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Abstract

This paper provides evidence of the causal relation between corporate governance and firm value, which is free from the endogeneity problems. A unique experimental setting is created by the first target announcement of an investment vehicle that focuses its attention exclusively on companies whose stocks are undervalued due to governance problems. We examine the stock price reaction of other firms to the announcement, and find that those companies whose governance qualities are poorer experience a more positive stock price reaction, even after controlling for the valuation level. This finding is consistent with the presence of potential gains accruing to outside investors from improving the quality of corporate governance, and thus shows that governance plays an independent role in determining the market value of a company.

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1. Introduction

Korean Corporate Governance Fund (hereafter, the Fund) is an investment vehicle that was recently launched in Korea with an intention to make profits through an ownership in poorly governed companies. The rationale for this investment strategy is straightforward. Governance problems can prevent a company from fully utilizing its assets in place and growth options. Therefore, an ownership in the company that can exert a disciplining pressure on those governance problems will help put the corporate resources into better uses; and thus the stock price will rise. The premise of this strategy – namely, the causal relation between governance and firm value – is, however, a hypothesis that remains contentious due to endogeneity. In this paper, we conduct a cleaner test for the hypothesis by examining the stock price reaction of *other firms* to the Fund's announcements about its targets.

When the Fund announced its target firms for the first time, it created a huge incentive for the stock market to speculate on the next targets, just as a takeover announcement puts other firms in play (e.g., Song and Walkling 2000).¹ Figure 1 illustrates the high stakes of this speculation game. The two announced targets, Taekwang Industrial and Daehan Synthetic Fiber, respectively experienced more than 70 and 120 percent increases in their stock prices over the first several days alone after the announcement. With the reminiscences of a Dubai-based fund called Sovereign that earned 800 million dollars during the previous year from a similar investment in a

¹ Unlike their study, the potential spillover effects of the Fund's target announcement are not necessarily limited to the same industry, creating a broader and thus more effective sample. In addition, unlike merger events, our setting has nothing to do with the synergy effects of mergers, and thus enables us to better isolate the effect of governance on firm value. Even though takeovers affect governance of the target companies, the allegedly poorer investor protection in emerging markets like Korea and thus greater potential gains from governance improvement make the Fund's announcement a stronger shock and thus enhance the statistical power of our test..

Korean company, the expected profits from correctly predicting the next targets were enormous among Korean investors. Consequently, they bid up the stock prices of likely target firms.²

Likely targets are those companies whose values can be restored the most by the Fund, and this notion leads to our testing hypothesis for the causal relationship between governance and firm value. If corporate governance is indeed one of the firm value drivers – that is, if one can increase the market value of a company by improving its governance system, as is premised by the Fund and suggested by existing studies³ –, then the governance characteristics of other firms should be correlated with the magnitude of the anticipation effect and hence with their stock price reaction to the announcement, even after controlling for other value drivers. More precisely, poorly governed companies will experience a more positive stock price reaction, since they have more room for value restoration through governance improvement. If, on the other hand, governance is only a sideshow in the determination of the market value of a company, then the current valuation level and other firm value drivers will be enough to explain the stock price reaction of other firms to the announcement.

Our empirical results support the causal relation between governance and firm value, as we find a significantly negative relation between the abnormal stock returns of other firms around the Fund's first target announcement and their governance characteristics. To show that the negative relation arises from the anticipation effect associated with the Fund's target announcement, we examine sub-samples constructed either by firm size or by the valuation level, since the Fund is

² There must also have been a disciplining effect, since the announcement provides corporate managers with an incentive to work on the problems of the company to avoid being the next target. The more likely the company becomes a target, the greater this incentive will be. Therefore, the disciplining effect works exactly the same way as the anticipation effect.

³ For the Korean results, see Black, Jang, and Kim (2005, 2006) or Black, Jang, Kim, and Park (2005). For the U.S. results, see Gompers, Ishii, and Metrick (2003), Core, Guay, and Rusticus (2005), Masulis, Wang, and Xie (2006), and references therein.

known to focus on small to medium-sized, undervalued companies. Indeed, we find that the negative relation between the abnormal stock return of other firms and their governance characteristics are more pronounced in small firms and in undervalued stocks.

To further show that the observed negative relation between the two is attributable to the Fund's target announcement, we examine their relation at other points in time: If such negative relation is frequently found at other times, then our earlier results cannot be solely due to the target announcement. Analysis of non-event windows prior to the Fund's target announcement shows that the negative relation between the abnormal stock return of other firms and their governance characteristics is more of a rarity than a general pattern. More precisely, the relative frequency that a non-event window shows a more significantly negative relation than the one for the event window is less than 3 percent; and the general relation is rather positive.

Our results are based on a governance index comprising 11 governance provisions that are shown to be most important by prior studies. In an attempt to ensure that the observed negative relation is not specific to those provisions, we expand our attention to all other available governance provisions. Since those provisions will not be equally important, we determine their relative importance by weighting them in such a way that the resulting index has the highest correlation with the *absolute values* of the abnormal stock returns over the event window. In other words, we first construct an index that can best explain the cross-section of unusual stock price movements – regardless of the direction – around the Fund's target announcement, and then examine whether this artificial index is *negatively* correlated with those abnormal stock price movements. We find this to be case, and the aforementioned bootstrap-type analysis confirms that the negative relation is uniquely found over the event window. Alternatively, we construct a governance index using as few as three core provisions, and still find it to be significantly and

negatively correlated with the abnormal return of other firms, providing further robustness to our earlier results.

We finally examine the effect of the Fund's subsequent announcements that send a somewhat different message to the stock market. Targets firms revealed through the subsequent announcements turn out to be more of an undervalued company, so one would expect that the initial valuation level plays a greater role in the cross-section of the stock price reactions of other firms.⁴ Such finding would ensure that our sample shows different reactions to different signals, validating its effectiveness as the experimental setting. We indeed find this to be the case.

We believe that our findings offer endogeneity-free evidence for the causal relationship between governance and the market value of a company. Specifically, unlike prior studies that examine the cross-sectional relation between the valuation *level* and governance characteristics (e.g., Black, Jang, and Kim 2005, 2006 or Gompers, Ishii, and Metrick 2003), our paper utilizes the *changes* in the market value of *other firms* that are measured over a short window around the target announcement of the Fund. This approach not only allows us to attribute our results to the anticipation effect associated with the announcement; it also obviates the concern about the self-selection bias that would arise when using event firms (e.g., Comment and Schwert 1995). In addition, since we include the valuation level as a control variable, the omitted variable problem is significantly mitigated: That is, our analysis effectively controls for all the variables affecting firm value, since we control for firm value itself.

The Fund in question may not be the first or the only investment vehicle whose strategy is linked to corporate governance. However, its avid focus on poorly governed companies, as

⁴ Newspaper articles confirm this observation (see, e.g., *The Korea Economic Daily* (section A23) on November 23, 2006). Unlike the first target companies, the subsequently announced target agreed with the Fund to better utilize corporate resources and to improve governance. The Fund made clear that the subsequent target was chosen on the grounds of its resources being under-utilized.

opposed to well governed companies, translates the hypothesized causal relation between governance and firm value into a *negative* relation between the abnormal return and governance characteristic over the event window. A search for such negative relation that is unique to the event window prevents us from reporting any spurious results, since the general pattern is positive in existing researches.

This paper proceeds as follows. In the next section, we formally develop our testing hypotheses. Section 3 describes our sample and data, and Section 4 provides our empirical results. Finally, Section 5 concludes the paper.

2. Hypothesis development

Suppose that the market value of company i 's common stock, V_i , can be expressed as:

$$V_i = V_{i,0} + P_{i,TG} V_{i,TG},$$

where $P_{i,TG}$ is the probability that the stock becomes the target of the Fund, and $V_{i,TG}$ is the gains accruing to outside investors from the stock being the target of the Fund. Hence, $V_{i,0}$ is the market value of the stock before the Fund's first target announcement. Since the Fund will consider targeting stocks from which the gains are expected to be greatest, the probability of being a target will be significantly (but not completely) determined by the potential gains.

The first target announcement by the Fund will reveal V_{TG} in the stock prices of other firms, as well as in the target itself, by raising P_{TG} . Specifically, the abnormal stock return accruing to other firms at the time of the announcement is:

$$AR_i = P_{i,TG} V_{i,TG}.$$

Temporarily assuming that P_{TG} is determined completely by V_{TG} , the ultimate question is where such gain, V_{TG} , comes from. The causal relation between governance and the market value of the

company stock posits that improvement in corporate governance leads to greater valuation. It implies that $V_{i,TG}$ will be negatively correlated to the quality of stock i 's governance, since the poorer the governance is, the greater gains are expected by improving it. The alternative is that the gain comes from the initial undervaluation that is not attributable to governance. If this were the case, then V_0 , the initial valuation level, would be enough to explain the gain. Thus, our governance hypothesis can be summarized as:

H1. There will be a negative relation between the abnormal stock return of other firms and their governance characteristics, even after controlling for $V_{i,0}$.

It is likely that governance affects firm value even at normal times, so one can test the causal relation between the two using V_0 . However, the likely correlation between governance and other firm value drivers makes it difficult to isolate the contribution of governance per se to firm value. We note that V_{TG} is a more instructive measure, since it is the *change* in the market value of the company stock that is attributable solely to the potential gains from the Fund's involvement in management of the company. We also want to emphasize that our cross-sectional analysis will effectively control for *all* variables affecting firm value, since we will control for $V_{i,0}$ itself. In doing so, our test will be biased against finding a role of governance to the extent that governance affects firm value even at normal times.

We now relax the earlier assumption that P_{TG} is determined solely by V_{TG} , since the threat of the Fund's attack may not be real for all other firms in the market. Given the asserted strategy of the Fund to invest in small to medium-sized firms whose stock price is repressed due to governance problems, we derive our second hypothesis:

H2-1. The hypothesized negative relation between the abnormal stock return of other firms and their governance characteristics (after controlling for $V_{i,0}$) will be more pronounced among small firms rather than among large firms.

H2-2. Also, such negative relation will be more pronounced among low valuation-ratio stocks rather than among high valuation-ratio stocks.

Besides firm size and the valuation level, one may want to consider the ownership concentration, since highly concentrated companies may be more difficult for the Fund to attack. However, as the Fund attempts to achieve its goals by fully exercising the rights entitled to minority shareholders, the ownership concentration will not be so relevant. In accordance with this notion, the controlling shareholders of the first target firms are observed to hold as much as 70 percent of the company ownership.

3. Sample and data

3.1. Korea Corporate Governance Fund and its target announcement

This investment vehicle was first launched in April 2006 with the explicit strategy of investing in Korean companies whose market values are repressed due to governance problems. The Fund makes clear its intention to be actively involved in management of the invested companies and to profit from the restoration of the lost market value. Their investments will thus be long-term and is likely to be limited to a relatively small number of companies at a time.

Although it is technically a foreign fund that is managed by New York-based Lazard Asset Management and is headquartered in Ireland, it distances itself from ordinary foreign investors who tend to invest in large local companies probably due to the information asymmetry problems (e.g., Kang and Stulz 1997; Brennan and Cao 1997). As many of the Korean corporate governance experts participate as the Fund's advisors, the Fund mainly seeks as potential targets small to medium-sized undervalued companies.

The event of interest is the Fund's first announcement about its target firms. The Fund filed the disclosure document about two of its current targets on August 23, 2006, and it first appeared on newspapers the next morning. Based on the stock price pattern in Figure 1, we will examine the event window of $[-1, +5]$ around the first newspaper article date of August 24. Our experimental setting thus has a single event date, and it is important to note that the statistical power stems from the number of other firms (which is detailed in the next subsection). In addition, since we examine a single event common to all other firms, there is no need to control for any period-specific effects as in other event studies; and this feature helps us conduct a cleaner test.

3.2. *Sample*

To construct our sample, we begin with stocks that are traded on the Korean Stock Exchange. We then require their governance information, daily stock returns, and accounting data to be available. The governance information is provided by the Korean Corporate Governance Services (KCGS, hereafter), and the stock return and accounting data are from the *FnGuide*, a Korean financial data provider. We exclude companies whose book value of equity is negative, since they are mostly distressed firms. The final sample comprises 639 firms. Note that the sample does not include the two firms that are announced to be the target of the Fund.

Table 1 provides a brief description of the sample. In terms of the market capitalization as of August 22, 2006 (i.e., immediately before the event window), the sample is broad-based covering both small companies whose market capitalizations are below 10 billion Korean won and large companies with the market capitalization greater than 10 trillion Korean won. The sample companies are distributed over 23 industries including the banking sector.⁵ There are 81 chemical companies (largest proportion), 65 electronics companies (second largest), and so forth. We will control for an industry effect in the regression by having a 0/1 dummy variable for each of those 23 industries. We also report the distribution of our control variables, including the valuation ratio, in Table 1. Some of the variables contain extreme values (e.g., a price-to-book ratio of 38). Therefore, in the later regression analysis, we will winsorize them at 1 and 99 percent levels to mitigate the outlier problem.

3.3. Governance index

We construct an index by focusing on several core governance characteristics. We first consider the board of directors, since the Fund will put disciplining pressure by appointing new directors. Specifically, we examine: (1) whether the board is staggered; (2) whether a director has ever been appointed by recommendation from minority shareholders; (3) whether cumulative voting is allowed; (4) whether the number of outside directors is greater than what is required; and (5) whether there is a foreign director. Second, we consider the disclosure practices by examining: (1) whether financial statements are prepared and released in compliance with the international accounting standards; (2) whether the audit reports or other public announcements are made in English; and (3) whether the governance evaluation results and the differences from

⁵ In the empirical analysis, we will ensure the robustness of our results by excluding financial firms.

the suggested norms are disclosed through the company web-page. Third, we consider the payout practices by examining: (1) whether the dividend yield is greater than 3 percent; and (2) whether the payout ratio over the past 3 years is greater than 30 percent; and (3) whether there has ever been an interim dividend payment.⁶

Focusing on a subset of all available governance provisions is advocated by other studies. For example, Cremers and Nair (2006) create their own governance index for American companies by focusing only on three of the 24 takeover-related firm characteristics that are investigated in Gompers, Ishii, and Metrick (2003). The rationale is obvious: those 24 characteristics will not be equally important. Similarly, Bebchuk, Cohen, and Ferrell (2005) limit their attention to six of the 24 governance provisions.⁷

Our particular choice of the 11 provisions is easily justified. A staggered board means that the terms of directors are overlapped so one can replace only part of the board at a time. Prior studies document the power of this particular governance provision (e.g., Coates et al. 2002; Cremers and Nair 2006). Any incidence of a director having been appointed by minority shareholders and the existence of the cumulative voting system as a facilitator of such shareholder activism are also shown to be an effective indicator of the quality of governance by prior studies.⁸ We include two more items to determine whether the company has directors who are not connected to the controlling shareholders (i.e., outsiders or even foreigners).

Corporate disclosure practices are also important, since various value-destroying governance problems arise due to information asymmetries between corporate controlling shareholders and

⁶ We will explain these particular payout levels shortly in this section.

⁷ It is important to note that we cannot replicate their indices for Korean companies, since available governance provisions are not identical between the two countries. However, we will borrow some of their intuitions to create an index that is best suited to the Korean stock market.

⁸ See, e.g., Jang, Lee, and Park (2004) for a detailed discussion on this provision and its role in Korea.

outside investors. Specifically, compliances with the international accounting standards and along the same line the availability of audit information and others in English will signal that the company is transparent. As transparency makes it difficult for the controlling shareholders to steal money from minority shareholders and also serves as a commitment device (e.g., Durnev and Kim 2005), we include this in the index construction. We also consider whether companies are forthcoming about their governance evaluation results by incorporating into the governance index the availability of that information on the company web-page.

Payout policies are well known to be closely related to corporate governance. La Porta et al. (2000), for example, show that poorly governed companies pay out less to minority shareholders and thus leave more funds under the management of self-interested controlling shareholders. Consistent with this finding, Pinkowitz, Stulz, and Williamson (2005) find that dividends contribute more to minority shareholders' wealth in countries with poorer corporate governance than in countries with better governance. The cutoff of the 3-percent dividend yield identifies approximately one third of the companies whose dividend data are available among those traded on the Korean Stock Exchange. Similarly, the cutoff of the 30-percent dividend payout ratio isolates approximately the same fraction of the Korean companies. Finally, an interim dividend payment is found in much smaller number of firms.⁹

Using those selected governance provisions, we construct two alternative governance indices. The first index is simply the sum of the 0/1 dummy variables that are determined by the 11 governance provisions. The second one is the sum of the original scores that the KCGS assigns to individual governance characteristics associated with the 11 provisions. As in Table 1, the second index shows greater dispersion within the samples stocks. The second panel of the table reports

⁹ Less than 5 percent of the dividend-paying companies pay during the year.

their correlation coefficients with each of the control variables (in logs and after winsorization). Not surprisingly, the two indices are respectively highly correlated with firm size and with the valuation ratio (see, e.g., Black, Jang, and Kim 2005, 2006; Black, Jang, Kim, and Park 2005). Foreign investors show a strong preference for well governed companies, which is consistent with Leuz, Lins and Warnock (2006). Cash flows are also shown to be positively correlated with the governance indices. However, no causal relation can be inferred from these correlations. It only emphasizes the importance of controlling for those variables before attributing any effect to the governance indices.

4. Empirical results

In this section, we first analyze the abnormal stock return of other firms at around the time when the Fund first announces its target firms. In particular, we examine whether the abnormal stock return of other firms is correlated with their governance characteristics. We then investigate whether the observed association between the abnormal return and governance characteristics can be attributed to the anticipation effect association with the Fund's target announcement. Finally, we turn to the Fund's subsequent target announcements, as they are somewhat different in their characteristics from the first announcement.

4.1. Abnormal stock return of other firms around the Fund's first announcement of its targets

For each of our sample stocks, we estimate the cumulative abnormal return over the [-1, +5] window surrounding the Fund's first announcement of its targets. Specifically, we estimate the following regression from January 1, 2005 to August 31, 2006:

$$R_{i,t} = \alpha_i + \beta_i R_{mkt,t} + \phi_i D + \varepsilon_{i,t}, \quad (1)$$

where $R_{i,t}$ is the daily return on stock i , $R_{mkt,t}$ is the daily return on KOSPI index, and D is a variable taking a value of 1/7 during the event window. Therefore, its coefficient, ϕ , is the cumulative abnormal return over that event window.¹⁰

Table 2 reports the summary statistics of daily returns of the sample stocks and the market index, as well as those of the estimated cumulative abnormal returns. Although the daily returns over the estimation period (January 1, 2005 ~ August 22, 2006) have a wide range (from -11.5 to +13.7), a typical daily stock price movement is nil. The market index return during the same period is distributed over a narrower range (from -3.5 to +3.5) and the average daily return is also very close to zero.¹¹ The estimated cumulative abnormal return is, however, as large as 2.6 percent on average, and the median is 1.8 percent. Other percentile values also indicate that the impact of the Fund's announcement on other firms is mostly positive.

4.2. Cross-section of the abnormal return – Test of the first hypothesis

Using the estimated abnormal returns, we estimate the following cross-sectional regression:

$$CAR_i = \sum_{j=1}^J \alpha_j + \beta_1 Mcap_i + \beta_2 PBR_i + \beta_3 Gidx_i + \sum_{k=1}^K \gamma_k X_k + \varepsilon_i, \quad (2)$$

where CAR is the estimate of ϕ from equation (1), $Mcap$ is the natural log of the market capitalization as of August 22, 2006 (i.e., immediately before the event window), PBR is the natural log of the price-to-book ratio (which is winsorized at the 1st and 99th percentiles) as of the end of the most recent quarter prior to the event, $Gindex$ is one of our governance indices, and X include other control variables such as: $BGroup$ or the 0/1 dummy variable for companies

¹⁰ If the dummy variable takes a value of one, then its coefficient will be the average *daily* abnormal return during the event window.

¹¹ The summary statistics of the daily returns of the sample stocks are first estimated for an individual stock, and then are averaged across all sample stocks.

belonging to the 30 largest business groups; *Leverage* or the winsorized percentage of total debt to total asset, *CashFlow* or the winsorized percentage of sum of (earnings before interests and taxes and depreciation) to total asset; and *ForeignOwn* or the winsorized foreign ownership. We at times add *LiqAsset* or the percentage of cash and cash equivalents to total asset; this variable is not available for financial services companies like banks. We also control for industry fixed effects (α_j 's). To account for heteroscedasticity, the weighted least square method is used with the residual variance from the abnormal return estimation (i.e., variance of ε_i 's in equation (1)) as the weight.

Our test results for the first hypothesis are reported in Table 3 (Models 1 and 2). Consistent with the idea that the Fund is after undervalued stocks, the price-to-book ratio enters the regression significantly with a negative coefficient, suggesting that stocks with a low value for the ratio experience a more positive stock price reaction to the announcement. What is more interesting is that the governance index, either based on dummy variables (*Gidx1*) or based on the original scores (*Gidx2*), is significantly and negatively correlated with the abnormal stock returns of other firms. It means that, even after controlling for the valuation level, stocks of poorly governed companies are appreciated more than the stocks of well-governed companies. This result lends strong support to our anticipation hypothesis that outside investors consider governance to be an important firm driver and thus affect the likelihood of being the next target. Among the control variables, leverage is significant with a negative sign. To the extent that leverage helps reduce the free cash flow problems (e.g., Stulz 1990) and this aspect of governance is not captured by our index, the negative sign associated with leverage is also consistent with the anticipation hypothesis.

In the remaining two columns, we only examine industrial firms by adding another control variable, namely *LiqAsset*, which is not available for financial companies. The sample is thus reduced somewhat to 587 firms, but the results remain virtually the same. Judging from the magnitude of the coefficients, it seems that the valuation ratio and the governance index respectively have a stronger correlation with the cumulative abnormal return among industrial firms alone.

4.3. Sub-sample analysis – Test of the second hypothesis

Given that the Fund is at least initially designed to invest in small to mid-sized companies, the hypothesized correlation between the abnormal stock return of other firms and their governance characteristics should be more pronounced among those firms. Also, since the Fund makes profits by restoring the lost market value, the hypothesized correlation between the abnormal stock return of other firms and their governance characteristics should be more pronounced among undervalued stocks. Based on these notions, we conduct the sub-sample analysis either by market capitalization or by the price-to-book ratio.

Table 4 reports the results. To save space, we only report the coefficients for the governance index. The results are striking. In the small firm sub-sample whose market capitalization is below the sample median, the coefficients for the governance index remain highly significant and, more importantly, the magnitude of those coefficients is approximately 1.5 times greater than the case of the full sample. To the contrary, the large firm sub-sample shows no significant coefficients for the governance index. The coefficients are no longer statistically significant, and their magnitude is reduced almost by half.

The cutoff in the above analysis, namely, the sample median of the market capitalization, is approximately 86 billion Korean Won (see Table 1). Since the Fund had about 72 billion Korean Won under its management as of the end of June 2006,¹² this particular cutoff level appears to be reasonable. For example, if one can assume that the Fund seeks a 5-percent ownership to have a meaningful presence in a target firm's management, then its 72 billion Korean Won allow for investments in 17 companies of the median market capitalization ($86 \times 0.05 \times 17 = 73.1$). As a robustness check, we try a slightly higher cutoff, namely 100 billion Korean Won. With this alternative cutoff, one would expect our results to be weaker in the small-firm sub-sample, since it contains more large firms. Consistent with this conjecture, the coefficients for the governance index in the small-firm sub-sample become smaller and statistically less significant, although mostly remaining significant (second panel of Table 4). The large firm sub-sample results remain similar.

In the third panel of Table 4, we report results for the valuation ratio-sorted sub-samples. We expect the role of the governance index to be more pronounced in the low-valuation-ratio sub-sample, since the anticipation effect will be concentrated on undervalued stocks. As a cutoff, we use the sample price-to-book ratio, and the results are more dramatic than the size-sorted sub-sample cases. More precisely, we find the highly significant coefficient for the governance index only in the low-PBR sub-sample. The magnitude of the coefficients is greater than that of the small-firm sub-sample, suggesting that the valuation level is more relevant for the anticipation effect than firm size is. All the coefficients are significant at less than 1 percent level except for one case in which the *p*-value is 0.014.

¹² This information is based on their revised disclosure document filed with the regulatory agency.

In summary, the sub-sample results support the second hypothesis. That is, they confirm that the negative relation between the abnormal returns of other firms and their governance characteristics arises because investors speculate on the next target firms and bid up their stock prices. The *negative* relation, in particular, illustrates that there are gains from improving the quality of a company's governance structure.

4.4. Robustness checks

An alternative way to ensure that the observed negative relation is due to the anticipation of the Fund's next target is to see if such negative relation is found at other points in time when there is no such governance-related shock. To operationalize this idea, we examine all 7-day windows from January to July of year 2006 by first estimating the abnormal stock return over each window for each sample firm and then using the estimated abnormal return as the dependent variable in equation (2). The question is whether a significant negative coefficient for the governance index is frequently found even in these non-event windows.

Figure 3 provides an answer to this question. Of the 138 "simulated" 7-day windows, only a few are associated with a significant coefficient for the governance index. More importantly, a significant negative coefficient is less likely than an equally significant but positive coefficient. In fact, this is not surprising given the well-known positive relation between governance and firm value at normal times (e.g., Gompers, Ishii, and Metrick 2003; Black, Jang, and Kim 2005, 2006 – also recall the relation between governance and $V_{i,0}$ in Section 2). The t -statistics from the non-event windows further helps put our earlier results in perspective: As only three of the 138 t -statistics are more negative than the t -statistic of the original governance index coefficient (-3.05), the empirical p -value of the original governance coefficient is less than 3 percent.

We have thus far used 11 governance provisions to characterize a firm's governance structure. A natural question is whether the negative relation between the abnormal stock return and the governance index is specific to those provisions. To address this concern, we expand our attention to all governance provisions available (which are as many as 99). It is unthinkable that all those provisions are equally important. Hence, we determine their relative importance by weighting them in such a way that the resulting index has the highest correlation with the *absolute values* of the abnormal stock returns over a certain window.¹³ We then examine whether this index is *negatively* correlated with the abnormal stock return by estimating equation (2) using this artificial index in place of the original governance index.

To save space, Table 5 reports only the coefficients for the valuation ratio and for the artificial governance index. As seen in the table, we find the significant negative coefficient for this artificial governance index, suggesting that if there is any relationship between the abnormal stock returns of other firms and their governance characteristics during the event window, then it is likely to be negative.

As in the previous subsection, we repeat the same experiment for the non-event windows in order to verify that the negative relation is unique to the event window. Figure 4 is the resulting frequency distribution of the *t*-statistic of the coefficient for the artificial governance index. Of the 138 non-event windows, only four are associated with a more negative *t*-statistic for the artificial governance index than the one for the event window; and thus the empirical *p*-value for the original coefficient over the event window is less than 3 percent.

¹³ It is equivalent to constructing a linear combination of all individual governance provisions that has the highest correlation with the absolute values of the abnormal return of other firms. Similar to the original index construction, we create this artificial index either based on 0/1 dummy variables representing the below or above the sample score median groups for each governance item, or based on the actual scores.

Alternatively, we can consider a *smaller* number of governance provisions. We note that such index can lack the statistical power, since the index values may not have adequate cross-sectional dispersion. Nevertheless, we explore an alternative index based only on three provisions each of which can best represent the three governance categories of board, disclosure, and payout. For the board category, we consider the existence of an outside director from minority shareholders. For the disclosure category, we only consider the compliance with the international accounting standards, and for the payout category, we consider the dividend yield alone. Using the three provisions, we create two indices, one based on dummy variables and the other based on the original score.

As might be expected, the resulting index has limited cross-sectional variation. The dummy-based index runs from zero to three, while the other index ranges from zero to eight. Using these indices (one at a time), we re-estimate equation (2) for various sub-samples as well as for the full sample. As in Table 6, the full sample (first panel) still shows a significant negative relation between the abnormal stock return of other firms and their alternative governance index value. Although the *p*-values increase somewhat, all coefficients are significant at less than the 5 percent level. The second and third panels are for the size- and valuation ratio-sorted sub-samples. The dummy-based index is not significant for the small firm sub-sample any more, but the other index is still significant at less than the 10 percent level. This pattern is consistent with the reduced statistical power due to the lack of cross-sectional dispersion – recall that the second index has greater variation. The large-firm sub-sample continues to show no significant relation between the abnormal return and the governance index. Finally, the valuation ratio-sorted sub-samples lend strong support to our anticipation hypothesis, as only the low-valuation ratio companies show a significant relation between the abnormal stock return and the governance index.

4.5. Subsequent announcements

Three months after the first announcement, the Fund announced two more target firms with an interval of one week. The subsequent announcements will not be as fresh a shock as the first announcement due to the proximity to each other.¹⁴ However, the subsequent announcements are still instructive, as the revealed target firms turn out to be more of an undervalued company rather than a poorly governed one.¹⁵ Consequently, if our sample is to be an effective setting, it should respond to the subsequent announcements differently than to the first announcement. More precisely, the valuation ratio should play a greater role in explaining the cross-section of the stock price reactions of other firms, whereas the governance index may weaken although it may continue to be important as the asserted strategy of the Fund remains relevant.

Figure 2 is the stock price patterns of the two target firms revealed through the subsequent announcements. The target firm announced earlier (top panel; first appearing on newspapers on November 23, 2006) shows the stock price movements similar to the pattern in Figure 1. The other one (bottom panel) experiences the price run-up several days before its own announcement (November 30, 2006) probably due to information leaks from the preceding announcement; and it also experiences a reversal a few days after the announcement. To take into account these dynamics, we will examine the $[-1, +5]$ and $[-1, +10]$ windows around November 23: The latter one is the union of two $[-1, +5]$ windows surrounding each announcement.

Table 7 reports the results for the subsequent announcements. Focusing on the $[-1, +5]$ window, we find that the valuation ratio enters the regression with a much larger (in absolute

¹⁴ For example, Song and Walkling (2000) require at least one year between takeover announcements for the subsequent ones to be considered to be an event with potential spillover effects.

¹⁵ As mentioned earlier, the press, as well as the Fund itself, confirms this observation.

terms) coefficient. In fact, its coefficients more than double from the first to the subsequent announcements. In terms of the statistical significance, the first announcement effect is associated with the valuation ratio at about the 5 percent level, whereas the p -values of the valuation ratio for the subsequent announcement effect are less than 0.01 percent. Also consistent with our prediction, the governance index remains important but the statistical significance weakens somewhat.

Another noteworthy difference between the first and subsequent announcements is the role of leverage. For the former, the leverage ratio enters the regression with a significant negative coefficient and thus lends additional support to the hypothesized anticipation effect. For the latter, however, the leverage ratio loses its explanatory power completely. To the extent that leverage represents the monitoring power of debt and this aspect is not captured by our index, the finding of little role of leverage is consistent with weaker relevance of governance for the second announcement. In a nutshell, our sample shows different reactions to different signals, and is thus validated as an effective experimental setting.

5. Conclusions

In this paper, we provide endogeneity-free evidence of the causal relation between corporate governance and the market value of a company. A unique experimental setting is created by the first target announcement of an investment vehicle that focuses its attention exclusively on companies whose stocks are undervalued due to governance problems. The announcement is instructive since stock prices of a number of firms can potentially move as a function of their governance characteristics. In this setting, the endogeneity concerns are also minimized, since we

examine the stock price reaction of *other firms* surrounding the target firms to the announcement, and we directly control for their initial valuation level rather than trying to explain it.

We find that other firms with poorer governance qualities experience a more positive stock price reaction, even after controlling for the valuation level. Furthermore, we find that this relation is more pronounced among small firms and low valuation-ratio stocks, which are known to receive attention of the Fund. Our results thus show that gains accruing to outside investors exist from improving the quality of corporate governance.

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Table 1. Summary statistics of key variables

This table reports summary statistics of the variables used in the empirical analysis. *Mcap* is the market capitalization in billions of Korean Won as of August 22, 2006 (immediately before the event window). *PBR* is the price-to-book rate as of the end of the second quarter of year 2006. *Leverage* is the percentage of total debt in total asset for fiscal year 2006. *CashFlow* is the percentage of the sum of (earnings before interests and taxes and depreciation) in total asset for fiscal year 2006. *ForOwn* is the percentage of foreign ownership as of the end of the second quarter of year 2006. *LiqAsset* is the percentage of cash and cash equivalents in total assets for fiscal year 2006. All data are from *FnGuide*. *Gidx1* is the dummy variable-based governance index, and *Gidx2* is based on the original scores assigned by the KCGS. * in the second panel indicates that the variable is in log, while ** indicates that the variable is winsorized at 1st and 99th percentiles.

		n	mean	std	min	p1	q1	med	q3	p99	max
<i>Mcap</i>	(1)	639	977	4,989	8	9	36	86	318	15,836	108,260
<i>PBR</i>	(2)	639	1.3	2.0	0.1	0.2	0.5	0.8	1.5	6.8	38.0
<i>Leverage</i>	(3)	639	47.2	20.8	1.7	7.4	31.5	46.9	62.3	94.3	99.3
<i>CashFlow</i>	(4)	639	3.8	21.3	-460.3	-38.2	1.8	5.2	9.7	26.1	43.2
<i>ForOwn</i>	(5)	639	12.7	17.0	0.0	0.0	0.4	5.1	20.1	69.2	87.1
<i>LiqAsset</i>	(6)	587	5.9	6.7	0.0	0.1	1.4	3.8	8.0	31.4	52.9
<i>Gidx1</i>		639	1.5	1.4	0.0	0.0	0.0	1.0	2.0	6.0	10.0
<i>Gidx2</i>		639	5.2	4.5	0.0	0.0	3.0	5.0	7.0	23.0	31.0

Correlations between the governance indices (*Gidx1* or *Gidx2*) and other variables (winsorized)

		(1)*	(2)*,**	(3)**	(4)**	(5)**	(6)**	<i>Gidx2</i>
<i>Gidx1</i>	639	0.48 (0.000)	0.11 (0.006)	0.01 (0.893)	0.19 (0.000)	0.44 (0.000)	-0.03 (0.487)	0.88 (0.000)
<i>Gidx2</i>	639	0.49 (0.000)	0.09 (0.027)	0.00 (0.917)	0.26 (0.000)	0.42 (0.000)	-0.04 (0.336)	

Table 2. Summary statistics of sample daily stock returns and 7-day abnormal returns

This table reports summary statistics of daily return of our sample stocks and the market index during the estimation period, as well as those of the 7-day cumulative abnormal return. The estimation period is from January 1, 2005 to August 22, 2006 (408 days), and the event window spans from August 23, 2006 to August 31, 2006 (7 days). The summary statistics of the daily returns of the sample stocks are first estimated for an individual stock, and then are averaged across all the 639 sample stocks.

	n	mean	std	min	p1	q1	med	q3	p99	max
individual stock return	408 (days)	0.18	3.20	-11.48	-7.56	-1.49	0.00	1.55	10.21	13.74
market index return	408 (days)	0.10	1.16	-3.45	-2.82	-0.47	0.19	0.81	2.60	3.51
abnormal return	639 (stocks)	2.59	6.32	-20.95	-9.53	-1.21	1.82	5.56	22.46	34.56

Table 3. Cross-sectional regression of CAR [-1, +5] around the Fund's first target announcement on firm characteristics

This table reports the coefficients from the regressions of the cumulative abnormal return of other firms around the Fund's first target announcement on their firm characteristics. *Mcap* is the natural log of the market capitalization as of August 22, 2006 (i.e., immediately before the event window), *PBR* is the natural log of the price-to-book ratio (which is winsorized at the 1st and 99th percentiles) as of the end of the second quarter 2006, *Gidx* is one of our governance indices (**1** based on dummies, and **2** based on the original scores), *BGroup* is the 0/1 dummy variable for companies belonging to the 30 largest business groups, *Leverage* is the winsorized percentage of total debt to total asset, *CashFlow* is the winsorized percentage of (earnings before interests and taxes and depreciation) to total asset; *ForOwn* is the winsorized foreign ownership, and *LiqAsset* is the percentage of cash of cash equivalents to total asset, which is not available for financial firms. The WLS is used with the residual variance from the abnormal return estimation as the weight.

Independent variables	Model 1	Model 2	Model 3	Model 4
<i>Mcap</i>	0.19 (0.336)	0.20 (0.300)	0.25 (0.244)	0.26 (0.226)
<i>PBR</i>	-0.83 (0.041)	-0.85 (0.037)	-0.88 (0.037)	-0.90 (0.034)
<i>Gidx1</i>	-0.48 (0.003)		-0.53 (0.002)	
<i>Gidx2</i>		-0.15 (0.005)		-0.16 (0.007)
<i>BGroup</i>	-0.88 (0.134)	-0.95 (0.105)	-0.84 (0.188)	-0.94 (0.141)
<i>Leverage</i>	-0.03 (0.025)	-0.03 (0.020)	-0.03 (0.022)	-0.03 (0.019)
<i>CashFlow</i>	-0.04 (0.172)	-0.04 (0.232)	-0.05 (0.135)	-0.04 (0.201)
<i>ForOwn</i>	-0.01 (0.414)	-0.02 (0.271)	-0.01 (0.447)	-0.02 (0.297)
<i>LiqAsset</i>			0.02 (0.546)	0.02 (0.625)
Industry fixed effects are in the regressions but not reported here.				
<i>Adj. R-squares</i>	0.30	0.30	0.31	0.31
<i># of obs.</i>	639	639	587	587

Table 4. Sub-sample analysis using the CAR [-1, +5] around the Fund's first target announcement on firm characteristics

This table reports the coefficients from the regressions of the cumulative abnormal return of other firms around the Fund's first target announcement on their firm characteristics. Regressions are estimated for various sub-samples based on the market capitalization or the price-to-book ratio, and we only report the coefficients for our governance indices. Thus, each coefficient below corresponds to one regression. The same set of control variables and the estimation method are used as in Table 3, but their coefficients are not reported to save space.

	Model 1: coeff for <i>Gidx1</i>		Model 2: coeff for <i>Gidx2</i>		Model 3: coeff for <i>Gidx1</i>		Model 4: coeff for <i>Gidx2</i>	
Below median Market cap.	-0.82	(0.011)	-0.22	(0.052)	-0.86	(0.009)	-0.24	(0.039)
Above median Market cap.	-0.31	(0.135)	-0.11	(0.091)	-0.36	(0.138)	-0.11	(0.152)
Market cap. <= 100 bil. KW	-0.65	(0.036)	-0.16	(0.140)	-0.74	(0.019)	-0.20	(0.080)
Market cap. > 100 bil. KW	-0.32	(0.120)	-0.12	(0.064)	-0.37	(0.119)	-0.13	(0.094)
Below median PBR	-1.15	(0.000)	-0.28	(0.004)	-1.15	(0.000)	-0.26	(0.014)
Above median PBR	0.01	(0.977)	-0.06	(0.372)	-0.06	(0.800)	-0.09	(0.221)

Table 5. Cross-sectional regression of CAR [-1, +5] around the Fund's first target announcements on the artificial governance index

This table reports the coefficients from the regressions of the cumulative abnormal return of other firms around the Fund's first target announcement on an artificial governance index (*A_Gidx1* or *A_Gidx2*) and other firm characteristics. The artificial index is based on all the individual governance provisions covered by the KCGS (which are as many as 99 items) and is constructed in such a way that has the highest correlation with the *absolute values* of the cumulative abnormal return. The same set of control variables and the estimation method are used as in Tables 3 or 4, but their coefficients are not reported to save space.

	Model 1: coeff for <i>A_Gidx1</i>		Model 2: coeff for <i>A_Gidx2</i>		Model 3: coeff for <i>A_Gidx1</i>		Model 4: coeff for <i>A_Gidx2</i>	
<i>PBR</i>	-0.94	(0.019)	-0.86	(0.031)	-1.00	(0.017)	-0.92	(0.026)
<i>A_Gidx1</i> or <i>A_Gidx2</i>	-1.00	(0.000)	-1.09	(0.000)	-1.09	(0.000)	-1.17	(0.000)

Table 6. Cross-sectional regressions using alternative governance index

This table reports the coefficients from the regressions of the cumulative abnormal return of other firms around the Fund's first target announcement on their firm characteristics including an alternative governance index containing only three governance provisions. Regressions are estimated for various sub-samples based on the market capitalization or the price-to-book ratio, as well as for the full sample. We only report the coefficients for the governance index. Thus, each coefficient below corresponds to one regression. The same set of control variables and the estimation method are used as in Table 3, but their coefficients are not reported to save space.

sample	Model 1: coeff for <i>Gidx(3)_1</i>	Model 2: coeff for <i>Gidx(3)_2</i>	Model 3: coeff for <i>Gidx(3)_1</i>	Model 4: coeff for <i>Gidx(3)_2</i>
All firms	-0.85 (0.044)	-0.33 (0.019)	-0.97 (0.033)	-0.37 (0.014)
Below median Market cap.	-0.93 (0.175)	-0.38 (0.059)	-0.92 (0.184)	-0.37 (0.073)
Above median Market cap.	-0.44 (0.438)	-0.09 (0.655)	-0.72 (0.273)	-0.20 (0.411)
Below median PBR	-1.88 (0.002)	-0.59 (0.002)	-1.84 (0.003)	-0.59 (0.004)
Above median PBR	0.74 (0.200)	0.16 (0.381)	0.35 (0.600)	0.01 (0.974)

Table 7. Cross-sectional regression of CAR around the Fund's subsequent target announcement on firm characteristics

This table reports the coefficients from the regressions of the cumulative abnormal return of other firms around the Fund's subsequent target announcement (November 23, 2006) on their firm characteristics. Variables in the regressions and the estimation method are the same as in Tables 3 or 4.

Independent variables	Model 1 (<i>Gidx1</i>)		Model 2 (<i>Gidx2</i>)	
	<i>CAR</i> [-1, +5]	<i>CAR</i> [-1, +10]	<i>CAR</i> [-1, +5]	<i>CAR</i> [-1, +10]
<i>Mcap</i>	-0.13 (0.533)	0.06 (0.829)	-0.13 (0.561)	0.07 (0.801)
<i>PBR</i>	-2.29 (0.000)	-2.50 (0.000)	-2.30 (0.000)	-2.51 (0.000)
<i>Gidx1</i> or <i>Gidx2</i>	-0.50 (0.005)	-0.48 (0.031)	-0.14 (0.014)	-0.14 (0.052)
<i>BGroup</i>	-0.28 (0.662)	-1.66 (0.039)	-0.35 (0.585)	-1.73 (0.032)
<i>Leverage</i>	0.01 (0.645)	0.01 (0.785)	0.01 (0.689)	0.00 (0.823)
<i>CashFlow</i>	0.02 (0.582)	0.06 (0.162)	0.02 (0.491)	0.07 (0.133)
<i>ForOwn</i>	0.02 (0.150)	0.04 (0.046)	0.02 (0.247)	0.04 (0.071)
Industry fixed effects are in the regressions but not reported here.				
<i>Adj. R-squares</i>	0.32	0.17	0.31	0.17
<i># of obs.</i>	631	631	631	631

Table 7. Cont.

Independent variables	Model 3 (<i>Gidx1</i>)		Model 4 (<i>Gidx2</i>)	
	<i>CAR</i> [-1, +5]	<i>CAR</i> [-1, +10]	<i>CAR</i> [-1, +5]	<i>CAR</i> [-1, +10]
<i>Mcap</i>	-0.25 (0.288)	-0.09 (0.741)	-0.24 (0.300)	-0.07 (0.804)
<i>PBR</i>	-2.17 (0.000)	-2.42 (0.000)	-2.18 (0.000)	-2.44 (0.000)
<i>Gidx1</i> or <i>Gidx2</i>	-0.50 (0.010)	-0.48 (0.043)	-0.14 (0.032)	-0.15 (0.050)
<i>BGroup</i>	-0.14 (0.847)	-1.72 (0.046)	-0.23 (0.740)	-1.82 (0.035)
<i>Leverage</i>	0.01 (0.694)	0.01 (0.674)	0.01 (0.725)	0.01 (0.700)
<i>CashFlow</i>	0.02 (0.594)	0.06 (0.170)	0.03 (0.495)	0.07 (0.131)
<i>ForOwn</i>	0.03 (0.072)	0.06 (0.005)	0.03 (0.122)	0.06 (0.008)
<i>LiqAsset</i>	-0.08 (0.089)	-0.12 (0.026)	-0.08 (0.073)	-0.13 (0.021)
Industry fixed effects are in the regressions but not reported here.				
<i>Adj. R-squares</i>	0.31	0.18	0.31	0.18
<i># of obs.</i>	580	580	580	580

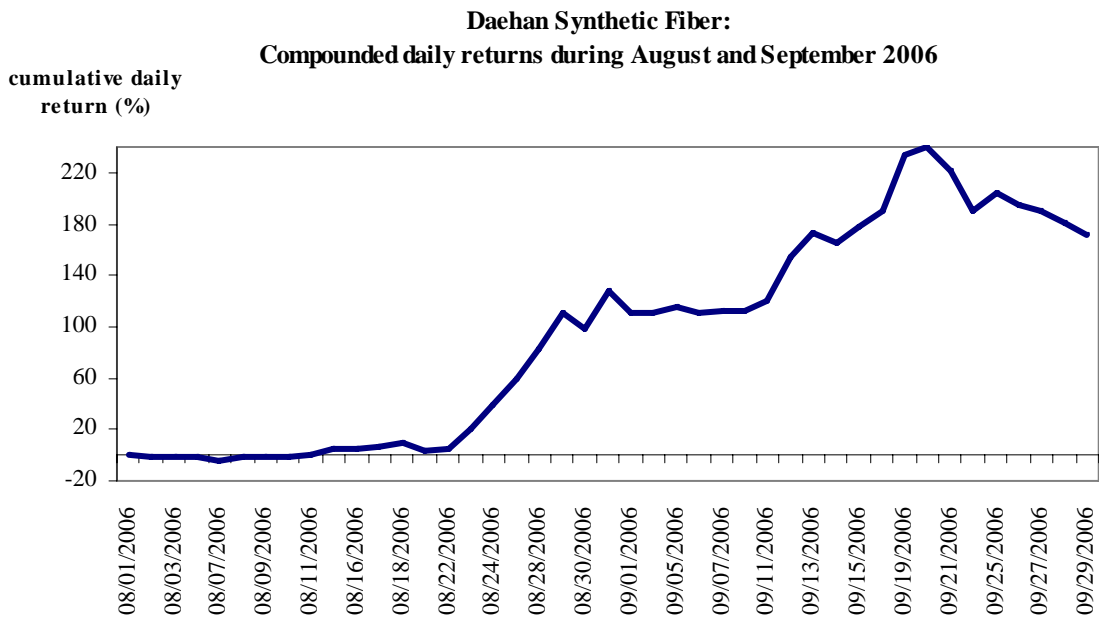
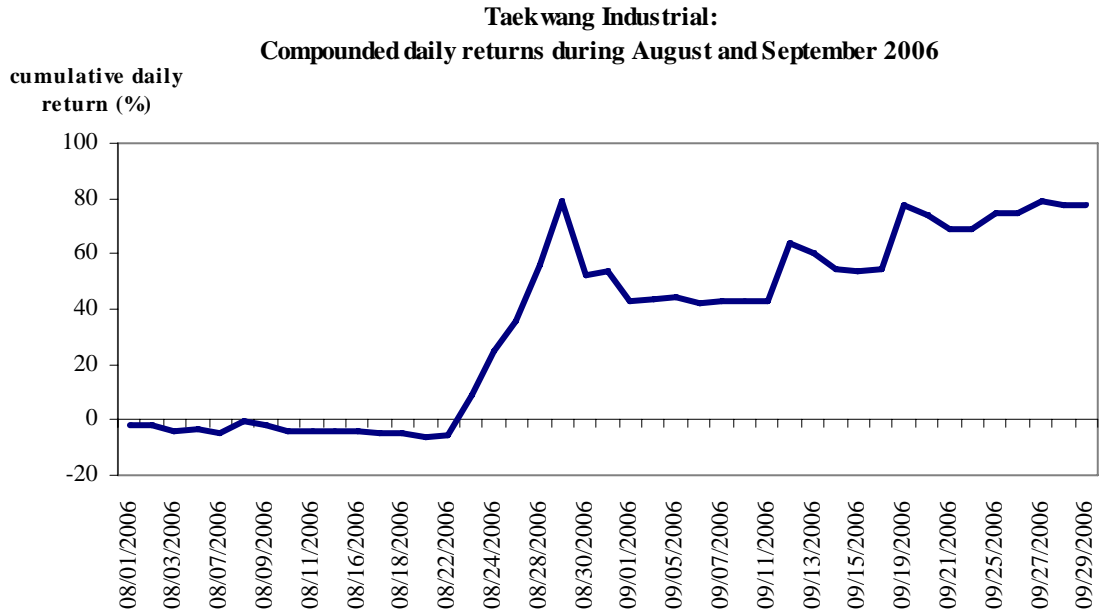


Figure 1. Compounded daily stock returns of two firms that are first announced to be the target of Korea Corporate Governance Fund.

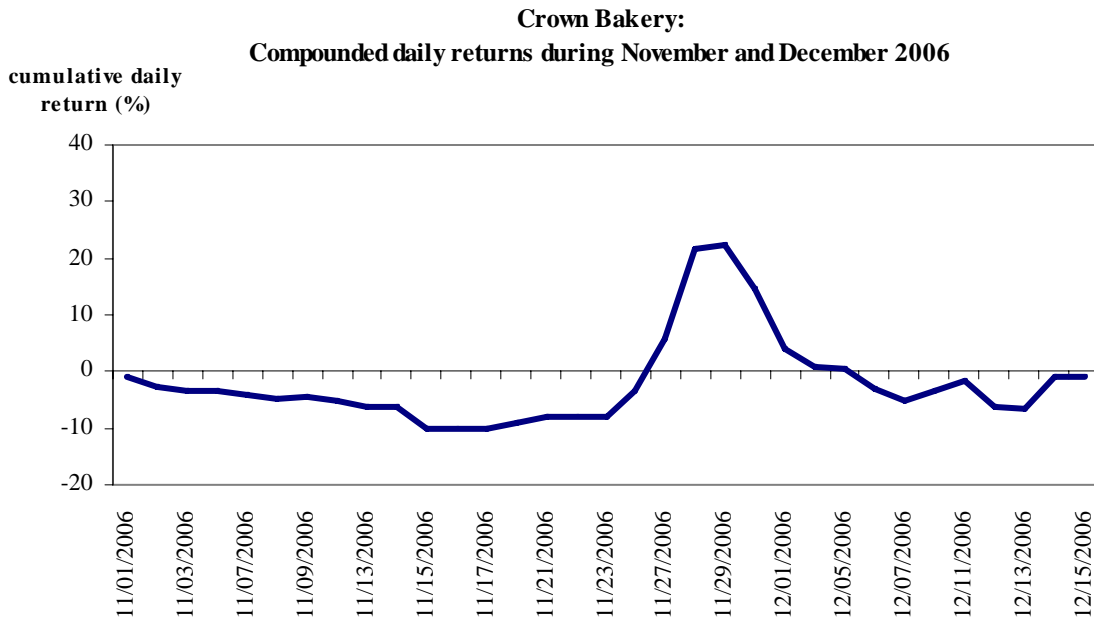
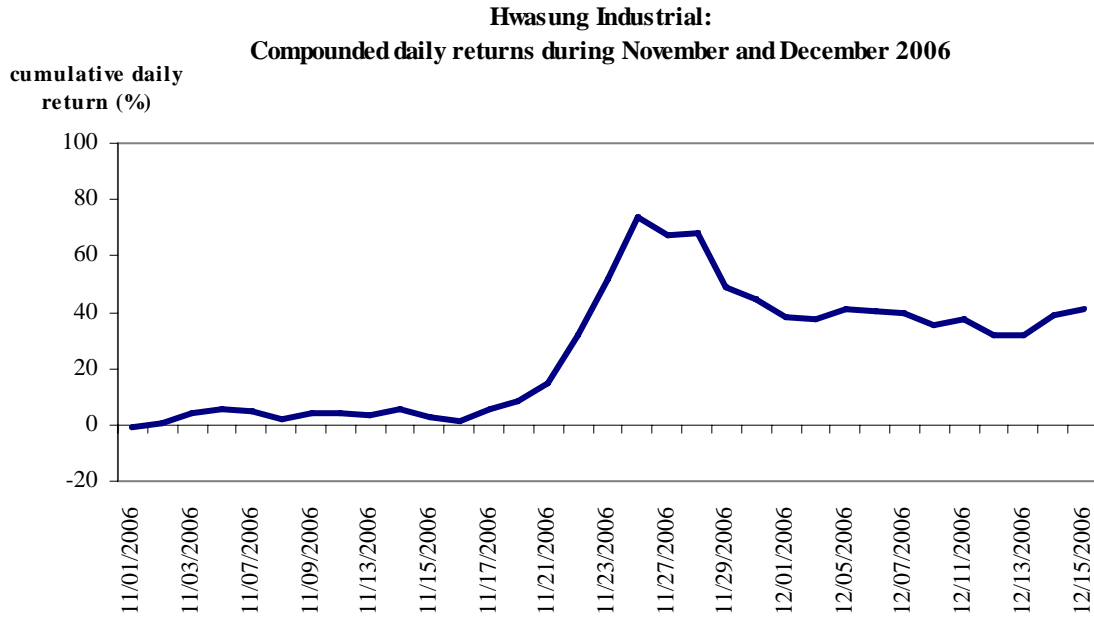


Figure 2. Compounded daily stock returns of two firms that are subsequently (with a lag of one week) announced to be the target of Korea Corporate Governance Fund.

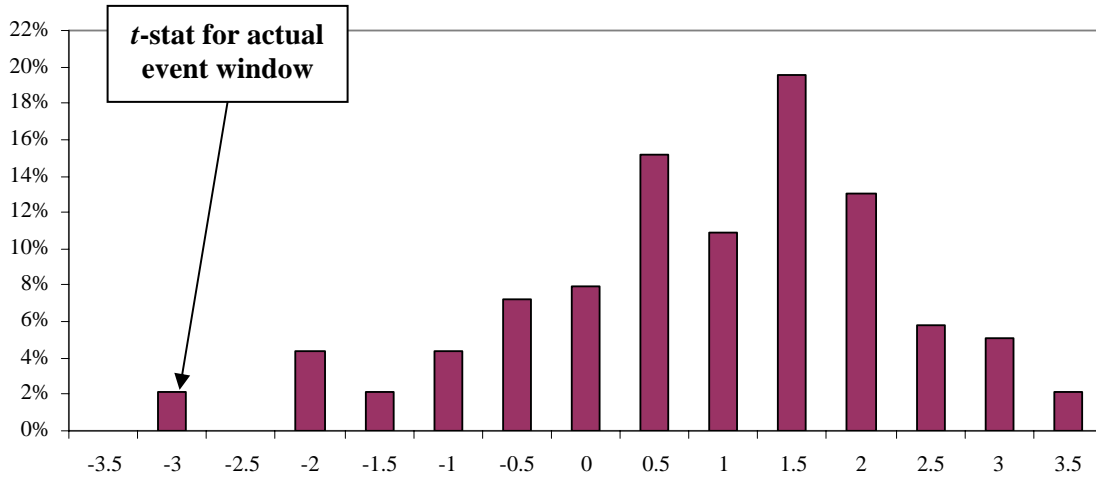


Figure 3. Frequency distribution of the t -statistics for the governance index (*gidx1*) using all seven-day windows from January to July of year 2006.

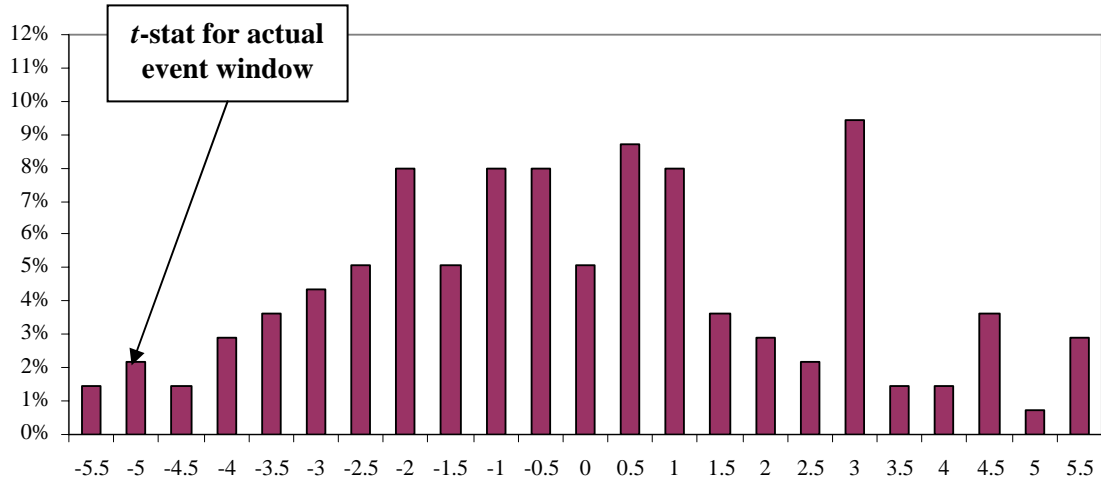


Figure 4. Frequency distribution of the t-statistics for the artificial governance index (*A_gidx1*) using all seven-day windows from January to July of year 2006.