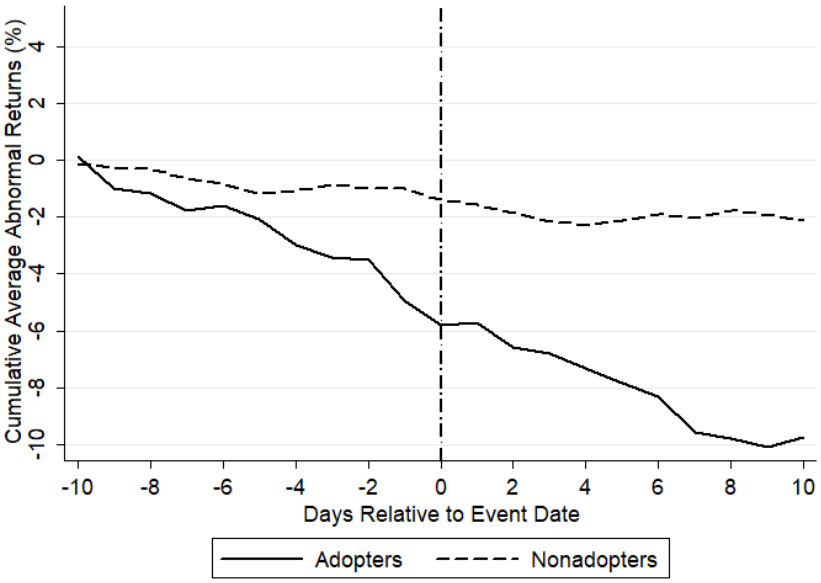


Table 1. Classification into entrenchment and financing stocks

This table shows how we identify entrenchment and financing stocks from a group of share classes with either conversion or redemption features adopted during 2012–2015. Entrenchment stocks allow the issuing company to convert, at its discretion, non-voting (or limited-voting) shares into voting shares. Financing stocks allow the shareholders to redeem their shares from the issuing company at their discretion. Out of 431 share classes with either conversion or redemption features, we identify 173 entrenchment stocks and 188 financing stocks, with 21 classified as both.

Feature	Rights holder	Full Name	Frequency	
Convertible	Company Only or Company and Shareholder	Non-voting convertible stock	13	Entrenchment (142)
		Non-voting convertible preferred stock	92	
		Limited voting convertible preferred stock	10	
		Convertible stock	27	
		Voting convertible preferred stock	9	-
	Shareholder Only	Non-voting convertible stock	2	
		Non-voting convertible preferred stock	27	
		Limited voting convertible stock	1	
		Voting convertible preferred stock	3	
		Convertible stock	7	
Redeemable	Company Only	Non-voting redeemable preferred stock	29	
		Limited voting redeemable preferred stock	2	
		Voting redeemable preferred stock	1	
		Redeemable stock	4	
	Shareholder Only or Shareholder and Company	Non-voting redeemable stock	13	Financing (151)
		Non-voting redeemable preferred stock	99	
		Limited voting redeemable preferred stock	5	
		Voting redeemable preferred stock	2	
		Redeemable stock	32	
Convertible and Redeemable	Conversion: Shareholder Only Redemption: Company Only	Non-voting redeemable convertible preferred stock	4	-
		Voting redeemable convertible preferred stock	1	
		Redeemable convertible stock	1	
	Conversion: Company Only or Company and Shareholder Redemption: Company Only	Non-voting redeemable convertible stock	4	Entrenchment (10)
		Non-voting redeemable convertible preferred stock	3	
		Redeemable convertible stock	3	
	Conversion: Shareholder Only Redemption: Shareholder Only or Shareholder and Company	Non-voting redeemable convertible stock	1	Financing (16)
		Non-voting redeemable convertible preferred stock	9	
		Voting redeemable convertible preferred stock	1	
		Redeemable convertible stock	5	
	Conversion: Company Only or Company and Shareholder Redemption: Shareholder Only or Shareholder and Company	Non-voting redeemable convertible preferred stock	13	Entrenchment Financing (21)
		Redeemable convertible stock	8	
Total			431	

Table 2. Definition of variables

This table defines the variables we use in this paper. All variables, except for log-transformed ones, are winsorized (at the upper and lower 5 percentile values).

Variable	Definition
Inside ownership	(Number of common shares owned by firm's controlling shareholder and its related parties)/(number of common shares outstanding – number of treasury stocks). Related parties include relatives, firm's executives, affiliated firms, and affiliated non-profits.
Foreign ownership	(Number of common shares owned by foreign shareholders)/(number of common shares outstanding – number of treasury stocks)
Outside director ratio	Number of outside directors/number of directors
R&D intensity	Expenditure on research and development/sales
Tobin's q	(Market value of common equity + book value of debt)/total assets
Cash holdings	Cash and cash equivalents/total assets
Leverage	Book value of debt/total assets
Profitability	(Earnings before interest, tax, depreciation, and amortization (EBITDA))/total assets
Dividend payout	Cash dividends/total assets
KZ Index	$-1.002 \times [\mathrm{CF}/\mathrm{PP\&E(beg.)}] + 0.283 \times \mathrm{Tobins'\ q} + 3.139 \times [\mathrm{Debt}/\mathrm{Total\ Assets}] - 39.368 \times [\mathrm{Dividend}/\mathrm{PP\&E(beg.)}] - 1.315 \times [\mathrm{Cash}/\mathrm{PP\&E(beg.)}]$; a measure of financial constraint developed by Kaplan and Zingales (1997).
Firm size	*ln*(Total assets); total assets are in million Korean won (approximately thousand US dollars)
Firm age	*ln*(Number of years since a firm's establishment +1)

Table 3. Summary statistics

The table presents the firm characteristics of entrenchment (Panel A) or financing stock (Panel B) adopters during 2012–2015. We treat multiple entrenchment (financing) stock adoptions by the same firm at the same shareholders' meeting as a single observation but multiple adoptions at different meetings as separate observations. Exclusive adopters of entrenchment (financing) stock are firms that adopt entrenchment (financing) stocks without a concurrent adoption of financing (entrenchment) stocks.

Panel A. Entrenchment Stock Adopters

	All Adopters						Exclusive Adopters					
Variable	N	Mean	50th	S.D.	Min	Max	N	Mean	50th	S.D.	Min	Max
Inside ownership	137	0.37	0.37	0.17	0.08	0.67	39	0.39	0.36	0.18	0.13	0.76
Foreign ownership	137	0.04	0.01	0.06	0	0.23	39	0.05	0.01	0.07	0	0.24
Outside director ratio	134	0.41	0.43	0.17	0	0.67	39	0.38	0.4	0.2	0	0.73
R&D intensity	137	0.02	0	0.03	0	0.09	39	0.02	0.01	0.03	0	0.13
Firm size	137	12.22	11.87	1.6	9.18	16.61	39	12.27	11.88	1.73	9.85	16.61
Firm age	137	2.92	2.89	0.88	0	4.39	39	2.95	3.04	0.83	0	4.14
KZ Index	131	-5.76	-0.93	12.13	-44.77	1.55	39	-16.59	-1.57	35.9	-145.94	1.96
Cash/PP&E(beg.)	132	2.96	0.47	6.23	0.03	25.61	39	6.56	0.65	13.24	0.07	51.79
Cash holdings	137	0.15	0.11	0.13	0.01	0.51	39	0.17	0.12	0.15	0.02	0.56
CF/PP&E(beg.)	132	0.59	0.19	1.24	-0.55	5.06	39	1.64	0.28	3.73	-0.55	14.41
Profitability	137	0.06	0.05	0.08	-0.08	0.22	39	0.08	0.07	0.07	-0.06	0.23
Tobin's q	136	1.27	1.05	0.64	0.71	3.32	39	1.17	1.02	0.47	0.71	2.51
Leverage	137	0.46	0.49	0.21	0.12	0.81	39	0.48	0.49	0.19	0.14	0.81
Dividend/PP&E(beg.)	132	0.05	0	0.12	0	0.45	39	0.19	0	0.45	0	1.66
Dividend payout	137	0	0	0.01	0	0.03	39	0.01	0	0.01	0	0.04

Panel B. Financing Stock Adopters

	All Adopters						Exclusive Adopters					
Variable	N	Mean	50th	S.D.	Min	Max	N	Mean	50th	S.D.	Min	Max
Inside ownership	150	0.36	0.36	0.17	0.08	0.68	52	0.35	0.33	0.17	0.09	0.7
Foreign ownership	150	0.03	0.01	0.05	0	0.17	52	0.03	0.01	0.04	0	0.17
Outside director ratio	145	0.43	0.43	0.13	0.14	0.67	50	0.42	0.4	0.13	0.14	0.67
R&D intensity	149	0.02	0	0.02	0	0.09	51	0.02	0.01	0.03	0	0.12
Firm size	150	12.08	11.79	1.47	9.06	16.2	52	11.85	11.75	1.29	9.06	15.55
Firm age	150	2.95	3.02	0.93	0	4.44	52	3.03	3.33	0.98	0	4.44
KZ Index	144	-2.38	-0.21	5.52	-19.24	1.95	52	-0.98	0.31	3.26	-9.82	2.19
Cash/PP&E(beg.)	145	1.46	0.41	2.45	0.01	9.79	52	1.08	0.35	1.69	0.01	6.3
Cash holdings	150	0.14	0.11	0.12	0	0.41	52	0.12	0.09	0.1	0	0.38
CF/PP&E(beg.)	145	0.22	0.12	0.57	-0.93	1.61	52	0.09	0.09	0.49	-1	1.11
Profitability	150	0.05	0.04	0.08	-0.09	0.22	52	0.04	0.04	0.09	-0.13	0.22
Tobin’s q	149	1.37	1.08	0.81	0.72	3.94	52	1.45	1.11	0.91	0.72	4.21
Leverage	150	0.46	0.5	0.21	0.11	0.77	52	0.49	0.51	0.21	0.1	0.78
Dividend/PP&E(beg.)	145	0.02	0	0.04	0	0.13	52	0.01	0	0.03	0	0.09
Dividend payout	150	0	0	0.01	0	0.02	52	0	0	0.01	0	0.02

Table 4. Determinants of entrenchment stock adoption

The table reports probit regressions of entrenchment stock adoptions (1 if entrenchment stock is adopted, 0 otherwise). Covariates include ownership variables, financial variables, industry fixed effects, year fixed effects, and others. Regressions in Columns (1) to (3) use all entrenchment stock adoptions, whereas regressions in Columns (4) to (6) use adoptions exclusive of concurrent financing stock adoptions. The sample includes adoptions during 2012–2015 (treating multiple entrenchment stock adoptions by the same firm at the same shareholders' meeting as a single observation but adoptions at different meetings as separate observations) and their respective non-adoptions by matching firms (year, industry, size, and book-to-market ratio). Coefficient estimates are average marginal effects on probability. t-values, in brackets, are based on standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	All Adoptions			Exclusive Adoptions		
Inside ownership	**-0.7711***	**-0.8677***	**-0.9551****	**-2.1940*****	**-2.3287*****	**-2.4372*****
	[-1.68]	**[-1.92]**	**[-2.17]**	**[-3.07]**	**[-3.25]**	**[-2.95]**
(Inside ownership)^2	0.5833	0.7368	0.85	**2.2761*****	**2.4840*****	**2.5293*****
	[1.03]	[1.31]	[1.56]	**[2.69]**	**[2.98]**	**[2.65]**
Foreign ownership	**-0.7409*****	**-0.5215****	**-0.5977****	-0.407	-0.2074	-0.2865
	[-2.81]	**[-2.09]**	**[-2.35]**	[-1.36]	[-0.72]	[-1.07]
Outside director ratio	-0.0049	-0.0314	-0.0006	**-0.4841*****	**-0.4125*****	**-0.3438****
	[-0.05]	[-0.30]	[-0.01]	**[-3.14]**	**[-2.74]**	**[-1.99]**
R&D intensity	**-0.6113***	-0.5415	**-0.7104***	0.2799	0.5576	0.8002
	[-1.70]	[-1.48]	**[-1.86]**	[0.50]	[1.05]	[1.25]
Firm size	**0.0597*****	**0.0459*****	**0.0518*****	**0.1129*****	**0.0825*****	**0.0744*****
	[3.74]	**[2.85]**	**[3.25]**	**[4.81]**	**[3.32]**	**[2.67]**
Firm age	**-0.0511****	**-0.0533*****	**-0.0437****	**-0.0827****	**-0.0830****	-0.0198
	[-2.45]	**[-2.63]**	**[-2.27]**	**[-2.29]**	**[-2.34]**	[-0.57]
KZ Index	0.0004			**-0.0044*****		
	[0.68]			**[-4.85]**		
Cash/PP&E(beg.)		0.0036			0.0037	
		[1.50]			[1.25]	
Cash holdings			**0.2815****			0.0992
			[2.33]			[0.47]
CF/PP&E(beg.)		-0.0213			-0.0137	
		[-1.64]			[-0.50]	
Profitability			-0.3409			0.7168
			[-1.40]			[1.60]
Tobin's q		-0.0299	-0.0343		-0.0298	-0.0726
		[-1.36]	[-1.61]		[-0.58]	[-1.48]
Leverage		**0.2263*****	**0.2465*****		**0.2650****	**0.3920****
		[2.79]	**[2.84]**		**[2.10]**	**[2.31]**
Dividend/PP&E(beg.)		**0.2433***			**0.6109****	
		[1.68]			**[2.17]**	
Dividend payout			1.3007			3.1814
			[0.56]			[0.97]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	697	697	703	197	197	199
Pseudo R^2	0.135	0.156	0.157	0.301	0.357	0.231

Table 5. Determinants of financing stock adoptions

The table reports probit regressions of financing stock adoptions (1 if financing stock is adopted, 0 otherwise). Covariates include ownership variables, financial variables, industry fixed effects, year fixed effects, and others. Regressions in Columns (1) to (3) use all financing stock adoptions, whereas regressions in Columns (4) to (6) use adoptions exclusive of concurrent entrenchment stock adoptions. The sample includes adoptions during 2012–2015 (treating multiple financing stock adoptions by the same firm at the same shareholders' meeting as a single adoption but adoptions at different meetings as separate observations) and their respective non-adoptions by matching firms (year, industry, size, and book-to-market ratio). Coefficient estimates are average marginal effects on probability. t-values, in brackets, are based on standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	All Adoptions			Exclusive Adoptions		
Inside ownership	-0.3316	-0.3396	-0.3356	0.4873	0.7639	0.8664
	[-0.78]	[-0.81]	[-0.80]	[0.71]	[1.14]	[1.22]
(Inside ownership)^2	-0.0427	0.0174	0.0232	-1.1827	**-1.4548***	**-1.5447***
	[-0.08]	[0.03]	[0.04]	[-1.37]	**[-1.68]**	**[-1.72]**
Foreign ownership	**-1.3257*****	**-1.1810*****	**-1.2471*****	**-1.5782*****	**-1.4705*****	**-1.6117*****
	[-4.51]	**[-4.07]**	**[-4.26]**	**[-3.08]**	**[-2.76]**	**[-2.86]**
Outside director ratio	0.1626	0.1382	0.1642	0.0547	0.0612	-0.003
	[1.60]	[1.39]	[1.61]	[0.35]	[0.40]	[-0.02]
R&D intensity	**-0.9253****	**-0.9510****	**-1.0927*****	-0.5027	-0.622	-0.5785
	[-2.18]	**[-2.22]**	**[-2.59]**	[-0.58]	[-0.73]	[-0.67]
Firm size	**0.0470*****	**0.0440*****	**0.0505*****	0.0256	0.0271	0.0357
	[2.84]	**[2.70]**	**[3.04]**	[0.91]	[0.91]	[1.20]
Firm age	**-0.0374***	**-0.0395***	**-0.0406****	-0.0414	-0.0414	-0.0373
	[-1.73]	**[-1.88]**	**[-2.03]**	[-1.07]	[-1.10]	[-1.02]
KZ Index	**0.0031*****			**0.0093****		
	[3.66]			**[2.13]**		
Cash/PP&E(beg.)		-0.0004			**-0.0079****	
		[-0.15]			**[-2.51]**	
Cash holdings			**0.1977***			-0.2026
			[1.67]			[-0.98]
CF/PP&E(beg.)		**-0.0395*****			-0.004	
		[-2.61]			[-0.11]	
Profitability			**-0.4710****			-0.3838
			[-2.01]			[-1.03]
Tobin's q		-0.0015	-0.0077		0.0327	0.0336
		[-0.07]	[-0.35]		[0.56]	[0.58]
Leverage		0.1051	**0.1510***		0.1081	0.0513
		[1.26]	**[1.69]**		[0.82]	[0.35]
Dividend/PP&E(beg.)		-0.2875			**-2.2151*****	
		[-1.14]			**[-2.70]**	
Dividend payout			-1.7023			**-9.9613****
			[-0.73]			**[-2.48]**
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	752	752	757	254	254	255
Pseudo R^2	0.158	0.169	0.166	0.196	0.229	0.203

Table 6. Market reaction to entrenchment stock adoptions (subsample analyses)

This table shows cumulative average abnormal returns (CAARs) and their corresponding t-stats over a [-10, 10] window, around the day entrenchment stocks are adopted at the shareholders' meeting (Day 0). The sample includes adoptions during 2012–2015, exclusive of concurrent financing stock adoptions. Columns (1) to (6) use subsamples with differing levels of inside ownership, Columns (7) to (10) use subsamples with differing levels of R&D intensity. Columns (11) to (14) use subsamples with differing levels of financial constraint. We measure financial constraint by KZ Index (higher index means greater constraint). High (Low) R&D intensity adopters are firms whose intensity values are above (below) their industry's upper (lower) 30 percentile values. Likewise, High (Low) KZ index adopters are firms whose index values are above (below) their industry's upper (lower) 30 percentile values. These classifications are carried out year-by-year. Abnormal returns are estimated from the market model using a window of [-260, -21]. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Inside Ownership		Inside Ownership		Inside Ownership		Financial Constraint (KZ Index)				R&D Intensity			
	0 ~ 25% (*n* = 8)		25 ~ 50% (*n* = 20)		> 50% (*n* = 11)		High (*n* = 12)		Low (*n* = 17)		High (*n* =18)		Low (*n* =10)	
Day	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat
-10	-0.52	-0.67	0.08	0.20	-1.99	-1.63	0.58	1.11	-0.81	-1.44	-0.35	-0.64	**-2.48****	-2.41
-9	-0.30	-0.27	0.18	0.23	-1.53	-1.73	-0.64	-0.70	-0.22	-0.30	-0.46	-0.55	**-1.97****	-2.39
-8	0.46	0.22	-0.12	-0.17	0.09	0.08	0.59	0.52	-0.52	-0.81	-0.49	-0.44	**-1.57***	-1.98
-7	0.54	0.24	0.46	0.54	-0.58	-0.53	1.68	1.27	-1.00	-1.37	0.43	0.33	**-2.59*****	-3.86
-6	0.35	0.20	1.12	1.02	-1.13	-0.86	1.22	0.90	-0.04	-0.03	1.04	0.73	**-2.61****	-2.84
-5	1.92	0.99	1.49	1.08	-0.00	-0.00	1.43	0.76	0.36	0.30	**2.96***	1.82	**-2.55****	-2.29
-4	3.31	1.16	1.83	1.21	-0.28	-0.16	1.02	0.58	0.38	0.23	2.66	1.54	-2.37	-1.05
-3	1.67	0.49	1.30	0.76	-0.59	-0.32	-0.17	-0.09	-0.29	-0.16	2.14	1.08	-3.45	-1.45
-2	1.25	0.36	0.63	0.42	-0.97	-0.45	0.04	0.02	-1.28	-0.74	0.63	0.34	-3.94	-1.58
-1	2.87	0.91	-0.28	-0.18	-0.91	-0.35	1.48	0.76	-2.59	-1.52	1.03	0.57	**-5.10***	-2.07
0	5.67	1.24	-0.17	-0.10	-1.15	-0.41	3.68	1.47	**-3.22***	-1.82	1.64	0.67	-4.93	-1.68
1	5.78	1.28	-1.06	-0.56	0.29	0.11	4.21	1.58	**-3.16***	-1.86	1.59	0.62	**-5.35***	-1.91
2	7.22	1.35	-2.42	-1.13	-1.28	-0.45	3.77	1.19	**-4.54****	-2.71	1.77	0.59	**-7.61****	-2.64
3	10.47	1.77	**-4.82***	-2.06	-2.16	-0.68	2.34	0.66	**-5.75****	-2.54	2.43	0.76	**-9.23****	-2.48
4	10.83	1.70	**-5.93****	-2.11	-2.83	-0.97	0.98	0.27	**-6.71****	-2.44	2.1	0.62	**-10.17***	-2.23
5	11.79	1.48	**-5.89****	-2.23	-3.28	-1.07	0.32	0.09	**-6.36****	-2.41	1.78	0.44	**-10.26****	-2.31
6	12.63	1.54	**-6.85****	-2.24	-3.68	-1.09	0.10	0.03	**-6.94****	-2.32	1.6	0.37	**-11.84****	-2.4
7	11.43	1.55	**-7.79****	-2.39	-3.72	-1.24	-0.05	-0.02	**-7.59****	-2.54	0.89	0.22	**-13.06****	-2.46
8	11.17	1.54	**-8.80****	-2.51	-2.82	-0.87	-0.61	-0.16	**-8.76****	-2.62	1.18	0.3	**-14.26****	-2.53
9	9.42	1.73	**-8.53****	-2.21	-3.78	-1.05	-0.44	-0.10	**-9.47****	-2.66	0.48	0.15	**-14.54****	-2.48
10	10.88	1.67	**-8.57****	-2.14	-3.67	-0.90	0.74	0.15	**-9.98****	-2.64	1.06	0.29	**-14.60****	-2.35

Table 7. Determinants of market reaction to entrenchment stock adoptions

The table reports cross-sectional regressions of CAAR around the day entrenchment stocks are adopted at the shareholders' meeting (Day 0). Covariates include ownership variables, financial variables, industry fixed effects, year fixed effects, and others. Regressions in Columns (1) to (3) use CAAR over a [-5, 5] window, whereas regressions in Columns (4) to (6) use CAAR over a [-10, 10] window. The sample includes entrenchment stock adoptions exclusive of concurrent financing stock adoptions during 2012–2015 (treating multiple entrenchment stock adoptions by the same firm at the same shareholders' meeting as a single adoption but adoptions at different meetings as separate observations) and their respective non-adoptions by matching firms (year, industry, size, and book-to-market ratio). Adopter is an indicator variable taking a value of 1 for entrenchment stock adoptions and 0 for non-adoptions. Abnormal returns are estimated from the market model using a window of [-260, -21]. CAARs are winsorized at the upper and lower 5 percentile values. t-values, in brackets, are based on standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)
		[-5, 5]			[-10, 10]	
Adopter	**0.4144****	**0.5137****	**0.5976*****	**0.5348****	**0.6895****	**0.6376****
	[2.22]	**[2.41]**	**[2.82]**	**[2.19]**	**[2.55]**	**[2.50]**
Inside ownership × Adopter	**-2.1345*****	**-2.2813*****	**-2.3496*****	**-2.3342*****	**-3.0134*****	**-2.7679*****
	[-3.36]	**[-3.56]**	**[-3.73]**	**[-3.12]**	**[-3.48]**	**[-3.62]**
(Inside ownership)2× Adopter	**2.3270*****	**2.5846*****	**2.6661*****	**2.6179*****	**3.5134*****	**3.2104*****
	[3.34]	**[3.54]**	**[3.70]**	**[2.95]**	**[3.40]**	**[3.47]**
Foreign ownership × Adopter	-0.345	-0.1161	-0.3044	-0.3909	-0.0969	-0.4078
	[-1.18]	[-0.29]	[-0.74]	[-0.90]	[-0.19]	[-0.74]
Outside director ratio × Adopter	-0.1032	-0.1275	-0.0648	**-0.2382***	**-0.2423***	-0.1908
	[-0.82]	[-0.99]	[-0.59]	**[-1.67]**	**[-1.69]**	[-1.62]
R&D intensity × Adopter	**1.2046***	**1.3544***	**1.2709***	**1.4558****	**1.6048****	**1.6943*****
	[1.72]	**[1.96]**	**[1.94]**	**[2.36]**	**[2.43]**	**[2.81]**
Firm size × Adopter	>-0.0001	-0.0166	-0.0134	0.0006	-0.0192	-0.013
	[-0.00]	[-0.88]	[-0.72]	[0.04]	[-0.90]	[-0.58]
Firm age × Adopter	0.0102	0.0278	0.0206	-0.014	0.0289	0.0061
	[0.40]	[0.90]	[0.72]	[-0.41]	[0.68]	[0.15]
KZ Index × Adopter	0.0007			**0.0013***		
	[1.07]			**[1.70]**		
Cash/PP&E(beg.) × Adopter		-0.0009			**-0.0080*****	
		[-0.37]			**[-2.63]**	
Cash holdings × Adopter			**-0.3112***			**-0.3783****
			[-1.90]			**[-2.03]**
CF/PP&E(beg.) × Adopter		0.0128			**0.0462***	
		[0.64]			**[1.78]**	
Profitability × Adopter			0.3337			**0.8298****
			[1.08]			**[2.28]**
Tobin's q × Adopter		-0.0271	-0.0283		-0.0199	-0.0148
		[-1.08]	[-1.17]		[-0.61]	[-0.46]
Leverage × Adopter		0.1706	0.0358		0.1496	0.1421
		[1.61]	[0.24]		[1.23]	[0.79]
Dividend/PP&E(beg.) × Adopter		-0.0279			-0.1734	
		[-0.23]			[-1.09]	
Dividend payout × Adopter			-1.9594			-1.8301
			[-0.93]			[-0.72]
Inside ownership	0.3838	0.3292	0.2816	0.0575	0.01	0.0139
	[1.46]	[1.17]	[0.94]	[0.15]	[0.02]	[0.03]
(Inside ownership)2	-0.409	-0.3615	-0.3253	-0.1184	-0.0897	-0.0843
	[-1.36]	[-1.14]	[-0.97]	[-0.27]	[-0.19]	[-0.18]
Foreign ownership	-0.0074	0.0082	-0.0255	0.0268	0.0603	0.051
	[-0.10]	[0.11]	[-0.32]	[0.23]	[0.49]	[0.41]
Outside director ratio	0.0698	0.0729	0.0712	0.1083	**0.1286***	**0.1288***

	[1.30]	[1.36]	[1.29]	[1.62]	**[1.91]**	**[1.94]**
R&D intensity	**0.2899***	**0.2766***	**0.3502****	0.0925	0.0602	-0.0043
	[1.84]	**[1.69]**	**[2.20]**	[0.50]	[0.31]	[-0.02]
Firm size	-0.0056	-0.008	-0.0118	0.0004	-0.0046	-0.0073
	[-0.62]	[-0.83]	[-1.21]	[0.04]	[-0.39]	[-0.59]
Firm age	-0.007	-0.0037	>-0.0001	-0.0162	-0.0166	-0.0114
	[-0.50]	[-0.25]	[-0.00]	[-0.90]	[-0.85]	[-0.82]
KZ Index	-0.0001			**-0.0009***		
	[-0.16]			**[-1.67]**		
Cash/PP&E(beg.)		0.0001			0.0021	
		[0.11]			[1.55]	
Cash holdings			-0.0041			0.0572
			[-0.07]			[0.82]
CF/PP&E(beg.)		0.01			0.0011	
		[1.63]			[0.11]	
Profitability			0.1376			-0.1625
			[1.00]			[-0.87]
Tobin's q		-0.0194	-0.0208		-0.0324	-0.0306
		[-1.19]	[-1.23]		[-1.45]	[-1.35]
Leverage		-0.0154	0.0131		-0.0225	-0.0337
		[-0.32]	[0.25]		[-0.36]	[-0.47]
Dividend/PP&E(beg.)		**-0.1451***			-0.0042	
		[-1.67]			[-0.04]	
Dividend payout			0.505			0.9132
			[0.59]			[0.82]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	198	198	200	198	198	200
Adjusted R^2	0.072	0.087	0.091	0.09	0.099	0.09

Table 8. Market reaction to financing stock adoptions (sub-sample analyses)

This table shows CAARs and their corresponding t-stats over a [-10, 10] window, around the day financing stocks are adopted at the shareholders' meeting (Day 0). The sample includes adoptions during 2012–2015, exclusive of concurrent entrenchment stock adoptions. Columns (1) to (6) use subsamples with differing levels of inside ownership, whereas Columns (7) to (10) use subsamples with differing levels of financial constraint. Columns (11) to (14) use subsamples with differing levels of cash holding ratios (Cash/PP&E(beg.)). We measure financial constraint by KZ Index (higher index means greater constraint). High (Low) KZ index adopters are firms whose index values are above (below) their industry's upper (lower) 30 percentile values. These classifications are carried out year-by-year. Abnormal returns are estimated from the market model using a window of [-260, -21]. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Inside Ownership		Inside Ownership		Inside Ownership		Financial Constraint (KZ Index)				Cash/PP&E(beg.)			
	0 ~ 25% (*n* = 16)		25 ~ 50% (*n* = 26)		> 50% (*n* = 10)		High (*n* = 23)		Low (*n* = 13)		High (*n* =12)		Low (*n* =22)	
Day	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat	CAAR	t-stat
-10	0.56	0.65	0.15	0.17	-0.60	-0.69	-0.03	-0.03	1.03	1.01	0.27	0.16	0.31	0.39
-9	-1.14	-0.83	-1.05	-0.70	-0.60	-0.48	-1.79	-1.12	0.90	0.61	-1.35	-0.41	-1.00	-0.97
-8	-1.69	-1.55	-0.75	-0.50	-1.43	-1.16	-2.12	-1.40	1.45	1.20	-0.56	-0.18	-1.46	-1.64
-7	**-4.60*****	-3.05	0.10	0.08	-2.20	-1.73	**-2.40***	-1.88	1.43	1.00	-1.88	-0.87	**-2.44****	-2.31
-6	**-5.73*****	-3.25	1.39	0.81	-2.78	-1.79	**-2.34***	-1.82	2.04	0.73	-0.91	-0.33	**-3.26****	-2.44
-5	**-5.91****	-2.76	0.65	0.34	-2.89	-1.69	**-3.47****	-2.23	2.70	0.90	-0.47	-0.17	**-3.85****	-2.35
-4	**-7.77****	-2.30	0.22	0.11	-3.73	-1.56	**-5.85****	-2.26	3.99	1.61	-0.63	-0.17	**-4.97***	-2.06
-3	**-7.94***	-1.92	-0.02	-0.01	-5.01	-1.32	**-6.70****	-2.19	4.60	1.45	-2.92	-0.54	**-4.60***	-1.80
-2	**-7.69***	-1.92	-0.23	-0.13	-5.31	-1.36	**-5.86***	-2.03	2.73	1.01	-1.31	-0.32	**-4.74***	-1.82
-1	**-9.17****	-2.26	-1.95	-0.96	-5.92	-1.46	**-7.73****	-2.51	0.98	0.28	-2.74	-0.67	**-6.83****	-2.39
0	**-9.39***	-2.12	-3.38	-1.58	-6.42	-1.55	**-9.49*****	-2.82	0.81	0.25	-3.41	-0.77	**-7.76****	-2.46
1	-8.86	-1.60	-2.83	-1.25	**-8.27***	-1.90	**-9.52****	-2.35	1.81	0.50	-3.00	-0.69	**-7.64***	-1.90
2	-10.11	-1.65	-3.00	-1.15	**-10.22***	-2.09	**-10.64****	-2.31	2.22	0.54	-3.57	-0.69	**-8.25***	-1.82
3	-10.03	-1.50	-3.34	-1.25	**-10.58***	-2.12	**-10.97****	-2.24	1.81	0.43	-3.72	-0.69	**-8.71***	-1.76
4	-11.73	-1.70	-2.34	-0.81	**-13.13****	-2.42	**-12.29****	-2.38	2.63	0.56	-2.38	-0.43	**-9.89***	-1.90
5	-10.69	-1.65	-4.08	-1.39	**-13.06****	-2.44	**-12.12****	-2.47	2.00	0.44	-2.57	-0.47	**-9.41***	-1.89
6	**-10.77***	-1.85	-5.10	-1.60	**-12.71****	-2.69	**-12.30****	-2.77	1.54	0.33	-2.32	-0.39	**-8.98***	-1.98
7	**-11.07***	-1.83	**-6.78****	-2.07	**-14.47****	-3.04	**-13.31*****	-2.88	-0.25	-0.05	-3.38	-0.58	**-9.90****	-2.09
8	**-11.84***	-1.89	**-6.40***	-1.99	**-15.25****	-3.13	**-13.70*****	-2.91	0.55	0.12	-4.92	-0.82	**-10.51****	-2.15
9	**-12.45***	-1.98	**-6.97***	-2.05	**-14.44****	-3.00	**-14.09*****	-3.06	0.64	0.13	-3.64	-0.59	**-10.32****	-2.13
10	**-13.25****	-2.15	-5.56	-1.62	**-14.96****	-2.93	**-13.56*****	-2.90	0.62	0.12	-3.05	-0.49	**-10.76****	-2.24

Table 9. Determinants of market reaction to financing stock adoptions

The table reports cross-sectional regressions of CAAR around the day financing stocks are adopted at the shareholders' meeting (Day 0). Covariates include ownership variables, financial variables, industry fixed effects, year fixed effects, and others. Regressions in Columns (1) to (3) use CAAR over a [-5, 5] window, whereas regressions in Columns (4) to (6) use CAAR over a [-10, 10] window. The sample includes financing stock adoptions exclusive of concurrent entrenchment stock adoptions during 2012–2015 (treating multiple financing stock adoptions by the same firm at the same shareholders' meeting as a single adoption but adoptions at different meetings as separate observations) and their respective non-adoptions by matching firms (year, industry, size, and book-to-market ratio). Adopter is an indicator variable taking a value of 1 for financing stock adoptions, and 0 for non-adoptions. Abnormal returns are estimated from the market model using a window of [-260, -21]. CAARs are winsorized at the upper and lower 5 percentile values. t-values, in brackets, are based on standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)
		[-5, 5]			[-10, 10]	
Adopter	0.0962	0.1157	0.2341	-0.3743	**-0.4832***	-0.0924
	[0.52]	[0.57]	[1.07]	[-1.37]	**[-1.70]**	[-0.28]
Inside ownership × Adopter	-0.0916	0.058	0.1685	0.579	0.7326	0.9761
	[-0.22]	[0.15]	[0.43]	[0.92]	[1.16]	[1.52]
(Inside ownership)^2× Adopter	0.0067	-0.2747	-0.4063	-0.78	-1.039	-1.3106
	[0.01]	[-0.53]	[-0.77]	[-0.97]	[-1.30]	[-1.63]
Foreign ownership × Adopter	**0.8333***	0.8984	**0.8779***	0.7712	0.7147	0.8299
	[1.68]	[1.62]	**[1.78]**	[1.10]	[0.88]	[1.00]
Outside director ratio × Adopter	**-0.1835***	-0.0854	-0.1238	-0.2025	-0.0869	-0.2277
	[-1.85]	[-0.81]	[-0.99]	[-1.00]	[-0.44]	[-1.08]
R&D intensity × Adopter	-0.5504	-0.2348	-0.2706	0.6773	0.557	-0.0641
	[-0.62]	[-0.29]	[-0.30]	[0.60]	[0.47]	[-0.05]
Firm size × Adopter	0.0044	0.0071	-0.0039	0.0252	0.0315	0.0123
	[0.28]	[0.47]	[-0.26]	[1.07]	[1.33]	[0.46]
Firm age × Adopter	-0.0349	-0.0329	-0.0236	-0.0199	-0.0209	-0.0315
	[-1.62]	[-1.56]	[-1.16]	[-0.59]	[-0.58]	[-0.90]
KZ Index × Adopter	**-0.0090****			**-0.0172*****		
	[-2.16]			**[-3.02]**		
Cash/PP&E(beg.) × Adopter		**0.0191*****			**0.0388*****	
		[3.23]			**[3.64]**	
Cash holdings × Adopter			0.0575			-0.023
			[0.39]			[-0.09]
CF/PP&E(beg.) × Adopter		-0.0285			-0.062	
		[-0.77]			[-0.94]	
Profitability × Adopter			0.0642			-0.2205
			[0.26]			[-0.44]
Tobin's q × Adopter		**-0.0378***	-0.0313		0.0019	0.0066
		[-1.78]	[-1.39]		[0.05]	[0.17]
Leverage × Adopter		**-0.1456***	**-0.1734***		-0.1037	-0.2261
		[-1.94]	**[-1.74]**		[-0.98]	[-1.38]
Dividend/PP&E(beg.) × Adopter		-0.3522			0.1232	
		[-0.61]			[0.15]	
Dividend payout × Adopter			-3.6236			-0.2065
			[-1.07]			[-0.04]
Inside ownership	-0.0545	-0.0719	-0.0381	0.0014	-0.053	-0.0688
	[-0.37]	[-0.48]	[-0.23]	[0.01]	[-0.23]	[-0.27]
(Inside ownership)^2	0.1258	0.1362	0.0952	0.0039	0.0461	0.0565
	[0.72]	[0.76]	[0.50]	[0.01]	[0.17]	[0.19]
Foreign ownership	-0.0062	-0.0154	-0.0084	-0.0049	0.017	0.028
	[-0.12]	[-0.26]	[-0.14]	[-0.06]	[0.20]	[0.31]
Outside director ratio	0.0212	0.0235	0.0167	0.06	0.0624	0.0629

	[0.52]	[0.57]	[0.41]	[1.12]	[1.13]	[1.13]
R&D intensity	0.1155	0.1087	0.1229	0.1965	0.237	0.27
	[0.88]	[0.83]	[0.90]	[0.93]	[1.17]	[1.26]
Firm size	>-0.0001	-0.0014	-0.0005	-0.0022	-0.0054	-0.0066
	[-0.00]	[-0.26]	[-0.11]	[-0.33]	[-0.69]	[-0.83]
Firm age	0.0048	0.0047	-0.0039	0.0038	-0.0036	-0.0082
	[0.54]	[0.52]	[-0.42]	[0.30]	[-0.27]	[-0.65]
KZ Index	0.0003			<0.0001		
	[0.84]			[0.04]		
Cash/PP&E(beg.)		-0.001			-0.0008	
		[-0.87]			[-0.36]	
Cash holdings			-0.0523			-0.0209
			[-1.18]			[-0.30]
CF/PP&E(beg.)		-0.0029			0.0072	
		[-0.46]			[0.69]	
Profitability			-0.0246			0.0917
			[-0.26]			[0.60]
Tobin's q		-0.0082	-0.0101		**-0.0429*** **	**-0.0399** **
		[-0.80]	[-0.99]		**[-2.66]**	**[-2.54]**
Leverage		-0.0006	-0.0155		-0.0003	-0.005
		[-0.02]	[-0.43]		[-0.01]	[-0.10]
Dividend/PP&E(beg.)		0.0516			-0.1046	
		[0.68]			[-0.84]	
Dividend payout			0.1105			-0.8346
			[0.14]			[-0.73]
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	760	256	257	257
# observations	256	256	257	256	256	257
Adjusted R^2	0.11	0.153	0.121	0.135	0.166	0.109

Table 10. Average treatment effect of the treated (ATT) of new share class adoptions

This table reports the average treatment effect of adopting entrenchment (Panel A) and financing (Panel B) stocks. Average treatment effect on the treated (ATT) is computed by the difference in CAAR[-10, 10] between a group of adopters (treatment group) and a group of non-adopting matches (control group). Columns (1) and (3) use covariate matching (industry, size, and book-to-market ratio), whereas Columns (2) and (4) use propensity score matching (PSM). We follow Austin (2011) and compute propensity scores using logit and include 5 nearest neighbors (with replacement) within a caliper width of 0.2 × (pooled standard deviation of propensity scores of treated and non-treated samples). Covariates in logit include all the variables we use in our earlier probit tests (Tables 4 and 5). Abnormal returns are estimated from the market model using a window of [-260, -21]. The sample includes events during 2012–2015. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Significant results are shown in boldface.

Panel A. ATT for entrenchment stock adoptions

	All Adopter				Exclusive Adopter			
	(1) Industry/Size/BEME match		(2) PSM match		(3) Industry/Size/BEME match		(4) PSM match	
	N	CAAR[-10,10]	*N*	CAAR[-10,10]	*N*	CAAR[-10,10]	*N*	CAAR[-10,10]
Adopter	137	-3.01	126	-3.23	39	-3.20	38	-3.00
Nonadopter	579	-0.25	621	0.22	163	-1.29	188	-0.55
ATT	716	**-2.76***	747	**-3.45****	202	-1.91	226	-2.45
(t-stat)		(-1.75)		(-2.11)		(-0.61)		(-0.73)

Panel B. ATT for financing stock adoptions

	All Adopter				Exclusive Adopter			
	(1) Industry/Size/BEME match		(2) PSM match		(3) Industry/Size/BEME match		(4) PSM match	
	N	CAAR[-10,10]	*N*	CAAR[-10,10]	*N*	CAAR[-10,10]	*N*	CAAR[-10,10]
Adopter	150	-5.30	134	-5.78	52	-9.73	46	-10.02
Nonadopter	627	-0.61	666	-1.04	211	-2.11	219	-3.20
ATT	777	**-4.69*****	800	**-4.75*****	263	**-7.62*****	265	**-6.82***
(t-stat)		(-3.31)		(-2.79)		(-2.59)		(-1.89)