ecgi

Does Diversification of Share Classes Increase Firm Value?

Sojung Kim
Korea University Business School

Sunwoo Hwang
University of North Carolina

Woochan Kim
Korea University Business School and ECGI

This paper can be downloaded without charge from:
http://ssrn.com/abstract_id=3331089

www.ecgi.global/content/working-papers

european corporate governance institute

Does Diversification of Share Classes Increase Firm Value?

Sojung Kim
Sunwoo Hwang
Woochan Kim

Abstract

Firms can issue stocks classified in many ways. They can be classified in respect to voting rights, dividend rights, redemption rights, conversion rights, and many others. In this study, we ask if it is desirable to give greater freedom to firms in their choices of class shares. Making use of the 2011 Commercial Act amendment that significantly relaxed the regulation on class shares in Korea, we study the motivation and the effect of adopting two newly emerged class shares – 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 purpose and destroy firm value by doing so. As for the latter, we find that firms adopt them in times of financial distress but fail to stop the downfall in firm value by doing so.

Sojung Kim
Researcher
Korea University Business School
145, Anam-Ro
Seongbuk-Gu, Seoul, 02841, Korea
e-mail: sjkim5280@gmail.com

Sunwoo Hwang
Researcher
University of North Carolina, Kenan-Flagler Business School
300 Kenan Center Drive, McColl 5117
Chapel Hill, NC 27599, United States
e-mail: sunwoo_hwang@unc.edu

Woochan Kim*
Professor of Finance
Korea University Business School, Department of Finance
Anam, Seongbuk
Seoul 136-701, Korea
phone: +822 3290 2816
e-mail: wckim@korea.ac.kr

*Corresponding Author

Does diversification of share classes increase firm value?[*]

Sojung Kim[†], Sunwoo Hwang[‡], and Woochan Kim[§]

First Draft: January 2019

Abstract

Firms can issue stocks classified in many ways. They can be classified in respect to voting rights, dividend rights, redemption rights, conversion rights, and many others. In this study, we ask if it is desirable to give greater freedom to firms in their choices of class shares. Making use of the 2011 Commercial Act amendment that significantly relaxed the regulation on class shares in Korea, we study the motivation and the effect of adopting two newly emerged class shares – 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 purpose and destroy firm value by doing so. As for the latter, we find that firms adopt them in times of financial distress but fail to stop the downfall in firm value by doing so.

JEL classification: G30, G32, G33, G34
Keywords: share classes, convertible preferred stocks, redeemable preferred stocks, entrenchment, financial distress

1. Introduction

In the absence of agency conflict and market frictions, it is beneficial to give greater freedom to firms in their choices of corporate financial policies. Unconstrained optimization is always better than constrained optimization. However, if management is standing ready to pursue their own self-interest at the expense of shareholders, granting greater freedom can be sub-optimal. Likewise, if information asymmetry is severe between the firm and the market, granting greater freedom may only result in signaling bad news or aggravating the adverse selection problem.

In this study, we ask if it is desirable to give greater freedom to firms in their choices of class shares. That is, allowing firms to adopt whichever type of class shares they wish to have. The existing literature on class shares, however, is limited. It is heavily tilted toward the study on dual-class stocks and convertible preferred stocks.[5] However, firms can issue stocks classified in many other ways. They can be classified in respect to voting rights, dividend rights, redemption rights, conversion rights, and many others. In addition, no study in the literature investigates the effect of a policy experiment that allows greater freedom to firms in their choices of class shares.

This study answers the research question by making use of the 2011 Commercial Act amendment that significantly relaxed the regulation on class shares in Korea. Prior to the 2011 amendment, Korea allowed only a limited number of share classes: common stocks, preferred stocks, convertible preferred stocks (conversion right bestowed only to shareholders), and redeemable preferred stocks (redemption right bestowed only to issuing companies). With the amendment, Korea allows firms to adopt new types of class shares that they were not able to in the past. Among the newly introduced class shares, two classes of shares became particularly popular. One is convertible preferred stocks, the conversion right of which is bestowed to

---

[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.

management. The other is redeemable preferred stocks, the redemption right of which is bestowed to investors. They respectively take up 45 percent and 49 percent of newly introduced class shares (384 in total) adopted in 2012-2015.

There are two reasons why the 2011 Commercial Act amendment in Korea makes an ideal setting to investigate our research question. First, it allows us to estimate the valuation effect of adoption with less bias. It is reasonable to expect that market will learn over time which firms will eventually adopt entrenchment or financing stocks. If so, firms assessed to adopt them with high probability will be priced before any actual adoption and the magnitude of market reaction on the day of actual adoption may be biased downward. This bias, however, can be nearly 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 entrenchment or financing stocks, like any other class shares, 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 shares participating in the shareholders' meeting. Given the difficulty of shareholder approval, it is hard to imagine market participants viewing such class shares as if they are already in place and share prices being priced even before their adoptions.

In this study, we label convertible preferred stocks, the conversion right of which is bestowed to management as entrenchment stocks and redeemable preferred stocks, the redemption right of which is bestowed to investors as financing stocks. Entrenchment stocks are named as such 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. Once conversion takes place, entrenchment stockholders gain voting power at the expense of other shareholders. Financing stocks are named as such because they are likely to be

used as a financing means of last resort. The fact that the redemption right is in the hands of investors suggests that the adopting firms were in urgent need of external capital at the time of adoption. Also, 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 future prospect.

We investigate the motive and the effect of adopting these two class shares and find several noteworthy results. First, we find that entrenchment stocks are adopted by firms that are more likely to have agency conflicts. That is, firms with low inside ownership, high cash holdings, and low outside director ratios. Second, our results show that financing stocks are adopted by firms that do not have 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 is consistent with our hypothesis that managerial entrenchment from outside takeover threats and private consumption of corporate resources should lower future cash flows to outside shareholders. The negative market reaction, however, is mitigated in firms with high R&D intensity or in firms 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, the market reacts negatively to the adoption of financing stocks. This is consistent with our prediction that adoption of financing stocks may reveal adverse changes that were not fully known to the public and may raise suspicion that share prices are overvalued. We also find that the negative market reaction is stronger for financially weaker firms. It is also worth noting that the adopters' share prices fall even before the adoption. This is not surprising given our finding that financing stocks are more likely to be adopted by financially weaker firms. Such prior

weakness may have led the share prices to fall even before the adoption.

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

The remainder of the paper is organized as follows: Section 2 discusses class shares in Korea, and Section 3 develops our hypotheses. Section 4 explains the data and Section 5 provides the results. Section 6 concludes.

2. Class Shares in Korea

2.1. The 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 (conversion right bestowed only to shareholders), and redeemable preferred stocks (redemption right bestowed only to issuing companies). However, starting from the mid-2010s, Korean firms and academics started to demand greater freedom in a firm's choices of class shares. This was partly influenced by the move taken by Japan. By amending its Commercial Law in 2001 and 2002 and by enacting its Company Law in 2005, Japan significantly relaxed its regulation on class shares.

The amendment to the Commercial Act passed the National Assembly in April 2011 and enforced in April 2012. With the amendment, Korean firms were able to adopt new types of class shares that they were not able to in the past. For example, Korean firms can adopt non-voting common stocks. That is, stocks that do not have 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

where the conversion right is bestowed to management and redeemable preferred stocks where the redemption right is bestowed to investors. Prior to the amendment, the conversion rights were bestowed only to investors and the redemption rights were bestowed only to management.

The adoption of new classes of shares, like any other class shares, 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 shares participating in the shareholders' meeting.

Among the newly introduced class shares, the two most popularly adopted class shares include redeemable preferred stocks where the redemption right is bestowed either exclusively to management or to both management and investors, and convertible preferred stocks where the conversion right is bestowed either exclusively to investors or to both investors and management. Table S1 in our Supplementary Material (available upon request) shows that they respectively take up 49 percent and 45 percent of newly introduced class shares (384 in total) adopted in 2012-2015. Table S2 shows that they respectively take up 36 percent and 33 percent of all class shares (521 in total) adopted during the sample period.

2.2. The Entrenchment Stocks

In this study, we label the 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 as 'entrenchment stocks.' Table 1 shows how we identify entrenchment stocks from a group of class shares adopted during 2012-2015 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, and redeemable convertible stocks.

Note that some entrenchment stocks bestow conversion right exclusively to company management, whereas others give it to both parties.

Two features make them entrenchment stocks. That is, 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, on the other hand, lacks these two features. It is instead designed for the purpose of attracting investors wishing to share the upside gain. That is, by endowing investors, the conversion right, it gives them the chance to make profits 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] The reasons stated in the articles of incorporation clearly demonstrate their intent of adopting such stocks. Majority of the cases state that conversion can take place when there is the threat of management rights. Some even specify the minimum voting rights outside investors must hold for the management to make the conversion.

It is also worth noting that these stocks can operate in a way like 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. Indeed, such preferred stocks were used as an early form of poison pill in the U.S. in the 1980s (Houston and Houston, 1990). They are no longer found in the U.S. as a better alternative – poison pill – has been legalized and readily available for U.S. firms. They are not found in Japan either, as Japan also introduced its own version of poison pill in 2005.

2.2. The Financing Stocks

---

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

We label preferred stocks that can be redeemed at the discretion of investors as financing stocks. Table 1 shows how we identify financing stocks from a group of class shares adopted during 2012-2015 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 preferred stocks, voting redeemable convertible preferred stocks, and redeemable convertible stocks. Note that some financing stocks bestow redemption right exclusively to shareholders, whereas others give it to both parties.

These financing stocks have two features, from which we can infer the situation adopting firms are in and the expectations investors have. First, the fact that the redemption right is 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 right 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 future prospect. This inference is in line with the argument that investors favor debt over equity if they are pessimists (Alchian and Demsetz, 1972).

3. Hypotheses Development

3.1. The Entrenchment Stocks

In this subsection, we outline the empirical predictions consistent with the view that the stocks we labeled as entrenchment stocks are indeed adopted for the purpose of managerial entrenchment and the consumption of private benefits. If necessary, we complement this by laying out predictions based on the alternative view that entrenchment stocks are adopted for the sake of

enabling managers to pursue long-term projects. Our predictions are organized into two groups: one on the determinants of entrenchment stock adoptions and the other on the stock market reaction to entrenchment stock adoptions.

Regarding the determinants, we first predict the firms with lower inside ownership to be adopting entrenchment stocks with a higher likelihood. This is because they are the ones that are in greater need of entrenchment stocks than firms with higher inside ownership. Note that this prediction is in line with the findings in the U.S. that pill-adopting managers hold significantly smaller fractions of shares 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 private consumption of corporate cash flows, one should see firms with greater cash holdings to be adopting entrenchment stocks with higher probability. Lastly, if entrenchment stocks are against the interest of shareholders and the outside directors can effectively play their monitoring role, firms with high outside director ratio should be less likely to adopt entrenchment stocks. Based on these predictions, we have the following three hypotheses regarding the determinants of entrenchment stock adoptions.

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 ratio 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 adoptions. Managerial entrenchment from outside takeover threats and private consumption of corporate recourses should lower future cash flows to outside shareholders. On top of this, the possibility of voting rights dilution should also lower the share price. This prediction is in line with Malatesta and Walkling (1988) that find document a

statistically significant drop in stock price when firms adopt poison pill.

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

We expect the degree of negative market reaction to vary with firm characteristics. First, we predict the market to react negatively mainly to firms with inside ownership between 25 and 50 percent. This is based on our conjecture that the costs and benefits of entrenchment stocks may vary with the level of inside ownership. For firms with inside ownership less than 25 percent, we expect the benefits to offset the costs. At this level of inside ownership, managers may not be fully entrenched with the issuance of entrenchment stocks. Also, managers in such firms are most in need of entrenchment stocks to protect their long-term projects. For firms with inside ownership 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. For firms with inside ownership greater than 50 percent, we expect the benefits and the costs of entrenchment stocks to disappear.

Second, we expect the negative market reaction to disappear in firms experiencing financial constraint or financial distress. These firms may not have enough slack for the management to pursue private benefits. In contrast, we expect the negative market reaction to be pronounced in firms with higher cash holdings. Excessive cash provides the slack for the management to pursue private benefits. Third, we expect the negative market reaction to be mitigated in firms with high R&D expenditures. If there is a benefit to issuing entrenchment stocks, these are the firms that are most likely to benefit. Lastly, we expect the negative market reaction to be amplified in firms with higher outside director ratios. Before entrenchment stock adoptions, these firms could have been assigned with higher firm value with the expectation that the outside directors are effective in protecting shareholders' interest. Upon the adoption of entrenchment stocks, however, such expectation dissipates as it signals the opposite. The fall in share price would be sharper than the

firms without such expectations. Based on these predictions, we have the following hypotheses.

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

H2c. The negative market reaction in **H2a** disappears in firms experiencing financial constraint or financial distress. In 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. The Financing Stocks

In this subsection, we outline the empirical predictions regarding financing stocks – redeemable preferred stocks where the redemption right is bestowed to investors exclusively or to both parties. On the determinants of adoption, we predict that financing stocks are adopted by financially weak firms. This prediction comes 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] As such, they are 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) that compare convertible preferred stocks against convertible debt. They find that firms relying on convertible preferred stocks have a weaker financial position to cover interest obligations, poorer profit position to utilize tax benefits of debt financing, higher

---

[7] There is a feature that makes financing stocks resemble debt. Like debt holders, financing stock holders can get paid with a fixed monetary amount specified in the contract.

debt ratio, and a higher probability of bankruptcy.

Second, financing stocks bestow redemption to 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). As such, they are mainly purchased by investors that are pessimistic about the firm's future prospect.

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 of cherry-picking local stocks (Kang and Stulz, 1997). If this is true, we expect firms with less foreign ownership to adopt financing stocks with higher probability.

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 given situation, the stock price should react positively upon the announcement of adoptions. However, for several reasons, we predict that the market would react negatively. First, the adoption may reveal adverse changes that were not fully known to the public, and this 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 actual and expected internally generated cash flows. Given the nature of financing stocks we described earlier, we expect this negative signaling effect to be greater than other securities.

Second, the announcement of adopting financing stocks may raise suspicion that share prices are overvalued and this suspicion itself may lower the share price. According to Myers and

Majluf (1984), managers have the incentive to time the market. However, the market, knowing this, reacts negatively upon announcements of new security issues. Given the nature of financing stocks, we expect this effect to be greater than that of straight debt. As mentioned earlier, financing stocks are stocks, not debt. Firms do not have a legal obligation to payout dividends and cannot be forced into bankruptcy for not doing so.

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

Among the adopters of financing stocks, we conjecture financially weaker firms (e.g., financially constrained firms, financially distressed firms) to show greater negative market reaction as they are more likely to reveal bad information to the public by adopting financing stocks.

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**), we should see the adopter's share price to fall even before the adoption.

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

4. Data

4.1. Sample Construction and Data Sources

We first identify all class share adoptions during 2012-2015. For this, we manually check DART and identify firms that amend articles of incorporation for the adoption of class shares. DART (Data Analysis, Retrieval, and Transfer System) is an electronic disclosure system similar to EDGAR in the U.S.

Our initial sample includes 521 class share adoptions. Note that this sample excludes financial firms. Because of the unique regulatory environment they are in (e.g., fit and proper test,

deposit insurance), their motive behind the adoption of entrenchment or financing stocks can be different from that of non-financial firms. For the sake of event study, we also exclude adoption cases made by firms while they were still privately held. Finally, we exclude 16 firms that did not exactly specify the type of class shares they are adopting in the articles of incorporation.

Out of 521 class shares, 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 shows the detail on how we identify them. Note that 21 class shares are classified as both. They are redeemable convertible preferred stocks (RCPS) that can be converted into voting stocks by management and that can also be redeemed by shareholders. The number of distinct adoption events, however, are smaller as a non-trivial number of firms adopt multiple class shares 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 take up a predominant fraction among the class shares with conversion or redemption rights adopted during our sample period (2012-2015). Out of 235 class shares with conversion rights that are initially issued as non-voting (or limited-voting) stocks, 173 (73.6 percent) bestow the right either exclusively to management or to management and shareholders, whereas 62 (26.4 percent) bestow it only to shareholders. Likewise,

out of 240 class shares with redemption rights, 188 (78.3 percent) bestow the right either exclusively to shareholders or to shareholders and management, whereas 52 (21.7 percent) bestow it only to management. This predominance, however, is not surprising given the time period we are investigating. Our sample period (2012-2015) covers the first four years since the Commercial Act amendment that allowed entrenchment and financing stocks for the first time. Figure 1 shows this more effectively. Panel A shows that the number of entrenchment and financing stock adoptions peaks in 2012, which is the year amendment became effective. This is also the case in Panel B, where we show 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 detail. Panels A and B show that there are 98 cases where firms adopt entrenchment and financing stocks concurrently. This poses an empirical challenge as it makes it difficult for us to isolate the effect of one class share from the other. We address this challenge by constructing a narrower sample exclusive of 98 concurrent adoptions. This results in 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 event of adopting financing (entrenchment) stocks at the same shareholders' meeting.

In the absence of concurrent adoption events, this approach allows us to isolate the effect of one class share from the other. However, this approach has a drawback of using a smaller sample

---

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

size. In our subsequent analyses, we test our hypotheses using both samples: all adoption events and exclusive adoption events.

4.3. Definition and Summary Statistics of Key Covariates

We define 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. KZ Index is the financial constraint measure by Kaplan and Zingales (1997). K Score is the Korean equivalent of Altman's Z score, which predicts financial distress (Altman, Eom, and Kim, 1995). Note that firms with greater financial constraint have 'higher' KZ Index values, whereas firms with greater financial distress have 'lower' K Score values. Also note that all variables are winsorized at the upper and lower 5 percentile values, if not log transformed.

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 and a lower K Score Index than entrenchment stock adopters. This suggests that they were more financially constrained and financially distressed at the time of adoption than entrenchment stock adopters. Note that we treat multiple entrenchment (financing) stock adoptions by the same firm at the same shareholders' meeting as a single adoption, but at different meetings as separate observations.[9]

5. Results

5.1. Which Firms Adopt Entrenchment and Financing Stocks?

In this sub-section, we investigate the factors behind the adoption of entrenchment and financing

---

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

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 prior year's end. Regressions in Columns (1) to (3) test for the adoption of all entrenchment (financing) stocks, whereas 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 of 2012-2015, treating multiple entrenchment (financing) stock adoptions by the same firm at the same shareholders' meeting as a single adoption, but at different meetings as separate observations, and their respective non-adoptions by matching firms. We use year, industry, size, and book-to-market ratio as matching covariates.[11] Point estimates are average marginal effects on probability, and standard errors are clustered at the firm-level, as there are firms adopting entrenchment (financing) stocks more than once during our sample period.

5.1.1. Entrenchment Stocks

In Table 4, consistent with our hypothesis (**H1a**), we find firms with lower inside ownership adopting entrenchment stocks with greater likelihood. The coefficients on inside ownership are negative and statistically significant, across all specifications. The coefficient figures suggest that a 1 percent point increase in inside ownership drops the probability of entrenchment stock adoption by 0.7-2.5 percent point. The coefficient on inside ownership squared is positive throughout but statistically significant only in the exclusive adoption sample.

We also partially confirm our hypothesis that firms with greater cash holdings are more

---

[10] For manufacturing firms, we use 2-digit codes (10-34) to classify their industries. For all other firms, we use divisions (A-U).
[11] We construct a set of matched firms for each adopter of interest from firms that did not adopt any class share during the entire period but affiliated to the same industry and to the same Fama-French 5x5 size and B/M portfolios.

likely to adopt entrenchment stocks (**H1b**). The coefficient on cash holdings is positive and statistically significant in the all adoptions sample. Consistent with this, 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). Contrary to our expectation, however, K Score has a negative coefficient in Column 2. We attribute this to the confounded nature of our all adoptions sample that is not exclusive of concurrent financing stock adoptions. Lastly, our results support the monitoring role of outside directors (**H1c**). In 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. When using the exclusive adoptions sample in Column 4, one standard deviation increase in the Index (3.3) increases the probability of adopting financing stocks by 3 percent point (= 3.3×0.009). Other measures of financial weakness – low K Score, low profitability, and low dividend payout – also show similar results.

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. When using the exclusive adoptions sample, a 1 percent point increase in foreign ownership drops the probability of adopting financing stocks by 1.58 – 1.75 percent points.

5.2. Market Reaction to Entrenchment and Financing Stocks

In this sub-section, we investigate market reaction 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 adoptions (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 during 2012-2015. Abnormal returns are estimated using market model over a window of [-260, -21].[12] To isolate the effect of entrenchment or financing stock adoptions 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 (in dotted lines). Matching covariates include year, industry, firm size, and book-to-market ratio.

Second, we conduct event studies for various subsamples. In Tables 6 and 8, we 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) – (6) use subsamples with differing levels of inside ownership, whereas Columns (7) – (14) use subsamples with differing levels of financial constraint or financial distress. We measure financial constraint and financial distress respectively by KZ Index (higher index means greater constraint) and the inverse of K Score (higher inverse score means greater distress). High (Low) KZ index adopters are firms, whose index values are above (below) their industry's upper (lower) 30 percentile values. Likewise, High (Low) Inverse K score adopters are firms, whose scores 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 investigate the determinants of market reaction further by running multivariate regressions. To control 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 adoptions and 0 for non-

---

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

adoptions. 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 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**), market regards the adoption of entrenchment stocks to be harmful to corporate value. CAAR for entrenchment stock adoptions over a window of [-10, 10] is approximately -3 percent, whereas that for non-adoptions is virtually 0 (Panel A) or only -1 percent (Panel B). One possible explanation for this upward trend before Day 0 comes from our earlier finding that entrenchment stocks are more likely to be adopted by financially healthy firms (e.g., higher cash holdings or lower KZ Index value).

Table 6 shows how market reaction differs according to firm characteristics. We have two findings in support of our hypotheses. First, consistent with our hypothesis (**H2b**), the negative market reaction is most pronounced in firms with inside ownership between 25 and 50 percent (Columns 3-4). As for firms with inside ownership less than 25 percent (Columns 1-2), 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 are statistically significant. As for firms with inside ownership more than 50 percent (Columns 5-6), we observe negative, but statistically insignificant CAARs. Second, we also confirm in Table 6 that negative market reaction disappears in firms with financial constraint or financial distress (**H2c**). Negative market reaction is statistically significant only in firms with low

KZ Index (Columns 9-10) or in firms with low Inverse K Score (Columns 13-14).

In Table 7, we investigate the determinants of market reaction further 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. The results are consistent with our hypotheses (**H2b** and **H2c**) in the sample that can better identify entrenchment stocks (i.e., exclusive of current financing stock adoptions). First, from the coefficients on (inside ownership $\times$ Adopter) and (inside ownership^2 $\times$ Adopter), we can see that the relationship between CAR and inside ownership is convex and CAR hits its bottom at the inside ownership of 44.5 percent.[13] This is in line with our earlier finding in Table 6, where we report that the negative market reaction to entrenchment stock adoption is most pronounced in firms with inside ownership between 25 and 50 percent.

Second, from the positive coefficients on (KZ Index $\times$ Adopter) and the negative coefficient on (K Score $\times$ Adopter), we can see that the negative market reaction is mitigated in firms with high KZ Index (more financially constrained) or firms with low K Score (more financially distressed). Consistent with this, 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 adoptions is mitigated in firms with high R&D expenditures. This is consistent with our hypothesis (**H2d**) that 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 ratio. This is in line with our hypothesis (**H2e**) that firms with higher outside director ratios could have been overvalued before entrenchment stock adoptions with the false expectation that their board monitoring would work more effectively than that of firms with lower

---

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

outside director ratios.

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**), market reacts negatively to the adoption of financing stocks. CAAR for financing stock adoptions over a window of [-10, 10] is either -5 percent (all adoption sample) or -10 percent (exclusive adoption 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. 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. Thus, we confirm **H4c**. However, this does not mean there is no separate information effect of adopting financing stocks. In later analyses, we find that adopters experience greater downfall in share price compared to their matched counterparts (see Table 10 Panel B).

Table 8 shows how market reaction differs according to firm characteristics. We have two findings in support of our hypotheses. First, the market reacts negatively 'regardless' of the level of inside ownership (Columns 1-6), suggesting that inside ownership does not determine the level of market reaction for financing stocks. This 'no result' is in contrast to the result for entrenchment stocks (Table 6). It also adds more credibility to 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 constraint (Columns 7-8) or

high financial distress (Columns 11-12). This finding supports our hypothesis that negative market reaction is pronounced for financially weaker firms (**H4b**). Compared to financially stronger firms, we conjecture that they are more likely to reveal bad information to the public when adopting financing stocks.

In Table 9, we investigate the determinants of market reaction further 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. Consistent with our hypothesis (**H4b**), the negative market reaction is pronounced in firms with greater financial constraint. The coefficient (KZ Index × Adopter) is negative and statistically significant at 1 (sample exclusive of concurrent entrenchment stock adoptions) or 10 percent (sample including all financing stock adoptions) levels.

5.3. Robustness Check

5.3.1. Alternative Matching Method

In our earlier analyses, we use year, industry, size, and book-to-market ratio as matching covariates. This limited number of covariates, however, might not be sufficient enough for us to construct counterfactuals. That is, a set of non-adopters that are identical to adopters in every respect, except that they did not adopt entrenchment or financing stocks. Also, it is reasonable to expect that market will learn over time which firms will eventually adopt entrenchment or financing stocks. If so, firms assessed to adopt with high probability in the future will be priced before any actual adoption and the magnitude of market reaction on the day of actual adoption may be biased downward. This bias may not exist in 2012, which is the year Korean firms were first allowed to adopt such stocks. However, the latter part of our sample period may not be free from this problem.

As such, we use propensity score matching (PSM) as an alternative way of constructing

matching samples. PSM has two desirable features. First, PSM 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 market may have on the probability of adoptions, and to correct for any downward bias this market expectations may have caused. We follow Austin (2011) and compute propensity scores using logit and include five nearest neighbors (with replacement) within a caliper width of $0.2 \times$ (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).

In Table 10, we investigate if the two matching methods produce different results in terms of the average treatment effect of the treated (ATT). Panel A reports the results for entrenchment stocks, whereas Panel B reports the results for financing stocks. We compute ATT by 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 propensity score matching. The results show that the two different matching methods produce similar results. Under both methodologies, ATT is negative and mostly statistically significant.

In Table S9 of Supplementary Material (available upon request), we reproduce Table 7 using propensity score matching. Similar to our earlier results in Table 7, we find that inside ownership, cash holdings, R&D intensity are important determinants of market reaction to entrenchment stock adoptions. KZ Index, K Score and outside director ratios, however, are no longer statistically significant. In Table S10 of Supplementary Material (available upon request), we reproduce Table 9 using propensity score matching. Similar to our earlier results in Table 9, we find that KZ Index is an important determinant of market reaction 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 reaction to financing stock adoptions, whereas leverage aggravates the negative market reaction.

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 alternative event windows: [-5, 10] and [-20, 20]. First, in Figures S1-S4, we plot CAARs using alternative event windows. Overall, the results are virtually identical to our baseline result of 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 comes from our earlier finding that entrenchment stocks are more likely to be adopted by financially healthy firms (e.g., higher cash holdings or lower KZ Index value).

Second, in Tables S4-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 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 adoptions. 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 and the negative market reaction to financing stocks is prevalent regardless of inside ownership levels. Also, we find that the negative market reaction to entrenchment stocks disappears in firms with financial constraint or financial distress, whereas the negative market

reaction to financing stocks strengthen in firms experiencing financial constraint or financial distress.

6. Conclusion

In this study, we contribute to the literature in two ways. First, we document that it is not always desirable to give freedom to firms in their choices of class shares. Second, we go beyond dual class stocks or convertible preferred stocks and study class shares that have been neglected in the literature. Making use of the 2011 Commercial Act amendment that significantly relaxed the regulation on class shares in Korea, we study the motivation and the effect of adopting two newly emerged class shares – 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 purpose and destroy firm value by doing so. As for the latter, we find that firms adopt them in times of financial distress but fail to stop the downfall in firm value by doing so.

Our study can be extended in two meaningful ways. First, one can go beyond adoptions (i.e., articles of incorporation amendments) and study the actual issuances of entrenchment and financing stocks. This involves the investigation of offering prices, characteristics of actual holders, the exercise of conversion or redemption rights, and many others. This extension will be possible in the near future as the number of issuances accumulates to a level meaningful to conduct a systematic study. Second, one can study the long-term outcome of adoptions and issuances. We study the valuation effect at the time of adoption. That is, how market participants at the time of adoption expects the effect of adoption would be in the future. Such expectations, however, may not be realized. It is important to study the actual outcome. That is, studying whether firms become more entrenched by issuing entrenchment stocks or firms survive from their financial difficulties

by issuing financing stocks.

References

Alchian. A.A. and H. Demsetz, 1972, Production, information costs, and economic organization, *American Economic Review* 62(5): 777-795.

Altman, E.I., Eom, Y.H., Kim, D.W., 1995, Failure prediction: evidence from Korea. *Journal of International Financial Management and Accounting* 6 (3): 230–249.

Austin PC., 2011, Optimal caliper widths for propensity-score matching when estimating differences in means and differences in proportions in observational studies. *Pharmaceutical Statistics*, 10:150–161.

Coates J., 2000, Takeover Defenses in the Shadow of the Pill: A Critique of the Scientific Evidence, *Texas Law Review* 79: 271-382

Gompers, P., J. Ishii, and A. Metrick, 2010, Extreme governance: an analysis of dual-class firms in United States, *Review of Financial Studies* 23 (3): 1051-1088.

Lee, R. Figlewicz, 1999, Characteristics of firms that issue convertible debt versus convertible preferred stock, Quarterly *Review of Economics and Finance* 39: 547–563.

Houston, A. L., and Houston, C., 1990, Financing with Preferred Stock, *Financial Management* 19: 42–54.

Johnson, W., Karpoff, J., and Yi, S., 2015, The Bonding Hypothesis of Takeover Defenses: Evidence from IPO Firms., *Journal of Financial Economics* 117: 307–332.

Kang, Jun-Koo, and René Stulz, 1997, Why is there a home bias? An analysis of foreign portfolio equity ownership in Japan, *Journal of Financial Econo*mics 46: 3–28.

Kaplan, S. N., and L. Zingales., 1997, Do Investment–Cash Flow Sensitivities Provide Useful Measures of Financial Constraints?, *Quarterly Journal of Economics* 112:159–216.

Malatesta Paul H., Walkling Ralph A., 1988, Poison-pill securities: Stockholder wealth, profitability, and ownership structure, *Journal of Financial Economics* 20: 347-376

Miller M.H., Rock K., 1985, Dividend policy under asymmetric information, *Journal of Finance* 40: 1031-1051

Myers, S. and N. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13: 187-221.

Schmidt, K. M., 2003, Convertible securities and venture capital finance. *Journal of Finance* 58 (3): 1139–1166.

Figure 1. Entrenchment and financing stock adoptions 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 event of adopting financing (entrenchment) stocks at the same shareholders' meeting.

Panel A. No. of Stocks Adopted
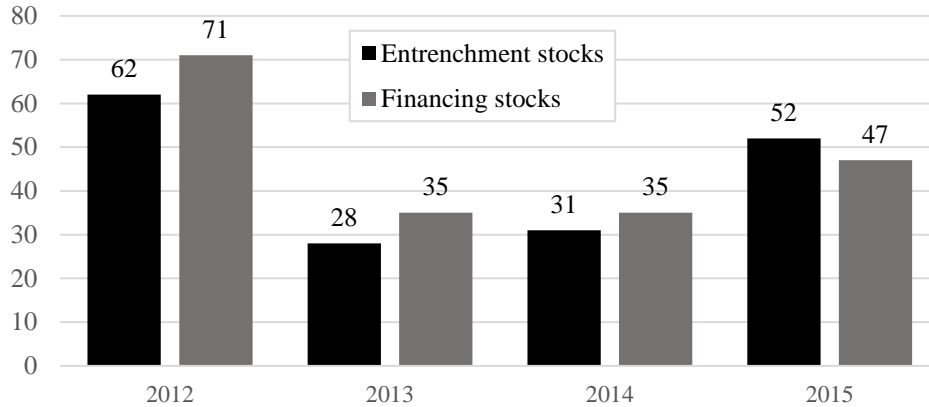
Panel B. No. of Adoption Events
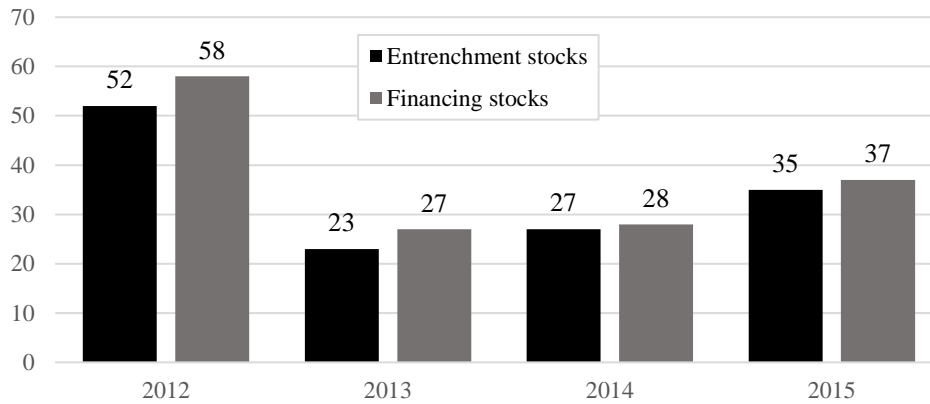
Panel C. No. of Exclusive Adoption Events
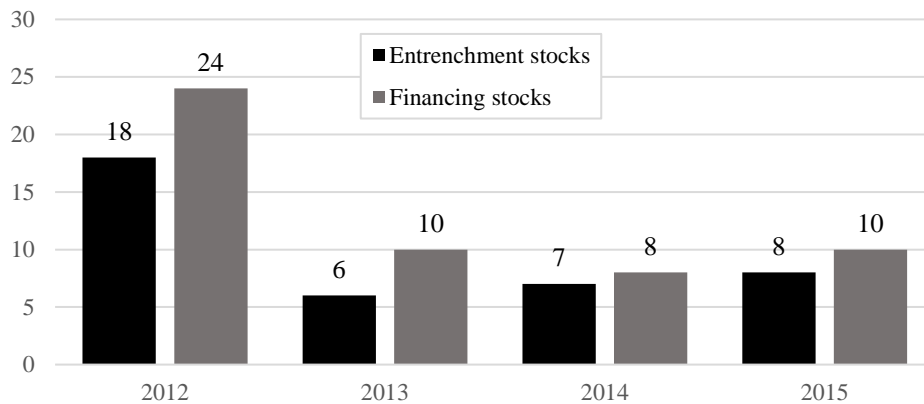
Figure 2. Market reaction to entrenchment stock adoptions

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 market model over a window of [-260, -21].

Panel A. All Adoption Events

Panel B. Exclusive Adoption Events
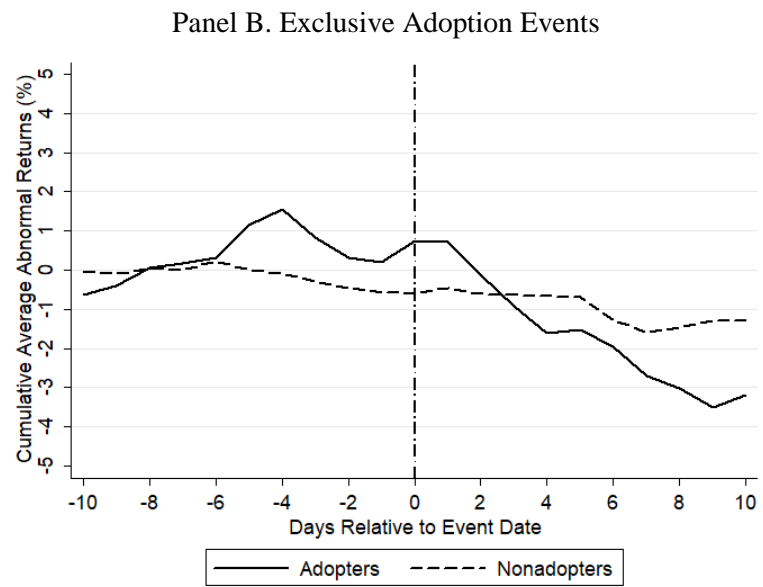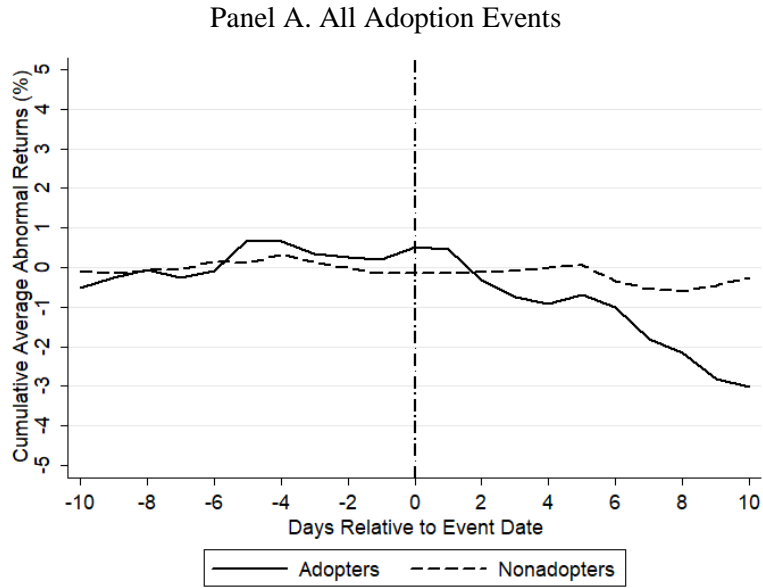
Figure 3. Market reaction to financing stock adoptions

The figures provide cumulative average abnormal stock returns (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 market model over a window of [-260, -21].

Panel A. All Adoption Events

Panel B. Exclusive Adoption Events
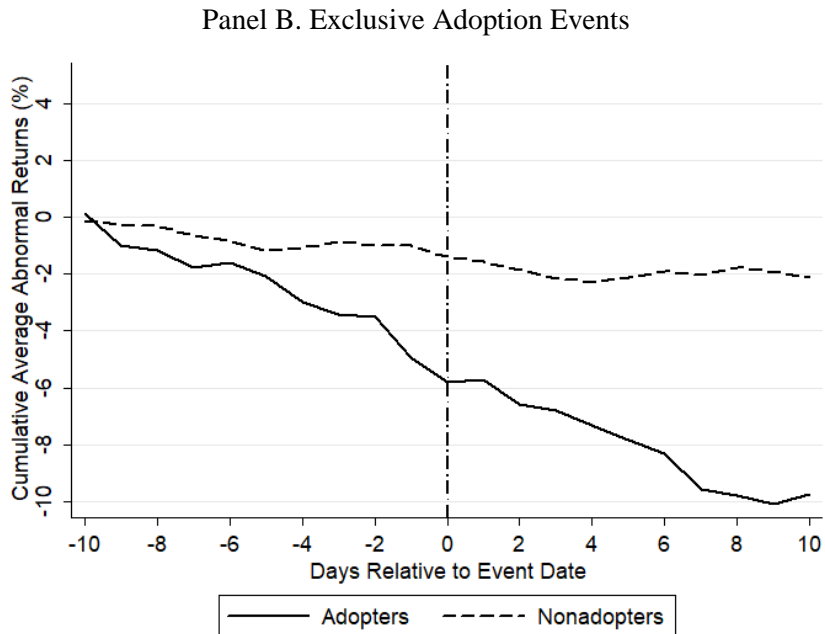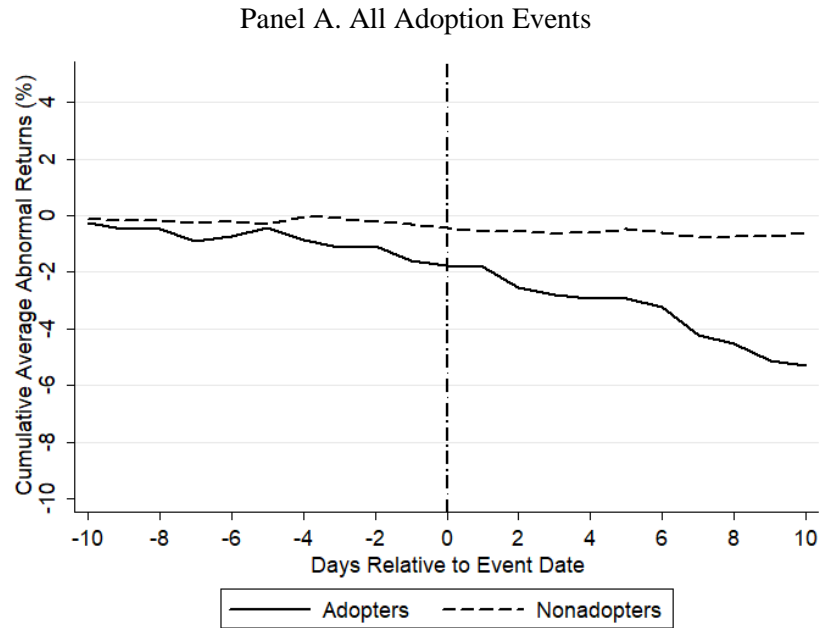
Table 1. Classification into Entrenchment and Financing Stocks

This table shows how we identify entrenchment and financing stocks from a group of class shares with either conversion or redemption features, adopted during 2012-2015. Entrenchment stocks are a type of class shares that allow the issuing company to convert, at its discretion, non-voting (or limited-voting) shares into voting shares. Financing stocks are a type of class shares that allow the shareholders to redeem their shares from the issuing company, at their discretion. Out of 431 class shares 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	
	Shareholder Only	Voting convertible preferred stock	9	-
		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 variables we use in this paper. All variables, except for log-transformed ones, are winsorized (at the upper and lower 5 percentile values).

Variables	Definitions
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	$-1.002 \times [\text{CF/PP\&E(beg.)}] + 0.283 \times \text{Tobins}' \text{q} + 3.139 \times [\text{Debt/Total Assets}] - 39.368 \times [\text{Dividend/PP\&E(beg.)}] - 1.315 \times [\text{Cash/PP\&E(beg.)}]$; a measure of financial constraint developed by Kaplan and Zingales (1997).
K Score	$-18.696 + 1.501 \times ln(\text{Total Assets}) + 2.706 \times ln(\text{Sales/Total Assets}) + 19.760 \times (\text{Retained Earnings/Total Assets}) + 1.146 \times$ (Market Value of Common Equity/Book Value of Debt); a Korean equivalent of Altman's Z score, which predicts financial distress (Altman, Eom, and Kim,1995).
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 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 adopting entrenchment (financing) stocks without concurrent adoption of financing (entrenchment) stocks.

Panel A. Entrenchment Stock Adopters

Variables	All Adopters						Exclusive Adopters					
	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	0.00	0.23	39	0.05	0.01	0.07	0.00	0.24
Outside director ratio	134	0.41	0.43	0.17	0.00	0.67	39	0.38	0.40	0.2	0.00	0.73
R&D intensity	137	0.02	0.00	0.03	0.00	0.09	39	0.02	0.01	0.03	0.00	0.13
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
Cash holdings	137	0.15	0.11	0.13	0.01	0.51	39	0.17	0.12	0.15	0.02	0.56
Leverage	137	0.46	0.49	0.21	0.12	0.81	39	0.48	0.49	0.19	0.14	0.81
Profitability	137	0.06	0.05	0.08	-0.08	0.22	39	0.08	0.07	0.07	-0.06	0.23
Dividend payout	137	0.00	0.00	0.01	0.00	0.03	39	0.01	0.00	0.01	0.00	0.04
KZ Index	131	-5.76	-0.93	12.13	-44.77	1.55	39	-16.59	-1.57	35.9	-145.94	1.96
K Score	136	5.03	5.25	8.71	-13.88	24.47	39	5.40	6.09	6.35	-7.82	16.96
Firm size	137	12.22	11.87	1.60	9.18	16.61	39	12.27	11.88	1.73	9.85	16.61
Firm age	137	2.92	2.89	0.88	0.00	4.39	39	2.95	3.04	0.83	0.00	4.14

Panel B. Financing Stock Adopters

Variables	All Adopters						Exclusive Adopters					
	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	0.70
Foreign ownership	150	0.03	0.01	0.05	0.00	0.17	52	0.03	0.01	0.04	0.00	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	0.00	0.02	0.00	0.09	51	0.02	0.01	0.03	0.00	0.12
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
Cash holdings	150	0.14	0.11	0.12	0.00	0.41	52	0.12	0.09	0.10	0.00	0.38
Leverage	150	0.46	0.50	0.21	0.11	0.77	52	0.49	0.51	0.21	0.10	0.78
Profitability	150	0.05	0.04	0.08	-0.09	0.22	52	0.04	0.04	0.09	-0.13	0.22
Dividend payout	150	0.00	0.00	0.01	0.00	0.02	52	0.00	0.00	0.01	0.00	0.02
KZ Index	144	-2.38	-0.21	5.52	-19.24	1.95	52	-0.98	0.31	3.26	-9.82	2.19
K Score	148	4.43	4.34	9.86	-17.67	24.26	51	3.28	4.10	12.21	-31.28	24.14
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	0.00	4.44	52	3.03	3.33	0.98	0.00	4.44

Table 4. Determinants of entrenchment stock adoptions

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. *, **, *** respectively indicate significance at 10%, 5%, and 1% levels. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)
	All Adoptions			Exclusive Adoptions		
Dependent variables						
Inside ownership	**-0.7711***	**-0.7927***	**-0.9551****	**-2.1940*****	**-1.9637****	**-2.4372*****
	[-1.68]	**[-1.80]**	**[-2.17]**	**[-3.07]**	**[-2.40]**	**[-2.95]**
(Inside ownership)^2	0.5833	0.6935	0.8500	**2.2761*****	**1.9870****	**2.5293*****
	[1.03]	[1.27]	[1.56]	**[2.69]**	**[2.05]**	**[2.65]**
Foreign ownership	**-0.7409*****	**-0.5836****	**-0.5977****	-0.4070	-0.4497	-0.2865
	[-2.81]	**[-2.24]**	**[-2.35]**	[-1.36]	[-1.27]	[-1.07]
Outside director ratio	-0.0049	-0.0272	-0.0006	**-0.4841*****	**-0.3236***	**-0.3438****
	[-0.05]	[-0.26]	[-0.01]	**[-3.14]**	**[-1.90]**	**[-1.99]**
R&D intensity	**-0.6113***	-0.5642	**-0.7104***	0.2799	0.3217	0.8002
	[-1.70]	[-1.50]	**[-1.86]**	[0.50]	[0.57]	[1.25]
Firm size	**0.0597*****	**0.0620*****	**0.0518*****	**0.1129*****	**0.1001*****	**0.0744*****
	[3.74]	**[4.00]**	**[3.25]**	**[4.81]**	**[3.72]**	**[2.67]**
Firm age	**-0.0511****	**-0.0498*****	**-0.0437****	**-0.0827****	-0.0415	-0.0198
	[-2.45]	**[-2.64]**	**[-2.27]**	**[-2.29]**	[-1.23]	[-0.57]
Tobin's q		-0.0142	-0.0343		-0.0471	-0.0726
		[-0.59]	[-1.61]		[-0.92]	[-1.48]
Cash holdings			**0.2815***			0.0992
			[2.33]			[0.47]
Leverage			**0.2465*****			**0.3920***
			[2.84]			**[2.31]**
Profitability			-0.3409			0.7168
			[-1.40]			[1.60]
Dividend payout		2.016	1.3007		4.946	3.1814
		[0.89]	[0.56]		[1.47]	[0.97]
KZ Index	0.0004			**-0.0044*****		
	[0.68]			**[-4.85]**		
K Score		**-0.0058*****			-0.0051	
		[-3.32]			[-1.62]	
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	703	703	197	199	199
Pseudo R^2	0.135	0.157	0.157	0.301	0.212	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. *, **, *** respectively indicate significance at 10%, 5%, and 1% levels. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	All Adoptions			Exclusive Adoptions		
Inside ownership	-0.3316	-0.1298	-0.3356	0.4873	0.8998	0.8664
	[-0.78]	[-0.31]	[-0.80]	[0.71]	[1.29]	[1.22]
(Inside ownership)^2	-0.0427	-0.168	0.0232	-1.1827	**-1.5153***	**-1.5447***
	[-0.08]	[-0.32]	[0.04]	[-1.37]	**[-1.73]**	**[-1.72]**
Foreign ownership	**-1.3257***	**-1.2139***	**-1.2471***	**-1.5782***	**-1.7460***	**-1.6117***
	[-4.51]	**[-4.03]**	**[-4.26]**	**[-3.08]**	**[-3.07]**	**[-2.86]**
Outside director ratio	0.1626	0.1167	0.1642	0.0547	0.0278	-0.003
	[1.60]	[1.15]	[1.61]	[0.35]	[0.17]	[-0.02]
R&D intensity	**-0.9253****	**-0.9425****	**-1.0927***	-0.5027	-0.4781	-0.5785
	[-2.18]	**[-2.21]**	**[-2.59]**	[-0.58]	[-0.57]	[-0.67]
Firm size	**0.0470***	**0.0583***	**0.0505***	0.0256	**0.0559****	0.0357
	[2.84]	**[3.56]**	**[3.04]**	[0.91]	**[1.96]**	[1.20]
Firm age	**-0.0374***	**-0.0428****	**-0.0406****	-0.0414	-0.0316	-0.0373
	[-1.73]	**[-2.20]**	**[-2.03]**	[-1.07]	[-0.87]	[-1.02]
Tobin's q		0.0133	-0.0077		0.0472	0.0336
		[0.54]	[-0.35]		[0.78]	[0.58]
Cash holdings			**0.1977***			-0.2026
			[1.67]			[-0.98]
Leverage			**0.1510***			0.0513
			[1.69]			[0.35]
Profitability			**-0.4710****			-0.3838
			[-2.01]			[-1.03]
Dividend payout		-1.2002	-1.7023		**-9.7926****	**-9.9613****
		[-0.53]	[-0.73]		**[-2.52]**	**[-2.48]**
KZ Index	**0.0031***			**0.0093****		
	[3.66]			**[2.13]**		
K Score		**-0.0059***			**-0.0058***	
		[-3.25]			**[-1.90]**	
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	757	757	254	255	255
Pseudo R^2	0.158	0.171	0.166	0.196	0.208	0.203

Table 6. Market reaction to entrenchment stock adoptions (sub-sample 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) – (6) use subsamples with differing levels of inside ownership, whereas Columns (7) – (14) use subsamples with differing levels of financial constraint or financial distress. We measure financial constraint and financial distress respectively by KZ Index (higher index means greater constraint) and the inverse of K Score (higher inverse score means greater distress). High (Low) KZ index adopters are firms, whose index values are above (below) their industry's upper (lower) 30 percentile values. Likewise, High (Low) Inverse K score adopters are firms, whose scores 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]. *, **, *** respectively indicate significance at 10%, 5%, and 1% levels. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Inside Ownership 0 ~ 25% (*n* = 8)		Inside Ownership 25 ~ 50% (*n* = 20)		Inside Ownership > 50% (*n* = 11)		Financial Constraint (KZ Index)				Financial Distress (Inverse of K Score)			
							High (*n* = 12)		Low (*n* = 17)		High (*n* =14)		Low (*n* =6)	
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	-0.27	-0.51	-0.16	-0.15
-9	-0.30	-0.27	0.18	0.23	-1.53	-1.73	-0.64	-0.70	-0.22	-0.30	-1.01	-1.18	1.41	1.25
-8	0.46	0.22	-0.12	-0.17	0.09	0.08	0.59	0.52	-0.52	-0.81	0.27	0.26	0.09	0.07
-7	0.54	0.24	0.46	0.54	-0.58	-0.53	1.68	1.27	-1.00	-1.37	0.74	0.59	-0.64	-0.70
-6	0.35	0.20	1.12	1.02	-1.13	-0.86	1.22	0.90	-0.04	-0.03	0.68	0.58	-0.75	-0.75
-5	1.92	0.99	1.49	1.08	-0.00	-0.00	1.43	0.76	0.36	0.30	1.87	1.16	-1.27	-1.06
-4	3.31	1.16	1.83	1.21	-0.28	-0.16	1.02	0.58	0.38	0.23	3.29	1.60	-2.08	-1.37
-3	1.67	0.49	1.30	0.76	-0.59	-0.32	-0.17	-0.09	-0.29	-0.16	1.58	0.66	**-2.88***	-2.57
-2	1.25	0.36	0.63	0.42	-0.97	-0.45	0.04	0.02	-1.28	-0.74	2.15	0.91	**-3.40****	-3.51
-1	2.87	0.91	-0.28	-0.18	-0.91	-0.35	1.48	0.76	-2.59	-1.52	2.65	1.20	-3.57	-1.94
0	5.67	1.24	-0.17	-0.10	-1.15	-0.41	3.68	1.47	**-3.22***	-1.82	4.19	1.45	**-3.73***	-2.05
1	5.78	1.28	-1.06	-0.56	0.29	0.11	4.21	1.58	**-3.16***	-1.86	4.32	1.40	-3.87	-1.84
2	7.22	1.35	-2.42	-1.13	-1.28	-0.45	3.77	1.19	**-4.54****	-2.71	3.30	0.93	**-4.69***	-2.43
3	10.47	1.77	**-4.82***	-2.06	-2.16	-0.68	2.34	0.66	**-5.75****	-2.54	3.91	1.14	**-4.46****	-2.58
4	10.83	1.70	**-5.93****	-2.11	-2.83	-0.97	0.98	0.27	**-6.71****	-2.44	3.70	1.14	**-5.90****	-2.89
5	11.79	1.48	**-5.89****	-2.23	-3.28	-1.07	0.32	0.09	**-6.36****	-2.41	3.32	1.04	**-6.21****	-3.19
6	12.63	1.54	**-6.85****	-2.24	-3.68	-1.09	0.10	0.03	**-6.94****	-2.32	3.56	1.03	**-6.05****	-3.04
7	11.43	1.55	**-7.79****	-2.39	-3.72	-1.24	-0.05	-0.02	**-7.59****	-2.54	2.46	0.66	**-6.53****	-3.11
8	11.17	1.54	**-8.80****	-2.51	-2.82	-0.87	-0.61	-0.16	**-8.76****	-2.62	3.06	0.87	**-7.48****	-3.13
9	9.42	1.73	**-8.53****	-2.21	-3.78	-1.05	-0.44	-0.10	**-9.47****	-2.66	4.02	1.11	**-7.88****	-3.02
10	10.88	1.67	**-8.57****	-2.14	-3.67	-0.90	0.74	0.15	**-9.98****	-2.64	5.38	1.48	**-7.76****	-3.29

Table 7. Determinants of market reaction to entrenchment stock adoptions

The table reports cross-sectional regressions of CAR over a [-10, 10] window 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 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 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]. CARs are winsorized at the upper and lower 5 percentile values. t-values, in brackets, are based on standard errors clustered at the firm level. *, **, *** respectively indicate significance at 10%, 5%, and 1% levels. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)
	All Adoptions			Exclusive Adoptions		
Adopter	0.0023	-0.1351	-0.007	**0.5348****	0.378	**0.6376****
	[0.02]	[-0.88]	[-0.04]	**[2.19]**	[1.41]	**[2.50]**
Inside ownership	0.0959	0.0336	0.0371	0.0575	-0.0324	0.0139
	[0.47]	[0.17]	[0.18]	[0.15]	[-0.08]	[0.03]
Inside ownership × Adopter	-0.2642	0.0566	-0.117	**-2.3342*****	**-1.9405*****	**-2.7679*****
	[-0.55]	[0.12]	[-0.24]	**[-3.12]**	**[-2.95]**	**[-3.62]**
(Inside ownership)^2	-0.0913	-0.0196	-0.0248	-0.1184	-0.0156	-0.0843
	[-0.37]	[-0.08]	[-0.10]	[-0.27]	[-0.03]	[-0.18]
(Inside ownership)^2× Adopter	0.3278	-0.0758	0.0855	**2.6179*****	**2.2309*****	**3.2104*****
	[0.56]	[-0.14]	[0.15]	**[2.95]**	**[2.96]**	**[3.47]**
Foreign ownership	-0.0288	-0.0025	-0.0155	0.0268	0.0495	0.051
	[-0.40]	[-0.03]	[-0.19]	[0.23]	[0.43]	[0.41]
Foreign ownership × Adopter	-0.2545	-0.2262	-0.2435	-0.3909	-0.2415	-0.4078
	[-1.18]	[-0.90]	[-0.96]	[-0.90]	[-0.51]	[-0.74]
Outside director ratio	0.0187	0.017	0.0225	0.1083	**0.1344****	**0.1288***
	[0.45]	[0.42]	[0.55]	[1.62]	**[2.03]**	**[1.94]**
Outside director ratio × Adopter	0.0718	0.0309	0.0305	**-0.2382***	**-0.2737****	-0.1908
	[0.79]	[0.33]	[0.32]	**[-1.67]**	**[-2.46]**	[-1.62]
R&D intensity	**0.2211***	**0.2562****	0.1903	0.0925	0.1253	-0.0043
	[1.83]	**[2.15]**	[1.53]	[0.50]	[0.66]	[-0.02]
R&D intensity × Adopter	0.5598	0.5683	0.6356	**1.4558****	**1.4942****	**1.6943*****
	[0.90]	[0.92]	[1.04]	**[2.36]**	**[2.31]**	**[2.81]**
Firm size	0.0016	0.0002	0.0036	0.0004	-0.0118	-0.0073
	[0.31]	[0.04]	[0.65]	[0.04]	[-1.07]	[-0.59]
Firm size × Adopter	-0.0069	0.0034	-0.0046	0.0006	0.0072	-0.013
	[-0.61]	[0.28]	[-0.35]	[0.04]	[0.39]	[-0.58]
Firm age	**-0.0154***	**-0.0156****	**-0.0151***	-0.0162	-0.0112	-0.0114
	[-1.70]	**[-1.98]**	**[-1.84]**	[-0.90]	[-0.86]	[-0.82]
Firm age × Adopter	0.0261	0.0086	0.004	-0.014	-0.0146	0.0061
	[1.14]	[0.39]	[0.18]	[-0.41]	[-0.46]	[0.15]
Tobin's q		**-0.0196****	**-0.0198****		-0.0297	-0.0306
		[-2.19]	**[-2.43]**		[-1.31]	[-1.35]
Tobin's q × Adopter		0.0144	0.0099		0.0178	-0.0148
		[0.57]	[0.38]		[0.52]	[-0.46]
Cash holdings			0.0501			0.0572
			[1.18]			[0.82]
Cash holdings × Adopter			-0.081			**-0.3783****
			[-0.57]			**[-2.03]**
Leverage			-0.0194			-0.0337
			[-0.54]			[-0.47]
Leverage × Adopter			0.0658			0.1421

			[0.63]			[0.79]
Profitability			-0.1089			-0.1625
			[-1.04]			[-0.87]
Profitability × Adopter			-0.1863			**0.8298****
			[-0.82]			[2.28]
Dividend payout		-0.0787	-0.0436		0.928	0.9132
		[-0.11]	[-0.06]		[0.93]	[0.82]
Dividend payout × Adopter		**4.2197***	**4.5274***		0.1795	-1.8301
		[1.84]	**[1.83]**		[0.07]	[-0.72]
KZ Index	-0.0003			**-0.0009***		
	[-0.93]			**[-1.67]**		
KZ Index × Adopter	0.0005			**0.0013***		
	[0.94]			**[1.70]**		
K Score		<0.0001			-0.0003	
		[0.0047]			[-0.24]	
K Score × Adopter		**-0.0033***			**-0.0051***	
		[-1.72]			**[-1.80]**	
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
# observations	695	703	703	198	200	200
Adjusted R^2	0.011	0.024	0.022	0.09	0.079	0.09

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

This table shows cumulative average abnormal returns (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) – (6) use subsamples with differing levels of inside ownership, whereas Columns (7) – (14) use subsamples with differing levels of financial constraint or financial distress. We measure financial constraint and financial distress respectively by KZ Index (higher index means greater constraint) and the inverse of K Score (higher inverse score means greater distress). High (Low) KZ index adopters are firms, whose index values are above (below) their industry's upper (lower) 30 percentile values. Likewise, High (Low) Inverse K score adopters are firms, whose scores 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]. *, **, *** respectively indicate significance at 10%, 5%, and 1% levels. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Inside Ownership 0 ~ 25% (*n* = 16)		Inside Ownership 25 ~ 50% (*n* = 26)		Inside Ownership > 50% (*n* = 10)		Financial Constraint (KZ Index)				Financial Distress (Inverse of K Score)			
							High (*n* = 23)		Low (*n* = 13)		High (*n* =23)		Low (*n* =12)	
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	0.45	0.42	-1.10	-1.75
-9	-1.14	-0.83	-1.05	-0.70	-0.60	-0.48	-1.79	-1.12	0.90	0.61	-2.14	-1.21	-0.48	-0.34
-8	-1.69	-1.55	-0.75	-0.50	-1.43	-1.16	-2.12	-1.40	1.45	1.20	-2.22	-1.34	-1.70	-1.27
-7	**-4.60***	-3.05	0.10	0.08	-2.20	-1.73	**-2.40***	-1.88	1.43	1.00	**-4.24***	-3.20	**-2.68***	-2.10
-6	**-5.73***	-3.25	1.39	0.81	-2.78	-1.79	**-2.34***	-1.82	2.04	0.73	**-3.95***	-2.35	**-3.32***	-2.31
-5	**-5.91***	-2.76	0.65	0.34	-2.89	-1.69	**-3.47***	-2.23	2.70	0.90	**-4.76***	-2.49	**-3.51***	-2.29
-4	**-7.77***	-2.30	0.22	0.11	-3.73	-1.56	**-5.85***	-2.26	3.99	1.61	**-6.17***	-2.21	**-3.32***	-2.28
-3	**-7.94***	-1.92	-0.02	-0.01	-5.01	-1.32	**-6.70***	-2.19	4.60	1.45	**-7.81***	-2.41	-2.38	-1.52
-2	**-7.69***	-1.92	-0.23	-0.13	-5.31	-1.36	**-5.86***	-2.03	2.73	1.01	**-6.86***	-2.35	-2.10	-1.01
-1	**-9.17***	-2.26	-1.95	-0.96	-5.92	-1.46	**-7.73***	-2.51	0.98	0.28	**-8.34***	-2.74	-2.85	-1.43
0	**-9.39***	-2.12	-3.38	-1.58	-6.42	-1.55	**-9.49***	-2.82	0.81	0.25	**-9.13***	-2.76	-2.69	-1.49
1	-8.86	-1.60	-2.83	-1.25	**-8.27***	-1.90	**-9.52***	-2.35	1.81	0.50	**-9.53***	-2.38	-3.92	-1.55
2	-10.11	-1.65	-3.00	-1.15	**-10.22***	-2.09	**-10.64***	-2.31	2.22	0.54	**-10.61***	-2.31	-4.47	-1.62
3	-10.03	-1.50	-3.34	-1.25	**-10.58***	-2.12	**-10.97***	-2.24	1.81	0.43	**-11.12***	-2.29	-4.39	-1.48
4	-11.73	-1.70	-2.34	-0.81	**-13.13***	-2.42	**-12.29***	-2.38	2.63	0.56	**-11.75***	-2.28	-5.20	-1.55
5	-10.69	-1.65	-4.08	-1.39	**-13.06***	-2.44	**-12.12***	-2.47	2.00	0.44	**-11.70***	-2.37	-4.91	-1.41
6	**-10.77***	-1.85	-5.10	-1.60	**-12.71***	-2.69	**-12.30***	-2.77	1.54	0.33	**-12.38***	-2.63	-4.05	-1.15
7	**-11.07***	-1.83	**-6.78***	-2.07	**-14.47***	-3.04	**-13.31***	-2.88	-0.25	-0.05	**-12.85***	-2.66	-4.54	-1.23
8	**-11.84***	-1.89	**-6.40***	-1.99	**-15.25***	-3.13	**-13.70***	-2.91	0.55	0.12	**-13.79***	-2.84	-4.47	-1.07
9	**-12.45***	-1.98	**-6.97***	-2.05	**-14.44***	-3.00	**-14.09***	-3.06	0.64	0.13	**-13.19***	-2.70	-5.06	-1.20
10	**-13.25***	-2.15	-5.56	-1.62	**-14.96***	-2.93	**-13.56***	-2.90	0.62	0.12	**-12.15***	-2.42	-5.84	-1.40

Table 9. Determinants of market reaction to financing stock adoptions

The table reports cross-sectional regressions of CAR over a [-10, 10] window 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 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). 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]. CARs are winsorized at the upper and lower 5 percentile values. t-values, in brackets, are based on standard errors clustered at the firm level. *, **, *** respectively indicate significance at 10%, 5%, and 1% levels. Significant results are shown in boldface.

	(1)	(2)	(3)	(4)	(5)	(6)
	All Adoptions			Exclusive Adoptions		
Adopter	**-0.2471***	-0.1748	-0.1824	-0.3743	0.0464	-0.0924
	[-1.85]	[-1.21]	[-1.19]	[-1.37]	[0.17]	[-0.28]
Inside ownership	0.0774	0.0229	0.0227	0.0014	-0.048	-0.0688
	[0.45]	[0.14]	[0.13]	[0.01]	[-0.20]	[-0.27]
Inside ownership $\times$ Adopter	0.2283	0.4479	0.4082	0.579	0.9135	0.9761
	[0.58]	[1.09]	[1.01]	[0.92]	[1.46]	[1.52]
(Inside ownership)^2	-0.0601	0.0092	0.004	0.0039	0.0346	0.0565
	[-0.29]	[0.05]	[0.02]	[0.01]	[0.12]	[0.19]
(Inside ownership)$^2 \times$ Adopter	-0.2569	-0.6246	-0.5927	-0.78	-1.2188	-1.3106
	[-0.51]	[-1.23]	[-1.18]	[-0.97]	[-1.57]	[-1.63]
Foreign ownership	-0.0325	-0.0062	-0.0181	-0.0049	0.0199	0.028
	[-0.55]	[-0.10]	[-0.29]	[-0.06]	[0.23]	[0.31]
Foreign ownership $\times$ Adopter	0.1176	0.2048	0.1579	0.7712	1.176	0.8299
	[0.48]	[0.73]	[0.56]	[1.10]	[1.62]	[1.00]
Outside director ratio	0.0006	0.0012	0.0038	0.06	0.062	0.0629
	[0.02]	[0.03]	[0.10]	[1.12]	[1.17]	[1.13]
Outside director ratio $\times$ Adopter	0.0159	0.007	0.0358	-0.2025	-0.2564	-0.2277
	[0.16]	[0.07]	[0.33]	[-1.00]	[-1.23]	[-1.08]
R&D intensity	**0.2653****	**0.3079*****	**0.2905****	0.1965	0.2187	0.27
	[2.19]	**[2.61]**	**[2.32]**	[0.93]	[1.10]	[1.26]
R&D intensity $\times$ Adopter	0.6977	0.5339	0.561	0.6773	0.1233	-0.0641
	[1.07]	[0.77]	[0.83]	[0.60]	[0.09]	[-0.05]
Firm size	0.0017	0.0025	0.0041	-0.0022	-0.0057	-0.0066
	[0.35]	[0.51]	[0.83]	[-0.33]	[-0.76]	[-0.83]
Firm size $\times$ Adopter	0.0078	0.0027	0.0069	0.0252	-0.0124	0.0123
	[0.65]	[0.22]	[0.52]	[1.07]	[-0.56]	[0.46]
Firm age	-0.0104	**-0.0135***	-0.0133	0.0038	-0.0092	-0.0082
	[-1.18]	**[-1.66]**	[-1.55]	[0.30]	[-0.75]	[-0.65]
Firm age $\times$ Adopter	0.0098	-0.0004	-0.0046	-0.0199	-0.015	-0.0315
	[0.55]	[-0.02]	[-0.23]	[-0.59]	[-0.47]	[-0.90]
Tobin's q		**-0.0207****	**-0.0208****		**-0.0382****	**-0.0399****
		[-2.33]	**[-2.57]**		**[-2.21]**	**[-2.54]**
Tobin's q $\times$ Adopter		-0.0028	-0.0049		-0.0038	0.0066
		[-0.11]	[-0.22]		[-0.10]	[0.17]
Cash holdings			0.0113			-0.0209
			[0.25]			[-0.30]
Cash holdings $\times$ Adopter			0.0356			-0.023
			[0.22]			[-0.09]
Leverage			-0.0278			-0.005
			[-0.79]			[-0.10]
Leverage $\times$ Adopter			-0.0569			-0.2261

	(1)	(2)	(3)	(4)	(5)	(6)
			[-0.60]			[-1.38]
Profitability			-0.0069			0.0917
			[-0.07]			[0.60]
Profitability × Adopter			-0.2724			-0.2205
			[-1.29]			[-0.44]
Dividend payout		-0.8992	-1.07		-0.5138	-0.8346
		[-1.28]	[-1.38]		[-0.48]	[-0.73]
Dividend payout × Adopter		5.4269*	5.7472*		-2.6347	-0.2065
		[1.83]	[1.84]		[-0.53]	[-0.04]
KZ Index	-0.0001			<0.0001		
	[-0.27]			[0.04]		
KZ Index × Adopter	-0.0056*			-0.0172***		
	[-1.75]			[-3.02]		
K Score		0.0001			>-0.0001	
		[0.11]			[-0.04]	
K Score × Adopter		-0.001			0.0029	
		[-0.50]			[0.76]	
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	760	256	257	257
# observations	695	703	0.054	0.135	0.117	0.109
Adjusted R^2	0.011	0.024	-0.1824	-0.3743	0.0464	-0.0924

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

This table reports the average treatment effect of adopting entrenchment (Panel A) and financing (Panel B) stocks. Average treatment effect of 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. We follow Austin (2011) and compute propensity scores using logit and include 5 nearest neighbors (with replacement) within a caliper width of $0.2 \times$ (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. *, **, *** respectively indicate significance at 10%, 5%, and 1% levels. 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)

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

www.ecgi.global

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.global/content/working-papers) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html

www.ecgi.global/content/working-papers