

# DOES INDUSTRY-ADJUSTED CORPORATE GOVERNANCE MATTER IN MERGERS AND ACQUISITIONS?

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## Abstract

This paper is the first to investigate the effect of firm governance characteristics on takeover premiums and returns using an industry-adjusted corporate governance measure. We demonstrate that the worse the governance characteristics of the target firm are, relative to the industry average, the more its efficiency is improved by the acquisition, and the greater the synergistic gains and target's return are at the announcement of an acquisition. The study also finds a positive relation between the acquirer's governance characteristics and the combined returns, supporting the management entrenchment hypothesis. Unlike prior research that does not control for industry average governance index, we do not find a relation between acquirer returns and the industry-adjusted governance characteristics of the acquirer or the target. Our results advocate the notion that firm-specific governance partially explains the returns of a merger as industry-specific characteristics play a major role in the determination of corporate governance quality.

**Keywords:** Corporate Governance, Acquirers, Targets, Abnormal Returns, Synergy

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## 1. Introduction

Many empirical studies have addressed the influence of the quality of a firm's corporate governance on merger premium and abnormal returns in mergers and acquisitions using various governance proxies. Masulis et al. (2007), using the anti-takeover measures reported by Gompers et al. (Hereafter GIM) (2003) and Bebchuk et al. (2009), find that acquirers with fewer anti-takeover provisions enjoy higher returns at the announcement of the acquisition than acquirers with more anti-takeover provisions. Moreover, Starks and Wei (2005) examine a sample of cross-border acquisitions and find that in the framework of stock-financed acquisitions, the quality of the acquirer's home country governance regime negatively correlates with the premium paid and positively correlates with the acquirer's return at the announcement of the acquisition. Furthermore, Wang and Xie (2007) demonstrate that improvements to corporate governance triggered by change in control create synergies in mergers and acquisitions. They find that better corporate governance on the acquirer's part, relative to that of the target, leads to higher synergy created by the acquisition, which in turn produces greater returns for both targets and acquirers. Gillan et al., (2006) point out that industry characteristics and firm-specific characteristics play important roles in determining corporate governance

of a firm measured by the G-index<sup>20</sup>. Hence, industry characteristics may drive the effect of corporate governance on shareholders' returns at the announcement of an acquisition just as industry growth drives the momentum of individual stocks (Safieddine and Sonti, 2007).

This paper makes a significant contribution to the literature by accounting for the importance of firm-specific governance characteristics in determining the merger premium and the announcement returns of both targets and bidders. Gillan et al. (2006) argue that industry characteristics explain, at least partially, the differences in the corporate governance quality between firms. Our paper builds on their findings in order to introduce new evidence with the aim of examining the deviance of a firm's G-index from its industry's average G-index in mergers and acquisitions instead of looking at a firm's G-index itself. By measuring the industry-adjusted G-index as the difference between the G-index of the firm and the respective industry average G-index, we aim to proxy for firm-specific

<sup>20</sup> The G-index is the governance index constructed by Gompers et al. (2003). It is constituted of 24 charter provisions categorized into five main groups: those used to delay hostile bidders, those used to protect shareholders' voting rights, those used to protect managers' rights, other takeover defenses, and state laws. A higher G-index reflects poorer governance structure.

governance and to capture how these characteristics affect the merger premium, the combined return and the returns of both firms involved in the deal.

The paper samples 367 mergers and acquisitions completed between January 1, 1990 and December 31, 2003, in which both the acquiring and the target firms are publicly traded on the US stock market. We find that for higher industry-adjusted G-index (more anti-takeover provisions) of the target firm, the target's announcement return is higher which is in line with previous findings postulating that more anti-takeover provisions are beneficial for target shareholders and allow them to gain more bargaining power resulting in a higher share of the merger synergy (Harris 1990; Clarkson *et al.*, 2004; Kadyrzhanova 2006). Hence, the synergistic gains and shareholder return of the target also increase at the announcement of an acquisition. On the other hand, declining quality of industry-adjusted corporate governance of the acquirer (more Anti-Takeover Provisions) produces lower synergetic gains for the deal which can be explained by the management entrenchment theory (Klock *et al.*, 2005) and the role of entrenched poor management in empire-building actions and value-destroying activities. Our findings, however, do not explain the high premiums that bidders are willing to pay for the benefits they receive in such acquisitions (Starks and Wei, 2005). Additionally, the insignificance of the relationship between the industry-adjusted G-index and the premium prevents us from drawing any definitive conclusions about this. Our regressions also do not show any relationship between the industry-adjusted corporate governance of the target and the acquirer return despite the documented positive relationships between the target G-index and acquirer return (Wang and Xie, 2007). Similarly, no relationship is found between the industry-adjusted corporate governance of the acquirer and the announcement returns for each of the merging parties, acquirer and target; however, the literature does support the positive relationship between the acquirer G-index and the target return (Wang and Xie, 2007) and a negative relationship between the acquirer G-index and acquirer return (Starks and Wei 2005). Nevertheless, when we use an interaction variable between the acquirer industry-adjusted governance and pure equity offers, we find a significant negative relation between this variable and acquirer's return. This result implies that as acquirers adopting more ATPs, compared to their industry average, make stock-finance acquisitions, the stock market reacts negatively as these deals subject investors to more constraining governance characteristics and to more restrictive shareholders' rights than peer companies.

All in all, these findings advocate the notion that firm-specific governance partially explains the returns of a merger as industry-specific characteristics play a major role in the determination of corporate governance quality (Gillan *et al.*, 2006).

The remainder of this paper is organized as follows: Section 2 presents a review of the most pertinent literature; Section 3 describes the sample and variables used in this paper; Section 4 discusses the empirical results; and Section 5 concludes the paper.

## 2. Literature Review

The association between good corporate governance and positive stock returns has motivated researchers to inquire into the effect - if any - of corporate governance on shareholder returns at the announcement of a takeover.

Using the GIM's (2003) G-index and the Bebchuk *et al.* (2009) index as a proxy for the quality of governance, Masulis *et al.* (2007) find that acquirers with fewer anti-takeover provisions considerably exhibit higher announcement-period abnormal stock returns than acquirers with more anti-takeover provisions. These results support the theory that managers in firms protected by more anti-takeover provisions are more likely to conduct empire-building acquisitions that diminish shareholder value.

Furthermore, Starks and Wei (2005) demonstrate that in stock-financed acquisitions, higher premium is needed to compensate the target for exposing itself to a lower quality corporate governance regime, leading to lower abnormal return for the acquirer, as the target firm ends up with the governance structure of the acquirer. Cash-financed acquisitions, however, do not exhibit these correlations since they do not expose the target firms to such different governance regimes.

Sokolyk (2011) studies the effect of anti-takeover provisions on acquisition targets and the magnitude of takeover premium. The paper concludes that some provisions have important but contrasting effects on takeover likelihood and premium. In fact, the study empirically shows that out of the 24 governance provisions available in the G-index, the board-poison pill combination is the most effective combination in measuring a firm's takeover protection.

Wang and Xie (2007) point out that as the difference between the G-index of the target and that of the bidder increases, the acquirer's shareholder rights relative to the target's shareholder rights will grow stronger. Accordingly, the acquisition will create more synergy, and the acquirer's and target's returns and takeover premium will increase as well.

On the other hand, the findings of Gillan *et al.* (2006) suggest that industry characteristics and firm-specific characteristics determine corporate governance of a firm. This paper attempts to identify whether governance-related industry characteristics impact shareholders' returns at the announcement of an acquisition. Consequently, we use an industry-adjusted corporate governance index to study the effects of the firm's governance quality relative to the

average governance index of its industry on shareholder returns at the announcement of an acquisition.

In addition, based on the evidence that greater differences in corporate governance quality between bidders and targets produce higher synergistic gains (Wang and Xie, 2007), we can infer that diminishing governance quality of the target at the time of the acquisition brings about more potential benefits for the bidder. On the other hand, in an earlier study, Harris (1990) argues that adopting anti-takeover measures could enable the shareholders of a target firm to increase their share of any synergistic gains since “adopting such measures enhances the bargaining power of the target’s management, who will be a tougher bargainer than the non-managerial shareholders will, owing to his expected loss of his job following the target’s acquisition”. A similar argument was presented earlier in DeAngelo and Rice (1983) who suggest that anti-takeover measures may benefit the shareholders of target firms by enabling them to act in a unified manner during takeover attempts. In a similar vein, Stein (1988) argues that ATPs may be beneficial for target firms as they may help reducing takeover pressure which may lead to short-sighted behavior on the part of target firms. Recently, Kadyrzhanova (2006) observed that ATPs allow shareholders to commit *ex ante* to prolonging the takeover process by transferring decision-making authority to the board of directors. Fearing bidding wars that could destroy value, this commitment induces acquirers to sweeten their initial bid offers. Kadyrzhanova (2006) finds that firms that have ATPs generate higher target premiums than those that do not have ATPs, but only in concentrated industries. Similarly, Clarkson *et al.*, (2004) finds that the presence of an independent board, comprised of non-executive directors who have reputation capital at stake, boosts the initial bid premium by, on average, 20.8%. In recent paper, Straska and Walter (2010) find that firms with characteristics indicating low bargaining power in a takeover, but also indicating high potential agency costs, have more antitakeover provisions in place. The authors also find that for these firms there is a positive relation between firm value and the number of adopted provisions.

In sum, we argue that because target firms that have more ATPs present more barriers to acquirers, they are more likely to be paid a higher premium. And therefore, based on all the above we can formulate our first hypothesis:

*H1: The higher the industry-adjusted G-index of the target firm (that is, the more the adopted ATPs by target firms compared to its industry average) the higher the total synergistic gain, bidder’s return, target’s return, and the acquisition premium.*

Moreover, Starks and Wei (2005) conclude that acquirers must compensate targets with a high premium whenever the change in control results in

worse governance for targets; their argument suggests a second hypothesis:

*H2: The industry-adjusted governance quality of the acquirer is expected to be negatively correlated with the premium paid and with the target’s return at the announcement of the acquisition.*

Finally, based on the management entrenchment theory (Klock *et al.*, 2005), we propose a third hypothesis:

*H3: The industry-adjusted governance of the acquirer is expected to be positively associated with total synergistic gains and with bidder’s returns at the announcement of the acquisition.*

### 3. Sample and Methodology

#### 3.1. Sample Description

The sample used for analysis is taken from The Thomson Financial Securities Data Corporation’s (SDC) U.S. Mergers and Acquisitions database. The final sample consists of 367 acquisitions completed between January 1, 1990 and December 31, 2003 during which both the acquiring and target firms are publicly traded on the U.S stock market. In addition, all the transactions meet the following criteria:

- Acquisitions involving financial institutions are excluded from the sample.
- The value of the deal was at least \$1 million.
- Before the acquisition, the bidder owned less than 50% of target’s shares.
- After the acquisition, the bidder held more than 50% of target’s shares.
- Annual financial statement information for both the bidder and the target is available from COMPUSTAT, and daily stock return data are available from the Center for Research in Security Prices (CRSP) database.
- Both bidder and target are included in the IRRC database of anti-takeover provisions. Since there are only seven IRRC publications available (1990, 1993, 1995, 1998, 2000, 2002, and 2004), we follow GIM’s method and assume that firms maintain the anti-takeover provisions of the previous publication year during the years between two consecutive publications.

Table 1 presents the distribution of the acquisitions in the sample based on the announcement year. As is shown, the number of acquisitions begins increasing steadily in 1993, reaches its peak in 1999, and then gradually drops off. This trend is similar to the one documented by Wang and Xie (2007). Table 1 also presents the mean and median market capitalization of targets and bidders, as well as the mean and median relative size of the target to acquirer. On average, the mean (median) relative size is 0.30 (0.16), values that are quite close to those reported by Wang and Xie (2007) with a mean (median) values of 0.296 (0.202).

**Table 1.** Sample Distribution

This table presents the distribution of the acquisitions of the sample over time. The sample is extracted from The Thomson Financial SDC U.S. Mergers and Acquisitions database. It consists of 367 acquisitions completed between 1990 and 2003 in which both the acquiring and target firms are publicly listed on the

U.S. stock market and are included in the IRRC database of anti-takeover provisions. Both the acquirer's and target's market capitalizations are measured two months prior to the announcement of acquisition.

Year	Number of acquisitions	Percentage of sample	Acquirer market cap Mean (median)	Target market cap Mean (median)	Relative Size Mean (median)
1990	7	1.91%	6887	1073	0.31
			(1212)	(437)	(0.20)
1991	12	3.27%	5631	192	0.11
			(1709)	(110)	(0.06)
1992	5	1.36%	2023	360	0.20
			(1142)	(261)	(0.19)
1993	8	2.18%	17505	1951	0.41
			(2295)	(990)	(0.18)
1994	17	4.63%	5687	1135	0.33
			(2633)	(418)	(0.178)
1995	20	5.45%	11864	1905	0.26
			(4406)	(888)	(0.20)
1996	21	5.72%	9740	3235	0.35
			(5947)	(991)	(0.26)
1997	34	9.26%	12420	966	0.40
			(2792)	(499)	(0.18)
1998	67	18.26%	19632	4663	0.35
			(7923)	(1460)	(0.18)
1999	73	19.89%	38935	3221	0.25
			(5784)	(737)	(0.16)
2000	46	12.53%	33390	2398	0.30
			(7933)	(969)	(0.09)
2001	33	8.99%	21202	2529	0.26
			(6144)	(999)	(0.14)
2002	12	3.27%	37409	5647	0.26
			(7484)	(721)	(0.17)
2003	12	3.27%	21861	847	0.17
			(4440)	(519)	(0.08)
TOTAL	367	100.00%	22701	2738	0.30
			(5388)	(737)	(0.16)

### 3.2. Methodology and Variable Construction

The dependent variables consist of the target's return, the bidder's return, the total combined (synergistic) return, and the takeover premium at the announcement of the takeover.

The target's and the acquirer's cumulative abnormal returns, TCAR and ACAR respectively, are calculated using the standard event study methodology similar to the one used by Brown and Warner (1985). The TCAR and ACAR are calculated over a five-day window (-2, +2) using the market model whereby, the model's parameters are estimated over the (-210, -21) interval using the CRSP value-weighted index returns as the benchmark. The statistical significance of the returns is tested using an

approach similar to that of Moeller (2005), namely the Patell (1976) test, and corrected for time-series and cross-sectional variation of abnormal returns<sup>21</sup>.

The total synergistic return (PCAR) is the weighted-average cumulative abnormal return (CAR) of the bidder's and target's CARs with weights equal to their respective market capitalizations two months prior to the announcement of the acquisition. The takeover premium (PREM) is the ratio of the offer price, disclosed in the SDC, to the target trading price two months prior to the original announcement date. However, since the calculations of the takeover

<sup>21</sup> The abnormal returns are also estimated using the market adjusted return model by subtracting the value-weighted market return from the firm's return using the following model:  $AR_i = r_i - r_m$ , where  $r_i$  is the firm's return and  $r_m$  is the value-weighted market return.

premium produce disturbing outliers, an alternative proxy for the premium, PREMTRUNC, is used instead. PREMTRUNC is a truncated premium that takes values between zero and two, as in the studies of Moeller (2005) and Officer (2003). In addition, all deals with a premium beyond these boundaries are discarded. Figure 1 shows the scatter plots of PREM against the acquirer's industry-adjusted G-index and the target's industry-adjusted G-index, with significant outliers indicated.

Panel A of Table 2 presents the descriptive statistics for the dependent variables. The average PCAR for the sample is 1% significant at the 1% level, and the mean values of TCAR and ACAR are, respectively, 20% significant at the 5% level and -2% significant at the 1% level. These results are consistent with prior literature arguing that acquisitions do create value, with most of the gains accruing to target firms (Andrade et al. 2001; Travlos 1987). The average PREM is 1.06 with no statistical significance, whereas the average PREMTRUNC is 0.73 and is significant at the 5% level. The considerable difference between the mean values of PREM and of PREMTRUNC is due to the significant outliers in the distribution of PREM.

The firm's industry-average corporate governance index used in the empirical analysis is GIM's (2003) G-index after subtracting from it the average governance index of the corresponding industry. The industry-adjusted governance index is free from the effect of industry characteristics and is entirely determined by firm-specific characteristics. Thus, this index measures the quality of the governance of the firm relative to the average governance across the firm's industry as a whole. To calculate the industries' G-index averages, firms are classified into their corresponding industries using the method of Fama and French (1997). Firms with no (Standard Industrial Classification) SIC codes, as well as all observations corresponding to the year 2004 and beyond, are excluded. Firms with no Fama-French classification are assigned to the group "Other".

The results of panel B in Table 2 show that on average, the target's adjusted G-index (0.17) and the acquirer's adjusted G-index (0.46) are lower than their industry benchmark and might indicate that the governance of the bidder is in general worse than that of the target. The average premium of 1.06 (panel A, Table 2) might signal that the governance of the bidder is perceived to be slightly worse than that of the target which entails offering a moderate premium as a compensation for the target (Starks and Wei, 2005).

Additionally, the regressions used in this study control for a number of bidder, target, and deal characteristics that reportedly affect shareholders' returns at the announcement of an acquisition. The selection of these variables is based on the merger and acquisition literature (e.g. Bruner, 2002; Lang et al., 1991; Jensen, 1988; Travlos, 1987; Andrade et al.,

2001; Chang, 1998), and mainly the work of Wang and Xie (2007).

The acquirer and target characteristics controlled for in the present analysis are firm size, Tobin's Q, leverage, and performance. The values used for these variables are those reported in the last fiscal year end prior to the announcement of the acquisition.

The empirical analyses also control for some deal characteristics, such as the method of payment, the industry relatedness of the participants, and whether both the bidder and the target belong to high-tech industries - as defined by Loughran and Ritter (2004)<sup>22</sup>. Appendix B provides the definitions of all these variables, and Table 2, panel E present their summary statistics.

As shown in Table 2, 28% of the acquisitions are financed with cash only and 37% with stock only. Moreover, 67% of the deals involve targets and bidders belonging to the same industry, and 21% involve targets and bidders both belonging to high-tech industries.

Based on the findings of previous research papers, the target's size is expected to be positively (negatively) related to ACAR for cash offers (stock offers), and not significantly related to ACAR in mixed offers (Fuller et al., 2002). Furthermore, the size of the bidder is expected to be negatively correlated to PCAR (Wang and Xie, 2007). Both bidder's leverage - which reduces the agency costs of free cash flow by reducing the cash flow available for spending at the discretion of managers (Jensen, 1986) - and bidder's performance - which proxies for managerial competence - are expected to be positively related to ACAR and PCAR (Morck et al., 1990). However, the target's leverage (potentially viewed as a defensive tactic) is expected to be negatively related to ACAR but positively related to the premium and TCAR (Safieddine and Titman, 1999; Klock et al., 2005). However, the bidder's Tobin's Q is expected to be negatively associated with ACAR, TCAR, and PCAR (Bruner 2002). Moreover, acquisitions involving high-tech targets and bidders are expected to generate low synergistic gains since such companies are difficult to integrate smoothly. In these firms, human resources are particularly important and are lost in the restructuring process following the acquisition (Masulis et al., 2007).

Regarding the other variables, previous findings elucidate mixed views. For instance, Jensen (1988) argues that as certain diversifications destroy value, other ones settled in cash may still create a net profit - even when the acquisition generates operating inefficiencies.

<sup>22</sup> See Appendix C for the list of SIC codes classified as 'high-tech' by Loughran and Ritter (2004)

**Table 2.** Summary Statistics

This table presents the summary statistics of the variables used in this study. The sample is extracted from The Thomson Financial SDC U.S. Mergers and Acquisitions database. It consists of 367 acquisitions completed between 1990 and 2003, where both the acquiring and target firms are publicly listed in the U.S market and are included in the IRRC database of anti-takeover provisions. PCAR is the weighted average of TCAR and ACAR with the weights equal to their respective market capitalizations. TCAR is the

5-day target cumulative abnormal return around the announcement date. PREM is the ratio of the offer price disclosed in the SDC over the target trading price, two months prior to the original announcement date. PREMTRUNC is a truncated premium that takes values between zero and two. ACAR is the 5-day acquirer cumulative abnormal return around the announcement date. OCF and MV refer to operating cash flow and market value respectively. Definitions of the other variables are presented in Appendix B.

Variable	Mean	Standard Deviation	Median	Significance Level
<i>Panel A: Total returns, target returns/premiums, and acquirer returns</i>				
PCAR	0.01	0.07	0.01	***
TCAR	0.20	0.19	0.19	**
PREM	1.06	2.45	0.64	
PREMTRUNC	0.73	0.45	0.64	**
ACAR	-0.02	0.07	-0.02	***
<i>Panel B:</i>				
Acquirer's Industry-adjusted G-index	0.46	2.72	0.33	
Target's Industry-adjusted G-index	0.17	2.68	0.19	
<i>Panel C: Acquirer characteristics</i>				
Ln(Acquirer Market Cap)	8.72	1.57	8.59	
Acquirer's Tobin's Q	2.38	1.82	1.84	
Acquirer's Leverage	0.58	0.18	0.60	**
Acquirer's OCF/(MV of Asset)	0.08	0.04	0.08	***
<i>Panel D: Target characteristics</i>				
Ln(Target Market Cap)	6.70	1.45	6.60	
Target's Tobin's Q	1.88	1.30	1.48	
Target's Leverage	0.56	0.23	0.60	***
Target's OCF/(MV of Asset)	0.08	0.06	0.09	***
<i>Panel E: Deal characteristics</i>				
Cash (dummy)	0.28	0.45	0.00	**
Shares (dummy)	0.37	0.48	0.00	**
Industry (dummy)	0.67	0.47	1.00	**
High-tech combination (dummy)	0.21	0.41	0.00	**

\*\*\*, \*\*, \* Denotes significance at the 1%, 5% and 10 level respectively.

#### 4. Empirical Results

Table 3 presents the results of the PCAR regression and it shows that the Industry-adjusted G-index of the target firm is positively related to the PCAR with significance at the 10% level, whereas the coefficient of the Industry-adjusted G-index of the acquirer is negative and also significant at the 10% level. The positive association between the target's G-index and PCAR is consistent with hypothesis H1, which suggests that as the industry-adjusted corporate governance of the target declines, the target's efficiency greatly improves as a result of the change in control (Alba et al., 2009), and the synergistic gains achieved will increase as well.

On the other hand, the negative correlation between the acquirer's Industry-adjusted G-index and PCAR can be explained by the management entrenchment hypothesis (Klock et al., 2005) which

posits that an inverse relation exists between the bidder's industry-adjusted governance index and firm's performance. Moreover, more entrenched management is more likely to engage in empire-building actions and value-destroying acquisitions. This supports hypothesis H3 with respect to PCAR.

Regarding the control variables, the results indicate a positive correlation between the bidder's performance and PCAR with significance at the 1% level. Viewing the bidder's performance as a proxy for management's competence supports the findings of Morck et al. (1990) who consider good managers good acquirers and bad managers bad acquirers. Target leverage, which can be regarded as a defensive mechanism, is negatively correlated with synergistic gains - with significance at the 10% level (Jensen and Ruback, 1983; Farinha, 2003; Shleifer and Vishny, 1997; Safieddine and Titman, 1999). Additionally, the cash payment dummy is positively significant at

the 1% level; an outcome that makes abundantly clear the significant impact of the method of payment. (Myers and Majluf, 1984; Andrade et al., 2001; Travlos, 1987). As is expected, high-tech

combinations generate lower combined returns (PCAR), with a significance level of 1% since it is difficult to smoothly integrate high-tech firms with each other. (Masulis et al., 2007).

**Table 3.** The Total Synergistic Return (PCAR) Regressions

The sample is extracted from The Thomson Financial SDC U.S. Mergers and Acquisitions database. It consists of 367 acquisitions completed between 1990 and 2003 in which both the acquiring and target firms are publicly listed on the U.S stock market and are included in the IRRC database of anti-takeover provisions.

The dependent variable PCAR is equal to the weighted average of TCAR and ACAR with the

weights equal to the target's and bidder's respective market capitalization. TCAR is the 5-day target cumulative abnormal return around the announcement date, and ACAR is the 5-day acquirer cumulative abnormal return around the announcement date. Definitions of the independent and control variables are presented in the Appendix B. The t-values are listed between parentheses. OCF and MV refer to operating cash flow and market value respectively.

Variable	PCAR	
	Parameter	t-value
<i>Adjusted G-index</i>		
Acquirer's Industry-adjusted G-index	-0.002*	(-1.61)
Target's Industry-adjusted G-index	0.003*	(1.8)
<i>Acquirer characteristics</i>		
Ln(Acquirer Market Cap)	-0.000	(-0.08)
Acquirer's Tobin's Q	0.001	(0.37)
Acquirer's Leverage	0.038	(1.28)
Acquirer's OCF/(MV of Asset)	0.243***	(2.56)
<i>Target characteristics</i>		
Ln(Target Market Cap)	-0.001	(-0.28)
Target's Tobin's Q	-0.006	(-1.5)
Target's Leverage	-0.045*	(-1.84)
Target's OCF/(MV of Asset)	0.031	(0.48)
<i>Deal characteristics</i>		
Cash (dummy)	0.027***	(2.78)
Shares (dummy)	0.013	(1.4)
Industry (dummy)	0.002	(0.21)
High-tech combination (dummy)	-0.038***	(-3.81)
Intercept	0.004	(0.13)
Number of Obs.	345	
Adjusted R-Sq	0.111	
F Value	4.07***	

\*\*\*, \*\*, \* Denotes significance at the 1%, 5% and 10 level respectively.

In order to examine the effects of the adjusted G-indices on the distribution of synergistic gains between bidders and targets, we also run regressions of TCAR, PREMTRUNC, and ACAR. The results are discussed below.

The results of the TCAR regression appear in Table 4. As is shown, the industry-adjusted G-index of the target firm is positively associated with TCAR, with significance at the 10% level implying that a target's higher industry-adjusted governance index, that is, more anti-takeover provisions, leads to higher return for the target firm's shareholders. This result supports hypothesis H1 with respect to TCAR and is consistent with the contention of previous studies that ATPs could benefit shareholders in target firms (DeAngelo and Rice 1983; Stein 1988) by enabling

them to act in a unified manner, and enhances their bargaining power which permits them to increase their share of any synergy gains or attract a larger premium (Harris 1990; Clarkson *et al*, 2004; Kadyrzhanova 2006). Therefore, given that target firms with more ATPs present more severe barriers to acquirers, they are more likely to extract a larger share of the synergy gains, which will lead to shareholders' receiving a higher return on stocks; hence the positive relation between the target firm's industry-adjusted G-index and the target return. On the other hand, the acquirer's industry-adjusted G-index is not statistically significantly related to the TCAR, an outcome that does not support the part of hypothesis H2 related to TCAR.

As for the control variables, the results indicate that the acquirer's size (target size) is positively (negatively) correlated with TCAR both being significant at the 1% level. Furthermore, we find that the target's performance (OCF /MV of assets) is positively associated with TCAR with significance at the 5% level. This is a consequence of the fact that well-managed firms are more likely to receive high

premiums. Finally, the CASH payment dummy is positively correlated with TCAR, with a significance level of 1%, an outcome that supports the signaling effect of the method of payment (Myers and Majluf, 1984; Andrade et al., 2001; Travlos, 1987) while the SHARES payment dummy is not related to the TCAR, as the coefficient is not statistically significant.

**Table 4.** Target's Cumulative Abnormal Returns (TCAR) Regressions

The sample is extracted from The Thomson Financial SDC U.S. Mergers and Acquisitions database. It consists of 367 acquisitions completed between 1990 and 2003, where both the acquiring and target firms are publicly listed in the U.S market and are included in the IRRC database of anti-takeover provisions.

The dependent variable TCAR is the 5-day target cumulative abnormal return around the announcement date. In the regression presented in the

last column, we use an independent variable Acquirer-Adjusted G-index Shares that acts as a control for both the Acquirer Governance and the Shares payment. It is equal to the Acquirer-Adjusted G-index multiplied by Shares. Definitions of the independent and control variables are presented in Appendix B. The t-values are listed between parentheses. OCF and MV refer to operating cash flow and market value respectively.

Variable	TCAR		TCAR	
	Parameter	t-value	Parameter	t-value
<i>Adjusted G-index</i>				
Acquirer's Industry-adjusted G-index	-0.004	(-1.25)		
Target's Industry-adjusted G-index	0.006*	(1.76)	0.007*	(1.86)
Acquirer's Industry-adjusted G-index *Shares			-0.003	(-0.61)
<i>Acquirer characteristics</i>				
Ln(Acquirer Market Cap)	0.036***	(4.43)	0.030***	(3.58)
Acquirer's Tobin's Q	-0.004	(-0.47)	-0.010	(-1.23)
Acquirer's Leverage	-0.093	(-1.23)	-0.110	(-1.38)
Acquirer's OCF/(MV of Asset)	0.223	(0.92)	0.215	(0.85)
<i>Target characteristics</i>				
Ln(Target Market Cap)	-0.045***	(-5.34)	-0.033***	(-3.78)
Target's Tobin's Q	-0.014	(-1.5)	-0.013	(-1.34)
Target's Leverage	-0.063	(-1.01)	-0.079	(-1.19)
Target's OCF/(MV of Asset)	0.356**	(2.15)	0.181	(1.04)
<i>Deal characteristics</i>				
Cash (dummy)	0.091***	(3.72)	0.087***	(3.45)
Shares (dummy)	-0.017	(-0.72)	-0.009	(-0.39)
Industry (dummy)	0.010	(0.48)	0.012	(0.58)
High-tech combination (dummy)	-0.015	(-0.6)	0.010	(0.38)
Intercept	0.206***	(2.57)	0.216**	(2.53)
Number of Obs.	345		305	
Adjusted R-Sq	0.200		0.167	
F Value	7.14***		5.34***	

\*\*\*, \*\*, \* Denotes significance at the 1%, 5% and 10 level respectively.

Table 5 presents the results of the regression of PREMTRUNC. We find that the coefficients of the industry-adjusted G-index for both the target and the acquirer are not statistically significant which implies that these indices have no impact on the premium paid in acquisitions. These results do not support hypothesis H1 and H2 with respect to the premium.

As for the control variables, we find a positive association between acquirer's size and PREMTRUNC which supports the notion that large acquirers tend to overpay as overpayment is

associated with overconfident large acquirers. Whereas we find a negative relation between target size and PREMTRUNC with significance levels of 5% which is in line with the size effect literature. Moreover, the target's leverage is positively associated with the premium paid with a statistical significance of 1%. To explain the result, we may consider debt a defensive tactic used by target firms to extract higher premiums from bidders (Morck et al. 1990) or that target firms with higher debt ratios suffer less agency problems as they are more subject

to discipline by the market which is consistent with the free cash flow hypothesis of Jensen (1986) and

therefore these firms attract a higher premium.

**Table 5.** Takeover Premium Regressions

The sample is extracted from The Thomson Financial SDC U.S. Mergers and Acquisitions database. It consists of 367 acquisitions completed between 1990 and 2003, where both the acquiring and target firms are publicly listed in the U.S market and are included in the IRR database of anti-takeover provisions.

The dependent variable PREMTRUNC is a truncated premium which takes values between zero and two; the premium is equal to the ratio of the offer price disclosed in the SDC over the target's trading price from two months prior to the original

announcement date. In the regression presented in the last column, we use as independent variables: Acquirer-Adjusted G-index Shares that act as control variables for Acquirer Governance and Shares payment. It is equal to the Acquirer Adjusted G-index multiplied by Shares. Definitions of the independent and control variables are presented in the Appendix B. The t-values are listed between parentheses. OCF and MV refer to operating cash flow and market value respectively.

Variable	PREMTRUNC		PREMTRUNC	
	Parameter	t-value	Parameter	t-value
<i>Adjusted G-index</i>				
Acquirer's Industry-adjusted G-index	0.004	(0.51)		
Target's Industry-adjusted G-index	0.005	(0.51)	0.005	(0.53)
Acquirer's Industry-adjusted G-index *Shares			0.015	(1.15)
<i>Acquirer characteristics</i>				
Ln(Acquirer's Market Cap)	0.052**	(2.47)	0.050**	(2.39)
Acquirer's Tobin's Q	0.001	(0.06)	0.001	(0.05)
Acquirer's Leverage	0.026	(0.13)	0.010	(0.05)
Acquirer's OCF/(MV of Asset)	0.002	(0)	0.020	(0.03)
<i>Target characteristics</i>				
Ln(Target Market Cap)	-0.103***	(-4.7)	-0.102***	(-4.63)
Target's Tobin's Q	0.040	(1.62)	0.039	(1.57)
Target's Leverage	0.659***	(3.97)	0.662***	(4.03)
Target's OCF/(MV of Asset)	0.145	(0.33)	0.153	(0.35)
<i>Deal characteristics</i>				
Cash (dummy)	-0.128**	(-2.02)	-0.128**	(-2.02)
Shares (dummy)	-0.284***	(-4.8)	-0.290***	(-4.91)
Industry (dummy)	0.044	(0.85)	0.042	(0.82)
High-Tech Combination (dummy)	-0.005	(-0.08)	-0.005	(-0.08)
Intercept	0.731***	(3.42)	0.743***	(3.5)
Number of Observations	304		305	
Adjusted R-Sq	0.194		0.200	
F Value	6.23***		6.42***	

\*\*\*, \*\*, \* Denotes significance at the 1%, 5% and 10 level respectively.

Table 6 presents the results of the acquirer returns (ACAR) regression. The results do not document a significant relation between the acquirer's return and either the target's industry-adjusted G-index or the acquirer's industry-adjusted G-index. These results do not support the parts of hypothesis H1 and H3 related to ACAR. Additionally, these results provide new insights contrary to the evidence documented in earlier studies that do not control for the industry average governance characteristics (e.g. Masulis et al, 2007, and Bebchuck et al, 2009)

Looking at the control variables, we notice that acquiring larger target firms results in lower acquirer returns with the coefficient being significant at the 1% level and that the acquirer's return is also higher for

well performing acquirers (higher OCF/MV of Assets). We can explain the latter by resorting to the argument stating that good managers are good acquirers while bad managers are bad acquirers (Morck et al. 1990). As is expected, high-tech combinations lead to lower acquirer's returns, with a significance level of 1%, due to the fact that high-tech firms are difficult to integrate smoothly (Masulis et al. 2007). Finally, Table 6 shows that CASH and SHARES dummies are positively related to ACAR with a significance level of 5%. The coefficients indicate that acquisitions in cash tend to be more profitable than either acquisition in stock or in mixed offers which supports the signaling effect of the

method of payment (Myers and Majluf, 1984; Andrade et al., 2001; Travlos, 1987).

Moreover, Starks and Wei (2005) argue that in stock-financed acquisitions, bidders from poorer governance regimes must compensate target firms by offering a higher premium; as in such acquisitions the shareholders of target firms will be exposed to the governance regime of the acquirer. Building on those results, we replace the acquirer's industry-adjusted G-index in the regressions with a new variable that controls for both the acquirer's governance and for the method of payment. Hence we an interaction variable "Acquirer industry-adjusted G-index\*SHARES" defined as is the acquirer's industry-adjusted G-index multiplied by the SHARES payment dummy. Additionally, we add this variable to the regressions that we run previously in Tables 4 and 5. In general, the results in tables 4 and 5 are unaltered and are still similar to those of the original regressions. However, the acquirer's returns (ACAR) regression provides more interesting results. Table 6 now shows that there

is a negative association between the new interaction variable (Acquirer industry-adjusted G-index\*SHARES) and the acquirer's return as the coefficient is significant at the 5% level. Hence, for stock-financed acquisitions, the poorer the governance of the acquirer is, relative to the industry average, the lower the acquirer's return will be at the announcement of the acquisition. This result is consistent with the management entrenchment hypothesis which suggests that anti-takeover amendments act against shareholder wealth. This shields management from the labor market and allows them to engage in self-serving behavior against shareholders' interests (Klock et al., 2005; Masulis et al., 2007). Also, cash offerings usually trigger capital gains tax liability unlike stock offerings, and this might indicate that better governed acquirers end up with higher free cash flows in the case of stock acquisitions. This results in better returns for the acquiring stockholders.

**Table 6.** Acquirer's Cumulative Abnormal Returns (ACAR) Regressions

The sample was taken from The Thomson Financial SDC's U.S. Mergers and Acquisitions database. It consists of 367 acquisitions completed between 1990 and 2003, where both the acquiring and target firms are publicly listed on the U.S stock market and are included in the IRRC database of anti-takeover provisions.

The dependent variable ACAR is the 5-day acquirer cumulative abnormal return around the announcement date. In the regression presented in the

last column, we use an independent variable Acquirer-Adjusted G-index Shares that acts as a control variable for both Acquirer Governance and for the Shares payment. This index is equal to the Acquirer-Adjusted G-index multiplied by Shares. Definitions of the independent and control variables are presented in Appendix B. The t-values are listed between parentheses. OCF and MV refer to operating cash flow and market value respectively.

Variable	ACAR		ACAR	
	Parameter	t-value	Parameter	t-value
<i>Adjusted G-index</i>				
Acquirer's Industry-adjusted G-index	-0.002	(-1.51)		
Target's Industry-adjusted G-index	0.001	(0.79)	0.001	(0.57)
Acquirer's Industry-adjusted G-index *Shares			-0.005**	(-2.03)
<i>Acquirer characteristics</i>				
Ln(Acquirer's Market Cap)	0.010***	(3.14)	0.010***	(2.77)
Acquirer's Tobin's Q	-0.000	(-0.08)	0.001	(0.4)
Acquirer's Leverage	0.033	(1.09)	0.042	(1.24)
Acquirer's OCF/(MV of Asset)	0.175*	(1.79)	0.142	(1.34)
<i>Target characteristics</i>				
Ln(Target Market Cap)	-0.012***	(-3.58)	-0.012***	(-3.31)
Target's Tobin's Q	-0.003	(-0.89)	-0.004	(-1.08)
Target's Leverage	-0.036	(-1.45)	-0.048*	(-1.73)
Target's OCF/(MV of Asset)	0.011	(0.16)	0.030	(0.41)
<i>Deal characteristics</i>				
Cash (dummy)	0.024**	(2.37)	0.023**	(2.19)
Shares (dummy)	0.023**	(2.46)	0.023**	(2.35)
Industry (dummy)	0.004	(0.45)	0.005	(0.56)
High-tech combination (dummy)	-0.037***	(-3.61)	-0.040***	(-3.72)
Intercept	-0.045	(-1.38)	-0.038	(-1.08)
Number of Observations	345		305	
Adjusted R-Sq	0.086		0.088	
F Value	3.31***		3.1***	

\*\*\*, \*\*, \* Denotes significance at the 1%, 5% and 10 level respectively.

## Conclusion

Unlike previous studies, this paper identifies whether firm-specific governance characteristics have any influence on shareholders' returns at the announcement of an acquisition. The paper uses a sample of 367 acquisitions completed between January 1, 1990 and December 31, 2003 during which the acquiring and the target firms are both publicly listed on the U.S stock markets. Using an industry-adjusted corporate governance index as a proxy for the firm-specific governance, the paper studies the effect of firm-specific governance on shareholders' returns at the announcement of an acquisition.

Overall, the results indicate that the industry characteristics alone do not explain the effects of corporate governance on shareholder returns, and that bidder's and target's industry-adjusted G-indices explain, at least partially, the creation and distribution of synergistic gains at the announcement of an acquisition. Additionally, the results also suggest that the more the anti-takeover provisions adopted by the target are (the higher its industry-adjusted G-index, the greater the total synergistic gains and the target's return at the announcement of an acquisition. These results stem from the fact, that ATPs may play a different role for target firms as they allow them to improve their negotiating and bargaining power in the acquisition process (e.g. Harris, 1990 and Kadyrzhanova, 2006). However, the insignificant results of the premium regression prevent us from drawing definitive conclusions.

Using an interaction variable for both the acquirer's industry-adjusted G-index and stock-financed acquisitions, the study also find a significant negative relation between this variable and acquirer's return which supports the management entrenchment hypothesis. In other words, the previous evidence in other studies (Masulis et al., 2007) that a higher acquirer G-index (more ATPs) is associated with lower acquirer return is only documented here for stock-financed acquisitions after we control for the industry average G-index. This result implies that as acquirers adopting more ATPs, compared to their industry average, make stock-finance acquisitions, the stock market reacts negatively as these deals subject investors to more constraining governance characteristics and to more restrictive shareholders' rights than peer companies.

## References:

1. Alba, J.D., Park, D., Wang, P. (2009). Corporate governance and Merger and Acquisition (M&A) FDI: Firm-level evidence from Japanese FDI into the US. *Journal of Multinational Financial Management*, 19(1), 1-11.
2. Andrade, G., Mitchell, M., Stafford, E. (2001). New evidence and perspectives on mergers. *Journal of Economic Perspectives*, 15(2), 103-120.
3. Bebchuk, L.A., Cohen, A., Ferrell, A. (2009). What matters in corporate governance? *Review of Financial Studies*, 22 (2), 783-827.
4. Brown, S.J., and Warner, J.B. (1985) Using daily stock returns: The case of event studies. *Journal of Financial Economics*, 14, 3-31.
5. Bruner, R.F. (2002). Does M&A pay? A survey of evidence for the decision-maker. *Journal of Applied Finance*, 12(1), 48-69.
6. Chang, S. (1998). Takeovers of privately held targets, methods of payment, and bidder returns. *The Journal of Finance*, 53(2), 773-784.
7. DeAngelo, H., and E. M. Rice, 1983, Antitakeover charter amendments and stockholder wealth, *Journal of Financial Economics*, 11, 329-360.
8. Fama, E. French, K. (1997). Industry costs of equity. *Journal of Financial Economics*, 43(2), 153 - 193.
9. Farinha, J. (2003). Corporate governance: A survey of the literature. Universidade do Porto, Economia Discussion Paper No. 2003-06.
10. Fuller, K., Netter, J., Stegemoller, M. (2002). What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. *The Journal of Finance*, 57(4), 1763-1793.
11. Gillan, S.L., Hartzell, J.C., Starks, L.T. (2006). Explaining corporate governance: boards, bylaws, and charter provisions. Working Paper.
12. Gompers, P.A., Ishii, J.L., Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, 118(1), 107-155.
13. Harris, E.G., 1990, Antitakeover measures golden parachutes, and target firm shareholder welfare, *RAND Journal of Economics*, 21, 614-625.
14. Jensen, M. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323-329.
15. Jensen, M. (1988). Takeovers: Their causes and consequences. *The Journal of Economic Perspectives*, 2(1), 21-48.
16. Jensen, M., Ruback, R.S. (1983). The market for corporate control: The scientific evidence. *Journal of Financial Economics*, 11(1), 5-50.
17. Kadyrzhanova, D., 2006, Does governance pay, or is entrenchment the way? Merger gains and anti-takeover provisions. Working Paper, University of Columbia.
18. Klock, M.S., Mansi, S.A., Maxwell, W.F. (2005). Does corporate governance matter to bondholders? *Journal of Financial and Quantitative Analysis*, 40(4), 693-719.
19. Lang, L.H.P., Stulz, R.M., Walkling, R.A. (1991). A test of the free cash flow hypothesis: The case of bidder returns. *Journal of Financial Economics*, 29(2), 315-335.
20. Loughran, T., Ritter, J. (2004). Why has IPO underpricing changed over time? *Financial Management*, 33(1), 5-37.
21. Masulis, R.W., Wang, C., Xie, F. (2007). Corporate governance and acquirer returns. *The Journal of Finance*, 62(4), 1851-1889.
22. Moeller, T. (2005). Let's make a deal! How shareholder control impacts merger payoffs. *Journal of Financial Economics*, 76(1), 167-190.
23. Morck, R., Shleifer, A., Vishny, R.W. (1990). Do managerial objectives drive bad acquisitions? *The Journal of Finance*, 45(1), 31-48.
24. Myers, S.C., Majluf, N.J. (1984). Corporate financing and investment decisions when firms have information

- that investors do not have. *Journal of Financial Economics*, 13(2), 187-221.
25. Officer, M. (2003). Termination fees in mergers and acquisitions. *Journal of Financial Economics*, 69(3), 431-67.
26. Patell, J., 1976. Corporate forecasts of earnings per share and stock price behavior: Empirical tests. *Journal of Accounting Research*, 14, 246-276.
27. Safieddine, A., Sonti, R. (2007). Momentum and industry growth. *Review of Financial Economics*, 16(2), 203-215.
28. Safieddine, A., Titman, S. (1999). Leverage and corporate performance: Evidence from unsuccessful takeovers. *Journal of Finance*, 54(2), 547-580.
29. Shleifer, A., Vishny, A.W. (1997). A survey of corporate governance. *Journal of Finance*, 52(2), 737-783.
30. Sokolyk, T. (2011). The effects of antitakeover provisions on acquisition targets. *Journal of Corporate Finance*, Vol. 17, issue 3, June. Pages 612-627.
31. Starks, L.T., Wei, K.D. (2005). Cross-border mergers and differences in corporate governance. Working paper, University of Texas at Austin.
32. Straska, Miroslava and Waller, H. Gregory, (2010). Do Antitakeover Provisions Harm Shareholders? *Journal of Corporate Finance*, Vol. 16, issue 4, Sept. Pages 487-497.
33. Travlos, N.G. (1987). Corporate takeover bids, methods of payment, and bidding firms' stock returns. *The Journal of Finance*, 42(4), 943-963.
34. Wang, C., Xie, F. (2007). Corporate governance transfer and synergistic gains from mergers and acquisitions. *Review of Financial Studies*, 22(2), 829-858.

### Appendix A: Fama and French Classifications

Fama and French (1997) use four –digit SIC codes to classify firms into the following 48 industries:

Fama and French Industry Classification	SIC codes
Agriculture	100-799, 2048-2048
Food Products	2000-2046, 2050-2063, 2070-2079, 2090-2095, 2098-2099
Candy and Soda	2064-2068, 2086-2087, 2096-2097
Alcoholic Beverages	2080-2085
Tobacco Products	2100-2199
Recreational Products	900-999, 3650-3652, 3732-3732, 3930-3949
Entertainment	7800-7841, 7900-7999
Printing and Publishing	2700-2749, 2770-2799
Consumer Goods	2047-2047, 2391-2392, 2510-2519, 2590-2599, 2840-2844, 3160-3199, 3229-3231, 3260-3260, 3262-3263, 3269-3269, 3630-3639, 3750-3751, 3800-3800, 3860-3879, 3910-3919, 3960-3961, 3991-3991, 3995-3995
Apparel	2300-2390, 3020-3021, 3100-3111, 3130-3159, 3965-3965
Healthcare	8000-8099
Medical Equipment	3693-3963, 3840-3851
Pharmaceutical Products	2830-2836
Chemicals	2800-2829, 2850-2899
Rubber and Plastic Products	3000-3000, 3050-3099
Textiles	2200-2295, 2297-2299, 2393-2395, 2397-2399
Construction Materials	800-899, 2400-2439, 2450-2459, 2490-2499, 2950-2952, 3200-3219, 3240-3259, 3261-3261, 3264-3264, 3270-3299, 3420-3442, 3446-3452, 3490-3499, 3996-3996
Construction	1500-1549, 1600-1699, 1700-1799
Steel Works	3300-3369, 3390-3399
Fabricated Products	3400-3400, 3443-3444, 3460-3479
Machinery	3510-3536, 3540-3569, 3580-3599
Electrical Equipment	3600-3621, 3623-3629, 3640-3646, 3648-3649, 3660-3660, 3691-3692, 3699-3699
Miscellaneous	3900-3900, 3990-3990, 3999-3999, 9900-9999

**Appendix A (Cont.): Fama and French Classifications**

Fama and French Industry Classification	SIC codes
Automobiles and Trucks	2296-2296, 2396-2396, 3010-3011, 3537-3537, 3647-3647, 3694-3694, 3700-3716, 3790-3792, 3799-3799
Aircraft	3720-3729
Shipbuilding, Railroad Equipment	3730-3731, 3740-3743
Defense	3480-3489, 3760-3769, 3795-3795
Precious Metals	1040-1049
Nonmetallic Mining	1000-1039, 1060-1099, 1400-1499
Coal	1200-1299
Petroleum and Natural Gas	1310-1389, 2900-2911, 2990-2999
Utilities	4900-4999
Telecommunications	4800-4899
Personal Services	7020-7021, 7030-7039, 7200-7212, 7215-7299, 7395-7395, 7500-7500, 7520-7549, 7600-7699, 8100-8199, 8200-8299, 8300-8399, 8400-8499, 8600-8699, 8800-8899
Business Services	2750-2759, 3993-3993, 7300-7372, 7374-7394, 7397-7397, 7399-7399, 7510-7519, 8700-8748, 8900-8999
Computers	3570-3579, 3680-3689, 3695-3695, 7373-7373
Electronic Equipment	3622-3622, 3661-3679, 3810-3810, 3812-3812
Measuring and Control Equipment	3811-3811, 3820-3830
Business Supplies	2520-2549, 2600-2639, 2670-2699, 2760-2761, 3950-3955
Shipping Containers	2440-2449, 2640-2659, 3220-3221, 3410-3412
Transportation	4000-4099, 4100-4199, 4200-4299, 4400-4499, 4500-4599, 4600-4699, 4700-4799
Wholesale	5000-5099, 5100-5199
Retail	5200-5299, 5300-5399, 5400-5499, 5500-5599, 5600-5699, 5700-5736, 5900-5999
Restaurants, Hotels, Motels	5800-5813, 5890-5890, 7000-7019, 7040-7049, 7213-7213
Banking	6000-6099, 6100-6199
Insurance	6300-6399, 6400-6411
Real Estate	6500-6553
Trading	6200-6299, 6700-6799

**Appendix B: Definitions of Variables**

The following charts present a detailed description of the variables used in this paper: (Note that by OCF, BV, and MV we mean operating cash flow, book value, and market value respectively)

Dependent Variables	Definition
ACAR	5-day acquirer, cumulative, abnormal return, all calculated using the market model. The market model parameters are, in turn, estimated using the return data for the period (-210,-21).
TCAR	5-day target cumulative, abnormal return calculated using the market model. The market model parameters are estimated using the return data for the period (-210,-21).
PREM	Offer price disclosed in the Securities Data Corporation (SDC) / target-trading price two months prior to the original announcement date
PREMTRUNC	PREM with values between 0 and 2 as in (Moeller, 2005) and (Officer, 2003)
PCAR	Weighted average of TCAR and ACAR with the weights equal to their respective market capitalizations**
** Market Capitalizations are measured two months prior to the announcement of acquisition	

Control Variables	Definition
<b>Acquirer characteristics</b>	
Acquirer's size	$\ln(\text{Acquirer's Market Capitalization}^{**})$
Acquirer's Tobin's Q	$(\text{Acquirer's MV Asset}) / (\text{Acquirer's BV asset})^{***}$
Acquirer's Leverage	$(\text{Acquirer's BV of Debt} / \text{Acquirer's BV of Total Asset})^{***}$
Acquirer's Performance	$(\text{Acquirer's OCF}) / (\text{Acquirer's MV of Asset})^{***}$
<b>Target characteristics</b>	
Target's size	$\ln(\text{Target's Market Capitalization}^{**})$
Target's Tobin's Q	$(\text{Target's MV Asset}) / (\text{Target's BV asset})^{***}$
Target's Leverage	$(\text{Target's BV of Debt} / \text{Target's BV of Total Asset})^{***}$
Target's Performance	$(\text{Target's OCF}) / (\text{Target's MV of Asset})^{***}$
<b>Deal characteristics</b>	
Cash	Dummy Variable: equal to 1 if purely cash financed deal; otherwise, 0
Shares	Dummy Variable: equal to 1 if purely stock financed deal; otherwise, 0
Industry	Dummy Variable: equal to 1 if bidder and target share the same 2-SIC industry code; otherwise, 0
High-tech combination	Dummy variable: equal to 1 if bidder and target both belong to high-tech industries as defined by Loughran and Ritter (2004)*; otherwise, 0

### Appendix B (Cont.): Definitions of Variables

* See Appendix C for more details
** Market Capitalizations are measured two months prior to the announcement of acquisition
*** The values are those reported in the last fiscal year end preceding the announcement of the acquisition

Independent Variables	Definition
Acquirer's Industry-adjusted G-index	Acquirer's G-index - Acquirer's Industry Average G-index
Target's Industry-adjusted G-index	Target's G-index - Target's Industry Average G-index
Acquirer's Industry-adjusted G-index*Shares	Acquirer's Industry-adjusted G-index Multiplied by the Shares Dummy

### Appendix C: High-Tech Companies

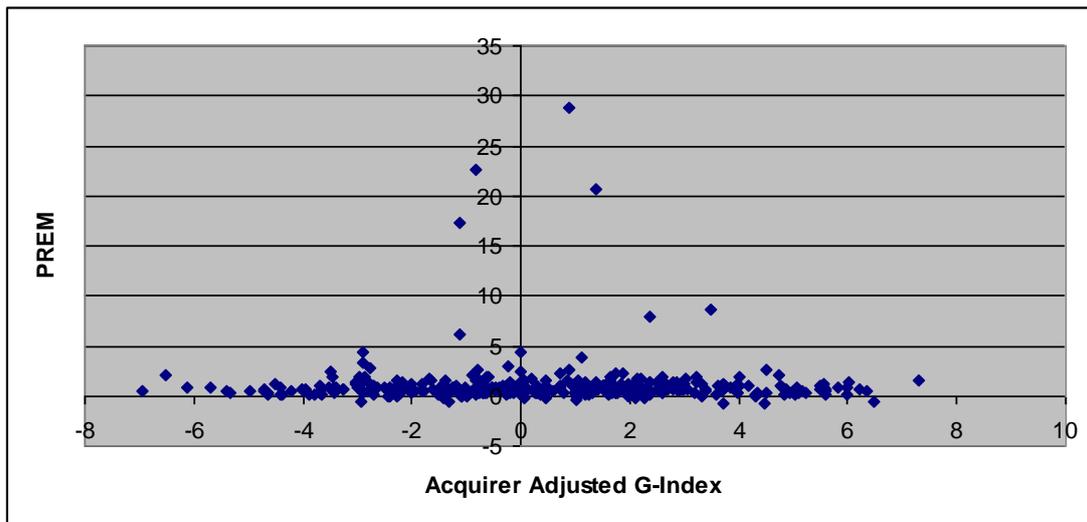
Loughran and Ritter (2004) define high-tech firms as those having the following SIC codes:

Industry Type	SIC Codes
Computer Hardware	3571, 3572, 3575, 3577, 3578
Communications Equipment	3661, 3663, 3669
Electronics	3671, 3672, 3674, 3675, 3677, 3678, 3679
Navigation Equipment	3812
Measuring and Controlling Devices	3823, 3825, 3826, 3827, 3829
Medical Instruments	3841, 3845
Telephone Equipment	4812, 4813
Communication Services	4899
Software	7371, 7372, 7373, 7374, 7375, 7378, 7379

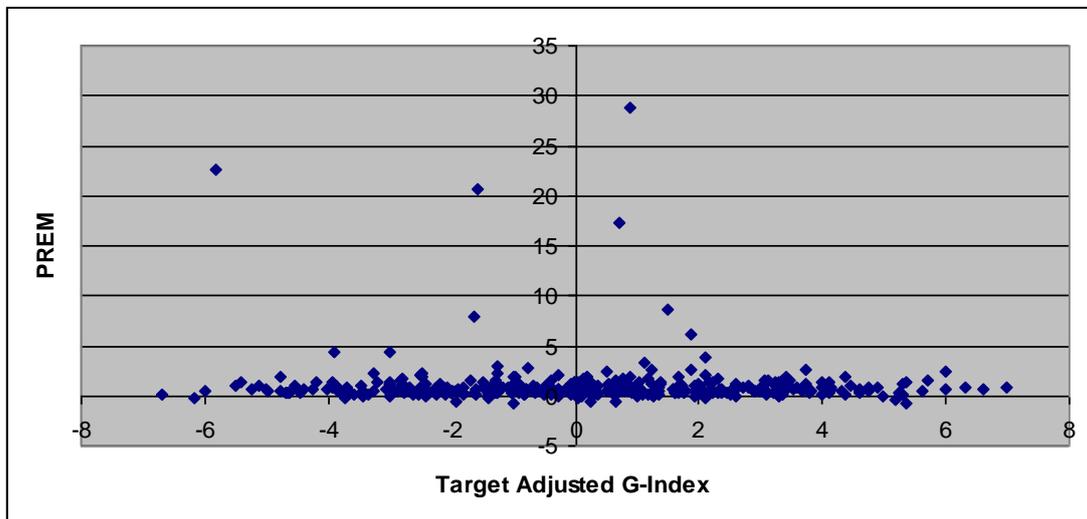
**Figure 1.** Scatter plots of Takeover Premium (PREM) against the Industry-adjusted G-index of the target and acquirer

These scatter plots are based on acquisitions data from The Thomson Financial SDC's U.S. Mergers and Acquisitions database. The sample consists of 367 acquisitions completed between 1990 and 2003 in which both the acquiring and target firms are publicly listed on the U.S. stock market and are included in the IRRC database of anti-takeover provisions. The variable plotted along the horizontal axis in the first graph is the Acquirer Adjusted G-index which is equal to the difference between the Acquirer's G-

index and the Acquirer's Industry-Average G-index. In the second graph, the horizontal axis represents the Target-Adjusted G-index which is equal to the difference between the Target's G-index and the Target's Industry-Average G-index. The PREM variable is plotted along the vertical axis. PREM represents the ratio of the offer price disclosed in the SDC to the target's trading price two months prior to the original announcement date.



**Figure 1.1.** Scatter plots of PREM against the Acquirer Adjusted G-index



**Figure 1.2.** Scatter plots of PREM against the Target Adjusted G-index