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**INVESTIGATE THE WEALTH EFFECT OF INVESTMENT BANKS AND
FAIRNESS OPINIONS THEY PROVIDE IN CORPORATE MERGERS
AND ACQUISITIONS**

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Finance
in the College of Business Administration
at the University of Central Florida
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ABSTRACT

The dissertation studies the value of both investment banks' services on the whole and fairness opinions specifically, which the banks provide to the acquiring firms. In the first chapter, I examine how investment banks and acquiring firms' governance quality interact to affect shareholders' wealth in corporate mergers and acquisitions. Although the wealth impact of investment banks in mergers and acquisitions is widely studied in the literature, existing studies do not consider the interaction between governance quality and investment banks. I examine how investment banks and governance quality of acquiring firms interact to affect the wealth of acquiring firms' shareholders. I find that acquiring firms with poor governance are more likely to use investment banks in the deal. This association holds even after controlling for deal feature and other characteristics. I find that the use of investment banks per se does not result in a wealth reduction for the acquiring firms' shareholders. However, when the acquiring firm has poor governance, the use of investment bank is associated with extra value loss for the shareholders. The finding suggests that investment banks may help managerial empire building at the expense of shareholders under some circumstances. The study indicates that when studying investment bank's impact it is important to consider the quality of the hiring firms' governance.

In the second chapter, I investigate the wealth implications of fairness opinions that the board of an acquiring firm purchases in corporate mergers from investment banks. Using the propensity score matching method to address the self-selection issue, I find that firms undertaking opinioned mergers under-perform firms with non-opinioned matching mergers in short windows around the announcement date. In the long run, the firms with opinioned merger

do not perform better than firms with non-opinioned mergers. The acquiring firms perform poorly relative to their performance before the mergers, irrespective of whether their mergers are opinioned. Over a 12-month window after the mergers, the acquiring firms involved in both opinioned and non-opinioned mergers under-perform matching firms that do not make mergers. These findings are consistent with the hypothesis that the board buys a fairness opinion for its self-protection instead of maximization of shareholder wealth. The implication of this finding is that when investors evaluate mergers, they should focus primarily on deal characteristics, not fairness opinion.

To
my parents,
For their pain-taking work to support me on my education.

Also to
my son Bohan Wang

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CHAPTER ONE: INTRODUCTION

Both academics and practitioners are interested in the value change of the firms involving in corporate mergers and acquisitions and try to understand the factors that are associated with such change, if any. In the nature, this dissertation is an addition to the literature exploring the similar topic. However, different from prior studies, the dissertation addresses the gap in the literature and examines a new issue that has never been explored, to the best of my knowledge. Specifically, in the first chapter, I study how investment banks hired by the acquiring firm interact with the quality of acquiring firm's governance to affect the wealth of acquiring firms' shareholders around the deal announcement. It examines the dual-agent issue under the general framework of agency theory (Jensen and Meckling, 1976). This is a new perspective to investigate the value of investment banks' services in corporate mergers and acquisitions.

In the second chapter, I investigate the wealth implications of fairness opinions that the board of an acquiring firm purchases in a corporate merger from investment banks regarding whether the deal is fair to their shareholders. Using the propensity score matching method to address the self-selection issue, I find that firms undertaking opinioned mergers under-perform firms with non-opinioned matching mergers in short windows around the announcement date. In the long run, the firms with opinioned mergers do not perform better than non-opinioned matching mergers. These findings support the hypothesis that the board buys a fairness opinion for its self-protection instead of maximization of shareholder wealth. The implication of the findings is that when investors evaluate mergers, they should focus primarily on deal characteristics, not fairness opinions.

CHAPTER TWO: GOVERNANCE QUALITY AND THE WEALTH EFFECT OF INVESTMENT BANKS IN CORPORATE MERGERS AND ACQUISITIONS

2.1. Introduction

Investment banks perform many important functions within the economy including underwriting securities, providing venture capital, conducting capital market research, assisting complex transactions, and facilitating mergers and acquisitions. Theoretical models show that the general functions of financial institutions include reducing transaction costs (Benston and Smith, 1976), alleviating asymmetric information in imperfect markets (Leland and Pyle, 1976), and simultaneously producing information and providing other services (Campbell and Kracaw, 1980). Consistent with these theoretical models, empirical studies document the positive contributions of investment banks in several functional areas such as underwriting and venture capitalism.

Despite the positive contributions that investment banks provide in the economy, recent events, such as the collapse of Enron and WorldCom, have brought increased scrutiny to the investment banking community. A recent statement by the General Accounting Office (GAO) is emblematic of the criticism that has been leveled at investment banks. In 2003, the GAO stated “certain investment banks facilitated and participated in complex financial transactions with Enron despite allegedly knowing that the intent of the transaction was to manipulate and obscure Enron’s true financial condition.” Further, the Wall Street Fine Tracker reported that Canadian Imperial Bank of Commerce, Citigroup, J.P. Morgan Chase and Merrill Lynch agreed to pay \$80

million, \$101 million, \$135 million and \$80 million fine respectively for Enron-related allegations, without admitting or denying guilt.¹

Although it remains unclear whether investment banks engaged in illegal behaviors in the collapse of Enron, there is little doubt that it was the managers of Enron who hired these banks in the first place. Similarly in corporate mergers and acquisitions, it is the managers, not the shareholders, who decide whether to hire an investment bank, which investment bank should be hired, and what goals need to be accomplished by the investment bank. Thus, the motives of these managers may affect the way the bank fulfills its assignments.

Of course, investment banks may work independently out of the reputation concerns. In order to maintain or increase market share, the banks need to protect their reputation, since the market for their service is competitive. Indeed, reputation is one reason that initial public offering (IPO) firms switch underwriters in their follow-up seasonal equity offerings (SEOs) (Krigman, Shaw, and Womack, 2001). Probably also because of reputation concerns, prestigious underwriters are associated with good quality IPOs (Beatty and Ritter, 1986; Carter, Dark and Singh, 1998). Nonetheless, since acquiring firms do not have to use investment banks in mergers and acquisitions and their managers have great discretion in use of investment bank, the decision to hire an investment bank is management-dominated. In this case, the quality of the firm's governance must be considered when investigating the wealth impact of investment banks.

In this study, I investigate the wealth effect of the use of investment banks in a sample of mergers and acquisitions occurring between 1992 and 2004. Recognizing that the decision to use an investment bank in the first place is a managerial decision, and that the quality of managerial

¹ http://www.forbes.com/2002/10/24/cx_aw_1024fine.html (Wall Street Fine tracker, 07.28.04)

decisions is impacted by the firm's governance quality, I control for the impact of governance quality on the wealth effects. More specifically, I provide answers to the following relevant questions: does the quality of governance in the acquiring firm influence the decision to use an investment bank in the mergers and acquisitions? Does the use of investment bank in the transaction have a wealth effect for the acquiring firm's shareholders?

I find that the poor governance in acquiring firms is positively associated with use of investment banks in mergers and acquisitions. This relation holds beyond deal features and firm characteristics such as transaction size, method of payment, type of transaction, and firm performance. I find that when the acquiring firms have poor governance, the use of investment banks is associated with a significant wealth loss for their shareholders. In contrast, when the acquiring firms' governance quality is good, the use of investment banks is not associated with significant losses. The findings suggest that investment banks may help managerial empire building at the expense of shareholders when they facilitate transactions among poorly governed acquiring firms.

The study makes two important contributions to the extant literature. First, I find that corporate governance is one of important determinants of the use of investment banks. Servaes and Zenner (1996) find that investment banks are more likely to be used in complex deals. I find that besides the complexity of that transaction (Servaes and Zenner, 1996), the quality of corporate governance is an important determinant of the decision to use an investment bank in the first place. Second, it increases our understanding of the value consequence of using investment banks and shows whether or not investment banks add value is affected by the acquiring firm's governance quality. Extant works investigate the wealth effect of investment banks in corporate mergers and acquisitions from several different respects. Servaes and Zenner

(1996) look at the deal feature; Kale, Kini and Ryan (2003) compare the relative reputation between bidder's and target's advisors; Rau (2000) and Hunter et al. (2003) contrast the top-versus low-tiers banks; Rau (2000) and McLanghlin (1990) also focus on the contingent nature of the fee structure between investment banks and acquiring firms. All of these prior studies do not consider the quality of the hiring firm's governance. I consider the omission in this study. I find that when the acquiring firms have good governance in place, investment banks are not associated with extra value reduction. But when the governance in the acquiring firm is poor, investment banks are associated with extra value reduction. This reminds us that investment banks, hired by the managers, are the agent of agents, and their job quality may be affected by the extent to which managers in the acquiring firm maximize their shareholders' wealth. This finding compliments extant literature on the wealth effect of investment banks.

The remainder of the paper is organized as follows. Section 2.2 develops the hypotheses, Section 2.3 discusses the data and methodology, Section 2.4 presents empirical results and Section 2.5 provides concluding remarks for the chapter.

2.2. Literature review and theoretic predictions

Investment banks provide a variety of services in M&As. For example, they may help with pricing, or help acquiring firms optimize accounting, tax and legal treatment. They may also provide financing for the deals (Stouraitis, 2003). The banks often initiate deals, emerging as the "principal architects" of business combinations (Bowers and Miller, 1990).²

Despite the variety of services investment banks provides in the M&As, the literature remains mixed regarding the wealth impact of the banks. Servaes and Zenner (1996) find that use

² In order to be consistent with existing literature, I do not differentiate specific functions performed by investment banks in this study, and I also ignore how many banks acquiring firms use and when the banks enter and leave the deal. As long as acquiring firms use investment banks, or financial advisors as generally called, in their deal, I say that investment bank is used.

of investment banks is not associated with wealth enhancement for the acquiring firms. Kale, Kini and Ryan (2003) document that the relative reputation between the bidder's and target's advisors helps increase the absolute wealth gain as well as the share of the total takeover wealth gain accruing to the bidder. Bowers and Miller (1990) find that in acquisitions where either the bidding or target firm uses first-tier investment bankers, the total incremental wealth is greater than when neither firm employs a prestigious banker. Rau (2000) and Hunter et al. (2003) show that top-tier investment banks are associated with greater wealth loss for acquiring firms than lower-tier investment banks. Rau (2000) points out that the investment banks may push the deals to completion in pursuit of advising fees. These studies examine the impact of investment banks in different scenarios, but the governance quality of acquiring firms is not explored. The following sections focus on this issue, linking the governance and use of investment banks.

2.2.1. Governance quality, agency problem, and use of investment banks

The separation between ownership and management allows managers to maximize their interests at the expense of shareholders (Jensen and Meckling, 1976). Managerial empire building is one typical example of the managerial agency problem, a well documented theory for merger motives in the literature (see Trautwein, 1990). Under this theory, managers benefit from firms' expansion. Using a bank sample, Bliss and Rosen (2001) show that Chief Executive Officers' (CEOs') compensation typically increases after mergers even if the acquirer's stock price declines. CEOs often get direct cash bonuses for successful completion of M&A deals.³ The bonuses increased as the CEO's power and influence on board increased (Grinstein and Hribar, 2004). Through acquisition of assets in different sectors, CEOs can also diversify the risk associated with their human capital. CEOs can also increase their prestige and standing in the

³ For instance, Exxon, HealthSouth, Bankers' Trust, and Travelers Group recently paid their CEOs cash bonuses of \$5 million to \$14 million dollars for successfully completing the acquisitions (Grinstein and Hribar, 2004).

business community by pursuing acquisitions (Avery, Chevalier and Schaefer, 1998). Overall, both direct financial compensation and non-financial benefits associated with the larger firm give CEOs strong incentives for expansion, regardless the interest of shareholders.

When the quality of corporate governance is good, managerial agency issue may be less serious. With good governance, managers are more easily disciplined. Consequently, the managers in strong governance firms are less likely to enter the value-destroying deals for their shareholders. For instance, they may enter fewer deals (Gompers, Ishii and Metrick, 2003) or choose to enter less complex deals. Complex deals are not in the interest of shareholder (Servaes et al., 1996). Also under good governance, the firm may have strong control over the quality of investment project. The board directors may more effectively screen merger proposals and reject those that are not in the interest of shareholders. Masulis, Wang and Xie (2006) find that good governance firms lose less during their merger announcements. If the deal is relatively simple, or fundamentally sound in the nature, it may be more easily executed at least on the buy side, and this makes the use of investment bank less necessary, since investment banks are likely to be used in the complex deals (Servaes et al. 1996) and they have skill to push complex deals to completion (Rau, 2000).

However, it is also possible that the board of directors under the good governance try to maximize the interest of shareholders and hire the investment banks to facilitate the deals. Investment banks hold information on a large number of firms, and are able to identify a target firm at low search cost. They have expertise determining the price, and smoothing the negotiations. All of these functions probably serve the interest of shareholders. In this sense, it is possible that good governance is positively associated with use of investment banks. Overall, the impact of good governance on use of investment bank is an empirical question.

When the quality of corporate governance is poor, the board of directors may not be effective in restraining managerial empire building. Gaughan (2004) notes that, “there are too few examples of a board standing up to a CEO’s empire-building schemes,”⁴ possibly because they are indebted to CEOs or they also benefit from the expansion. Either way, directors and executive are allied together to some extent.^{5 6} In this context, bad acquisitions driven by managerial objectives take place (Morck, Shleifer and Vishny, 1990), and the market reacts more negatively to such acquisitions (Masulis, Wang and Xie, 2006). Deals with poor market reactions may confront tough resistance from shareholders and may be more difficult to go through. In order to push such deal to completion and achieve their own interest, managers with serious agency problems may be more likely to use investment banks, since banks have skills to facilitate the deal completion (Rau, 2000).

However, if the investment banks work independently and have a concern of reputation, it may refuse to advise the deals that lack the synergy or potentially reduce the shareholders’ wealth. But the existing literature seemingly suggests pursuing advising fee is a priority for investment banks (see Rau, 2000; McLanghlin, 1990). When top-tier banks are used, acquiring firms’ shareholders lose even more.⁷

Admittedly, using M&A opportunity to have association with investment banks is desirable to managers personally in the firms with both good and bad governance. Managers may receive personal benefit for granting business to investment banks. For instance, they may get

⁴ A notable exception was that the board of Coca-cola rejected the takeover proposal for Quaker Oats in November 2001 (Gaughan, 2004).

⁵ Brick, Palmon, and Wald (2002) find a significant positive relation between CEO and director compensation after controlling for monitoring proxies.

⁶ Based on this argument, I refer to managers as comprising both executives and directors for the remainder of the paper, as Gompers, Ishii and Metrick (2003).

⁷ Kale et al. (2003) do find that acquiring firms are more likely to withdraw the deal that is not in the interest of shareholders when using banks. But that is different issue from what we discuss here about the use of investment banks in the first place.

allocation of IPOs underwritten by these investment banks (Tucker and Bierne, 2004).⁸ However, the use of investment banks is costly. Millions of dollars go to investment banks as advisory fees.⁹ Managers in the firm with poor governance may have more freedom to consume excessive perquisite and easily expense these fees without the concern being disciplined (see Shleifer and Vishny, 1989). Managers in the poor governance firms may be powerful and entrench themselves well. Powerful managers are able to shape their compensation arrangement (see Bebchuk, Fried, and Walker, 2002).

Given the analyses above, I expect the poor governance to be positively associated with the use of investment banks, although when the governance is good, the relation is less clear. Given the possible private benefits for the managers, this relation may exist beyond the deal features. I test this hypothesis empirically in this paper.

2.2.2. Wealth effects and the interaction of governance quality and use of investment banks

Investment banks are hired by the acquiring firms' managers. These managers are the agents of their shareholders. Hired by these agents, investment banks in turn are agents' agents. The banks' performance is affected by the standards set by the hiring managers and by how the managers and the banks interact. If the managers do not put the interests of shareholders as priority, it is hard to expect the banks to do so. Furthermore, investment banks are compensated for the successful closure of a deal, not for the deal's performance. The majority of the fee income for investment banks is contingent on the deal completion, and the fee is increasing in the value of deals. McLaughlin (1990) finds that over 80% of the fee in an average contract is

⁸ Piper Jaffray (nyse: PJC - news - people) was fined \$2.4 million and censured by NASD for allegations related to the allocation of initial public offerings from 1999 to 2001. In agreeing to the penalty, Piper Jaffray neither admitted nor denied the charges. NASD alleged that Piper Jaffray investment bankers developed a tiered system for awarding IPO shares to the executives of corporate clients. A "0" ranking, according to NASD, meant "no stock for you."

⁹ The mean value is 2.34 million with standard deviation 5.7 million according to Hunter and Jagtiani (2003).

paid only if the acquisition is complete. Under this contingent contract, investment banks may pursue the deal completion by all means and only perform the duties specified in the contract. This may be particularly true when the acquiring firms have poor governance and their managers undertake empire building. In this case, the involvement of investment banks may potentially hurt shareholders since it pushes the completion of deals that may lack synergy.

When the acquiring firms have good governance in place, their managers may emphasize the interest of shareholders when interacting with investment banks. The interacting process may provide investment banks with explicit or implicit wealth requirements besides the completion of deals. The managers in the acquiring firms with good governance may reject the bank's solution proposals during the advising process if they think the proposals are not in the best interest of shareholders. The rejection may force the investment banks to develop other alternatives, which serve the interest of shareholders better.

However, if strong monitoring is lacking investment banks may more focus on deal completion due to the contingent nature of the compensation structure. The interaction process between managers under poor governance and investment banks reinforce the importance of completing the deals, and signal no or weak requirement to maximize shareholders' wealth. For the fee reason, investment banks may apply their skills to complete the deals by all means. However, when the governance quality is good in the acquiring firms, the investment banks may focus on shareholders' interests more than the deal completion due to the monitoring from the managers. Therefore, I expect that investment banks may be associated with shareholders' value losses when interacting with acquiring firms with poor governance.

2.3. Methodology

The data collection starts from the Governance Index dataset created by Gompers, Ishii and Metrick (2003). The index has values for the years 1990, 1993, 1995, 1998, 2000 and 2002. For each year in which the GI data are available (GI year), I retrieve the financial data from Compustat for all firms (GI firms) in each GI year and the years subsequent to each GI year until the next GI year. For example, for the firms with governance index in the year 1990, I download the financial data for the year 1990, 1991 and 1992. The governance index for each GI firm in year 1991 and 1992 has the same value as in 1990. By obtaining financial information from Compustat, I have 19,755 observations. Then, for each firm with financial data, I obtain the merger and acquisitions from Securities Data Corporation (SDC) during the sample period ranging from 1992 to 2004. These deals take the form of mergers, acquisitions of main interest, acquisition of partial interest, acquisitions of remaining interest, and acquisitions of assets. This results in 18,949 observations. I merge the deals with acquiring firms' previous year's financial information. This produces 10,900 observations. For these deals, I use standard event study methodology to estimate the cumulative abnormal returns based on acquiring firms' cusip and announcement date; this results in 10,676 observations for the wealth analyses.

The GI is the total number of firms' anti-takeover provisions adopted by a given firm, ranging from 1 to 24. Among these provisions, the most popular are those that stagger the terms of directors, provide severance package for managers, and limit shareholders' ability to act. Gompers et al. (2003) use governance index to proxy for the level of shareholder rights. They find that firms with higher governance indices, that is, managers with strong right, have lower firm value, lower sales growth, higher capital expenditures, and make more acquisitions.

Complementing Gompers et al. (2003), Core, Guay and Rusticus (2006) find that firms with high governance indices exhibit significant future operating underperformance. DeAngelo and Rice (1983) and Mahoney and Mahoney (1993) document managerial entrenchment motivates the adoption of anti-takeover amendments. More recently, Masulis et al (2006) show acquiring firms with higher governance index lose more in their merger and acquisition announcement. They argue that this may be driven by empire building of managers who are subject to the weak monitoring from corporate control market. Fahlenbrach (2003) examines the relationship between shareholder rights (measured by GI) and the compensation contracts of executives, and find that non-founder-CEOs receive higher total compensation, a higher annual increase in compensation, and have smaller fractional ownership if the managers have more power relative to shareholders. All of these studies above consistently and strongly evidence that firms with higher governance index have greater agency costs.¹⁰ Thus, in this study, I use governance index to proxy for the quality of corporate governance. A high value of the index indicates poor governance.

2.3.1. Governance quality and the decision to use investment banks

I first examine whether governance quality in the acquiring firms is associated with use of investment banks, with the occurrence of the deal as given. For each deal, SDC records whether a financial advisor is used by target firms and acquiring firms, how many advisors each side uses, and identifies the advisor by name if any. In this study, I do not analyze the structure of financial advisors. As long as SDC discloses a financial advisor is used by the acquiring firm, I code the dummy variable “IB” with value of 1 and 0 otherwise.

¹⁰ Also see the discussion on page 2 of Core, Guay and Rusticus (2006).

In order to test the relation between governance quality and the likelihood of using an investment bank, I set up the following logistic choice model:

$$\text{Prob}(IB) = \alpha + \beta_1 * GI + \sum \beta_i * Controls_i + \varepsilon_1 \quad (2.1)$$

where IB is a binary variable equal to 1 if the acquiring firm uses investment banks and 0 otherwise; GI is the governance index for the acquiring firm from Gompers et al. (2003) for the year in which the deal is announced or one or two years preceding the announcement year; Control variables includes $TotalAsset$, $NetIncome$ and many others. $TotalAsset$ is the total asset of firms in the governance index dataset (in millions of dollars); $NetIncome$ is the net income of the acquiring firm (in millions of dollars); Other control variables include announcement years and deal features including transaction size, method of payment, whether acquiring firms and target firms share the same three-digit Standard Industry Classification (SIC) code, the attitude of target managers, and the type of deal.

The focus of model (2.1) is to test the coefficient β_1 . Since high GI value is proxy for poor governance, a positive and significant β_1 means the acquiring firms with poor governance is more likely to use an investment bank. A negative and significant β_1 indicates that the acquiring firm with poor governance is less likely to use an investment bank.

2.3.2. Wealth effects of use of investment banks

I use the abnormal returns around merger announcements to capture the wealth effects. Abnormal returns are computed using the standard event study approach. The estimation period is the 255-day period ending 30 days prior to the announcement date. The equally weighted index of stocks traded on the New York and American Stock Exchanges is from the CRSP. Following Datta, Iskandar-Datta and Raman (2001), I compute two-day (-1, 0) cumulative abnormal returns (CARs) for acquirers in response to merger announcements. For the purpose of

robustness check, I also report the test results using the window (-1, 1). I report CARs for all acquirers as a whole and for subgroups of acquirers based on whether an investment bank is used in the deal.

I use the following regression model to investigate the wealth effect of governance quality, the use of the investment bank, and the interaction between the two variables:

$$CAR = \alpha + \beta_1 * GI + \beta_2 * IB + \beta_3 * GI * IB + \sum \beta_i * Controls_i + \varepsilon_2 \quad (2.2)$$

where *CAR* is cumulative abnormal return over (-1, 0) or (-1, 1) window; and the other variables are as defined in equation (1). Our main interest is to test whether the coefficient on the interaction between governance quality and use of investment banks is statistically significant.

The *IB* in equation (2.2) is a choice variable. If some variables in the error term of equation also affect acquiring firms' decision to use investment banks, *IB* will be correlated with the error term, and the OLS estimate of β s will be biased. Given this consideration, I use Heckman's (1979) two-stage procedure to control for endogeneity as Campa and Kedia (2002) addressing the self-selection issue in firm diversification. Following Campa and Kedia (2002), I first estimate equation (2.1) using a probit model, calculated λ_1 , λ_2 and λ , and insert λ into equation (2.2) to control for the endogeneity.¹¹

2.4. Empirical testing results

2.4.1. Descriptive statistics for the sample

The descriptive statistics for the sample are reported in Table 2.1.

¹¹ As Campa and Kedia (2002), I also assume that the errors in equation (1) and (2) have a bivariate normal distribution. If we present the equation (2.1) in the format of $IB^* = \beta * Z + \varepsilon$, $IB = 1$ if $IB^* > 0$, $IB = 0$ if $IB^* < 0$, then. λ_1 is $\frac{\phi(\beta * Z)}{\Phi(\beta * Z)}$, λ_2 is $\frac{-\phi(\beta * Z)}{1 - \Phi(\beta * Z)}$, and $\lambda = \lambda_1 * IB + \lambda_2 * (1 - IB)$.

Panel A in Table 2.1 presents descriptive statistics for the firms. The average governance index for acquiring firms is 9.25, with a standard deviation of 2.76. Acquiring firm's average is \$11,034 million in assets. The average return on asset (ROA) for acquiring firms is 4.36%.

Panel B in Table 2.1 presents the deal features in several respects. According to this panel, in approximately 19% of deals acquiring firms use investment banks (the mean of the variable 'IB' is 0.19); on average, approximately 13 % of the deal value is financed with acquiring firms' stocks (the mean of the variable 'stockpay' is 0.13); acquiring firm and target firm share the first three digits of their SIC codes in about 39% of deals (the mean of variable 'Industry' is 39%); in terms of the managerial attitude, about 0.5% of deals are not welcome by target firm managers (the variable 'attitude' has mean of 0.005); based on SDC classifications, approximately 24.6 percent of the sample are outright mergers, 2.0 percent are acquisitions of major interest, 9.5 percent are acquisitions of partial interest, 2.2 percent are acquisitions of remaining interest and 61.5 percent are asset acquisitions.

In order to test the impact of governance quality, I group the observations into five equal groups based on the governance index value. Quintile 1 is the group in which the acquiring firms have lowest average governance index and the quintile 5 is the group in which the acquiring firms have the highest mean value of governance index. The high GI value is the proxy for poor governance. The minimum and maximum values of GI for each group are given in the bracket.

2.4.2. Preliminary tests of the hypotheses

Table 2.2 includes three panels. The Panel A presents the comparison of different type of deals. We can see that investment bank is more used in the merger deals and less likely to be used in acquisitions of partial interest (6.3%) and acquisitions of asset (11.3%). The means of

CAR (-1, 0) and CAR (-1, 1) over different type of deals show that acquiring firms lose more in merger deals and have significant gain in acquisitions of partial interest and asset acquisitions. The negative cumulative abnormal return around the merger announcement is consistent with Datta et al. (2003). The results are in line with the review in Jensen and Ruback (1983).

Panel B in Table 2.2 shows the use of investment bank increases as the governance quality decreases. When the acquiring firms have lowest mean of GI, the percentage of deals that use investment bank is 16.5 % and this percentage increases to 19.7 % when firms have highest average GI. The three higher GI quintiles seem to have higher percentage of using investment banks than two lower GI quintiles. Panel B shows that it seems that firms with higher GI (poor governance) are more likely to use investment banks.

Panels C1 and C2 show the market reaction to the deal announcement and present the preliminary results of the cumulative abnormal returns (CARs). The average 2- and 3-day CARs for acquiring firms are -0.01% and 0.06% respectively, both statistically insignificant. However, when examining the results based on whether or not the acquiring firm uses investment banks, interesting results emerge. Using the CAR (-1, 0) to illustrate, the deals that do not use investment banks have average CAR (-1, 0) of 0.09%, significant at the 5% level. The deals that do use investment banks have an average CAR (-1, 0) of -0.42%, significant at the 1% level. The negative association between participation of investment banks and market reaction may be due to the fact that investment banks are more often used in complex deals (Servaes et al., 1996). Due to the lack of controls, we cannot filter out the marginal contribution of investment banks in the deals.

The average values of both CAR (-1, 0) and CAR (-1, 1) over five GI groups seemingly show the negative association between market reaction and the governance quality of the

acquiring firms. The average two-day abnormal return CAR (0, 1) is 0.04% for the group which has lowest average *GI* (good governance), and -0.04% for the acquiring firms with highest average *GI* (poor governance). The negative association between governance quality and market reaction is consistent with findings in Masulis et al. (2006).

Examining the wealth effect of the interaction between investment bank and governance quality, it is seemingly easy to identify a pattern. Again using CAR (-1, 0) to illustrate, we can see that the negative relation between governance and market reaction is strong when investment banks are used. When investment bank is present, the group with lowest governance index (good governance) has the two-day abnormal returns of -0.28% and the group with highest governance index has -0.40%. When the investment banks are not present, the negative association between governance quality and market reaction seemingly is not strong, particularly if we look at the CAR (-1, 1).

To test the existence of the interaction effects, I conduct two-factor analysis of variance (ANOVA). The results are reported in the last column of Panels C1 and C2 in Table 2.2. Still using CAR (-1, 0) to illustrate, the first F-test with value of 23.82 is testing the main effect of the use of investment banks. It has p-value smaller than 0.01%, indicating that the involvement of investment banks has a significant impact on the market reactions. The significance of the F-test on the main effect of governance quality confirms that governance quality is reflected in the market reaction. The F-test on the interaction between the investment banks and governance quality is significant at the 5% level, indicating that the banks and quality of governance work together and have extra impact on the market reaction. The ANOVA using CAR (-1, 1) presents similar results except that the interaction effect is not significant at the traditional significance level. These results of the univariate tests indicate that the quality of governance and investment

banks seemingly have an interaction impact on shareholders' wealth around the deal announcements.

2.4.3. Multivariate tests

2.4.3.1. Governance quality and the choice to use investment banks

Table 2.3 presents the results of the logistic model identifying the factors influencing the decision to use an investment bank. The model (1) regresses the likelihood of using the bank on governance quality, only controlling for firm feature, years, and the percentage of previous 20 deals using investment banks, which is included to capture the possible clustering pattern in use of financial advisors. Model (2) controls for deal features such as the natural logarithm of total asset, return on asset (*ROA*), relative size of transaction defined as transaction value divided by acquiring firm's total asset. Models (1) and (2) use the same samples, but they have different model specifications.

The results in Model (1) show that the governance index is positively associated with the decision to use an investment bank. The coefficient estimate on GI is 0.0199 significant at the 5 percent level. Stronger results are reported for Model (2). The coefficient becomes 0.0306, significant at 1% level, indicating acquiring firms with poor governance quality are more likely to use investment banks in their mergers and acquisitions.

Table 2.3 also presents other variables that significantly affect the firm's choice to use investment bank. The relative size of the transaction and the form of merger, partial interest acquisition and remaining interest acquisition significantly associate with the likelihood of using investment banks. 'Merger', 'major', 'partial', and 'remaining' are all dummy variables and compared with the base deals-acquisitions of asset. The positive coefficient on 'merger' of 0.5274 indicates that investment banks are more often used in merger deals than asset deals. The

negative coefficient on 'partial' shows that investment banks are less often involved in the deals of acquisition of partial interest than acquisitions of asset.

2.4.3.2. Use of investment banks and their impact on the acquirers

Table 2.4 reports the results of poor data regressions with correction of heteroscedacity in error items. Models (1), (2), and (3) use CAR (-1, 0) as the dependent variable. Models (4), (5), and (6) use CAR (-1, 1). Model (1) includes both *GI* and the use of investment bank (*IB*), but excludes their interaction term. Model (1) only controls for firm characteristics. Model (2) includes the interaction term (*GI*IB*) as well as the individual term *IB* and *GI*, controlling for both firm characteristics and deal features. Model (3) controls for endogeneity issue.

The coefficient estimate on *IB* in Model (1) is -0.0052, significant at 1% level. The model does not control for deal features or the interaction term between governance quality and the use of investment banks. When the model includes the interaction item as Model (2), the significance of the coefficient on use of investment banks (*IB*) disappears, whereas the coefficient on the interaction term is -0.0008, statistically significant at the 10 percent level when controlling for endogeneity, as showed in model (3). These results also hold over CAR (-1, 1) no matter whether or not controlling for endogeneity, as models (6) and (7) indicate. The significance of the coefficient of the interaction term provides the support for the interaction effect of governance quality and use of investment banks: when investment banks are used by acquiring firms with poor governance, shareholders lose more. The results confirm the prediction that the banks may mainly serve the purposes of managers instead of shareholders'. The main effect of investment banks is non-negative, which indicates that use of investment banks, per se, is not associated with value reduction for shareholders, consistent with previous studies (Servaes et al, 1996). In the models (3) and (6) controlling for endogeneity, the

coefficients are highly significant, showing the investment banks actually add value when working independently. This may be due to the skills investment banks have and their concern for reputation. According to Table 2.4, relative size, use of the stock as currency and the form of deal as merger are all negatively associated with the wealth effects.

The results in both Tables (2.4) confirm the interaction effect of governance quality and the use of investment banks on shareholders' wealth in corporate mergers and acquisitions. If the managers in the acquiring firms are not maximizing shareholders' wealth, investment banks, as contractors hired by these managers, will have even less incentive to do so.

2.5. Conclusions

In this study, I investigate the wealth impact of the use of investment banks in a sample of corporate mergers and acquisitions occurring between 1992 and 2004. Recognizing that the decision to use an investment bank in the first place is a managerial decision, and that the quality of managerial decisions is impacted by the firm's governance quality, I investigate the impact of governance quality on the use of investment banks in the acquiring firms and how the governance quality and the banks interact to affect the acquiring firm shareholders' wealth.

I find that the poor governance in acquiring firms is positively associated with use of investment banks in mergers and acquisitions. This relation holds beyond deal features and firm characteristics such as transaction size, method of payment, type of transaction, and firm performance. Confirming the existence of interaction effect of governance quality and the use of investment banks, I find that when the acquiring firm has poor governance, the use of investment bank is associated with a significant wealth loss for the shareholders. In contrast, when the acquiring firm's governance quality is good, the use of investment banks is not associated with significant losses for the acquiring firm. The findings suggest that investment banks may help

managerial empire building at the expense of shareholders when they facilitate transactions among poorly governed acquiring firms.

This study shows that when we consider the wealth effect of investment banks in mergers and acquisitions, we need to control for the governance quality of acquiring firms. Whether the agents in the acquiring firms have incentive to maximize their shareholders' wealth directly affects the extent to which investment banks add value for the same shareholders. Thus, all of the results together point to a fundamental issue: it is crucial to strength the quality of corporate governance, since it may be source of many others' wrongdoings.

2.6. Tables for chapter two

Table 2. 1: Descriptive statistics

Panel A: firm features								
Variables	Observation	Mean	Standard Deviation	GI-Q1 [1,6]	GI-Q2 [7,8]	GI-Q3 [9,9]	GI-Q4 [10,11]	GI-Q5 [12,18]
GI	10767	9.26	2.77	5.21	7.56	9.00	10.52	12.96
TotalAssets	10735	15965	60550	20411	22467	10707	12470	12174
Ln(Total Assets)	10735	8.064	1.6968	7.88	7.86	7.97	8.21	8.29
ROA	10735	0.0436	0.1321	0.04	0.03	0.04	0.05	0.04
NetIncome	10735	442.66	1627.03	586	373	321	579	309
Panel B: deal features								
Variables	Observation	Mean	Standard Deviation	GI-Q1 [1,6]	GI-Q2 [7,8]	GI-Q3 [9,9]	GI-Q4 [10,11]	GI-Q5 [12,18]
IB	10767	0.19	0.39	0.16	0.18	0.20	0.20	0.19
Tranvalue	5391	544.49	2735.38	584	537	456.25	462.66	649.91
Relative size	5378	0.13	0.39	0.15	0.16	0.11	0.11	0.12
Stockpay	10767	0.135	0.327	0.14	0.13	0.15	0.13	0.13
Industry	10767	0.395	0.488	0.42	0.43	0.39	0.38	0.36
Attitude	10767	0.005	0.076	0.002	0.005	0.010	0.003	0.008
Merger	10767	0.247	0.431	0.250	0.233	0.285	0.233	0.249
Major	10767	0.020	0.140	0.022	0.021	0.019	0.021	0.018
Partial	10767	0.095	0.293	0.110	0.100	0.069	0.100	0.086
Remaining	10767	0.022	0.147	0.020	0.019	0.029	0.024	0.0203
Asset	10767	0.614	0.486	0.595	0.624	0.596	0.962	0.625
Per20	10767	0.166	0.089	0.163	0.169	0.159	0.168	0.168

This table shows descriptive statistics for the dataset in the study. Panel A shows the firm features for all the firms in the dataset. Panel B presents the deal features.

GI is the governance index for the acquiring firm as in Gompers, Ishii and Metrick (2003), and it may be the exactly one year before the deal announcement year or at most two year preceding deal announcement year; *TotalAsset* is the total asset of firms in the governance index dataset (in millions of dollars); *NetIncome* is net income of the acquiring firm (in millions of dollars); ROA is firms'

IB is a binary variable equal to 1 if the acquiring firm uses investment banks and 0 otherwise; *Tranvalue* is the deal value of transaction conducted by the acquiring firm; *Relative size* is the transaction value divided by acquiring firm's total asset; *Stockpay* is the percentage of deal value that is paid with acquiring firm stocks; *Industry* is a dummy variable used to capture whether the deal is a simple expansion in the same industry or diversification across different industries for the acquiring firm, and it assumes value 1 if the acquiring firm and target firm share first three digits of their main SIC, and 0 otherwise; *Attitude* is dummy variable equal to 1 if the target firm opposes the deal and 0 otherwise; *Merger* is a dummy variable that takes value of 1 if the deal is merger and 0 otherwise. *Major* is a dummy variable that takes value of 1 when the deal is acquiring major interest in the target firm and 0 otherwise. *Partial* is a dummy variable that takes value of 1 when the deal is acquiring partial interest in the target firm and 0 otherwise. *Remaining* is a dummy variable that takes value of 1 when the deal is acquiring remaining interest in the target firm and 0 otherwise. *Asset* is a dummy variable that takes value of 1 when the deal is acquiring asset from the target firm and 0 otherwise; *Per20* is the percentage of acquisitions that use investment banks in the twenty acquisitions preceding the one specific acquisition.

Based the GI value, the sample is divided into five quintile groups. The value in the bracket is the minimum and maximum GI value for each quintile. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

Table 2. 2: Market reaction to the deal announcements

Panel A				
Deal Type	Obs.	% use of bank	CAR(-1,0) Mean (Std. Error)	CAR(-1,1) Mean (Std. Error.)
Merger	2666	42.5	-0.0054*** (0.0008)	-0.0057*** (0.0010)
Major	218	16.7	0.0030 (0.0028)	0.0096** (0.0038)
Partial	1027	6.3	0.0026** (0.0011)	0.0025* (0.0014)
Remaining	236	28.3	0.0035 (0.0029)	0.0050 (0.0034)
Asset	6620	11.3	0.0013*** (0.0004)	0.0025*** (0.0005)
Total	10767	19	-0.0001 (0.0003)	0.0006 (0.0004)

Panel B						
Variables	Obs.	GI-Q1 [1,6]	GI-Q2 [7,8]	GI-Q3 [9,9]	GI-Q4 [10,11]	GI-Q5 [12,18]
Observations	10900	1969	2496	1346	2577	2512
Use Investment bank (%)	2074 (19.02%)	326 (16.5%)	453 (18.1%)	277 (20.5%)	523 (20.2%)	495 (19.7%)

Panel C1									
Variables	Obs	Mean (Std. Error.)	GI-Q1 [1,6]	GI-Q2 [7,8]	GI-Q3 [9,9]	GI-Q4 [10,11]	GI-Q5 [12,18]	F-tests (ANOVA by GLM)	
CAR(-1,0)	10767	-0.0001 (0.0003)	0.0004 (0.0010)	0.0002 (0.0008)	0.0009 (0.0010)	-0.0011 (0.0007)	-0.0004 (0.0006)	IB	23.82*** (<0.001)
No IB	8706 (80.9%)	0.0009** (0.0003)	0.0010 (0.0010)	0.0004 (0.0008)	0.0017 (0.0010)	0.0008 (0.0007)	0.0007 (0.0006)	GI	2.63** (0.03)
IB	2061 (19.1%)	-0.0042*** (0.0011)	-0.0028 (0.0031)	-0.0004 (0.0025)	-0.0021 (0.0027)	-0.0080*** (0.0020)	-0.0040** (0.0021)	IB*GI	2.63** (0.03)
-Difference		0.0051*** (0.0009)							
Panel C2									
Variables	Obs.	Mean (Std. Error.)	GI-Q1 [1,6]	GI-Q2 [7,8]	GI-Q3 [9,9]	GI-Q4 [10,11]	GI-Q5 [12,18]	F-tests (ANOVA by GLM)	
CAR(-1,1)	10767	0.0006 (0.0004)	0.0008 (0.0012)	0.0008 (0.0010)	0.0024* (0.0012)	-0.0005 (0.0009)	0.0006 (0.0008)	IB	14.11*** (0.00)
No IB	8706 (80.9%)	0.0016*** (0.0004)	0.0011 (0.0012)	0.0011 (0.0011)	0.0033 (0.0013)	0.0013 (0.0009)	0.0018** (0.0008)	GI	1.89* (0.10)
IB	2061 (19.1%)	-0.0033** (0.0014)	-0.0005 (0.0044)	-0.0004 (0.0031)	-0.0010 (0.0035)	-0.0081*** (0.0025)	-0.0042* (0.0025)	IB*GI	1.69 (0.14)
-Difference		0.0050*** (0.0012)							

The table presents the use of investment banks and CAR over different groups. CAR (-1, 0) is two day cumulative abnormal return base on standard event study. CAR (-1, 1) is three day cumulative abnormal return. “No IB” includes the deals in which the acquiring firm does not use investment bank. Use IB includes the deals in which the acquiring firms use investment bank.

Panel A presents the percentage of the deals that use investment banks and market reactions to different type of deals.

In panel B and C, the sample is divided into five quintile groups based on GI value. The numbers in the bracket under GI-Qs are the minimum and maximum of GI values for in each quintile. Panel B presents the percentage of deals, in which acquiring firm uses investment banks under each GI quintile group. Panel C presents the association between market reaction CARs, use of investment banks and acquiring firm’s governance quality.

The F-tests on the right side of Panel C are the results of two-factor analysis of variance (ANOVA). Still to use CAR (-1, 0) to illustrate, the first F-test with value of 23.18 is testing the main effect of the use of investment banks. It has p value smaller than 0.0001, indicating the involvement of investment banks has significant impact on the market reaction. The significance of F-test on the main effect of ‘GI’ confirms that governance quality is reflected in the market reaction. The F-test on the interaction between the investment banks and governance quality has P-value of 3%, indicating that the banks and quality of

governance work together and have impact on the market reaction. The ANOVA using CAR (-1, 1) presents similar results except that the interaction effect is not significant at traditional significance level. The eyeballing observation indicates that when the poor governance, cooperated with investment banks, leads to shareholders' loss. The ANOVA analyses seemingly confirm the interaction effect.

The standard error is in parenthesis. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

Table 2. 3: Logistic regression analysis of the choice to use investment banks

Variables	Use Bank (1)	Use Bank (2)
Intercepts	-2.5102*** (0.1677)	-2.5885*** (0.1456)
GI	0.0199** (0.008)	0.0306*** (0.0070)
Log (Total Assets)	0.0978*** (0.0145)	0.1663*** (0.0130)
ROA	-0.1948 (0.1716)	0.0188 (0.1193)
Relative size		3.2499*** (0.1605)
Per20	1.1825*** (0.2415)	0.3008 (0.1923)
Stockpay		-0.095* (0.056)
Industry		-0.061 (0.039)
Attitude		0.1071 (0.2130)
Merger		0.5274*** (0.0496)
Major		0.1231 (0.131)
Partial		-0.543*** (0.083)
Remaining		0.4516*** (0.1070)
Control years	Yes	Yes
Obs	10789	5411
Pseudo R-square	0.01	0.215

This table shows the results of testing whether managerial power in the acquiring firm is associated with use of an investment bank by estimating the following model

$$Prob(IB) = \alpha + \beta_1 * GI + \sum \beta_i * Controls_i + \varepsilon_1$$

Where *IB* is a binary variable equal to 1 if the acquiring firm uses investment banks and 0 otherwise; *GI* is the governance index for the acquiring firm as in Gompers, Ishii and Metrick (2003), and it may be the exactly one year before the deal announcement year or at most two year preceding deal announcement year; Controls include log (*Total Asset*), which is the total asset of firms in the governance index dataset (in millions of dollars), *ROA* is return on asset of the acquiring firm, and other control variables as follows:

Tranvalue is the deal value of transaction conducted by the acquiring firm; *Relative size* is the transaction value divided by acquiring firm's total asset; *Per20* is the percentage of acquisitions that use investment banks in the twenty acquisitions preceding the one specific acquisition; *Stockpay* is the percentage of deal value that is paid with acquiring firm stocks; *Industry* is a dummy variable used to capture whether the deal is a simple expansion in the same industry or diversification across different industries for the acquiring firm, and it assumes value 1 if the acquiring firm and target firm share first three digits of their main SIC, and 0 otherwise; *Attitude* is dummy variable equal to 1 if the target firm

opposes the deal and 0 otherwise; *Merger* is a dummy variable that takes value of 1 if the deal is merger and 0 otherwise; *Major* is a dummy variable that takes value of 1 when the deal is acquiring major interest in the target firm and 0 otherwise; *Partial* is a dummy variable that takes value of 1 when the deal is acquiring partial interest in the target firm and 0 otherwise; *Remaining* is a dummy variable that takes value of 1 when the deal is acquiring remaining interest in the target firm and 0 otherwise.

Model (1), (2) and (3) use the same sample, but have different model specifications. The GI dummy is coded to have value of 1 when observation is on highest GI quintile and 0 otherwise.

The standard error is in parenthesis. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

Table 2. 4: The wealth effect of the interaction between investment banks and governance quality in the acquiring firms

	CAR(-1,0)			CAR(-1,1)		
	(1)	(2)	(3) Self-selection	(4)	(5)	(6) Self-selection
Intercepts	0.0157*** (0.0038)	0.0172*** (0.0041)	0.0215*** (0.0042)	0.0272*** (0.0052)	0.0290*** (0.0054)	0.0331*** (0.0032)
GI	-0.0002 (0.0002)	-0.0001 (0.0002)	-0.0002 (0.0002)	-0.0002 (0.0002)	-0.0002 (0.0028)	-0.0002 (0.0002)
IB	-0.0052*** (0.0013)	0.0062 (0.0049)	0.0266*** (0.0093)	-0.0051*** (0.0017)	0.0103 (0.0065)	0.0322*** (0.0123)
GI*IB		-0.0007 (0.0005)	-0.0008* (0.0004)		-0.0010* (0.0006)	-0.0011* (0.0006)
Log (Total Asset)	-0.0014*** (0.0003)	-0.0015*** (0.0003)	-0.0024*** (0.00047)	-0.0026*** (0.0004)	-0.0027*** (0.0005)	-0.0036*** (0.0006)
ROA	-0.0038 (0.0046)	-0.0048 (0.0047)	-0.0047 (0.0046)	0.0021 (0.0056)	0.0006 (0.0057)	0.0009 (0.0057)
Relative size		-0.0091*** (0.0033)	-0.0257*** (0.0056)		-0.0107*** (0.0023)	-0.0272*** (0.0079)
Stockpay		-0.0068*** (0.0017)	-0.0059*** (0.0017)		-0.0086*** (0.0023)	-0.0076*** (0.0023)
Industry		0.0019* (0.0012)	0.0022* (0.0012)		0.0005 (0.0015)	0.0009 (0.0015)
Attitude		0.0032 (0.0052)	0.0044 (0.0053)		0.0031 (0.0068)	0.0062 (0.0067)
Merger		-0.0054*** (0.0015)	-0.0086*** (0.0021)		-0.0073*** (0.0020)	-0.0113*** (0.0027)
Major		0.0029 (0.0043)	0.0023 (0.0043)		0.0092 (0.0065)	0.0085 (0.0065)
Partial		-0.0008 (0.0020)	0.0014 (0.0022)		-0.0038 (0.0024)	-0.0012 (0.0027)
Remaining		0.0042 (0.0039)	0.0014 (0.0042)		0.0050 (0.0047)	0.0018 (0.0050)
Lambda (λ)			-0.0111*** (0.0043)			-0.0127** (0.0059)
Control years	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	10716	5365	5348	10716	5365	5348
Adj. R-square	0.0081	0.0269	0.0280	0.0090	0.0282	0.0278

This table shows the relationship between cumulative abnormal returns (CAR) and the use of investment banks.

$$CAR = \alpha + \beta_1 * GI + \beta_2 * IB + \beta_3 * GI * IB + \sum \beta_i * Controls_i + \varepsilon_2$$

Where CAR is cumulative abnormal return over the window $[-1, 0]$; GI is the governance index for the acquiring firm as in Gompers, Ishii and Metrick (2003), and it may be the exactly one year before the deal announcement year or at most two year preceding deal announcement year; IB is a binary variable equal to 1 if the acquiring firm uses investment banks and 0 otherwise. Controls include ROA is return on asset of the acquiring firm, $Log(Total Asset)$, which is the total asset of firms in the governance index dataset (in millions of dollars), $Relative size$ is the transaction value divided by acquiring firm's total asset, $Stockpay$ is the percentage of deal value that is paid with acquiring firm stocks, $Industry$ is a dummy variable used to capture whether the deal is a simple expansion in the same industry or diversification across different industries for the acquiring firm, and it assumes value 1 if the acquiring firm and target firm share first three digits of their main SIC, and 0 otherwise, $Attitude$ is dummy variable equal to 1 if the target firm opposes the deal and 0 otherwise; $Merger$ is a dummy variable that takes value of 1 if the deal is merger and 0 otherwise, $Major$ is a dummy variable that

takes value of 1 when the deal is acquiring major interest in the target firm and 0 otherwise, *Partial* is a dummy variable that takes value of 1 when the deal is acquiring partial interest in the target firm and 0 otherwise, and *Remaining* is a dummy variable that takes value of 1 when the deal is acquiring remaining interest in the target firm and 0 otherwise.

In model (1), (2) and (3), CAR (-1, 0) is dependent variable. In model (4), (5) and (6), CAR (-1, 1) is dependent variable.

The White Heteroscedacity robust standard errors are in parenthesis. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

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CHAPTER THREE: THE WEALTH IMPLICATIONS OF FAIRNESS OPINIONS FOR ACQUIRING FIRMS' SHAREHOLDERS

3.1. Introduction

In mergers and acquisitions, acquiring firms or target firms often seek a fairness opinion from their financial advisors, usually investment banks, regarding whether the deal (particularly the price to be paid) is fair to their shareholders. In the letter of opinion, investment banks typically state that after having reviewed the deal, they think the deal as presented is fair to the shareholders of the client firm from a financial point of view, assuming the information provided by the firm is accurate.

Although the fairness opinion may have support from the chosen valuation model, whether it has true value to shareholders remains a hot issue in the recent popular press (see Leddy and Walters, 2005; Tack, 2005; Leone, 2006, among many others). The National Association of Securities Dealers (NASD) also stepped into the business and proposed Rule 2290, which places disclosure and procedural requirements on all NASD member broker-dealers who provide fairness opinions.

Despite great attention from the popular media, there is little academic work investigating what fairness opinions imply to shareholders of the acquiring firms that use them. Recent work by Kisgen, Qian, and Song (2005) documents that acquirers that have two or more fairness opinions have statistically positive long-term stock performance. However, the study does not consider the self-selection issue in acquirers' choice to use opinions for a deal, and consequently, estimates of the impact of opinions from ordinary least square (OLS) regressions can be biased. Our study investigates the value of fairness opinions by using the propensity score matching method to address the self-selection issue. It explores two questions specifically: Does

a merger stamped by “fairness” on the whole link to a good post-deal return to shareholders? If not, why do firms spend millions of dollars on fairness opinions in the first place?

Inherently, a fairness opinion provides evidence that the board performs fiduciary duties and includes the expert opinion of investment banks. In developing the fairness opinion, investment banks review the deal plan, including its price, terms, and legality, and exercise their expert judgment on whether the deal is fair to the shareholders. During the formation process of the opinion, the board may be able to communicate with the opinion provider and increase understanding of the proposal. Theoretically, this should lead to a reduction in information asymmetry and help the board approve good deals. In addition, investment banks have expertise and may have staked their reputation on the quality of their opinion. Their favorable opinion may function as a “seal of approval.” Given these reasons, it is natural to expect opinioned mergers to be good projects and in the interest of shareholders.

However, fairness opinions suffer from systematic problems, and this makes the accuracy and value of the opinions suspicious. First, there are no objective standards regarding what constitutes “fairness” from a financial point of view (Tack, 2005). Second, the primary motive for obtaining a fairness opinion may not be to maximize shareholder wealth but to protect the board itself.¹² Third, the opinion may be tainted by a conflict of interest. Often, the opinion providers also serve as financial advisors in the transaction and receive fees, the majority of which are contingent on the successful completion of the deal. Negative opinions will jeopardize completion of the deal and, therefore, the fee income (Tack, 2005; Leone, 2006).

Given the controversies about fairness opinions and the lack of rigid investigation on what favorable opinions imply to shareholders, this study investigates the wealth implications of

¹² The fairness opinion may function as an insurance policy to protect the board members in the event of a lawsuit (Bowers and Latham III, 2004).

opinions by focusing on the buy-side. I start with two hypotheses about why acquiring firms use fairness opinions: the shareholder wealth and the board insurance hypotheses. Under the shareholder wealth hypothesis, the acquiring firm's shareholders benefit from fairness opinions because the opinions help the board set a fair price and approve good mergers. Under the insurance hypothesis, the board is more likely to buy a fairness opinion for a merger that is more likely to be value-reducing, other things equal.

Since the acquiring firm self-selects to use an opinion, the estimate of the impact of the fairness opinion on the wealth of the acquiring firm's shareholders can be biased if the self-selection issue is not addressed. At the beginning of the investigation, I first compare the board characteristics of acquiring firms that use opinions with those of acquiring firms that do not use them; I find no difference in the characteristics. Then I apply the propensity score matching method to identify a matching deal for each opinioned deal based on observable deal characteristics. Using the pool of opinioned and non-opinioned matching deals, I investigate the impact of fairness opinions.

Since there is no consensus regarding the standard of fairness, our study uses different benchmarks to investigate the wealth implications of fairness opinions for shareholders. I compare returns during the announcement period of opinioned and non-opinioned matching mergers. In the long-run performance analysis, I compare the post-merger performance with the pre-merger performance for the same acquiring firm, and I compare acquiring firms undertaking opinioned or non-opinioned matching mergers with matching firms that do not undertake mergers in the comparison period.

I find that firms with opinioned mergers receive more negative market reaction than those with non-opinioned matching mergers during the announcement period. I find that in the longer

time windows, firms with opinioned mergers perform more poorly than they did before the mergers and underperform the matching firms over some window after the mergers, just as the firms with non-opinioned matching mergers.

Overall, I conclude that fairness opinions do not have positive wealth implications for the acquiring firm's shareholders; the board purchasing the fairness opinion may simply be hedging legal risk, and the mergers for which the board buys an opinion are not better deals compared with non-opinioned ones.

The remainder of the paper is organized as follows. Section 3.2 develops the hypotheses. Section 3.3 introduces the data and methodology. Section 3.4 presents the empirical results. Section 3.5 concludes the chapter.

3.2. Development of hypotheses

3.2.1. Shareholder wealth hypothesis

The board's oversight role has been extensively studied in the organizational literature (see Miller, 2002). Through monitoring, the board can ameliorate the agency problems arising from conflicts of interests between managers and shareholders (see John and Senbet, 1998). The literature specifically demonstrates that boards with higher proportions of outsiders can oversee managers more effectively. Peasnell, Pope, and Young (2005) indicate that boards contribute to the integrity of financial statements. Schellenger and Wood (1991) document that firms with a greater percentage of outside directors have better returns than firms with a lower percentage of outsider directors. Bhojraj and Sengupta (2003) find that firms with stronger outsider control of the board have lower bond yields and higher ratings on their bond issue. Overall, the boards, particularly the ones with strong outsider control, represent the interests of shareholders and monitor management of the firm.

In corporate mergers, managers usually develop the proposal and submit it to the board for approval before shareholders vote. When reviewing the merger proposal, the board needs to ensure that the merger is in the interests of shareholders. Since CEOs have the controlling power over information and the directors may have limited access to the information required to fulfill their role in monitoring and control (Nowak and McCabe, 2003), the board may obtain a fairness opinion. In this case, the fairness opinion may help reduce information asymmetry and serve shareholders' interests. Thus, the shareholder wealth hypothesis suggests that fairness opinions are valuable to shareholders.

3.2.2. Board insurance hypothesis

Boards of directors owe fiduciary duties to shareholders. When performing fiduciary duties in mergers and acquisitions, directors need to inform themselves of all critical information available prior to approving a merger. Directors can be held responsible for the actions they did not take but should have taken. This was implied in the landmark Delaware case *Smith vs. Van Gorkom*,¹³ in which the court imposed personal liability on outside directors because of gross negligence in failing to determine a company's value before selling the company.¹⁴ Obtaining a fairness opinion evidences that the board is informed about its approval decision, and therefore, it protects boards against possible lawsuits, functioning like an insurance policy.

Usually, corporations buy directors and officers (D&O) liability insurance. The insurance policy covers the cost of directors and officers defending and settling lawsuits. Besides D&O

¹³ 488 A.2d 858 (Del. 1985)

¹⁴ Though, in that case, the merger price was all cash at an almost 50 percent premium over the previous price of the acquired company's stock.

liability insurance, directors also have the protection of two types of liability limitation statutes: charter-option statutes and self-executing statutes.¹⁵

However, D&O liability insurance and other protections do not make it unnecessary to use a fairness opinion. Although firms typically buy D&O liability insurance to protect directors from personal liability, the policy has so many exclusions that they provide little coverage (Doyle, 1991). In spite of the existence of the liability limitation provision under which directors are not personally liable for negligence, lawsuits against directors can still damage their reputation and their job opportunities in the directorship market. Thus, directors are usually cautious and obtain as much insurance as possible.

Since directors' and officers' purchase of D&O liability insurance has valuation implications, I expect that fairness opinions may also have similar valuation implications. Chalmers, Dann, and Harford (2002) document that directors and officers purchase D&O liability insurance at the time of their firm's IPO to protect them from financial loss in shareholder litigation. They find that the amount of D&O insurance purchased is negatively associated with the three-year post-IPO stock performance. In the merger context, if the board purchases the fairness opinion as an insurance policy, then the fairness opinion is similar to D&O liability insurance in the IPO case. Therefore, the valuation implications should be similar: mergers for which the board buys the opinion may be associated with poor future performance compared with non-opinioned mergers.

¹⁵ Introduced by Delaware in July 1986 and subsequently adopted by at least 30 other states, charter-option statutes allow a company to amend its charter to effectively eliminate directors' liability to stockholders for monetary damages arising from breach of fiduciary duty. Self-executing statutes are automatically applied in states such as Indiana, Ohio, Florida, Wisconsin, and Maine, and shareholders' approval for board protection is not required (Brook and Rao, 1994).

General insurance theories hold that either risk aversion or the likelihood that the project will go wrong is one of the main factors driving the purchase of insurance. After I control for the board's risk preference, the likelihood that the project will go wrong is positively linked to the purchase of insurance. Based on the arguments above, the insurance hypothesis states that the board uses an opinion to protect the directors. Under this hypothesis, opinioned mergers are not good investments if there is no difference in the risk preference of the board that uses opinions and the board that does not.

3.2.3. Differentiating the two hypotheses

The shareholder wealth hypothesis holds that the board uses the opinion to make a reasonable offer and possibly select a good merger that serves the interests of shareholders. The insurance hypothesis holds that the board purchases the opinion for its self-protection. Under the insurance hypothesis, purchase of opinion does not necessarily mean that the merger is not in shareholders' interests. If the opinion is accurate and helps the board approve good mergers, shareholders will still benefit. If this is the case, it is not possible to differentiate the two hypotheses. If, on the other hand, the opinion itself is not accurate, and favorable opinion is not associated with superior returns, it is reasonable to conclude that the insurance hypothesis supersedes the shareholder wealth hypothesis.

3.3. Data and methodology

3.3.1. Data sources

The merger deals are from the Securities Data Corporation (SDC) on-line Merger and Corporate Transactions database. When finding matching firms to construct long-run abnormal

returns for the acquiring firms, I obtain book equity value from Compustat, and I obtain returns, prices, and shares outstanding from the Center for Research in Security Prices (CRSP).

From SDC, specifically I extract deals in the form of mergers between 1993 and 2003. The total number of deals is 20,729. For these deals, I use the CUSIP numbers of the acquiring firms and announcement dates of the deals to obtain the announcement returns and the long-run abnormal returns using Eventus. This action gives us 3,299 mergers in which acquiring firms were public firms. To obtain board characteristics of these acquiring firms and reduce the workload of manually collecting/verifying fairness opinion information, I merge the corporate director data from the Investor Responsibility Research Center (IRRC) with the data set of 3,299 observations produced above based on acquiring firm and announcement year. The manipulation leaves us 1,213 deals occurring in the years between 1996 and 2003, the period covered by the director data set. Then, I manually search SEC filings for the 580 deals among those 1,213 deals that have information on financial advisors. I found 113 deals that use buy-side opinions.¹⁶

The deal characteristics are given in Table 3.1. The mean transaction value is \$1.421 million; the mean total asset of the acquiring firm is \$15.83 million; 48.8% of the deals are cross-industry mergers; only 1.8% of the deals are marked as “hostile”;¹⁷ in about 52.6% of the deals, the acquiring firms more or less use their stock as currency; the average number of bidders is 1.046, indicating that there are multiple competing bidders in some deals; the average premium that the target firm’s shareholders receive is about 54.35%; and abnormal returns of the acquiring firms are 1.3% for the two-year period before the merger announcement.

¹⁶ The SDC reports that only 57 among these 1,213 deals used fairness opinions. In Kisgen, Qian, and Song (2006), the percentage is 37%. They exclude the merger deals which have transaction value less than \$5 millions. However, the average transaction value in our sample is only \$1.4 million (see table 1). In addition, the current study only focuses on merger deals and does not include other type of deals.

¹⁷ This low percentage is consistent with fact that I choose deals in the form of merger.

3.3.2. Benchmark issue of performance measures

Since there is no clear basis against which to judge whether a transaction is substantively fair from the shareholder's standpoint, I use several benchmarks to measure the performance associated with the mergers. I first employ event-study methodology to analyze announcement period returns, and then I turn to long-run performance measures. In the long-run performance analysis, I look at whether an acquiring firm's shareholders are financially worse off due to the merger and compare the performance of the same acquiring firm before and after the merger. I also compare the acquiring firm with its matching firm that is not involved in a merger over the comparison period. In the long-run analysis, I use different models for measuring the long-run abnormal returns.

3.3.2.1. Event-study methodology: short-term analysis

Abnormal returns around merger announcements are computed using a normal event-study approach. The estimation period is the 255-day period ending 30 days prior to the announcement date. The equally weighted index of stocks traded on the New York and American Stock Exchanges are from the CRSP. Following Datta, Iskandar-Datta, and Raman (2001), I compute two-day (-1, 0) cumulative daily abnormal returns for acquirers at merger announcements.

3.3.2.2. Long-run analyses: acquiring firm's pre- and post-merger performance

Besides the announcement period returns, I also examine whether the fairness opinion is informative about the long-run performance of the acquiring firm. In the long-run analysis, I first compare the acquiring firm's pre-merger performance to its post-merger performance. I employ two different approaches to investigate this question. First, I define abnormal monthly returns using the simple market model as in equation (3.1):

$$SMAR_{ij} = \sum_{jt=0}^{+k-1} (R_{ijt} - R_{mt})/k - \sum_{jt=-k}^{-1} (R_{ijt} - R_{mt})/k , \quad (3.1)$$

where R_{mt} is an equally weighted market monthly return; R_{ijt} is the monthly return of acquiring firm i before or after the merger j ; k is 12, 24, and 36 months; and $SMAR_{ij}$ captures the change in average monthly abnormal returns around the merger.

Our second measure for the change in monthly abnormal returns is defined as in equation (3.2):

$$FFAR_{ij} = \alpha_{+1} - \alpha_{-1} , \quad (3.2)$$

where α measures risk-adjusted abnormal returns and is the intercept from the four-factor model, which includes Fama and French's three factors (Fama and French, 1993) and the fourth momentum factor (Carhart, 1997).¹⁸ Specifically, the model is given in equation (3.3):

$$R_{ijt} - R_{rft} = \alpha_{ij} + b_{ij}(R_{mt} - R_{rft}) + s_{ij}SMB_t + h_{ij}HML_t + k_{ij}Momentum_t + \zeta_{ijt} , \quad (3.3)$$

where R_{ijt} is the monthly return of acquiring firm i ; R_{rft} is the one-month Treasury bill rate; $R_{mt} - R_{rft}$ is the value-weight return on all New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and NASDAQ stocks (from CRSP) minus the one-month Treasury bill rate; SMB_t is the average return on the three small portfolios minus the average return on the three big portfolios; HML_t is the average return on the two value portfolios minus the average return on the two growth portfolios; $Momentum_t$ is the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios.

For each firm-merger, I estimate equation (3.3) using 12, 24, or 36 monthly returns before and after the merger separately and obtain the two intercepts α_{+1} and α_{-1} . α_{+1} is the

¹⁸ All factors are taken from Kenneth R. French's on-line data library: <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html>

average abnormal monthly return after the merger. α_{-j} is the average abnormal monthly return before the merger. The positive and negative subscripts denote post- and pre-merger, respectively.

3.3.2.3. Long-run analyses: acquiring firms to matching firms

The second comparison basis is the size, book-to-market ratio, and pre-merger returns of matching firms. Here, I adopt an approach similar to that of Datta, Iskandar-Datta, and Raman (2001). Specifically, I extract from CRSP all monthly returns, prices, and outstanding shares for all firms listed on the NYSE, AMEX, and NASDAQ from 1992 to 2003. Then, I obtain book equity values (Compustat annual data item #60) for all firms listed on the NYSE, AMEX, and NASDAQ for the same time period.

I merge the monthly returns file with the book-equity-value file by exchange, ticker symbol, and year.¹⁹ After merging these files, I take the following actions. First, I compute size, book-to-market ratio, and prior 12-month buy-and-hold returns for each firm in each month.²⁰ Second, I merge the sample of acquiring firms with the merged return and book-equity-value file from the first action by exchange, year, month (one month before the announcement date for the acquiring firm), and ticker (acquiring firm ticker in merger data). Acquiring firms with deal information, size, book-to-market ratio, and pre-merger returns are separated out as the *sample file*. Third, from the merged file I extract the firms that were not involved in a merger currently or in the previous 36-month period. This file is the *matching file*, the pool of possible matching firms. Finally, I merge the *matching file* and *sample file* by exchange, year, and month, and I compute the sum of the absolute percentage differences of size, book-to-market ratio, and pre-

¹⁹ The monthly return, price, and number of outstanding shares for one stock are merged with the book equity value in the previous year.

²⁰ Size is market capitalization (measured as price per share times the number of shares outstanding on CRSP); book-to-market ratio is calculated by dividing the book equity value by market capitalization.

merger 12-month returns between the acquiring firm and the possible matching firm for each observation.²¹ The firms from the matching file that have least, second, and third minimal percentage sums are chosen as the number one, number two, and number three matching firms for the sample firm.

Differing slightly from Datta, Iskandar-Datta, and Raman (2001), I match the firm using the acquiring firm's information one month before the announcement date instead of the effective date. The intention is to alleviate the survivorship bias and capture the relatively complete impact of the fairness opinion. If the effective date is used for the matching date, the deals that are favorably opinioned but later withdrawn may not be included in the sample.

According to the literature (Barber and Lyon, 1997; Lyon, Barber and Tsai, 1999), the matching firm approaches are considered less problematic and generally yield well-specified testing statistics. Since cumulative abnormal returns (*CARs*) are associated with fewer statistical problems than long-term buy-and-hold abnormal returns (*BHARs*), and *BHARs* imply an implementable investment strategy, I calculate both to measure abnormal returns similar to Barber and Lyon (1997).

The *CAR* for the sample firm s having a merger in calendar month d is calculated as

$$CAR_{sd} = \sum_{t=1}^T (R_{s,t} - R_{sm,t}), \quad (3.4)$$

where month $t = 1$ is the announcement month, the calendar month is d , R_{st} is the return on the sample stock s on month t , R_{sm} is the return on control firm s ,²² and T is the computing window

²¹ Choosing a matching firm in the same exchange and month has several advantages: first, firms with similar characteristics, such as industry, size, and risk levels, tend to list on the same exchange/market (Corwin and Harris, 2001; Loughran, 1993). Second, the possible difference in market microstructure across different markets may affect stock returns (Reinganum, 1990). Using a firm in the same exchange as the matching firm can maintain consistency in measuring returns to a great extent.

²² For a given sample firm, its number one matching firm is first used as the control firm. If the number one firm is de-listed before the sample firm, the number two firm is used from the de-list month of the number one firm; if the

that is 12, 24, or 36 months from calendar month d . If the acquiring firm is de-listed before the 12, 24, or 36 months, T is the number of months from calendar month d to the de-list month.

Based on the buy-and-hold abnormal returns (*BHAR*) approach, the abnormal return for sample firm s having a merger in calendar month d is calculated as

$$BHAR_{sd} = \left[\prod_{t=1}^T (1 + R_{s,t}) - 1 \right] - \left[\prod_{t=1}^T (1 + R_{sm,t}) - 1 \right], \quad (3.5)$$

where the variables are defined as in equation (3.4).

Table 3.2 presents the performance measures for the acquiring firms. The announcement returns over the two-day window $(-1, 0)$ are -0.0079 , significantly different from zero. The long-run performance measures, including cumulative abnormal returns (CAR) and buy-and-hold returns (BHAR), are negative and significant at the 1% level, and so are the changes in average monthly abnormal returns under the simple market model (SMAR) and the Fama-French factor model (FFAR). These non-positive returns associated with mergers presented in Table 1 are consistent with previous studies (Jensen and Ruback, 1983; Agrawal, Jaffe, and Mandelker, 1992; Loughran and Vijh, 1997; Kohers and Kohers, 2001).

3.3.3. Self-selection and endogeneity issue of using fairness opinions

The firm makes the decision about whether to use a fairness opinion in the deal. Estimates on whether fairness opinions add value will be biased without controlling for this self-selection issue. Here, I apply the propensity score matching method (PSM) to address this issue. PSM is used to identify a comparison group that is statistically equivalent to the treated group (opinioned deals in this study) in all respects except treatment status. It helps alleviate the bias

number two is de-listed again before the sample firm, the number three firm is used; if the number three is de-listed before the sample firm, the market index is used. When the sample firm is de-listed before the 12, 24, or 36 months, the sample firm is deleted from the sample from the month in which the firm is de-listed. In this case, T is the number of months from calendar month d to the month in which the sample firm is de-listed.

due to systematic differences between the treated and comparison group in the non-experimental research setting (Blundell & Dias, 2000; Dehejia and Wahba, 2002; Rosenbaum and Rubin, 1984).

Under the PSM method, the treatment effect (the impact of fairness opinion here) is defined as

$$\tau^* = E(Perf_1 - Perf_0 | P(Z)) \quad (3.6)$$

where $Perf_1$ is the performance of one acquiring firm after one opinioned deal, $Perf_0$ is the performance of another firm with a non-opinioned deal that matches the opinioned one, and $P(Z)$ is the propensity score, the predicted probability of using an opinion from the logit model based on observable covariates Z ; the non-opinioned matching and opinioned deals are matched by their closest propensity scores.

By using this propensity score matching method, I can show that the features of the matching deal and the opinioned deal are closely matched over multiple dimensions; then using an opinion becomes a random behavior. In other words, the outcome of the opinion is independent of the pre-opinion deal characteristics. Thus, estimates of the opinion's impact will be accurate with much less bias (see Dehejia and Wahba, 2002; Rosenbaum and Rubin, 1984).

3.4. Testing results

3.4.1. The comparison of board characteristics

Ex ante, a board that aligns its interest with its shareholders' may be more likely to seek opinions under the shareholder wealth hypothesis, and a board that is more risk averse will be more likely to use opinions under the insurance hypothesis. To preliminarily differentiate these

two hypotheses, I first compare the characteristics of the boards that use opinions and those that do not.

The comparison focuses on board independence, equity holding, and risk preference. If there is no difference in board independence or equity holding across the two groups, then I do not have a good reason to believe that boards that obtain opinions represent their shareholders' interests better than boards that do not use opinions. I have less confidence in inferring that the boards that obtain opinions are more risk averse if there is no difference in boards' risk preference.²³

I use several variables to measure the characteristics of the board: *out* is the percentage of directors on the board who are outsiders. Outsider-dominated boards represent shareholders' interests better (Rosenstein and Wyatt, 1990). Recent cases also show that outside directors are often held liable.²⁴ I expect the *out* variable to measure the independence of the board and the influence of these cases. *Boardholding* is the aggregate percentage of the firm's equity held by board members. A high level of board equity may align the board's interests with those of other shareholders, reducing the conventional agency problem (Jensen and Meckling, 1976).²⁵ *Duality* is a dummy variable that is equal to 1 if the CEO is also the chairman of the board, and 0 otherwise. I use this variable to capture the independence of the board. *Age* is the average age of directors. The average age may be positively associated with the amount of wealth personally accumulated by board members. The amount of wealth affects members' risk attitude.²⁶

²³ Measuring the risk attitude for a group is a challenging job. Here, I try our best to capture the possible differences in boards' risk preferences despite data limitations, such as a lack of information about directors' wealth.

²⁴ See the list of cases in Pastuszewski and Friedman-Boyce (2006). They include the following: in mid-2004, an outside director of Emerging Communication, Inc. was personally held liable for approving an unfair price in a going-private transaction; in January 2005, former outside directors of WorldCom and Enron paid \$38 million of their own money to settle claims.

²⁵ Morck, Shleifer, and Vishny (1988) find that Tobin's Q first increases, then declines, and finally rises slightly as ownership by the board of directors rises.

²⁶ Becker (2006) uses wealth to proxy for risk aversion.

Delaware is a dummy variable that takes value 1 if the firm is incorporated in Delaware, and 0 otherwise. The board of a firm incorporated in Delaware may be more cautious because of the *Smith v. Van Gorkom* case (1985). Table 3.3 presents the results of the comparison.

Panel A presents the results of separate *t*-tests. Panel B shows the results of multivariate variance analysis (*MANOVA*) with the *F*-value 1.26 and *p*-value 0.2750²⁷. None of the separate *t*-tests or the *MANOVA* indicates a significant difference in board characteristics between opinioned and non-opinioned firms. Thus, I do not have a reason to believe that there is a difference in the board's independence and its overall risk preference. The lack of difference weakens the shareholder wealth hypothesis, since it seems there is no underlying reason to believe that the board that uses opinions represents shareholders' interests better. The lack of difference also points to the direction of further testing. Since boards that use opinions are not more risk averse, the only reason they still use opinions may be due to the characteristics of the deal itself. The opinioned deal is more likely not to be a good investment under the insurance hypothesis, since the board that uses opinions does not seem risk averse compared with the board that does not use opinions. Given this reasoning, I focus on analyses of the deal features in the next section.

3.4.2. The deal characteristics and determinants of use of fairness opinions

First, I conduct a univariate comparison of the deals using opinions with those not using opinions. Table 3.4 gives the results. As I can see, there are symmetrical differences in the two types of deals in several respects. The opinioned deals have significantly lower acquirers' assets,

²⁷ The different aspects of board structure balance and substitute for each other, and they are correlated based on the theory of corporate governance (Pound, 1992). Therefore, to see the different aspects of board structure as a vector and apply *MANOVA* to compare the differences of the characteristics of the vector is more appropriate than separate *t*-tests. *MANOVA* also reduces the total type I errors that multiple *T*-tests may incur.

higher transaction value, higher likelihood of using stocks as currency, and a lower premium.

Some of these aspects can be the reasons for or the outcome of using opinions. Kisgen, Qian, and Song (2005) find that acquirers with top-tier advisors providing fairness opinions pay lower premiums. The size of the acquirer and the transaction value are important determinants of using opinions (Bowers and Latham III, 2006).

Under the insurance hypothesis, the probability that the deal will go wrong is positively associated with opinion use, controlling for the board's risk preference. If the insurance hypothesis holds, I expect to see that the deal characteristics that negatively affect post-merger performance will positively affect the use of opinions. To test this prediction, I run a logistic regression to see which variables affect the likelihood of obtaining a fairness opinion, and I run an ordinary least squares (*OLS*) regression to see which variables affect market reaction to the merger. Table 3.5 gives the regression results.

Model (1) in the table is equation (3.6), a logistic regression with use of opinion as the dependent variable. Model (2) is a simplified version of a logistic regression using actual cumulative market returns as the proxy for the managerial expectation of the deal's quality. Models (1) and (2) examine the factors that affect the likelihood of obtaining a fairness opinion. In model (1), the size of the transaction (*tranvalue*) is positively associated with obtaining a fairness opinion. A possible explanation is that a large merger may be difficult to integrate and, therefore, may have high risk. The *stockpay* variable has a coefficient estimate of 1.536, significant at the 1% level. When stocks are used as currency, a fairness opinion is likely to be used, perhaps because of the complexity of the valuation of stocks. Or it may be due to the adverse effect of using stock as currency. When acquiring firms use stock as currency, it may signal the market that their stocks are overvalued. Consequently, their stock price will go down

and lead to shareholders' loss after the announcement. Model (1) also shows that the coefficient of the size of acquiring firms (*asset*) is -0.964, significant at the 1% level. This indicates that the size of acquiring firms is negatively associated with the likelihood of using a fairness opinion. One plausible explanation may be that when the size of the acquiring firm increases, transaction value becomes relatively smaller, and consequently, obtaining a fairness opinion becomes less necessary.

Models (3) and (4) regress the cumulative daily abnormal returns during the announcement period over the (-1, 0) window on the fairness opinion and other deal characteristics. In model (4), both the size of the merger and the use of stock as currency are negatively associated with market reaction. Model (4) clearly shows that even controlling for deal characteristics, a fairness opinion is still associated with negative market reaction.²⁸

Table 3.5 shows that the value of the transaction (*tranvalue*) and whether the acquiring firm uses stock as currency (*stockpay*) negatively affect market reaction but positively affect the likelihood of using an opinion. This is consistent with the insurance hypothesis: the greater the likelihood that a deal will go wrong, resulting in a wealth loss for shareholders, the greater the likelihood that the acquiring firm's board will choose to use a fairness opinion. I use actual cumulative abnormal returns to proxy for the managerial expectation of the deal's quality in model (2) and find that it is positively associated with the use of the opinions.

The wealth equations in Table 3.5 are straight OLS models without consideration of the self-selection issue of using opinions. The coefficient estimates can be biased and misleading. In the following section, I employ the propensity score matching method to address the self-selection issue and investigate the wealth implication of fairness opinion more rigorously.

²⁸ I also use long-term performance measures as a dependent variable and find all coefficients of the fairness opinion are negative but not significant at the traditional level.

3.4.3. Self-selection issue: propensity score matching method and matching deals

Table 3.5 shows investors seemingly do not treat opinions favorably. However, there may be endogeneity in models (3) and (4). The expected negative returns are positively associated with the use of opinions; the use of opinions is negatively associated with market reactions. Moreover, as indicated in Table 3.4, the deals using opinions symmetrically differ from the deals that do not use opinions at least in some respects. Both the bi-direction relation between using opinions and (expected) market reaction and the self-selection issue bring out the endogeneity issue of models (3) and (4) in Table 3.5. I need to address this issue to get unbiased (or at least less biased) estimates on whether a fairness opinion does not add value.

I use the propensity score matching model to address this issue. Specifically, I run logistic model (1) in Table 3.3 and keep the predicted probability for both opinioned and non-opinioned deals. Then for each opinioned deal, I find a non-opinioned deal that has the closest value of predicted probability (propensity score for using opinions) as the matching deal. Thus, I have 113 non-opinioned matching deals in total. The comparisons of matching and opinioned deals are given in Table 3.6. As can be seen, there is no single significant t-test, indicating that the matching deal is no different from the opinioned deal in any respect. Thus, the use of opinions in the pool of opinioned and non-opinioned deals becomes a random event. From now on, I investigate the wealth implications of fairness opinions based solely on these opinioned and matching deals.

3.4.4. Univariate analyses based on the pool of opinioned and non-opinioned matching deals

4.4.4.1. Announcement period returns

Table 3.7 presents the two-day (-1, 0) cumulative daily abnormal returns.

The table shows clear differences in announcement returns between the opinioned and non-opinioned firms. For the window (-1, 0), the mean cumulative announcement period return for opinioned firms is -0.0393, which is significantly negative, with a t-statistic of -5.9805. However, the mean cumulative announcement period return for firms that do not use opinions is -0.0161, with a t-statistic of -2.9047. The difference between the firms that use opinions and those that do not is significantly different from zero (mean difference is -0.0232 and t-statistic is -2.69).

4.4.4.2. Long-run analyses

a. Acquiring firm's pre- and post-merger performance

Table 3.8 presents the average monthly abnormal returns for the acquiring firm before and after the merger as well as the change in the average monthly abnormal returns.

Panel A of the table presents the results from the simple market model (*SMAR*). It shows that in the 12 months after the merger, average monthly abnormal returns decrease by 0.0250 and 0.0132 for the opinioned and non-opinioned firms, respectively, both significant at the 1% level. Similar patterns hold for the 24- and 36-month analyses. Both opinioned and non-opinioned acquiring firms' shareholders experience losses due to mergers. The *t*-statistic with the value of -1.34 shows that the difference in the decreases of average monthly abnormal returns over 12 months for opinioned and non-opinioned mergers is not significant in the simple market model, indicating that opinioned mergers are not superior to non-opinioned mergers. The 24- and 36-month analyses show similar results. Panel B in Table 3.8 shows results from the Fama-French four-factor model (*FFAR*). It yields patterns similar to those in the simple market model.

Overall, Table 3.8 shows that shareholders of both opinioned and non-opinioned firms experience significant decreases in average monthly abnormal returns in the 12, 24, and 36 months after the mergers compared to the 12, 24, and 36 months before the merger. This result

holds for both the simple market model and the four-factor model. Thus, opinioned mergers are not superior deals compared to non-opinioned mergers.

b. Acquiring firms to matching firms

For the long-run analysis, I also use the size, book-to-market ratio, and pre-merger return matching firm as the second benchmark. Table 3.9 gives the results for this benchmark.

Panel A of Table 3.9 examines the cumulative abnormal returns (*CARs*) following opinioned and non-opinioned mergers. The *CARs* for both groups are negative. Some of them are significant at least at the 5% level. For instance, over the 12-month period, the mean *CAR* for opinioned firms is -0.1076 and -0.0197 for non-opinioned firms. The t-statistics of the *CARs*, as given in the *T*-test (1) column, are -2.5194 and -0.3333, respectively. The *T*-test (2) column gives the t-statistics for the difference in *CARs* between opinioned and non-opinioned firms. The difference in *CARs* is not significant; the t-value is -1.20 for 12 months, 0.28 for 24 months, and 0.50 for 36 months.

Panel B presents buy-and-hold abnormal returns (*BHARs*). The *BHARs* for the opinioned firms are negative for the 12-, 24-, and 36-month computing periods, but only over 12 months is the *BHAR* significant at the 1% level for the opinioned deals. A direct comparison of the difference in *BHARs* between opinioned and non-opinioned groups produces insignificant t-statistics. For instance, for the 12-month window, the t-value for the difference in *BHARs* between the two groups is -0.98, which is not significant. A similar pattern of direct comparison holds for the 24- and 36-month windows.

In summary, our long-run performance analyses show that both opinioned and non-opinioned acquiring firms perform worse compared to their own performance before the mergers, and they perform worse than the matching firms over a 12-month window after the mergers.

There is no evidence that opinioned mergers outperform non-opinioned mergers. In the short announcement period, opinioned firms receive poorer market reaction than non-opinioned firms. The findings are inconsistent with the shareholder wealth hypothesis. This implies that the fairness opinion provided by investment banks may not be objective or accurate. The results are consistent with the board insurance hypothesis: acquiring firms' shareholders are not better off because of the opinion, even though it costs them millions of dollars.

3.4.5. Multivariate analyses based on the pool of opinioned and non-opinioned matching deals

Table 3.10 presents the multivariate analyses. Consistent with the univariate analyses, the buy-side opinion still has a negative impact on the two-day cumulative returns. The coefficient is -0.028, significant at the 1% level. For the long-run performance measures, different windows and measures give consistent results, and I illustrate the results using only 24-month windows. The coefficient on the long-run performance equations are not significant, indicating that there is no difference between opinioned and non-opinioned deals in the long run.

3.5. Conclusions

I find that acquiring firms with opinioned mergers have more negative announcement returns than those firms with non-opinioned mergers. The results hold even when I address the self-selection issue. In the long-term analysis, I find that compared to the performance before the merger, the post-announcement performance of the acquiring firm is significantly worse, regardless of whether acquiring firms obtain a fairness opinion. There is no evidence that the opinioned acquiring firms lose less than non-opinioned firms. Also, in the long-run analysis, I find that over some window acquiring firms that use opinions significantly underperform

matching firms, just as non-opinioned acquiring firms do. The difference in long term abnormal returns between opinioned acquiring firms and non-opinioned firms is not significant when matching firms are used as a basis for comparison. In other words, compared to non-opinioned mergers, the opinioned mergers are not superior investments.

The factors that negatively affect acquiring firms' performance positively affect the use of fairness opinions. The risk preference of boards that use opinions does not differ from that of boards that do not. This implies that boards' motive for buying the opinion may be to protect board members against deals that cause wealth loss for shareholders, measured in short windows.

The results do not support the shareholder wealth hypothesis. The evidence is more consistent with the board insurance hypothesis. It appears that the purpose of spending millions of dollars on fairness opinions may be to protect the board against lawsuits. The implication for investors becomes obvious: when analyzing the wealth consequence of a merger, more attention should be given to the deal characteristics rather than to notarized documents such as fairness opinions. Fairness opinions are more of an insurance policy for the board than an investment vehicle for investors.

The results do not show that fairness opinions are accurate and value-enhancing for the firm. One plausible interpretation may be related to the feature of the opinion market. Since there are no coherent guidelines for fairness opinions, and opinion providers rely on management-provided information, it is difficult to judge the accuracy of the opinion, and consequently, it is difficult to discipline inaccurate opinion providers. Because of this difficulty, the disciplining role of a provider's reputation is significantly weakened. Recently formulated regulation requires the opinion provider to disclose possible conflicts of interests in the deal. This may help the market to better determine the value of the opinion. However, regularly disclosing the identity of

the opinion provider and the post-merger performance of the acquiring firm that uses opinions may help enhance self-discipline in the opinion market based on the reputation theory.

It should be noted that our results should be accepted in a limited way. First, our sample consists only of mergers, and it focuses on buy-side fairness opinions of such deals. How fairness opinions are associated with the opinion user's performance in other scenarios is a different question. For instance, the sell-side opinion may behave differently from the buy-side opinion, since selling firms often disappear. Opinions for equity mergers may differ from opinions for the purchase of assets, given the complexity of the deal. Therefore, to accurately understand the results of this study, it is very important to recognize the scope of our sample. Second, the fairness opinions I use in this study are all favorable ones and are disclosed on the announcement date. There are negative opinions that may be right, but I am unable to identify them, since they are not disclosed. Acquiring firms may selectively use opinions and disclose only those that support their expansion strategies. Honorable investment banks doing fairness opinion work sometimes turn down an opportunity to earn a fee on a particular fairness opinion or resign from an assignment for their reputations' sake. For instance, Merrill Lynch & Co. declined to issue a final fairness opinion for Kansas City Power.²⁹ In the future, it would be interesting to look at the interactions between opinioned providers and acquirers during the formation process of the opinions.

This study documents that in mergers, disclosed buy-side fairness opinions do not imply good returns to shareholders on the whole; that is, favorable opinions by investment banks are not favorable to the acquiring firms' shareholders. Both the extant shareholders and potential investors should be cautious when dealing with fairness opinions. This may be particularly meaningful when the opinion provider has a conflict of interest in the deal.

²⁹ January 4, 2000, *The Wall Street Journal*

3.6. Tables for chapter three

Table 3. 1: Deal characteristics

Table 2.1 gives deal characteristics. *asset* is the dollar value of the acquiring firm's total assets in deal announcement year; *pre-perf* is the average abnormal monthly return of the acquiring firm against the simple market model over 24 months before the merger announcement; *tranvalue* is the deal value of the transaction conducted by the acquiring firm; *Fai* is a dummy variable taking a value of 1 if acquiring firm uses fairness opinion and 0 otherwise; *Industry* is a dummy variable used to capture whether the deal is a simple expansion in the same industry or diversification across different industries for the acquiring firm, and it assumes value 1 if the acquiring firm and target firm share the first three digits of their main SIC, and 0 otherwise; *Attitude* is a dummy variable equal to 1 if the target firm opposes the deal and 0 otherwise; *stockpay* is a dummy variable taking value 1 if acquiring firm uses its stock as currency, and 0 otherwise; *numbidders* is the number of competitive bidders present before the result of the deal is disclosed (completed or withdrawn); *premium* is price paid for each target share relative to the target's stock price 4 weeks before the announcement.

Variable	N	Mean	Std Deviation	Minimum	Maximum
Asset	1176	15830.98	54220.07	14.3	1057657
Ln(asset)	1176	8.099638	1.704214	2.66026	13.87157
Pre-perf	1213	0.013567	0.030359	-0.0913	0.194262
Tranvalue	1033	1421.72	5079.25	0.007	89167.72
Ln(tranvalue)	1033	5.423514	1.923388	-4.96185	11.39827
Fai	1213	0.0956	0.2942	0	1
Industry	1213	0.488046	0.500063	0	1
Attitude	1213	0.018961	0.136444	0	1
Stockpay	1213	0.526793	0.499488	0	1
Numbidders	1213	1.046167	0.246116	1	4
Premium	566	54.35327	101.2392	-86.28	1937.04

Table 3. 2: Performance measures

This table presents the performance measures of the acquiring firm around the merger. *CAR* (-1,0) is the cumulative abnormal return over a two-day window; *SMAR* is the simple market model abnormal return; *FFAR* is abnormal return based on the four-factor model; *CAR* is long-run cumulative abnormal return against the matching firms; *BHAR* is buy-and-hold abnormal return against the matching firms.

Variable	N	Mean	Std Deviation	Minimum	Maximum
CAR(-1,0)	1213	-0.00796	0.048517	-0.27969	0.178232
SMAR12	1213	-0.01536	0.059048	-0.35821	0.375106
SMAR24	1213	-0.01612	0.046124	-0.24628	0.368655
SMAR36	1213	-0.01674	0.034657	-0.19918	0.317711
FFAR12	1213	-0.01299	0.06702	-0.42613	0.374736
FFAR24	1213	-0.00936	0.038898	-0.19528	0.352051
FFAR36	1213	-0.0093	0.031041	-0.17683	0.298184
CAR12	1213	-0.04293	0.550085	-2.80596	3.278219
CAR24	1213	-0.07879	0.69919	-3.40107	2.975789
CAR36	1213	-0.10399	0.786569	-4.52015	3.42697
BHAR12	1213	-0.04269	0.804857	-7.79985	13.30247
BHAR24	1213	-0.06408	1.087306	-10.6632	10.49309
BHAR36	1213	-0.12132	1.578122	-33.6647	12.23722

Table 3. 3: Comparison of risk characteristics between boards using opinion and those not using opinions

This table compares the characteristics of boards that use opinions with those that do not. I use several variables to measure the characteristics of the board: *out* is the percentage of directors on the board who are outsiders. *Boardholding* is the aggregate percentage of shares held by board members. *Duality* is a dummy variable that is equal to 1 if the CEO is also the chairman of the board, and 0 otherwise. *Age* is the average age of directors. *Delaware* is a dummy variable that takes value 1 if the firm is incorporated in Delaware, and 0 otherwise.

The first part of the table shows the results of separate multiple *T*-tests, and the second part shows statistics for multivariate analysis of variance (*MANOVA*). Standard errors appear in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Board Feature	Group	<i>N</i>	Mean	Difference	<i>t</i> -statistics for Difference
Panel A: separate <i>t</i> -tests					
Out	Opinioned	116	0.636 (0.016)	0.008 (0.017)	0.45
	Not opinioned	1097	0.628 (0.005)		
Boardholding	Opinioned	105	6.254 (1.171)	-1.745 (1.725)	1.35
	Not opinioned	1004	7.999 (0.544)		
Duality	Opinioned	116	0.819 (0.035)	-0.023 (0.035)	-1.12
	Not opinioned	1097	0.842 (0.011)		
Age	Opinioned	116	57.733 (0.377)	-0.570 (0.411)	-1.08
	Not opinioned	1097	58.303 (0.1278)		
Delaware	Opinioned	116	0.569 (0.046)	0.012 (0.048)	1.00
	Not opinioned	1097	0.556 (0.015)		
Panel B: <i>MANOVA</i> test					
<i>F</i> -value=1.26					
<i>P</i> -value=0.2750					

Table 3. 4: The comparison of opinioned and non-opinioned deal characteristics

This table presents the results of two groups: opinioned and non-opinioned deals. The variables are as defined in Table 1. The opinioned deals are significantly different from non-opinioned deals in multiple dimensions, including the size of acquirer's total assets, transaction value, premium, and whether using stocks as currency in the deal. Standard errors appear in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Deal Feature	Group	N	Mean	Difference	<i>t</i> -statistics for Difference
Asset	Opinioned	114	7088 (1040.3)	-9680.9 (5338.6)	-4.77***
	Non-opinioned	1062	16769 (1744.9)		
Ln(asset)	Opinioned	114	7.838 (0.142)	-0.289 (0.167)	-1.91*
	Non-opinioned	1062	8.1277 (0.0528)		
Pre-perf	Opinioned	116	0.017 (0.0026)	0.004 (0.003)	1.30
	Non-opinioned	1097	0.0132 (0.0009)		
Tranvalue	Opinioned	115	5162.5 (1132.4)	4209 (485.28)	3.70***
	Non-opinioned	918	953.1 (97.49)		
Ln(tranvalue)	Opinioned	115	7.271 (0.1578)	2.079 (0.179)	11.62***
	Non-opinioned	918	5.192 (0.0602)		
Industry	Opinioned	116	0.5086 (0.0466)	0.023 (0.0488)	0.47
	Non-opinioned	1097	0.4859 (0.0151)		
Attitude	Opinioned	116	0.0086 (0.0086)	-0.011 (0.0133)	-1.19
	Non-opinioned	1097	0.0201 (0.0042)		
Stockpay	Opinioned	116	0.9052 (0.0273)	0.418 (0.0473)	13.40***
	Non-opinioned	1097	0.4868 (0.0151)		
Numbidders	Opinioned	116	1.069 (0.0318)	0.025 (0.024)	0.78
	Non-opinioned	1097	1.0438 (0.0071)		
Premium	Opinioned	87	43.033 (3.447)	-13.377 (11.796)	-2.21**
	Non-opinioned	479	56.409 (4.984)		

Table 3. 5: Determinants of using an opinion: board risk preference or deal characteristics, and impact of the opinion on deal completion

This table shows that the factors that affect announcement period returns and factors that affect the likelihood of using fairness opinions. Model (1) is equation (6) in the text, a logistic regression with use of opinion as the dependent variable. Model (2) is a simplified version of a logistic regression using actual cumulative market returns proxying for the managerial expectation of the deal's quality. Models (3) and (4) are OLS regressions that regress two-day (-1, 0) cumulative abnormal returns on the board and deal features, including whether the opinion is used. *Fai* is a dummy variable taking a value of 1 if acquiring firm uses fairness opinion and 0 otherwise; *asset* is the dollar value of the acquiring firm's total assets in deal announcement year; *Pre-perf* is the average abnormal monthly return of the acquiring firm against the simple market model over 24 months before the merger announcement; *tranvalue* is the deal value of the transaction conducted by the acquiring firm; *Industry* is a dummy variable used to capture whether the deal is a simple expansion in the same industry or diversification across different industries for the acquiring firm, and it assumes value 1 if the acquiring firm and target firm share the first three digits of their main SIC, and 0 otherwise; *Attitude* is a dummy variable equal to 1 if the target firm opposes the deal and 0 otherwise; *stockpay* is a dummy variable taking value 1 if acquiring firm uses its stock as currency, and 0 otherwise; *numbidders* is the number of competitive bidders present before the result of the deal is disclosed (completed or withdrawn); *Premium* is price paid for each target share relative to the target's stock price 4 weeks before the announcement.

Standard errors appear in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

	Logistic Model		Wealth equation car(-1,0)	
	Model (1)	Model (2)	Model (3)	Model (4)
Intercept	-2.360*** (0.932)	-2.479*** (0.113)	-0.004*** (0.001)	0.037** (0.016)
CAR(-1,0)		-11.957*** (1.785)		
Fai			-0.003*** (0.004)	-0.024*** (0.006)
Ln(asset)	-0.964*** (0.122)			0.001 (0.001)
Pre-perf.	-13.114*** (4.070)			0.024 (0.079)
Ln(tranvalue)	1.236*** (0.117)			-0.005*** (0.001)
Industry	-0.478* (0.255)			-0.002 (0.004)
Attitude	-2.971*** (1.128)			0.011 (0.012)
Stockpay	1.536*** (0.382)			-0.010** (0.004)
Numbidders	-0.218 (0.413)			-0.011 (0.006)
Premium				0.0000 (0.5525)
Control for year	Yes	No	No	Yes
<i>N</i>	1007	1213	1213	1213
Adj. <i>R</i> -sq	-	-	0.04	0.10

Table 3. 6: The comparison of opinioned and non-opinioned matching deal characteristics

This table presents the results of two groups: opinioned and non-opinioned matching deals based on propensity score matching method. The variables are as defined in Table 1. None of the *t*-statistics is significant, indicating that there is no difference in opinioned and non-opinioned deals across multiple dimensions.

Standard errors appear in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Deal Feature	Group	N	Mean	Difference	<i>t</i> -statistics for Difference
Propensity	Opinioned	113	0.4264 (0.0239)	0.0004 (0.0338)	0.01
	Matching	113	0.4260 (0.0239)		
Ln(asset)	Opinioned	113	7.8207 (0.1427)	-0.0034 (0.2008)	0.02
	Matching	113	7.8241 (0.1412)		
Pre-perf	Opinioned	113	0.0174 (0.0027)	-0.003 (0.0046)	0.66
	Matching	113	0.0204 (0.0038)		
Ln(tranvalue)	Opinioned	113	7.2716 (0.1606)	-0.0455 (0.223)	0.20
	Matching	113	7.3171 (0.1546)		
industry	Opinioned	113	0.5133 (0.0472)	-0.0354 (0.0666)	-0.53
	Matching	113	0.5487 (0.047)		
Attitude	Opinioned	113	0.0088 (0.0088)	0.009 (0.008)	1.00
	Matching	113	0.0000 (0.000)		
stock	Opinioned	113	0.9115 (0.0268)	-0.0265 (0.0352)	-0.75
	Matching	113	0.9381 (0.0228)		
Numbidders	Opinioned	113	1.0708 (0.0326)	0.0000 (0.0443)	0.00
	Matching	113	1.0708 (0.0301)		
Premium	Opinioned	85	44.16 (3.418)	-0.434 (5.914)	0.07
	Matching	65	44.60 (5.077)		

Table 3. 7: Comparison of announcement period returns

The table presents the comparison of announcement period cumulative daily abnormal returns over window (-1, 0) between the acquiring firms that have opinioned mergers and those that have non-opinioned matching mergers. *t*-statistics for Mean tests whether the cumulative daily abnormal return is significant from zero. *t*-statistics for Difference tests whether opinioned firms have worse cumulative daily abnormal returns than non-opinioned firms. Standard errors appear in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Window	Group	<i>N</i>	Mean	<i>t</i> -statistics for Mean	Difference	<i>t</i> -statistics for Difference
CAR(-1,0)	Opinioned	113	-0.0393 (0.0065)	-5.9805***	-0.0232 (0.0086)	-2.69***
	Matching	113	-0.0161 (0.0055)	-2.9047***		

Table 3. 8: Using acquiring firm itself as benchmark, before- and after-merger comparison

This table presents a comparison of average monthly abnormal returns to acquiring firms before and after mergers. It tabulates the decrease of average monthly abnormal returns due to mergers and the difference of such decreases between opinioned and non-opinioned matching acquiring firm-deals. *t*-statistics test whether the difference in the decreases of average monthly abnormal returns before and after mergers is significant. *SMAR* is the simple market model abnormal return and *FFAR* is Fama-French abnormal return. Standard errors appear in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Window	Group	<i>N</i>	Before	After	Decrease	Difference	<i>t</i> -statistics for Difference
Panel A: Simple market model abnormal return (<i>SMAR</i>)							
12	Opinioned	113	0.0181*** (0.0039)	-0.0070** (0.0037)	-0.0250*** (0.0057)	-0.0114 (0.0085)	-1.34
	Matching	113	0.0171*** (0.0054)	0.0039 (0.0007)	-0.0132** (0.0063)		
24	Opinioned	113	0.0173*** (0.0026)	-0.0048** (0.0023)	-0.0222*** (0.0043)	-0.0018 (0.0067)	-0.26
	Matching	113	0.0204*** (0.0037)	-0.0001 (0.0025)	-0.0204*** (0.0050)		
36	Opinioned	113	0.0174*** (0.0242)	-0.0038** (0.0018)	-0.0212*** (0.0035)	0.0030 (0.0054)	0.50
	Matching	113	0.0239*** (0.0033)	-0.0000 (0.0018)	-0.0240*** (0.0041)		
Panel B: Fama-French abnormal return (<i>FFAR</i>)							
12	Opinioned	113	0.0231*** (0.0050)	0.0019 (0.0039)	-0.0212*** (0.0060)	-0.0010 (0.0081)	-0.9
	Matching	113	0.0377*** (0.0055)	0.0175*** (0.0037)	-0.0201*** (0.0053)		
24	Opinioned	113	0.0162*** (0.0029)	0.0043** (0.0020)	-0.0119*** (0.0036)	0.0040 (0.0050)	0.47
	Matching	113	0.0252*** (0.0036)	0.0097*** (0.0022)	-0.0155*** (0.0034)		
36	Opinioned	113	0.0153*** (0.0023)	0.0030** (0.0014)	-0.0123*** (0.0027)	-0.0099 (0.0024)	-0.55
	Matching	113	0.0230*** (0.0032)	0.0082*** (0.0018)	-0.0147*** (0.0031)		

Table 3. 9: Using size, book-to-market ratio, and pre-merger performance matching firm as benchmark

This table presents the abnormal returns to the acquiring firms with opinioned or non-opinioned matching mergers relative to size, book-to-market ratio, and pre-merger performance matching firms that do not have mergers. It also compares the abnormal returns between acquiring firms with opinioned mergers and those with non-opinioned mergers. *t*-statistics for Mean tests the significance of abnormal returns. *t*-statistics for Difference tests whether opinioned firms lose more than non-opinioned firms after the merger. Standard errors appear in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Window	Group	<i>N</i>	Mean	<i>t</i> -statistics for Mean	Difference	<i>t</i> -statistics for Difference
Panel A: Long-run cumulative abnormal return (<i>CAR</i>)						
12	Opinioned	113	-0.1076 (0.0427)	-2.5194**	-0.0878 (0.0732)	-1.20
	Matching	113	-0.0197 (0.0593)	-0.3333		
24	Opinioned	113	-0.0752 (0.0544)	-1.3832	0.0250 (0.0879)	0.28
	Matching	113	-0.0998 (0.0690)	-1.4466		
36	Opinioned	113	-0.0597 (0.0725)	-0.8237	0.0550 (0.1103)	0.50
	Matching	113	-0.1148 (0.0831)	-1.3810		
Panel B: Long-run buy-and-hold abnormal return (<i>BHAR</i>)						
12	Opinioned	113	-0.1350 (0.0491)	-2.7447***	-0.1466 (0.1491)	-0.98
	Matching	113	0.0116 (0.1407)	-2.3989**		
24	Opinioned	113	-0.0538 (0.0720)	-0.7467	0.0310 (0.1254)	0.25
	Matching	113	-0.0849 (0.1026)	-0.8276		
36	Opinioned	113	-0.3138 (0.3116)	-1.0071	-0.1495 (0.3407)	-0.44
	Matching	113	-0.1643 (0.1378)	-1.1929		

Table 3. 10: The wealth impact of buy-side fairness opinions: the results of multivariate OLS regressions

This table presents the results of multivariate OLS regressions using the pool of opinioned and non-opinioned matching deals. Dependent variables are two-day cumulative abnormal returns CAR (-1,0), the simple market model abnormal return over a 24-month window (*SMAR24*), the abnormal return based on the four-factor model over a 24-month window (*FFAR24*), the long-run cumulative abnormal return against the matching firms over a 24-month window (*CAR24*), and the buy-and-hold abnormal return against the matching firms over a 24-month window (*BHAR24*), respectively, in models (1), (2), (3), (4), and (5); *Fai* is a dummy variable taking a value of 1 if acquiring firm uses fairness opinion and 0 otherwise; *asset* is the dollar value of the acquiring firm's total assets in deal announcement year; *Pre-perf* is the average abnormal monthly return of the acquiring firm against the simple market model over 24 months before the merger announcement; *tranvalue* is the deal value of the transaction conducted by the acquiring firm; *Industry* is a dummy variable used to capture whether the deal is a simple expansion in the same industry or diversification across different industries for the acquiring firm, and it assumes value 1 if the acquiring firm and target firm share the first three digits of their main SIC, and 0 otherwise; *Attitude* is a dummy variable equal to 1 if the target firm opposes the deal and 0 otherwise; *stockpay* is a dummy variable taking value 1 if acquiring firm uses its stock as currency, and 0 otherwise; *numbidders* is the number of competitive bidders present before the result of the deal is disclosed (completed or withdrawn); *Premium* is price paid for each target share relative to the target's stock price 4 weeks before the announcement.

Standard errors appear in parentheses.

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Model (1) CAR(-1,0)	Model (2) SMAR24	Model (3) FFAR24	Model (4) CAR24	Model (5) BHAR24
Intercept	0.025 (0.047)	0.042*** (0.015)	0.0228 (0.019)	0.7799 (0.389)	1.130 (0.544)
Fai	-0.028*** (0.011)	-0.004 (0.003)	-0.007* (0.004)	0.032 (0.091)	0.0748 (0.1284)
Ln(asset)	0.006 (0.005)	-0.003** (0.001)	-0.001 (0.002)	-0.048 (0.047)	-0.145** (0.065)
Pre-perf	0.087 (0.181)	-1.367*** (0.059)	-0.725*** (0.076)	-4.684*** (1.499)	-2.602 (2.098)
Ln(tranvalue)	-0.010** (0.005)	-0.0002 (0.0017)	0.0004 (0.0022)	-0.0163 (0.0442)	0.060 (0.061)
Industry	0.013 (0.011)	-0.0035 (0.0036)	-0.0056 (0.0047)	0.0025 (0.092)	0.0493 (0.1293)
Attitude	0.031 (0.068)	0.009 (0.022)	0.0447 (0.0286)	0.1555 (0.5616)	0.5511 (0.786)
Stockpay	-0.022 (0.004)	0.0058 (0.006)	0.005 (0.0063)	-0.0248 (0.160)	-0.0620 (0.2246)
Numbidders	-0.004 (0.0150)	0.0015 (0.0048)	-0.0061 (0.0063)	-0.248 (0.1239)	-0.307* (0.173)
Premium	0.0001 (0.0001)	0.000 (0.000)	0.0000 (0.0000)	-0.0009 (0.0014)	-2.602* (2.098)
Control for year	Yes	Yes	Yes	Yes	Yes
<i>N</i>	150	150	150	150	150
Adj. <i>R</i> -sq	0.07	0.83	0.46	0.08	0.017

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CHAPTER FOUR: GENERAL CONCLUSION

The dissertation examines the wealth impact of investment banks hired by acquiring firms as financial advisors in their mergers and acquisitions. It does not address the issue on a general basis. Instead, it takes unique perspectives. In the first part, the dissertation investigates the impact of investment banks on acquiring firm shareholders' wealth when the acquiring firm has poor governance. The focus of this part is to look at how investment banks interact with the requirements of acquiring firms' managers. It finds that when the acquiring firms have poor corporate governance, the use of investment banks is associated with value reduction for the acquiring firms' shareholders around the deal announcement. In the second part, the dissertation investigates the wealth implication of fairness opinions that investment banks provide to the acquiring firms regarding their merger deal. It finds that the opinioned deals do not associate with less loss for the acquiring firms. In the short window, the acquiring firms which have opinioned deals receive even worse market reaction than the firms which have non-opinioned deals. The results indicate that the true reason that the acquiring firm's board using opinions is to hedge the legal risk.

The dissertation takes two unique perspectives and enriches our understanding to the value of investment banks services in corporate mergers and acquisitions. It may be promising for the further work to explore the value of other services provided by investment banks. Such work can be helpful for us to accurately evaluate investment banks' services in the economy.