

# **Corporate governance and firm value: Endogeneity-free evidence from Korea**

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## **Abstract**

This paper provides evidence of the causal relation between corporate governance and firm value in a setting where endogeneity is controlled for. This unique experimental setting arises from the first target announcement of the so-called Korean Corporate Governance Fund. Since it has a stated goal of investing in companies whose stocks are undervalued due to governance problems and generating profits by actively addressing those problems, its target announcement serves as an exogenous shock to other firms that makes their stocks re-evaluated as a potential target based on the gains, *if any*, from improving the quality of their governance. Consistent with the presence of gains to outside shareholders from improving the quality of governance, we find that, among other firms, those companies whose governance structure empowers corporate insiders at the expense of outside shareholders experience a more positive stock price reaction. Further analysis supports the hypothesis that governance plays an independent role in determining the market value of a company.

Keywords: Governance, Firm value, Endogeneity, Korean Corporate Governance Fund

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## 1. Introduction

Despite much attention to the role of corporate governance in determining the market value of a company and many empirical studies showing a certain association between the two<sup>1</sup>, various endogeneity problems make it difficult to establish their causal relation. For example, if more valuable companies tend to have resources to work on their governance issues, we would observe a positive relation between the quality of governance and firm value, but we cannot argue that companies can increase their shareholder wealth by changing the governance structure. Even if governance can contribute to firm value, given its correlation with many other unidentifiable value drivers, it will be difficult to isolate its own effect.

In this paper, we attempt to provide evidence of the causal relation between governance and firm value in a setting where endogeneity is controlled for. This unique setting arises from the first target announcement of the so-called Korean Corporate Governance Fund (hereafter, the Fund). The Fund has the explicitly stated goal of investing in companies whose stocks are undervalued due to governance problems and generating profits by actively addressing those problems. Consequently, its target announcement serves as an exogenous shock to other firms that makes their stocks re-evaluated as a potential target based on the gains, *if any*, from improving the quality of their governance.<sup>2</sup> By examining the abnormal stock return accruing to

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<sup>1</sup> For the U.S. results, see Gompers, Ishii, and Metrick (2003), Core, Guay, and Rusticus (2005), Masulis, Wang, and Xie (2006), and references therein. For the Korean results, see Black, Jang, and Kim (2005, 2006) or Black, Jang, Kim, and Park (2005).

<sup>2</sup> More precisely, their stocks will be re-evaluated based on the likelihood of being the next target and the resulting benefits. In most cases, these two are indistinguishable since stocks with the greatest expected benefits are most likely to be the next target. In Section 2, we discuss when it is necessary to distinguish between them and how this distinction affects our empirical predictions.

In addition, a disciplining effect must be at work, since the announcement provides corporate managers with an incentive to work on the governance problems to avoid being the next target. The more likely the company becomes a target, the greater this incentive will be. Therefore, this disciplining effect works exactly the same way as the anticipation effect.

other firms in relation to their governance characteristics, we thus conduct a clean test for the causal relation between governance and the market value of a company. Endogeneity is further mitigated, since we focus on the *changes* in the market value while controlling for the initial market value level and thus effectively controlling for all the variables affecting firm value.<sup>3</sup>

We find that, among other firms, those companies whose governance structure empowers corporate insiders at the expense of outside shareholders experience a more positive stock price reaction to the Fund's first target announcement. This result is consistent with the existence of potential gains to outside shareholders from improving governance of those other firms. We also find that this negative relation between the abnormal return of other firms and the quality of their governance is more pronounced in small firms and in firms with a low valuation ratio. Since the Fund is known to focus on small to medium-sized, undervalued companies, this result confirms that our findings arise from the anticipation effect associated with the Fund's target announcement.

We conduct a number of robustness checks to make sure that our results are not spurious. First, to further ensure that the observed negative relation between the abnormal return of other firms and the quality of their governance is attributable to the Fund's target announcement, we examine their relation at other points in time. If such negative relation is frequently found even at other times, then our results must be driven by some other factors besides the anticipation effect associated with the Fund's target announcement. An 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 the quality of their governance is more of a rarity than a general pattern. More precisely, the relative frequency that a non-event window shows a more significantly negative

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<sup>3</sup> In contrast, most prior studies examine the cross-sectional relation between the market value *level* and governance characteristics (e.g., Black, Jang, and Kim 2005, 2006 or Gompers, Ishii, and Metrick 2003).

relation than the one for the event window is less than 3 percent; and the general relation is rather positive.

We measure the quality of governance using an index of 11 governance provisions. As detailed in Section 3.3, those provisions are selected on the grounds that they can best represent the scope of expropriation of corporate resources by corporate insiders and, at the same time, they can be improved by a reasonable amount of disciplining pressures.<sup>4</sup> However, to ensure that our results are not specific to those provisions, we employ two alternative indices, one based on only three provisions and the other covering all available governance provisions. With both indices, we find that the abnormal return of other firms is negatively correlated with the quality of their governance structure and that this negative relation is stronger among small firms and those with a low valuation ratio.

The abnormal stock return of other firms is estimated over seven trading days surrounding the target announcement, since the announced targets experience most of their price increases over this period of time (see Figure 1). This rather short event window also helps us avoid relying on a particular asset pricing model that will only be imperfect.<sup>5</sup> However, it is also possible that during this period, other firms either under- or over-react to the target announcement. To address this issue while minimizing the bad model problem and the effects of any other neighboring events, we create an alternative event window by adding one calendar month to the original seven trading days. Even with this longer event window, we continue to observe the negative relation between

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<sup>4</sup> We thus take into consideration that certain aspects of the governance structure may remain unchanged under any circumstances because they are determined by external conditions (e.g., being in a certain industry).

<sup>5</sup> As Fama (1998) points out, this bad model problem is less of an issue when the abnormal return is estimated over a short window.

the abnormal return of other firms and the quality of their governance, and again this relation is found to be more pronounced among small or undervalued firms.

Lastly, we examine the effect of the Fund's subsequent target 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.<sup>6</sup> Such finding would indicate that our sample shows different reactions to different signals, validating its effectiveness as the experimental setting. We indeed find this to be the case.

Although our analysis is focused mostly on a single event, namely the Fund's first target announcement, this approach does not reduce the power of our tests, since the statistical power stems from the cross-sectional dispersion across other firms. In addition, using a single event common to all other firms makes it unnecessary to control for any period-specific effects, a necessary task when events are spread over various points in time.<sup>7</sup> Another important feature of the setting is that the Fund has no intention to take over its target companies and instead puts a disciplining pressure on corporate insiders by exercising the rights entitled to minority shareholders; hence, its target announcement is more instructive about the benefits accruing to minority shareholders than ordinary takeover announcements whose valuation effects contain the synergy effect and the control premium as well as the governance effect.<sup>8</sup>

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<sup>6</sup> 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.

<sup>7</sup> Quite a few published papers use a single event as the experimental setting. They include: Ambrose, Lee, and Peek (2007), Greenwood (2005), and Stulz and Wasserfallen (1995).

<sup>8</sup> See Song and Walkling (2000) for the spillover effects of ordinary takeover announcements. While their study focuses on same-industry firms, we do not see any reason to impose such constraints on the potential spillover effects of the Fund's target announcement. Hence, our study employs a broader sample.

Figure 1 attests to the economic significance of the target announcement. The two announced targets, which themselves are a poorly governed company and thus confirm the stated strategy of the Fund, respectively experienced more than 70 and 120 percent stock price increases over the first several days alone after the announcement. This implies that the expected profits from correctly predicting the next targets were enormous among Korean investors. This huge incentive for the stock market to speculate on the next targets, combined with the Fund's exclusive focus on poorly governed companies in a market where corporate governance is generally poor, turns other firms into a unique and powerful experimental setting in which we can observe a causal relation between governance and firm value. Furthermore, as the Fund focuses on poorly governed companies, as opposed to well governed companies, the hypothesized causal relation between governance and firm value translates into a *negative* relation between the abnormal return of non-target firms and their 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 between governance and stock return is positive in existing researches.

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

## 2. Hypothesis development

Suppose that the market value of a company's common stock,  $V$ , can be expressed as:

$$V = V_0 + P_{TG} V_{TG} ,$$

where  $P_{TG}$  is the probability that the company becomes the target of the Fund, and  $V_{TG}$  is the gains from being the target. Hence, before the Fund's first target announcement,  $V_0$  is the market value of the stock of other firms, and their abnormal stock return at the time of the announcement is:

$$AR = P_{TG} V_{TG}.$$

Since the Fund will consider targeting stocks from which it can make profits, the probability of being a target will be significantly (but not necessarily completely) affected by the potential gains from being a target.

Temporarily assuming that  $P_{TG}$  is determined completely by  $V_{TG}$ , the abnormal stock return will be a function of  $V_{TG}$  alone. The causal relation between governance and the market value of the company stock posits that improvement in corporate governance leads to a higher market value. It follows that  $V_{TG}$ , and hence  $AR$ , will be greater in companies whose current governance system is poorer and thus the scope for improvement by the Fund is greater. The alternative is that  $V_{TG}$  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. In summary, the governance hypothesis predicts:

*H1. There will be a negative relation between the abnormal stock return of other firms and the quality of their governance structure, even after controlling for  $V_0$ .*

We now relax the earlier assumption that  $P_{TG}$  is determined solely by  $V_{TG}$ , since not all other firms in the market will be subject to the threat of the Fund's attack. 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 empirical prediction:

*H2-1. The hypothesized negative relation between the abnormal stock return of other firms and the quality of their governance structure (after controlling for  $V_0$ ) 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 (price-to-fundamental ratio) stocks rather than among high valuation-ratio stocks.*

It is important to note that we are not arguing that stocks with a low valuation ratio are undervalued in absolute terms. In other words, we are not claiming that such valuation ratio is a perfect measure of a stock's fundamental value. Instead, we only argue that investors perceive that those low-valuation-ratio stocks are relatively undervalued compared to stocks with a high valuation ratio.

Besides firm size and valuation ratio, 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 and has no intention to take over the target, 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.

We also want to emphasize that, unlike most prior studies that utilize the cross-section of the *level* of the market value of a company ( $V_0$  in our expression) to examine the role of governance in firm value (e.g., Black, Jang, and Kim (2005, 2006) and Gompers, Ishii, and Metrick (2003)), we focus on  $V_{TG}$  that is measured by the *changes* in the market value of *other firms* over a short

*period of time*. Therefore, endogeneity is less of an issue: the stock prices of other firms respond to an *exogenous shock* and their reaction to the shock can be measured reasonably well *without much concern about omitted variables* (i.e., the bad model problem). As we also control for  $V_0$  itself in our analysis, we will effectively be controlling for all other variables affecting firm value.

### **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 through governance improvement. However, it is also made clear that its attack does not involve a takeover or control contest. 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. Since its inception, the Fund has been understandably identified with one of its advisors who is the best-known activist investor in Korea. Due to his involvement in many of the governance improvement efforts in Korean firms,

the strategy of the Fund to focus on poorly governed companies (among small to mid-sized ones) was not questioned.<sup>9</sup>

The event of interest is the Fund's first announcement about its target firms. It is a mandatory disclosure when the ownership of a company reaches 5 percent. 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. However, to address any under- or over-reaction issues, we will later employ a longer event window from August 23, 2006 to the end of September 2006 (28 trading days).<sup>10</sup>

### 3.2. Sample

To construct our sample, we begin with all 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), a non-profit organization that aims to improve the quality of governance in Korean companies, 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 in August 2006.

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<sup>9</sup> See, e.g., the "Activist Investors" series in the *Financial Times*, May 24, 2007, page 18.

<sup>10</sup> In addition to the bad model problem that becomes more severe with longer horizons, a market-destabilizing political event in early October, namely, the nuclear missile tests of the North Korea, makes it difficult to extend the event window past September 2006.

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.<sup>11</sup> 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*

It is true that some of the governance structures of a company are determined by external conditions (e.g., industry or legal institutions) and thus may well remain unchanged under the attack of the Fund.<sup>12</sup> Hence, it is important for us to characterize governance of a company using the provisions that can best represent the scope of expropriation of corporate resources by corporate insiders and, at the same time, that can be improved by some disciplining pressures. In doing so, we are allowed to examine the governance structure of a company and judge whether it is good or bad, which would be a tricky task with the hard-to-change governance characteristics.

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<sup>11</sup> In the empirical analysis, we will ensure the robustness of our results by excluding financial firms.

<sup>12</sup> Several recent studies support this view. They include: Boone, Field, and Karpoff (2006); Coles, Naveen, and Naveen (2007); Gillan, Hartzell, and Starks (2003); Hermalin and Weisbach (2006); Lehn, Patro, and Zhao (2005); and Linck, Netter, and Yang (2007).

First, we consider the board of directors, since the Fund will put disciplining pressure by appointing new director(s). 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. 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.<sup>13</sup> 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).

Second, we consider the disclosure practices, since various expropriation schemes are made possible by “opaqueness” or information asymmetries between corporate insiders and outside investors. It should also be noted that corporate transparency serves as a commitment device (e.g., Durnev and Kim 2005). Specifically, we examine: (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 the suggested norms are disclosed through the company web-page. 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

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<sup>13</sup> See, e.g., Jang, Lee, and Park (2004) for a detailed discussion on this provision and its role in Korea.

transparent. We also consider whether companies are forthcoming about their governance evaluation results by including the availability of that information on the company web-page.

Third, we consider the payout practices, since they will determine the amount of corporate resources that remain in the hands of corporate insiders. 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 (2007) find that dividends contribute more to minority shareholders' wealth in countries with poorer corporate governance than in countries with better governance.<sup>14</sup> Specifically, we examine: (1) whether the dividend yield is greater than 3 percent; and (2) whether the payout ratio over the past three years is greater than 30 percent; and (3) whether there has ever been an interim dividend payment. The cutoff of the 3-percent dividend yield identifies approximately one third of the dividend-paying companies 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.<sup>15</sup>

Using those selected governance provisions, we construct two 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 their correlation coefficients with each of the control variables (in logs and after winsorization). Not

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<sup>14</sup> As in those studies, we will control for the growth opportunities to correctly use the payout practices as a governance proxy.

<sup>15</sup> Less than 5 percent of the dividend-paying companies pay during the year.

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 associated with the Fund's target announcement. We also check the robustness of our results by utilizing alternative governance indices or an alternative event window. Finally, we turn our attention 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 (from August 23, 2006 to August 31, 2006: 7 trading days). Therefore, its coefficient,  $\phi$ , is the cumulative abnormal return over that event window.<sup>16</sup>

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 percents), 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 percents) and the average daily return is also very close to zero.<sup>17</sup> 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 generally 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  $\phi$  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 1<sup>st</sup> and 99<sup>th</sup> percentiles) as of the end of the most recent quarter prior to the event,  $Gidx$  is one of our governance indices, and  $X$

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<sup>16</sup> If the dummy variable takes a value of one, then its coefficient will be the *average daily* abnormal return during the event window.

<sup>17</sup> 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.

include other control variables such as: *BGroup* or the 0/1 dummy variable for companies 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 ( $\alpha_j$ 's). Inclusion of the industry dummies will further address endogeneity since all the variables will be de-measured within the same industry. It will also help control for growth opportunities that tend to be common to same-industry firms. To account for heteroscedasticity, the weighted least square method is used with the residual variance from the abnormal return estimation (i.e., variance of  $\varepsilon_i$ '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*), the governance index 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 the governance hypothesis that outside investors consider governance to affect the likelihood of being the next target as an important firm driver. 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 coefficient associated with leverage is also consistent with the governance hypothesis.

In the remaining two columns, we only examine industrial firms by adding another control variable, *LiqAsset*, that 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.

#### *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 examine the sub-samples sorted 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,<sup>18</sup> 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 will 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 now 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 the 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. Using the sample price-to-book ratio as a cutoff, 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 for the governance index in the low-PBR sub-samples are significant at less than 1 percent level except for one case in which the  $p$ -value is 0.014. Of course, none of the coefficient for the governance index in the high-PBR sub-samples is significant at any conventional level.

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<sup>18</sup> This information is based on their revised disclosure document filed with the regulatory agency.

In summary, the sub-sample results support the second hypothesis and thus 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 potential gains to outside shareholders from improving the quality of a company's governance structure.

#### *4.4. Robustness checks*

##### *4.4.1. Analysis of non-event windows: A bootstrap-type simulation*

An alternative way to ensure that the observed negative relation is due to the anticipation of the Fund's next target is to see whether 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 2006 to July 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 estimating 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). 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.

#### *4.4.2. Alternative governance indices*

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 first 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 0/1 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 5, 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. Perhaps more importantly, the magnitude of the estimated coefficients is consistent with the governance hypothesis. Finally, the valuation ratio-sorted sub-samples lend strong support to the governance hypothesis, as only the low-valuation ratio companies show a significant relation between the abnormal stock return and the governance index.

Alternatively, we expand our attention to all available governance provisions (which are as many as 99). It is unthinkable that all those provisions are equally important. Besides, some of those provisions will not be relevant as they are not subject to change under the Fund's attack. Hence, we rather mechanically determine their relevance 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.<sup>19</sup> 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. Put simply, our goal is to answer the following question: If governance has to be related to the event-window abnormal return, is the relation negative?

Again to save space, Table 6 reports only the coefficients for the artificial governance index. As seen in the first panel, we find the significant negative coefficient for this artificial governance index, suggesting that governance of other firms can best explain their abnormal stock return

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<sup>19</sup> 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.

during the event window when the two are negatively related. We also estimate the regression equation for the sub-samples either based on firm size or on valuation ratio. Consistent with the preceding results, the negative relation between the abnormal return of other firms and the quality of their governance is more pronounced among small firms (second panel) and those with a low valuation ratio (third panel).

One concern about this approach is the statistical significance that seems to be inflated (which is somewhat expected since we mechanically created an index that can best explain the absolute value of the abnormal return). To gauge the extent of this problem and verify that the negative relation between the artificial governance index and the abnormal return is genuinely significant, we repeat the earlier bootstrap-type simulation. Figure 4 is the resulting frequency distribution of the  $t$ -statistic of the coefficient for the artificial governance index. Compared to Figure 3, the  $t$ -statistics seem to double with the artificial governance index. However, 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. Thus, the empirical  $p$ -value for the original coefficient over the event window remains less than 3 percent.

#### *4.4.3. Alternative event window*

We now employ an alternative event window to address the possible under- or over-reactions during the original seven-day event window. Before proceeding further, it should be noted that the long-horizon abnormal stock returns are subject to the bad model problem since we do not know the true asset pricing model that would correctly associate the stock return with priced risk factors – and this problem is not severe when the abnormal return is estimated over several days alone (Fama (1998)). As a consequence, although the under- or over-reaction problem is

mitigated by a longer event window, the estimated abnormal return becomes less reliable accordingly. We try to optimize this trade-off by using an event window from August 23, 2006 to the end of September 2006. This alternative event window ends at the end of September because of a market-destabilizing event in early October (i.e., the nuclear missile tests of the North Korea).

Table 7 reports the coefficients for the governance index on which the cumulative abnormal return over the 28 trading days are regressed (along with the same set of the control variables). Although the statistical significance weakens, the pattern of the earlier results remains robust. Especially, the negative relation between the abnormal return of other firms and the quality of their governance is stronger among small firms and firms with a low valuation ratio. One noticeable difference from the results for the seven-day event window is that the results with the valuation ratio-sorted sub-samples are weaker. This makes a perfect sense, since the valuation ratio is directly related to the past stock performance, which then introduces biases into the estimated abnormal return.<sup>20</sup>

#### *4.4.4. 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.<sup>21</sup> 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.<sup>22</sup> Consequently, if our sample is to be an effective setting, it should respond to the subsequent announcements differently than to the first announcement. More

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<sup>20</sup> See, for instance, Yermack (1997, p.458) for a more detailed discussion on this issue.

<sup>21</sup> 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.

<sup>22</sup> As mentioned earlier in footnote 6, the press, as well as the Fund itself, confirms this observation.

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 8 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 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 governance 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 limited 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 target announcement is instructive since stocks of a number of other firms are re-evaluated as the next target and such stock price reaction of other firms to the target announcement is *potentially* a function of their governance characteristics. In this setting, the endogeneity concerns are greatly minimized, since the announcement is exogenous to those other firms and we can focus on the changes in their stock prices over a short period of time while controlling for the initial valuation level.

We find that, among other firms, those companies whose governance structure empowers corporate insiders at the expense of outside shareholders experience a more positive stock price reaction. This finding also survives a number of robust checks. As the poorer quality of the current governance structure implies greater room for governance improvement in the future, our finding supports the causal relation between governance and firm value, namely, that there exist gains to outside shareholders from enhancing the quality of 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 1<sup>st</sup> and 99<sup>th</sup> 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 returns of our sample stocks and the market index (KOSPI) 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.

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	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

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**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 1<sup>st</sup> and 99<sup>th</sup> 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 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 alternative governance index comprising three provisions**

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 alternative 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 6. 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  $A\_Gidx2$ ). The artificial index is based on all individual governance provisions covered by the KCGS (which are as many as 99 items) and is constructed so that the index has the highest correlation with the *absolute values* of the cumulative abnormal return. 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 artificial 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.

	Model 1: coeff for $A\_Gidx1$		Model 2: coeff for $A\_Gidx2$		Model 3: coeff for $A\_Gidx1$		Model 4: coeff for $A\_Gidx2$	
All firms	-1.00	(0.000)	-1.09	(0.000)	-1.09	(0.000)	-1.17	(0.000)
-----								
Below median Market cap.	-1.47	(0.000)	-1.54	(0.000)	-1.50	(0.000)	-1.59	(0.000)
Above median Market cap.	-0.83	(0.004)	-0.92	(0.001)	-0.89	(0.005)	-0.98	(0.002)
-----								
Below median PBR	-1.35	(0.000)	-1.39	(0.000)	-1.47	(0.000)	-1.50	(0.000)
Above median PBR	-0.64	(0.032)	-0.81	(0.007)	-0.69	(0.034)	-0.89	(0.006)

**Table 7. Cross-sectional regression of CAR from August 23, 2006 to September 30, 2006 on firm characteristics**

This table reports the coefficients from the regressions of the cumulative abnormal return of other firms from August 23, 2006 to the end of September 2006 (28 trading days). 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.

sample	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>	
All firms	-0.53	(0.115)	-0.12	(0.269)	-0.69	(0.058)	-0.13	(0.263)
-----								
Below median Market cap.	-1.74	(0.015)	-0.52	(0.033)	-1.82	(0.011)	-0.53	(0.032)
Above median Market cap.	0.05	(0.898)	0.06	(0.624)	-0.12	(0.793)	0.07	(0.643)
-----								
Below median PBR	-1.19	(0.025)	-0.28	(0.125)	-1.12	(0.040)	-0.20	(0.299)
Above median PBR	-0.20	(0.684)	-0.07	(0.639)	-0.43	(0.423)	-0.16	(0.360)

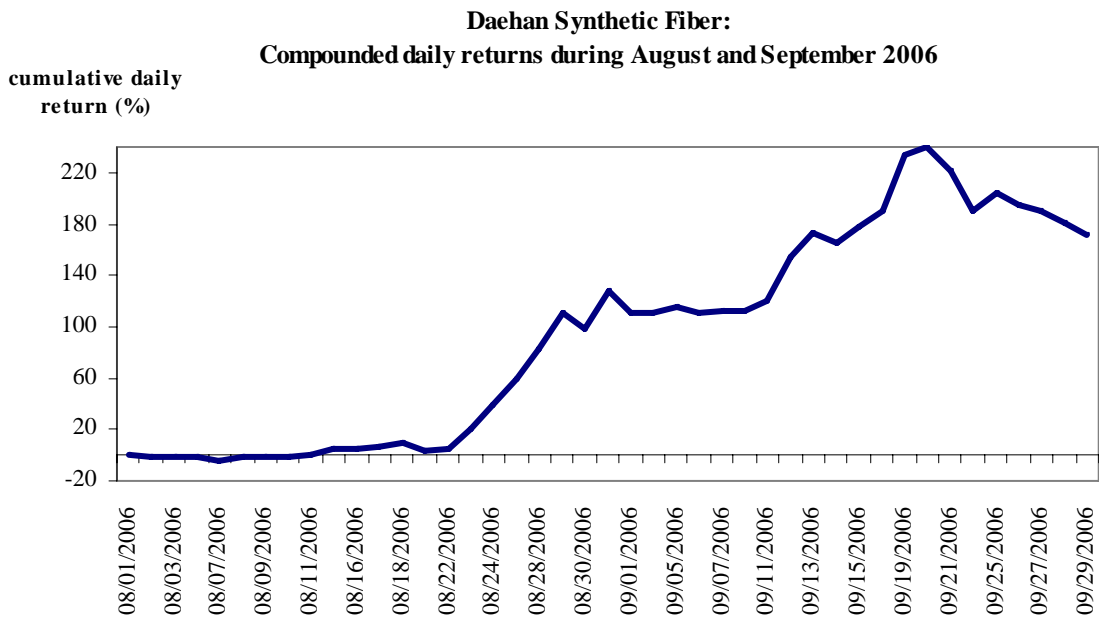
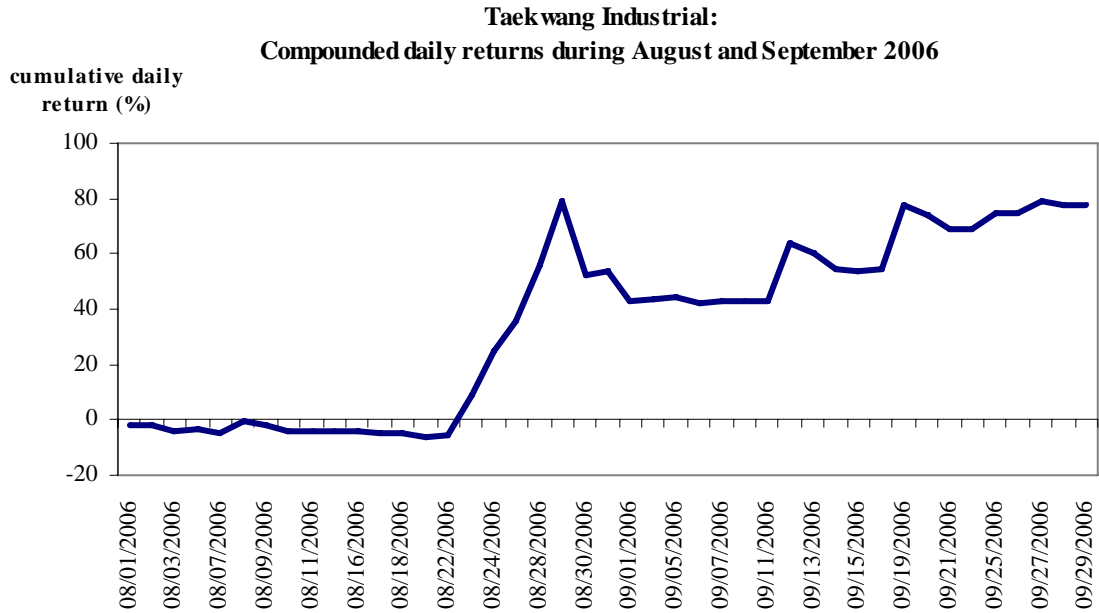
**Table 8. Cross-sectional regression of CAR around the Fund's subsequent target announcements on firm characteristics**

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 Table 3.

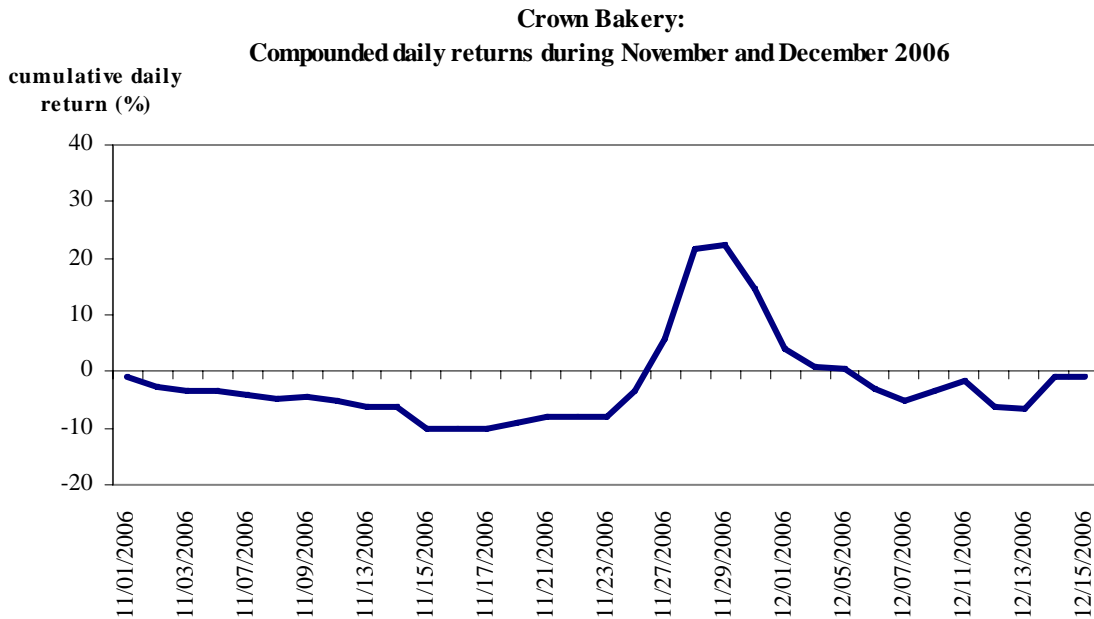
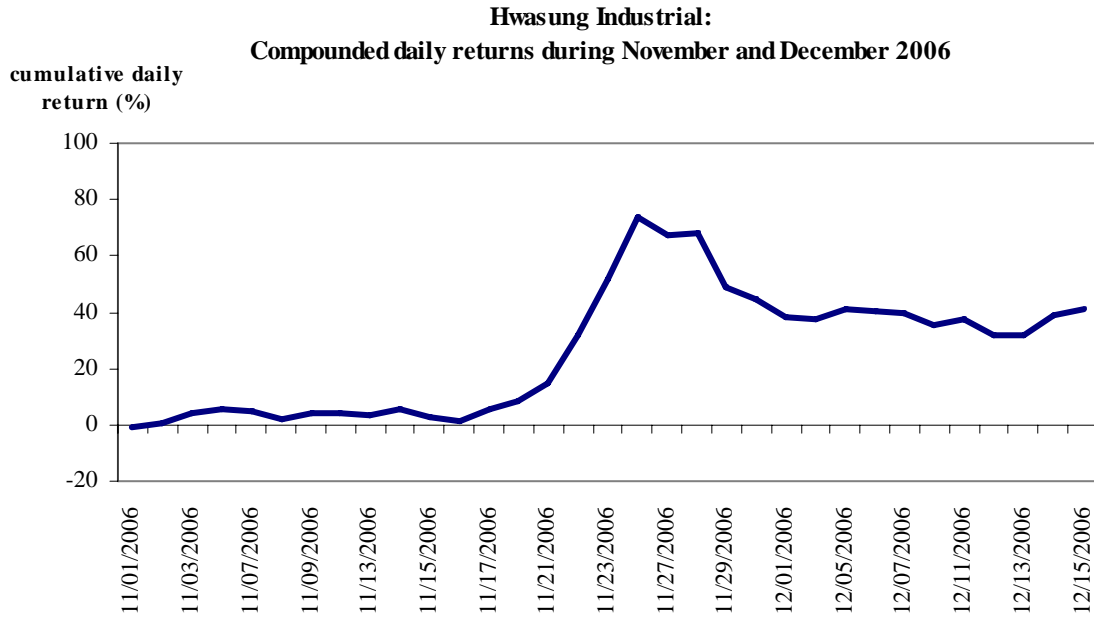
Independent variables	Model 1 ( <i>Gidx1</i> )		Model 2 ( <i>Gidx2</i> )	
	<i>CAR</i> [-1, +5]	<i>CAR</i> [-1, +10]	<i>CAR</i> [-1, +5]	<i>CAR</i> [-1, +10]
<i>Mcap</i>	-0.13 (0.533)	0.06 (0.829)	-0.13 (0.561)	0.07 (0.801)
<i>PBR</i>	-2.29 (0.000)	-2.50 (0.000)	-2.30 (0.000)	-2.51 (0.000)
<i>Gidx1</i> 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 8. Cont.**

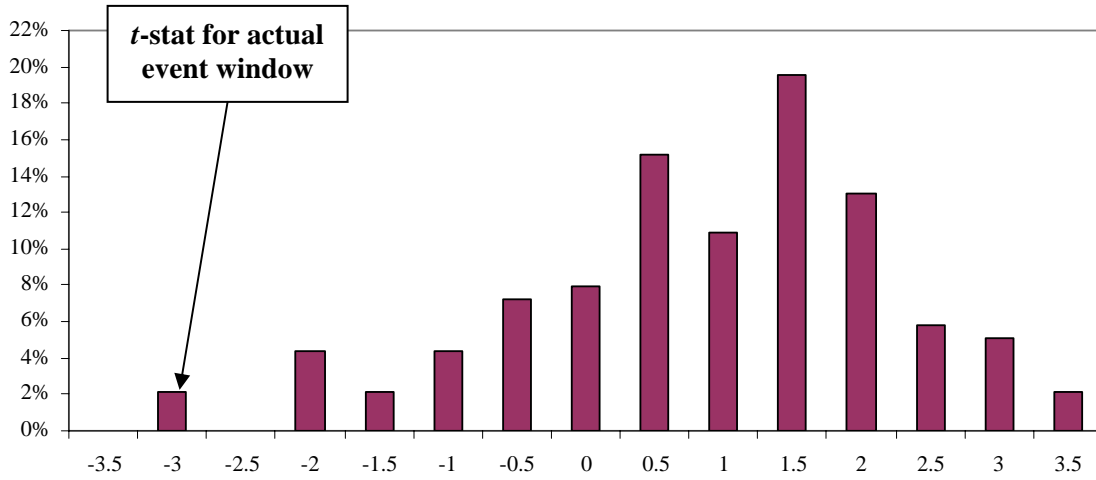
Independent variables	Model 3 ( <i>Gidx1</i> )		Model 4 ( <i>Gidx2</i> )	
	<i>CAR</i> [-1, +5]	<i>CAR</i> [-1, +10]	<i>CAR</i> [-1, +5]	<i>CAR</i> [-1, +10]
<i>Mcap</i>	-0.25 (0.288)	-0.09 (0.741)	-0.24 (0.300)	-0.07 (0.804)
<i>PBR</i>	-2.17 (0.000)	-2.42 (0.000)	-2.18 (0.000)	-2.44 (0.000)
<i>Gidx1</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



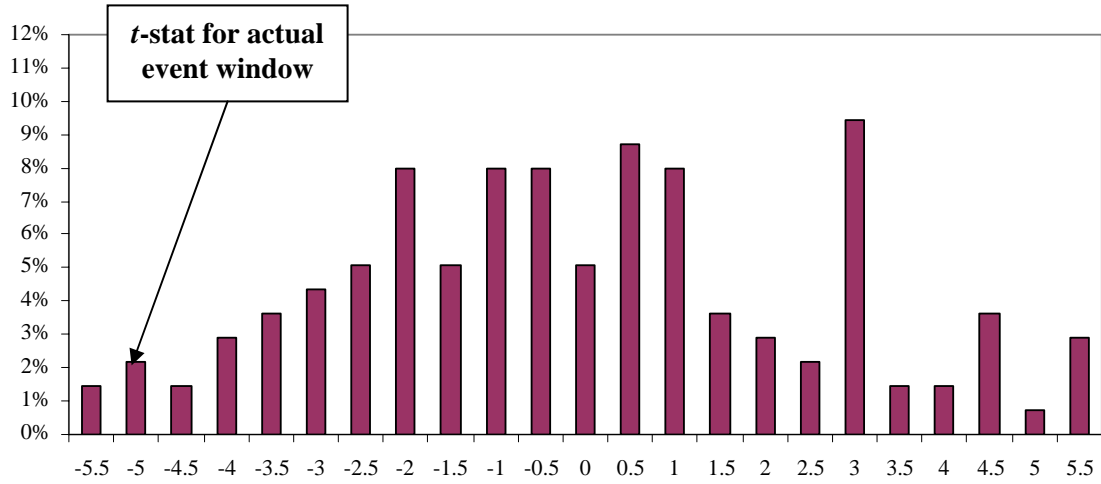
**Figure 1. Compounded daily stock returns of two firms that are first announced to be the target of Korea Corporate Governance Fund.**



**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.