THREE ESSAYS IN

AGENCY RELATED ISSUES

by

XINYAN YAN

SHAWN MOBBS, COMMITTEE CHAIR

DAVID C. CICERO
YAN WANG
LE WANG
GARY K. TAYLOR

A DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Economics,
Finance, and Legal Studies
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2016

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ABSTRACT

This dissertation explores three types of agency related issues. The first essay is related to the CEO-shareholder relation. We examine how the legal background of affects the corporate policy and shareholder wealth. We empirically analyze whether law CEOs manage their firm differently. We find that law CEOs take less risk and perform better in the short-run. Law CEOs are especially valuable to firms involved in litigation. Specifically, when firms experience litigation, those with law CEOs experience less volatile market returns, maintain better operating performance and face lower litigation settlement costs. However, our evidence also suggests law CEOs tend to be more myopic. Firms with law CEOs invest less in R&D and have lower R&D growth rates.

The second essay examine the relationship between acquirers and M&A advisors. Using a sample of serial takeover sequences, we examine the cost-benefit tradeoffs associated with an acquirer's willingness of selecting suitable advisors for each deal during a sequence of acquisitions. We find that acquirers are willing to do so experience more favorable announcement reactions from shareholders, pay lower acquisition premiums and advisory fees, and complete transactions faster. We also use propensity score matching to address possible endogeneity concerns and find our results are robust. These findings suggest that acquirers benefit from selecting the right advisor for each acquisition rather than staying with one advisor throughout the sequence of acquisitions.

The third essay focus on buyer-agent relationship. This essay studies the role of buyer brokers in the home-buying process under different market conditions by examining the effect of brokerage representation on home prices and search duration. Using data from 2006 and 2012 NAR annual surveys, we find that buyer brokers have no effect on prices in a seller's market while they do have a statistically significant positive effect in a buyer's market. We find that buyer brokers do not affect search duration in either a buyer's or seller's market. To address the endogeneity problem, we use the propensity score matching methodology, which find our results are robust. We also find that Internet search frequency has a significant effect on purchases prices and search duration.

DEDICATION

This dissertation is dedicated to those who wholeheartedly supported and guided me, especially to my parents and husband.

ACKNOWLEDGMENTS

I would like to express the deepest appreciation to my committee chair Dr. Shawn Mobbs, who continually and convincingly conveyed an enthusiasm in regard to research and scholarship, and an excitement in regard to teaching. Without his guidance and help this essay would not have been possible.

I would like to thank my committee members, Dr. David Cicero, Dr. Albert Yan Wang, Dr. Le Wang, and Dr. Gary Taylor, for their invaluable comments, inspiring questions, and kind support for my dissertation. In addition, a thank you to my co-author Dr. Leonard Zumpano. I also wish to thank Dr. William Helms and Dr. Matthew Holt who helped me a lot. Their support was greatly appreciated.

Finally, and importantly, I wish to give my thanks to my husband Ming Meng who has supported me and listened to my complaints.

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INTRODUCTION

The main focus of this dissertation is to explore the different types of agency relationship and related issues in finance. The agent-principal relation has been a broadly studied topic in finance research because it exists in every corner of business world. My essays studies three types of agency problems, management versus shareholders, acquirers versus M&A advisors, as well as home buyers versus realtors.

In the first essay, we focus on CEO's legal background and the effects of CEO's legal expertise on corporate policy and performance. Since the end of the twentieth century, there has been an increasing trend of firms appointing CEOs who have a law background. Prior legal and psychological literature suggests that top management with legal astuteness can bring certain advantages to some firms (Bagley, 2008; Daicoff, 1997; Verkuil and Kang, 2002). However, these same studies also highlight traits of those with a law degree that could be detrimental for firms, such as excessive risk aversion. Management literature suggests that top executives' legal experience can bring certain benefits to a firm. For instance, Hinthorne (1996) asserts that corporate leaders who understand the law and the structure of power in the US have a unique capacity to protect and enhance shareholder wealth. On the other hand, existing literature in psychology, law, and business finds that law experience leads to conservatism and risk aversion (Verkuil and Kang (2002), Bamber, Jiang, and Wang (2009), Barker and Mueller (2002)). Lack of value creation investment, which certainly contains risk, may have a negative effect on firm shareholder wealth (Chan, Martin, and Kensinger (1990), McConnell and Muscarella (1985), Griliches (1981), Chauvin and Hirschey (1993)). Thus, it is ultimately an empirical question as

to whether and how legal experience affects firm value creation. Moreover, firms with a law CEO might also directly benefit from their CEO's legal expertise (Bagley 2008). We find that firms led by law CEOs are associated with a higher ROA. However, we find no evidence that law CEOs create value for firms. One possible explanation for this lack of evidence is sub-optional risk-taking. Consistent with our prediction, we find that firms with law CEOs are associated with lower risk-taking as reflected in lower volatility in both market and operating performance. Furthermore, the firms with law CEOs are associated with significantly lower R&D investment and R&D growth rates, which also reflects their lower risk-taking incentives. However, we do not find that firms with a law CEO are associated with fewer federal level lawsuits. We also find that the firms with a law CEO overall perform better than other firms when facing litigation pressure.

The second essay study the agent-principal relation between acquirers and M&A advisors. Corporate acquisitions are significant investment decisions that can have tremendous shareholder wealth effects. Hiring mergers and acquisitions (M&A) advisors can be a way to improve decision makings and reduce the liability risk for top management. Prior literature documents the role of advisors in different stages of M&As. Sereas and Zenner (1996) state the importance of advisors in in the information collecting process of M&As. Bao and Edmans (2011) find that investment banks (advisors) matters for M&A returns. As such, the selection of an appropriate advisor for each bid is essential because different advisors have different expertise and then fits different deals (Bower and Miller (1990), Kayle, Kini, and Ryan (2003), Bao and Edmans (2009), and etc. el.). However, selection a suitable advisor is a complex and costly process because there are so many factors affect the choice of advisors (Bower and Miller (1990)). Every choice has cons and pros. In this essay, we are trying to answer that whether firms

are willing to select a suitable advisor for very deal and whether the willingness improve the deal outcomes. To address the above questions, we use a sample of serial acquirers. We define a serial acquirer as a company which undertakes a sequence of at least two takeovers in a 12-month period as listed in the Thomson Securities Data Corporation Mergers and acquisitions database (SDC) from 1992 to 2012. We identify an acquirer's willingness of selecting suitable advisor for each deal by whether acquirers switch lead M&A advisors in a sequence of takeovers. We find that acquirers show significantly higher willingness in deals that are relatively small, larger deal values, involve poorly performing targets, targets which are not in the same industry with acquirers; and in deals where targets use single advisor. For deal outcomes, we find the firms which are more willing to select the suitable advisors for each deal have higher CAR, pay lower acquisition premiums and advisor fees, and spend less time to resolute deals.

The third essay studies the role of buyer brokers in the home-buying process under different market conditions by examining the effects of brokerage representation on home selling prices and search duration. Although there is a substantial body of research that examines the role of real estate brokers (Baryla and Zumpano(1995), Black and Nourse (1995), Elder and Zumpano (1999), and Jud (1983)), only a few studies have addressed the impact of buyer brokerage. Using data from 2006 and 2012 NAR annual home-buying and selling surveys, we find that buyer brokers have no effect on home prices in a seller's market (2006) while they do have a statistically significant positive effect in a buyer's market (2012). In addition, we find that the use of a buyer broker does not affect search duration in either a buyer's or seller's market. In order to address the endogeneity problem, we use the propensity score matching methodology,

which generates consistent results with the OLS regressions. We also find that Internet search frequency has a significant impact on purchases prices and search duration.

CHAPTER 1

CEOS WITH A LAW BACKGROUND

The agent-principal relation between top management and shareholders has been broadly researched in finance literature. The characteristics of top management critically affected on this relationship and further affected firm decision making and performance. Recent literature has made significant strides in furthering our understanding of the impact of management style on firm policies and decision making. Education, work experience, military experience and personal life experiences all play important roles in shaping the way executives manage firms.[1] In This essay we explore a specific management style born out of a unique education and work experience, specifically, legal expertise. In the early part of the twentieth century, many CEOs possessed a law degree, especially in heavily regulated industries. However, the rapid technological advances throughout the twentieth century increased the need for CEOs to possess greater accounting and financial expertise, which led to a subsequent increase in CEOs possessing an MBA or engineering degree (France and Laville, 2004). Interestingly, near the start of the twenty-first century, we find evidence of a reversal of this trend as an increasing percentage CEOs come from a legal background (see Figure 1.1). Whether this trend is beneficial for shareholders is not clear and it depends on whether CEOs with a legal background manage their firms differently from other CEOs, and if so, how their management styles differ.

[1] For example, Custodio and Metzger (2013, 2014) study CEOs with industry and financial experience, respectively, Benmelech and Frydman (2014) study CEOs with military experience and Malmendier, Tate and Yan (2011) study the effects of early life experiences on executives.

Upper echelon theory (Hambrick and Mason, 1984) suggests that managers' backgrounds affect their cognitive biases and values, and therefore affect their strategic choices. Executives with a legal background, can therefore, employ very different strategies relative to those without. For example, Bagley (2008) argues that legal astuteness in the top management provides "a set of value laden attitudes, a proactive approach, the ability to exercise informed judgement, and context specific knowledge of the relevant law and the appropriate application of legal tools." Furthermore, Hinthorne (1996) asserts that lawyers and corporate leaders who understand the law and the structure of power in the US have a unique capacity to protect and enhance shareholder wealth. From the psychology literature, we learn that individuals with a legal background tend to be more logical, unemotional, and rational and tend to exhibit objective decision making (Daicoff, 1997). Verkuil and Kang (2002) find evidence that individuals with a legal background are more prudent. Thus, prior literature suggests many attributes associated with possession of a law degree that can make CEOs with a law background valuable to shareholders.

One reason for the recent increasing trend of CEOs with a legal background is the corresponding increasing trend in corporate litigation and the associated increase in legal related costs. "Legal issues, from patent cases to securities fraud, continue to pervade the business press" (Bagley 2008). In 2010, the Lawyers for Civil Justice, Civil Justice Reform Group, and U.S. Chamber Institute for Legal Reform find that companies spend billions of dollars yearly on litigation. From 2000 to 2008 litigation costs almost doubled (from $84 million to $158 million per surveyed company on average) and are consuming an increasing percentage of corporate revenue (Lawyers for Civil Justice, Civil Justice Reform Group, and U.S. Chamber Institute for Legal Reform, 2010). Furthermore, merit-less litigation can cause an inestimable loss of time

and resources. Atanasov, Ivanov, and Litvak (2008) find that VCs involved in litigation as defendants raise significantly less capital than their peers, invest in fewer and lower quality deals, and syndicate with fewer VC firms. Later, Haslem, Smith, and Hutton (2013) find that litigation causes companies to loss market value. Given these rising litigation costs, CEOs with a law background, who can better navigate legal waters, are becoming more valuable to some firms. Lastly, in addition to avoiding or defending against litigation, CEOs with a law background can use their legal expertise strategically (Bagley 2008). For example, Delphi Corporation CEO Steve Miller (who holds a law degree from Harvard Law School) put Delphi in bankruptcy in 2005 to annul its union contracts and force its workers to accept a substantial cut in wages and benefits.

It is possible that many of these legal actions can be handled by the general counsel of the firm. However, the functions of general counsel are materially different from the functions of CEOs. While the general council provides legal advice and guidance, the CEO is the key-decision maker and her legal background can significantly influence their non-legal decision making. Prior literature summarizes the duties of the general counsel as complying with regulation, monitoring for misconduct, supervising the legal department, and advising strategic value-creation (Duggin, 2006; Rostain 2008; DeMott, 2012; Sorkin, 2012; Heineman, 2012). Nelson and Nielsen (2004) also note that inside counsel retains their professional identities as lawyers. To the degree that key strategic decisions made by the CEO can affect the litigation risk and performance during litigation events, or otherwise, a CEO with a law background can be more likely to use her legal perspective to formulate strategies and make law-integrated decisions, even in areas not generally under the responsibilities of the general counsel.

Prior literature on CEO education and characteristics scratches the surface of how a legal background reveals CEOs type. Barker and Mueller (2002) examine CEO characteristics and firm R&D spending. By using a small sample of large firms, they argue that firms' R&D spending is negatively related to the legal background of CEOs due to the risk aversion of lawyers. Moreover, Bamber, Jiang, and Wang (2009) find that managers promoted from legal backgrounds develop disclosure styles that tend to guide expectations down (reflecting greater sensitivity to litigation risk), which provides another piece of evidence for the conservatism of CEOs who have a legal background. Lewis, Walls, and Dowell (2013) examine whether the attributes of a CEO have a significant influence on how firms respond to institutional pressures. Specifically, they use the requests made by shareholders for firms to increase the disclosure of their environmental performance. They find that firms with CEOs who have a law degree are less likely to disclose voluntary environmental information. This implies not only the risk aversion of CEOs with a legal background, but also their resistance to outside pressures, perhaps due to their greater understanding of the legal environment. Nonetheless, all of the above studies focus on CEOs' risk aversion and do not focus on the overall value of a CEO's legal background.

In This essay, we attempt to discover the value of CEOs with a legal background (hence forth referred to as law CEOs) in order to answer the question which Bagley (2008) poses at the end of her paper: "Do lawyers make better CEOs?" We first conduct an overall comparison on four aspects between firms with law CEOs and other firms. We begin by examining the volatility of one-year stock returns and the volatility of ROA over a CEO's tenure, to see if firms with law CEOs are indeed less risky. We also examine measures of short-term operating performance, ROA, and measure of long-term value creation, Tobin's Q. We next examine whether firms with law CEOs confront fewer lawsuits since legal knowledge and experience are the most distinct

advantages of law CEOs. Lastly we examine changes in corporate investment policies made by firms which are led by both types of CEOs.

We find that firms led by law CEOs are associated with lower risks as reflected in lower volatility in both market and operating performance. We also find that law CEOs are associated with a higher ROA. However, we do not find evidence that CEOs with legal background create value for companies in the long run (no effect on Tobin's Q), which may be explained by the significantly lower R&D investment and R&D growth rates. We also do not find evidence that firms with a law CEO have fewer lawsuits. One possibility for this non-finding is the endogenous relation between a firm's decision to hire a law CEO and the firm's litigation environment.

To account for this endogeneity concern, we use a hand-collected instrumental variable, the number of top 20 law firms within the same zip code as the firm, to form a two-stage least squares instrumental variable estimation. We continue to find strong evidence that having a law CEO is significantly associated with lower volatility and better operating performance. However, we also find evidence of lower firm value after accounting for this endogenous selection.

The impact of CEOs with a legal background may also emerge when firms are under litigation pressure. In a crisis, confident employees, particularly those with skills related to the crisis can be a company's best advocates (Ethic Resource Center 2011). When facing litigation, firms with a CEO with legal expertise can better, more confidently, navigate the firm through the litigation period, thus minimizing distractions and costs arising from the lawsuits. For example, Lewis, Walls, and Dowell (2013) imply that firms with law CEOs have higher institutional pressure tolerance. To explore this hypothesis, we form a subsample of firm-years in which firms

are the target of a lawsuit. In these firm-years we find that firms with law CEOs have less volatile stock returns, better performance, and lower settlement costs under litigation pressure.

To our knowledge, this is the first empirical study to comprehensively examine Bagley (2008). We examine the value of CEOs with a legal background not only from the corporate governance aspect but also from the legal aspect. Our results confirm the traditional risk averse impression of CEOs and provide further evidence that law CEOs differ from other CEOs in important ways.

1.1. Hypothesis

Prior literature has documented the risk aversion of lawyers and law CEOs (Lewis, Walls, and Dowell, 2013; Barker and Mueller, 2002; Bamber, Jiang, and Wang, 2009). Since CEO characteristics and traits affect firm actions (Hambrick and Mason, 1984) the greater risk aversion of law CEOs is likely reflected in the action and outcome at the firm they manage. For example, Li and Tang (2010) find a positive relationship between CEO hubris and company risk taking. This implies that CEO's risk aversion should be negatively related to company risk taking. Thus, we expect that firms with a law CEO to take less risk, which can be observed in various ways. First, we predict firms with law CEOs to have less volatile stock returns and ROA. We second expect that firms with law CEOs invest less in R&D and capital expenditure, and to have less debt.

Based on the legal astuteness theory developed by Bagley (2008), the top management with legal astuteness provides companies competitive advantages, such as lower transaction costs, law-integrated strategies at an early stage, and the ability to exercise informed judgment. As the leader of top management, law CEOs well incarnate this legal astuteness of top

management. The law education experience can make these CEOs to think more critically of investment opportunities and to think more strategically in their decision making. Thus, when they set new strategies or make decisions they are more likely to irrational business plans. Thus, our next hypothesis is that firms with a law CEO have better operation performance.

Due to law CEOs' risk aversion, they are more likely to take conservative strategies on investment. Barker and Mueller (2002) have showed that the legal background of CEOs have negative effect on firms' R&D investment. Many studies have provided evidence that R&D investment have positive significant influence on firm value (Griliche, 2002; Johnson and Pazderka, 2006; Chauvin and Hirschey, 1993). Therefore, the relation between law CEOs and long-term value creation is not clear.

The advantage of law CEOs may also reflect on litigation prevention. First, Bagley (2008) mentioned that a legal astute top manager considers legal factors to lower litigation risks. Second, people from different professions speak different professional dialect and have hard time to understand each other (Daft and Lengel 1986). A CEO with legal literacy reduces this "language barrier" between the top management and counsels of a company and further reduces time and the likelihood of costly misunderstanding. Third, law CEOs know how to identify and select good inside counsels for the legal department of the firms. Thus, our fourth hypothesis is that when firms have law CEOs they encounter less litigation.

When firms do encounter litigation, we expect law CEOs can reduce the negative input of litigation to the firm because they are more experienced than other CEOs on dealing with legal issues and are more prudent when confronting uncertainties. Legally astute business leaders understand that all legal issues are business problems requiring business solution (Bagley 2000). They do not hand legal issues off to lawyers with a "you-take-care-of-it" approach (Bagley 2008).

Their direct involvement and expertise can reduce uncertainty in the outcome. Thus, our next hypothesis is that stock returns of firms with law CEOs are less volatile during the year firms encounter litigations. Further, being familiar with the legal process can help to minimize distraction from daily operation and result in better operating performance. Finally, the legal experience of law CEOs can provide an advantage in negotiation and resolutions lower total settlement amounts than other firms.

1.2. Data and Methodology

Our analysis examines the importance of CEOs with legal background. We include CEOs in the Capital IQ database and identify law CEOs through Capital IQ's PROFUNCTIONID (e.g. 23=chief legal officer, 38=legal professional, etc.). We define legal experience as being chief legal officers, legal professionals, having law degrees, or on the legal committee of the board of directors. The minimum threshold is holding a law degree. For litigation related information, we use Audit Analytics which provides all Federal litigation information case by case. We summarize the litigation cases by firm, industry, and year based on the raw data file from Audit Analytics. Our analysis also considers a number of typical measures of corporate governance. Thus, we obtain all the company information from Compustat annual updates and stock information from CRSP. The sample covers the firms, which must have in each of these data sets and have identifying information (GVKEY, CUSIP, and CIK), from 1996 to 2013. The sample consists of 65392 firm-year observations in total.

We begin with a panel data analysis on the full sample with firm fixed effect and year fixed effect to capture the unobserved firm characteristics and the time trend. This methodology offers us a baseline analysis on the effect of having a CEO with a legal background on litigation,

performance, and investment dimensions. The firm fixed effect helps eliminate endogeneity problem to some extent. The main independent variable is LAWCEO, which equals one if the CEO has a legal background and zero otherwise. To examine the impact of law CEOs on litigation risk, we use the number of litigations in each firm-year (total, plaintiff, and defendant). We use the volatility of daily stock returns for each year and volatility of ROA over CEOs' tenure to measure company risk taking. For performance, we examine firms' ROA for short-run performance and Tobin's Q for long-run value creation. We also examine firms' investment policies using capital expenditure (divided by sales), R&D expense (divided by total assets), capital expenditure growth, R&D growth, and leverage. All control variables are listed and explained in Table 1.10.

When companies confront litigation, the top management of the company experiences high pressure from shareholder, stakeholders, and even general public. Prior literature (Haslem, Smith, and Hutton, 2013; Bizjak and Coles, 1995; Prince and Rubin, 2002; Viscusi and Hersch, 1990) finds the evidence that litigation has negative effects on firm value. CEOs play a critical role in dealing with litigation problems and public relations. Thus, we form a subsample with only firm-years in which a firm is the target of at least one lawsuit and use panel data analysis to examine whether law CEOs are better helmsmen when companies encounter tough legal environment.

Since the choice of law CEOs may involve selection bias, arising from the fact that firm with high litigation risk may be more likely to hire CEOs with a legal background, we use two-stage least square estimation with a unique instrument variable.

1.3. Results

1. Overall

We begin by examining whether law CEOs are indeed more conservative and thus, associated with less risky corporate decisions and lower volatility of performance. In Table 1.2, we examine determinants of the volatility of firm stock returns and firm operating performance. In the first column, dependent variable is the standard deviation of the daily stock returns for the year. The dependent variable in the second column is the standard deviation of operating performance measured by Return on Assets (ROA) during the CEO's tenure. In both models, we incorporate robust standard errors clustered by firms and firm and year fixed effects. The main independent variable in both models is an indicator variable that equals to one if the firm has a CEO with a law background and zero otherwise. We also control for other firm and industry characteristics that are likely associated with firm performance volatility.

In the first regression model of Table 1.2 we find a negative and significant coefficient estimate on the Law CEO indicator variable. This is consistent with Law CEOs being more conservative in their management style relative to non-Law CEOs. The control variables are also consistent with expectations. For example, larger and older firms are more stable, as are firms with a longer tenure CEO. In the second model, we find a similar significantly negative association between firms with a law CEO and the volatility of firm operating performance. This initial evidence strongly supports the conservative management style of CEOs with a law background.

Next, we look at other firm outcomes to better determine the channel through which a law CEO's conservative style can lead to less volatile performance. One means of decreasing the volatility of the firm, particularly of the stock, is to decrease firm leverage. Another, is to reduce

the level of investment into risky projects. Investment in R&D is the riskiest type of investment, but capital expenditures are also investments that can affect firm performance. In Table 1.3, we explore each of these three firm policies to see whether having a CEO with a law background is significantly associated with either of them. Each model incorporates robust standard errors clustered by firm and firm and year fixed effects.

In the first model, we find no evidence of an association between a law CEO and firm leverage. The coefficient estimate is negative, but not statistically significant. Similarly, we find a negative, but insignificant relation in the second model for capital expenditures. In the third model, R&D is the dependent variable and here we find a statistically significant negative relation between a law CEO and R&D expenditures. Firms with CEOs who have a legal background are associated with a significantly lower level of investment in R&D than other firms, which is consistent with Barker and Mueller (2002). In the last two models of Table 1.3, we examine changes in capital expenditure and R&D expenditure. We find evidence consistent with the earlier models. Specifically, we find no relation between law CEOs and capital expenditure growth, but we find a negative and significant relation between law CEOs and R&D growth.

The evidence thus far is consistent with law CEOs being more conservative and that conservatism manifests itself through their reluctance to invest in R&D revealing distinctly different management styles relative to non-law CEOs. Next we examine whether these differences are related to differences in performance or value, both short-term and long-term.

In Table 1.4 we analyze two measures of short-term operating performance, return on assets (ROA) and one measure of long-term value, Tobin's Q. In all models, we incorporate robust standard errors clustered by firms. We also include industry and year fixed effects. In the

first model we find a positive and significant coefficient estimate for the law CEO indicator, which is consistent with the theoretical predication of Bagley (2008). The more conservative style of CEOs with a law background is associated with better short-term operating performance. The positive association with ROA is consistent with law CEOs being more effective at managing operations better than non-law CEOs. However, in the last model we do not find any evidence that the management style of law CEOs is associated with long-term value as measured by Tobin's Q. In fact, the sign of the coefficient estimate for the law-CEO indicator is negative even though it is not significant. Perhaps the reduced R&D investment from the earlier result leads to an offsetting effect on firm value due to under investment.

One reason firms may hire a law CEO is because the firm is frequently involved in lawsuits, either as a plaintiff or defendant. In Table 1.5 we explore the association with the number of lawsuits the firm is involved in during the year and the presence of a law CEO. The dependent variable is the number of lawsuits, in total or as either the plaintiff or as the defendant. We incorporate robust standard errors clustered by firms, along with firm and year fixed effects. In all three models we find a negative coefficient estimate for the law CEO indicator, however, it is also not statistically significant in all three cases. Thus, these regressions do not reveal a noticeable benefit of reduced litigation when firms have a law CEO. However, these regressions do not account for the endogenous selection. It is likely that executives with a law background are more skilled at selecting firms which are less likely to be involved with law suits. Conversely, some firms with litigation challenges may be more prone to hire CEOs with a law background to help them navigate through their lawsuits. Thus, it is difficult to interpret these results.

2. Under litigation pressure

Building off of the previous argument, a reasonable question to ask is whether having law CEO is more valuable to firms when they are facing litigation. In other words, next we examine the subsample of firms that are experiencing litigation during the year to see if those with a law CEO perform better. In Table 1.6, we examine stock return volatility and total settlement amount for the subsample of firms that experience at least one litigation event during the year. Both models incorporate firm and year fixed effects and robust standard errors. In the first model, volatility of stock returns, we continue to find evidence of firms with a law CEO being significantly less volatile than other firms under litigation. This is consistent with law CEOs using their legal knowledge and expertise to better navigate through litigation than non-law CEOs. As a result, there is less uncertainty, which increases investor confidence and can lead to lower stock volatility. Similarly, when a firm is involved in litigation, the knowledge and experience of the legal system of CEOs with a legal background provides them with an advantage over other CEOs without a legal skill set. Better negotiation skills for example or better knowledge of and access to a broader network within the legal community can help the law CEOs to negotiate better outcomes for their firm. In the second model of Table 1.6 we examine the total settlement amount for the firms involved with a law suit. This is one measure of the quality of the outcome for the firm. We find evidence that firms with a law CEO negotiate significantly lower settlement amounts compared to non-law CEO firms facing litigation. Thus, one source of value from a law CEO is more favorable litigation outcomes arising from their better negotiation skills and understanding of the legal system.

In Table 1.7, we re-examine measures of firm performance and value for the subsample of firms that are facing litigation. If having a law CEO is advantageous for firms during periods of litigation, we expect firms with a law CEO to perform better during these periods. We

continue to include firm and year fixed effects and the standard errors are robust and clustered by firm. We again find a positive and significant coefficient estimate for ROA. The result is consistent with CEOs with a law background being associated with better operating performance as measured by ROA when the firm is dealing with litigation distractions relative to other firms facing litigation but with CEOs who do not have a law background. Thus, the evidence is consistent with law CEOs being better equipped to manage a firm through periods of litigation. In Table 1.8, we find no significant differences in leverage or investment for firms with a law CEO during periods of litigation.

1.4. Robustness Check

Thus far the evidence we find documents significant associations, but we cannot say anything about causality. As discussed earlier, it is possible that CEOs and firm self-select and this endogenous matching confounds our ability to address causality. As an example of the endogeneity concern of This essay it is possible that firms which hire law CEOs are the firms that need the characteristics of law professionals. To account for unobserved time invariant firm characteristics that can cause this endogenous matching we employ firm fixed effects in the previous OLS regressions. However, it is possible that other time varying firm characteristics can result in endogenous firm-CEO selection. For example, as a firm's product line changes it can lead to a change in the likelihood of the firm being involved in litigation and thus its demand for a CEO with a law background. Therefore, to better account for this endogenous possibility we also employ a two-stage estimation with an instrument variable as a robustness check to our results from OLS regressions with firm fixed effect. We need an instrument that is correlated with the likelihood of the firm having a law CEO, but not correlated with the outcomes we

examinee. The instrument variable we use is the number of top 20 law firms (based on the American Lawyer annual ranking) located within the same zip code as the headquarters of the company. When the company is surrounded by top law firms, there will be more top lawyers (or law firms' partners) in their CEO candidate pool, which makes the company more likely to have a law CEO. We expect the instrument variable (Number of top law firms) will be positively related to our main independent variable, Law CEO. Furthermore, there is no reason to believe that proximity to top law firms is related to firm policy outcomes.

Panel A of Table 1.9 shows the first stage regression of the two-stage model. As we predicted, the number of top firms within the same zip code as the company is positively and significantly related to the likelihood of hiring a law CEO. The estimation also indicates that firms size and the number of business segments are positively affect the likelihood of hiring a law CEO; CEO's age is negatively associated with hiring Law CEO.

Panel B to D of Table 1.9 demonstrate the estimations of the second stage regressions for each of the firm outcomes we study. Panels B presents the impacts of law CEOs on firms' ROA, Tobin's Q, Volatility of ROA, and Volatility of stock returns. Consistent with the OLS regressions, firms with law CEOs have significantly higher ROA and lower volatility of ROA and stock returns. Based on the OLS regression, firms with Law CEOs have slightly lower Tobin's Q. The results of two-stage regressions indicate that firms with law CEOs have significantly lower Tobin's Q. The marginal effect from bottom quantile to top quantile of the likelihood of having a law CEO on ROA is 0.021 dollar per dollar of total assets. For volatility of ROA, the marginal effect is -0.03. The marginal effect of the likelihood of having a law CEO on the volatility of stock returns is -0.007.

Panel C of Table 1.9 show the impacts of law CEO on firms' leverage, capital expenditure, R&D, capital expenditure growth rate, and R&D growth rate based on the second stage regressions. Consistent with the results from OLS, we find that law CEOs have a significantly negative effect on R&D investment. The marginal effect from bottom quantile to top quantile on R&D and R&D growth rate is 0.02 dollars per dollar of assets and 0.684% respectively. Furthermore, law CEOs have a pronounced negative impact on firms' capital expenditure growth rate in the two-stage regressions. The marginal effect from bottom quantile to top quantile on capital expenditure and capital growth rate is -0.023 dollar per dollar of sales and -7.3% respectively.

Interestingly, the result on leverage is inconsistent with the OLS regressions, law CEOs have a positive effect on leverage in two-stage regression (marginal effect from bottom quantile to top quantile: 0.073 dollar per dollar of total assets). After accounting for the endogenous selection through the 2 SLS IV model, we find evidence that law CEOs are associated with higher leverage. One possible explanation for this finding is that debt issues have covenant contracts with lenders, which can vary in terms depending on the bargaining power of the firm and the lender. To the degree that a CEO's law experience or legal background provides them greater bargaining power it can afford the firm better debt contracts and allow them to raise more debt capital. Another explanation is that the conservative style of law CEOs allows them to raise debt at lower cost, which allows them to raise higher amounts of debt, all else equal.

Finally, Panel D shows the impacts of law CEOs on corporate litigation problems. After accounting for endogenous selection, we find evidence that firms with a law CEO are significantly associated with a greater number of lawsuits. This contrasts with the insignificant estimation results from our OLS regression. In the last two models, we separate total law suits

into whether the firm is the defendant or the plaintiff. In the first model, the firms that are most likely to have law CEOs (top quantile) confront 0.1 more lawsuit than firms that are least to have law CEOs (bottom quantile). In the second model, we find a positive coefficient estimate for the instrumented law CEO variable, but it is not significant at traditional levels (p-value=.13). On the other hand, in the last model we find strong evidence that firms with a law CEO are significantly more likely to be involved with litigation as a plaintiff. In fact, firms in the top quantile of having a law CEO are more likely to be plaintiffs (marginal effect is in 0.176 more lawsuits firms with law CEOs are plaintiffs). These results are consistent with law CEO's proper utilizing legal tool to protect the firms' legal rights.

1.5. Conclusion

We find evidence that CEO's with a legal background are associated with significantly different firm policy decisions. Specifically, we find they are associated with less risk and better performance in the short-run, which is reflective of their more conservative management style. We also find evidence that their style is associated with better operating performance and we find some evidenced of law CEOs being associated with lower firm value. The association with lower firm value could be due to underinvestment because we also find evidence that firms with a law CEO are associated with lower levels of R&D investment.

However, when firms are faced with litigation, we find evidence law CEOs can better manage their firms through the litigious period relative to firms without a law CEO. In addition to lower volatility during a litigious period, firms with a law CEO pay less in settlements and achieve better operating performance than other firms.

Finally, we address the endogenous firm-CEO matching problem with an instrumental variable, proximity to top law firms, and continue to find support for our main results. Thus, the evidence in This essay provide new insights into CEO styles and how they relate to firm financial policies and outcomes.

Table 1.1 Summary Statistics

	Full Sample		Law CEO Firms		Non-law CEO Firms	
	No. of Obs	Mean	No. of Obs	Mean	No. of Obs	Mean
Market capitalization	64354	2237595	4183	3771402	60171	2130967
ROA	99885	-0.290	6353	-0.295	93532	-0.290
Tobin's Q	93629	2.278	5911	2.198	87718	2.283
Volatility of ROA	96246	0.270	6152	0.308	90094	0.268
Volatility of Stock Return	64577	0.036	4195	0.032	60382	0.037
Leverage	100073	0.770	6381	0.792	93692	0.769
Capital expenditure	88626	0.195	5650	0.180	82976	0.196
R&D	100258	0.059	6391	0.047	93867	0.060
Capx growth	103397	26.565	6724	24.258	96673	26.726
R&D growth	103397	2.400	6724	1.632	96673	2.454
The number of lawsuits	103397	0.196	6724	0.279	96673	0.190
The number of times being defendants	103397	0.029	6724	0.049	96673	0.027
The number of times being plaintiffs	103397	0.196	6724	0.318	96673	0.188
Law CEO	103397	0.065	6724	1	96673	0

Notes: This table shows the summary statistics of firm size, performance, volatility measures, and litigation measures as well as law CEO indicator. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10.

Table 1.2 Risk Taking

	Model 1	Model 2
	Volatility of stock returns	Volatility of ROA
Law CEOs	-0.00237***	-0.0269**
	(0.000329)	(0.0342)
Market Capitalization	-0.00521***	-0.00915***
	(0)	(0.000671)
Firm Age	-0.0115***	-0.0354***
	(0)	(0.00184)
CEO Age	-0.00542***	0.00525
	(1.25e-06)	(0.861)
Post Sabanes Oxley Act	0.0210***	0.0328*
	(0.00137)	(0.0870)
The number of segments	0.000188***	0.000516
	(0.00280)	(0.317)
The number of lawsuits in the industry year	-4.72e-06***	2.60e-05
	(0.00466)	(0.361)
Total settlement amount in the industry year	4.65e-08***	1.24e-07**
	(0)	(0.0115)
Constant	0.137***	0.316***
	(0)	(0.00576)
Observations	51,853	50,365
R-squared	0.386	0.006
Number of firms	7,187	6,876

Notes: This table shows the estimates of panel regressions of volatility of stock returns and volatility of ROA with year and firm fixed effects. The main independent variable is Law CEOs, which indicating whether a CEO has legal background, including law degrees, legal work experience, and legal committee membership of the board of director. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 1.3 Investment Policy

	Model 1	Model 2	Model 3	Model 4	Model 5
	Leverage	Capital Expenditure	R&D	Capx Growth	R&D Growth
Law CEOs	-0.0144	-0.0174	-0.00923***	-0.733	-1.804*
	(0.179)	(0.225)	(0.000331)	(0.847)	(0.0895)
Market Capitalization	-0.0719***	0.0231***	-0.0149***	8.352***	-3.840***
	(0)	(1.02e-08)	(0)	(0)	(0)
Firm Age	0.124***	-0.180***	0.000548	-6.545	-1.003
	(0)	(8.27e-10)	(0.892)	(0.194)	(0.395)
CEO Age	0.0225	-0.0229	0.0117**	-10.99	-1.634
	(0.169)	(0.393)	(0.0191)	(0.104)	(0.344)
Post Sarbanes Oxley Act	0.726***	-0.0205	0.0215	1.788	12.75
	(0.00261)	(0.848)	(0.301)	(0.958)	(0.212)
The number of segments	0.00133	-0.00123	0.000370*	-0.702*	0.342***
	(0.140)	(0.303)	(0.0651)	(0.0789)	(0.00207)
The number of lawsuits in the industry year	5.31e-05	5.79e-05	1.59e-06	-0.0571***	0.0100**
	(0.160)	(0.367)	(0.916)	(0.000397)	(0.0192)
Total settlement amount in the industry year	-1.41e-07**	1.09e-07	5.75e-08**	-7.58e-05**	6.32e-05***
	(0.0460)	(0.328)	(0.0160)	(0.0433)	(1.76e-08)
Constant	0.219	0.573***	0.181***	-18.26	47.20***
	(0.385)	(0.000702)	(8.45e-09)	(0.684)	(0.000168)
Observations	51,704	50,769	51,850	51,854	51,854
R-squared	0.071	0.011	0.032	0.011	0.018
Number of firms	7,180	7,080	7,187	7,187	7,187

Notes: This table shows the estimates of panel regressions of leverage, capital expenditure, R&D, Capx growth rate, and R&D growth rate with year and firm fixed effects. The main independent variable is Law CEOs, which indicating whether a CEO has legal background, including law degrees, legal work experience, and legal committee membership of the board of director. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 1.4 Performance

	Model 1	Model 2
	ROA	Tobin's Q
Law CEOs	0.0456***	-0.0307
	(0.00112)	(0.647)
Market Capitalization	0.0983***	0.871***
	(0)	(0)
Firm Age	0.0563***	-0.973***
	(0.000344)	(0)
CEO Age	0.0438*	-0.0492
	(0.0948)	(0.704)
Post Sarbanes Oxley Act	-0.903***	-1.558**
	(0.000484)	(0.0182)
The number of segments	-0.00416***	-0.0554***
	(3.11e-06)	(0)
The number of lawsuits in the industry year	-6.61e-05	-0.00186***
	(0.164)	(6.48e-10)
Total settlement amount in the industry year	-8.10e-07***	5.72e-07
	(1.83e-10)	(0.333)
Constant	-0.808***	-4.668***
	(0.00451)	(1.19e-07)
Observations	51,826	51,803
R-squared	0.069	0.191
Number of firms	7,183	7,179

Notes: This table shows the estimates of panel regressions of ROA, and Tobin's Q with year and firm fixed effects. The main independent variable is Law CEOs, which indicating whether a CEO has legal background, including law degrees, legal work experience, and legal committee membership of the board of director. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 1.5 Company Litigation

	Model 1	Model 2	Model 3
	The number of lawsuits	The number of times being plaintiffs	The number of times being defendants
Law CEOs	-0.0261	-0.0226	-0.00311
	(0.455)	(0.301)	(0.951)
Market Capitalization	-0.00656	0.00283	-0.00785
	(0.294)	(0.212)	(0.361)
Firm Age	0.0603	0.0360**	0.0798
	(0.154)	(0.0242)	(0.182)
CEO Age	0.0278	0.00714	0.0249
	(0.560)	(0.681)	(0.717)
Post Sarbanes Oxley Act	0.122	-0.0261	-0.00498
	(0.344)	(0.438)	(0.969)
The number of segments	0.00684*	0.000633	0.0107**
	(0.0503)	(0.728)	(0.0308)
The number of lawsuits in the industry year	0.00162***	0.000156***	0.00247***
	(0)	(0.000511)	(0)
Total settlement amount in the industry year	-5.01e-07*	-1.86e-07*	-1.48e-06***
	(0.0762)	(0.0516)	(5.92e-05)
Past year compounded stock returns	-6.719***	0.0371	-7.903***
	(0)	(0.918)	(0)
Constant	-0.284	-0.148	-0.269
	(0.273)	(0.122)	(0.456)
Observations	44,795	44,795	44,795
R-squared	0.022	0.003	0.022
Number of firms	6,597	6,597	6,597

Notes: This table shows the estimates of panel regressions of the number of lawsuits, the total of times being plaintiffs, and the total of times being defendants with year and firm fixed effects. The main independent variable is Law CEOs, which indicating whether a CEO has legal background, including law degrees, legal work experience, and legal committee membership of the board of director. The sample consists the information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 1.6 Stock Volatility and Litigation Settlement when Confronting Litigation

	Model 1	Model 2
	Volatility of stock returns	Total settlement amount
Law CEOs	-0.00264**	-19.17*
	(0.0180)	(0.0851)
Market Capitalization	-0.00578***	0.160
	(0)	(0.972)
Firm Age	-0.0214***	-156.9***
	(0)	(1.66e-07)
CEO Age	-0.00528***	-13.81
	(0.00824)	(0.598)
Post Sarbanes Oxley Act	0.0179***	50.42**
	(4.13e-06)	(0.0219)
The number of segments	0.000161	2.949*
	(0.127)	(0.0895)
The number of lawsuits in the industry year	1.67e-05***	0.171*
	(4.82e-06)	(0.0682)
Total settlement amount in the industry year	4.43e-08***	0.00189***
	(1.21e-07)	(1.48e-09)
Constant	0.188***	549.8***
	(0)	(0.000370)
Observations	9,851	9,851
R-squared	0.497	0.174
Number of firms	3,426	3,426

Notes: This table shows the estimates of panel regressions of volatility of stock returns and total settlement amount with year and firm fixed effects within a sub-sample. This sub-sample only consists years that the firm encountering lawsuits. The main independent variable is Law CEOs, which indicating whether a CEO has legal background, including law degrees, legal work experience, and legal committee membership of the board of director. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 1.7 Performance under Litigation Pressure

	Model 1	Model 2
	ROA	Tobin's Q
Law CEOs	0.0563*	0.0628
	(0.0589)	(0.532)
Market Capitalization	0.100***	0.771***
	(0)	(0)
Firm Age	0.215***	-1.000***
	(4.76e-05)	(0.000426)
CEO Age	0.0295	-0.131
	(0.603)	(0.650)
Post Sarbanes Oxley Act	-0.307***	-1.095*
	(0.00111)	(0.0681)
The number of segments	-0.00562***	-0.0521***
	(0.00488)	(3.81e-06)
The number of lawsuits in the industry year	-0.000370***	-0.00100**
	(0.000877)	(0.0394)
Total settlement amount in the industry year	-1.05e-06***	-1.44e-07
	(0.000137)	(0.843)
Constant	-1.993***	-4.347***
	(0)	(0.00363)
Observations	9,847	9,846
R-squared	0.125	0.227
Number of firms	3,425	3,422

Notes: This table shows the estimates of panel regressions of ROA and Tobin's Q with year and firm fixed effects within a sub-sample. This sub-sample only consists years that the firm encountering lawsuits. The main independent variable is Law CEOs, which indicating whether a CEO has legal background, including law degrees, legal work experience, and legal committee membership of the board of director. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 1.8 Investment Policy under Litigation Pressure

	Model 1	Model 2	Model 3	Model 4	Model 5
	Leverage	Capital Expenditure	R&D	Capx Growth	R&D Growth
Law CEOs	-0.0171	-0.0275	-0.00227	-2.581	-1.964
	(0.333)	(0.230)	(0.554)	(0.594)	(0.421)
Market Capitalization	-0.0808***	0.0110*	-0.0155***	6.002***	-4.362***
	(0)	(0.0503)	(0)	(0.00597)	(1.62e-07)
Firm Age	0.0785**	-0.113**	-0.0160	5.280	-16.22***
	(0.0180)	(0.0465)	(0.131)	(0.582)	(0.000121)
CEO Age	0.0256	0.0272	-0.00383	4.670	-16.23***
	(0.480)	(0.403)	(0.667)	(0.679)	(0.00127)
Post Sarbanes Oxley Act	-0.0305	0.0290	0.0170	5.716	35.35***
	(0.817)	(0.482)	(0.207)	(0.910)	(0.00153)
The number of segments	-0.000809	-0.000664	0.000430	0.193	0.295
	(0.661)	(0.515)	(0.228)	(0.780)	(0.273)
The number of lawsuits in the industry year	8.62e-05	2.36e-05	6.27e-05***	-0.0299	0.0445***
	(0.172)	(0.754)	(0.00683)	(0.329)	(0.000144)
Total settlement amount in the industry year	-1.08e-07	1.55e-08	5.96e-08*	-7.25e-05	7.14e-05***
	(0.321)	(0.891)	(0.0591)	(0.251)	(0.00426)
Constant	1.350***	0.218	0.323***	-105.8	148.8***
	(4.36e-09)	(0.321)	(5.29e-10)	(0.145)	(1.56e-08)
Observations	9,810	9,763	9,851	9,851	9,851
R-squared	0.126	0.012	0.053	0.009	0.044
Number of firms	3,418	3,395	3,426	3,426	3,426

Notes: This table shows the estimates of panel regressions of leverage, capital expenditure, R&D, capx growth rate, and R&D growth rate with year and firm fixed effects within a sub-sample. This sub-sample only consists years that the firm encountering lawsuits. The

main independent variable is Law CEOs, which indicating whether a CEO has legal background, including law degrees, legal work experience, and legal committee membership of the board of director. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 1.9 Two-Stage Estimation with the Instrument Variable
Panel A The First Stage Estimation

	Law CEO
Number of Top Law Firms	0.0253***
	(0.000185)
Market Capitalization	0.00305***
	(0.00491)
Firm Age	0.00492
	(0.119)
CEO Age	-0.0346**
	(0.0280)
Post Sarbanes Oxley Act	-0.0737
	(0.420)
The number of segments	0.00348***
	(0.00398)
The number of lawsuits in the industry year	4.78e-05
	(0.148)
Total settlement amount in the industry year	-5.15e-08
	(0.455)
Constant	0.238**
	(0.0291)
Year and industry fixed effect	Yes
Observations	71,551
R-squared	0.019

Notes: This take show the estimates of the First stage of a two-stage model to address the endogeneity issue. The dependent variable is Law CEOs, which indicating whether a CEO has legal background, including law degrees, legal work experience, and legal committee membership of the board of director. The instrument variable is Number of Top Law Firms, which indicates the number of top 20 law firms ranked by American Lawyer with in the same zip code as the company. Year and industry (Fama and French 10) fixed effects are used. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Panel B The Second Stage Regressions on Performance and Risk Taking

	Model 1	Model 2	Model 3	Model 4
	ROA	Tobin's Q	Volatility of ROA	Volatility of Stock returns
LAWCEO's Linear prediction	0.597***	-26.04***	-0.877***	-0.0228**
	(0.00266)	(0)	(0.000150)	(0.0273)
Market Capitalization	0.0416***	0.304***	-0.0225***	-0.00451***
	(0)	(0)	(0)	(0)
Firm Age	0.0344***	-0.0672***	-0.0258***	-0.00263***
	(0)	(0.00898)	(0)	(0)
CEO Age	0.108***	-1.372***	-0.0802***	-0.0108***
	(5.36e-09)	(0)	(0.000813)	(0)
Post Sarbanes Oxley Act	0.0860	-1.890***	-0.336*	-0.0281**
	(0.522)	(6.48e-06)	(0.0623)	(0.0304)
The number of segments	-0.00401***	-0.0171	0.000414	8.49e-05
	(0.000160)	(0.104)	(0.706)	(0.195)
The number of lawsuits in the industry year	-0.000496***	0.00164***	0.000331***	8.23e-06***
	(0)	(6.55e-07)	(0)	(6.71e-06)
Total settlement amount in the industry year	-6.77e-07***	-6.67e-07	8.37e-08	5.41e-08***
	(6.63e-05)	(0.368)	(0.393)	(0)
Constant	-1.186***	6.977***	1.178***	0.164***
	(0)	(0)	(9.93e-09)	(0)
Year and industry fixed effect	Yes	Yes	Yes	Yes
Observations	51,826	51,803	50,361	51,849
R-squared	0.137	0.171	0.115	0.485

Notes: This table shows the results of the second stage of the two-stage estimation. The dependent variables measure the performance and risk taking of the company. The main independent variable is a linear prediction of LAWCEO based on the first stage regression. Year and industry (Fama and French 10) fixed effects are used. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Panel C The Second Stage Regressions on Investment Policy

	Model 1	Model 2	Model 3	Model 4	Model 5
	Leverage	Capital Expenditure	R&D	Capx Growth	R&D Growth
LAWCEO's Linear prediction	2.043***	-0.627	-0.563***	-203.6***	-19.89*
	(0)	(0.105)	(0)	(0.000983)	(0.0754)
Market Capitalization	-0.00592***	0.000213	-0.00407***	-4.384***	-1.180***
	(0.000141)	(0.909)	(0)	(0)	(0)
Firm Age	0.0125***	-0.0461***	-0.00845***	-1.815**	-0.515***
	(0.00215)	(0)	(0)	(0.0164)	(0.000924)
CEO Age	0.0527***	-0.0414	-0.0283***	-15.34***	-2.606***
	(0.00697)	(0.217)	(6.29e-05)	(0.000609)	(0.00681)
Post Sarbanes Oxley Act	-0.0151	0.0887**	-0.00475	61.91***	19.17
	(0.909)	(0.0494)	(0.864)	(0.001000)	(0.148)
The number of segments	0.00267*	-0.00806***	-0.000505	0.321	0.244***
	(0.0657)	(7.47e-05)	(0.223)	(0.300)	(0.000448)
The number of lawsuits in the industry year	0.000106**	0.000142**	0.000359***	0.0304***	0.0152***
	(0.0241)	(0.0475)	(0)	(0.00121)	(0)
Total settlement amount in the industry year	-2.63e-07***	-1.46e-07	-3.55e-07***	-0.000168***	4.96e-05***
	(0.00605)	(0.314)	(0)	(2.12e-06)	(5.88e-06)
Constant	0.153	0.363**	0.259***	100.9***	7.293
	(0.335)	(0.0214)	(3.95e-10)	(0.000230)	(0.598)
Year and industry fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	51,704	50,769	51,850	51,850	51,850
R-squared	0.087	0.087	0.342	0.018	0.027

Notes: This table shows the results of the second stage of the two-stage estimation. The dependent variables measure the investment policy of the company. Year and industry (Fama and French 10) fixed effects are used. The main independent variable is a linear prediction of LAWCEO based on the first stage regression. The sample consists information of litigations from Audit Analytics, CEO

information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Panel D The Second Stage Regressions on Litigation

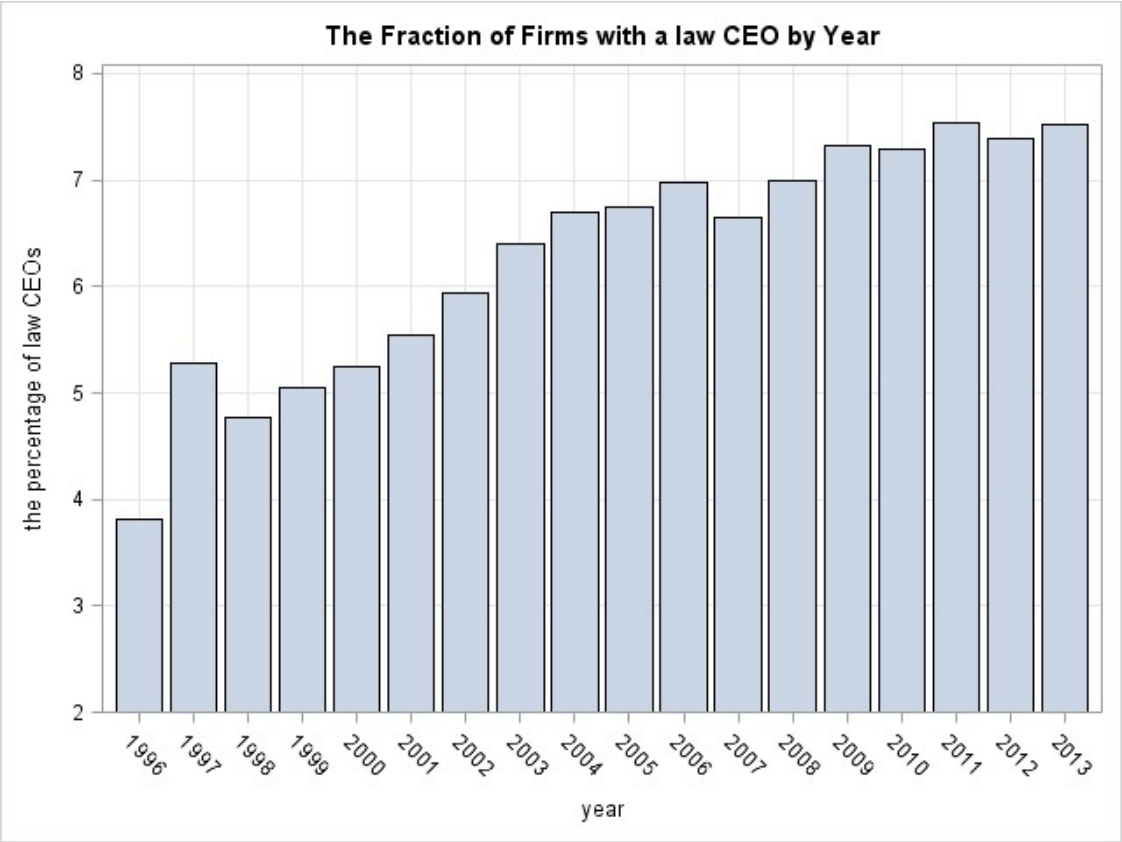
	The number of lawsuits	The number of times being defendants	The number of times being plaintiffs
Law CEO's Linear prediction	2.918***	0.578	4.884***
	(1.94e-06)	(0.128)	(0.00324)
Market Capitalization	0.112***	0.0168***	0.128***
	(0)	(0)	(0)
Firm Age	0.0197**	0.00253	0.0412***
	(0.0176)	(0.372)	(0.00282)
CEO Age	0.0266	0.0159	0.0645
	(0.484)	(0.302)	(0.328)
Post Sarbanes Oxley Act	-0.0484	-0.00241	-0.0667
	(0.599)	(0.937)	(0.620)
The number of segments	0.00937**	-9.33e-05	0.0106
	(0.0134)	(0.947)	(0.120)
The number of lawsuits in the industry year	0.000837***	0.000238***	0.00114***
	(0)	(2.64e-08)	(0)
Total settlement amount in the industry year	1.94e-07	-3.92e-07***	-2.20e-07
	(0.495)	(3.04e-05)	(0.529)
Constant	-1.700***	-0.316***	-2.311***
	(0)	(0.00188)	(6.79e-08)
Year and industry fixed effect	Yes	Yes	Yes
Observations	51,850	51,850	51,850
R-squared	0.145	0.040	0.110

Notes: This table shows the results of the second stage of the two-stage estimation. The dependent variables measure litigation problems of the company. The main independent variable is a linear prediction of LAWCEO based on the first stage regression. Year and industry (Fama and French 10) fixed effects are included. The sample consists information of litigations from Audit Analytics, CEO information from Capital IQ, company information from Compustat, and stock information from CRSP. The sample period is from 1996 to 2013. Dependent and independent variables are defined in Table 1.10. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 1.10 Definitions of Variables

Variable Names	Definitions
Dependent Variables	
The number of lawsuits	The number of lawsuits that a firm encounters in a year.
The total of times being plaintiffs	The number of times that a firm is a plaintiff in lawsuits in a year.
The number of times being defendants	The number of times that a firm is a defendant in lawsuits in a year.
Total settlement amount (million &)	The total settlement amount a firm pays in a year.
Standard deviation of stock returns	The standard deviation of daily stock returns in year.
Standard deviation of ROA	The standard deviation of annual ROAs across the CEO's tenure.
ROA	Annual net income divided by total assets.
Tobin's Q	Market capitalization divided by total assets.
Leverage	total liability divided by total assets.
Capital expenditure	Annual Capital expenditures divided by total sales.
Capx growth	The percentage change of capital expenditure.
R&D	Annual research and development expense divided by total assets.
R&D growth	The percentage change of capital expenditure.
Independent Variables	
Total Assets	The natural log of total assets of the firm.
Market Capitalization	The natural log of market value of the firms based on the share price and total number of common shares.
Firm age	The natural log of the number of years since the year founded to the data year plus one.
CEO age	the natural log of the CEO's age plus one.
Post Sarbanes Oxley Act	A dummy indicator that equals one if the years is greater than 2002.
The Number of segments	The number of business segments of a firm.
The number of lawsuits in each industry	The number of lawsuits that an industry has in a year. We classify industries by using Fama & French 49 industry categorization.
The total settlement amount in each industry year (million $)	The total settlement amount of all the lawsuits in an industry in a year. We classify industries by using Fama & French 49 industry categorization.

Figure 1.1 The Percentage of Firms with a law CEO by Year



CHAPTER 2

THE DECISIONS OF M&A ADVISORS IN SERIAL TAKEOVERS AND THE OUTCOMES

Corporate acquisitions are significant investment decisions that can have tremendous shareholder wealth effects. Thus, the care with which firms engage in these decisions is important. As such, the selection of an appropriate advisor for each bid is essential (Burch, Nanda and Warther (2005), Francis, Hasan and Sun (2006) and Becker, Gordon and Juergens (2014)). When firms engage in an acquisition shareholder reaction can depend on numerous firm and deal characteristics making it difficult to assess the value shareholders attribute to the advisor selection decision. However, when a firm engages in a series of acquisitions over a short time, the firm characteristics are constant and the resulting variation in shareholder wealth effects is due to the variation in the deal characteristics during the series of acquisitions. For example, Fuller, Netter and Stegemoller (2002) find that among firms undertaking a series of acquisitions in a short period of time those deals involving private targets or using stock are associated with greater shareholder wealth effects. In This essay, we use a sample of serial acquirers to study the role of advisor selection in acquisition deals. Since advisors can have differing areas of expertise, selecting an appropriate advisor for each deal can improve the acquisition outcome for shareholders. We test this hypothesis using a sample of serial acquirers and examine those who switch advisers within a sequence of acquisitions relative to serial acquirers who use the same advisor throughout a sequence.

While selecting the optimal advisor for each deal within a sequence can be beneficial for that deal, there are costs firms must consider. First, given the importance of the long-term relationship between a firm and their advisor, firms may continue to use the same advisor throughout a series of acquisitions for the benefit of the long-run relationship (Becker, Gordon, and Juergens (2014)). Second, switching advisors can consume time and resources from the acquiring firm. Third, the sequence of acquisitions can be part of a larger strategy for which one advisor is helping the firm to manage. That being said, we find that in our sample of serial acquirers more than 60% choose to switch advisors within a sequence.

We define a serial acquirer as a company which undertakes a sequence of at least two takeovers in a 12-month period as listed in the Thomson Securities Data Corporation Mergers and acquisitions database (SDC) from 1992 to 2012. Our sample includes all the sequences of serial takeovers which are undertaken by serial acquirers.

We study four acquisition outcomes that directly affect shareholders. First, we investigate the immediate shareholder wealth effects by examining the 5-day cumulative abnormal returns (CARs) to the acquisition announcements. We find that switchers have significantly higher CARs, which indicates that shareholder benefit when firms select the most suitable advisors for each deal. Thus, the extra time and resources devoted to selecting an appropriate advisor outweighs the costs.

Next, we examine additional deal characteristics that are likely to reflect the greater expertise and greater negotiating power of an advisor selected because of their expertise with the target firm or its industry. We start with the offer premium. Advisors with more knowledge of a target firm or their industry should be better able to value the target and to negotiate a lower premium. Following Laamanen (2007) we look at the acquisition premiums a day and a week

prior to the announcements. We look as close to the deal announcement date as possible to minimize noise. Acquisition premiums directly tell us how much acquirers pay the seller. At the same time, acquisition premiums reflect the acquirer's and their advisor's information acquisition and negotiation ability. We find firms that switch advisors pay significantly lower premiums than do non-switchers, which is consistent with these acquirer-advisors having greater information and bargaining power.

The third deal characteristic we examine is the advisor's fees. Advisory fees or underwriting fees have been examined in variety firm bank long-term relationship literature. Another reason for switching advisors, in addition to finding one better suited for the target of interests, is simply to find the lower cost provider. When a firm is engaging in multiple acquisitions, investment banks can compete with one another on prices in the hopes of winning future business with the firm. Thus, the serial acquirer is likely to have several advisors offering their services and competing on price. Consistent with this reasoning we find that switchers pay significantly lower advisory fees compared to serial acquirers who stay with the same advisor throughout.

Finally, we examine the time to deal completion again to see if selecting an advisor with greater knowledge of the target firm translates into more efficient deal execution. Indeed, we do find that serial acquirers who switch advisors are associated with faster deal completion times relative to non-switching serial acquirers.

After examining these deal characteristics, we explore the determinants of firms that chose to switch advisers during a sequence of acquisitions. We also find that acquirers are significantly more likely to be switchers in deals that are relatively small, larger deal values, involve poorly performing targets, targets which are not in the same industry with acquirers; and

in deals where targets use single advisor. These results are consistent with firms switching advisors when information asymmetry is greater between the acquirer and target or when the acquirer can benefit from greater bargaining power. In each of these cases, the benefit of switching advisors outweighs the costs. We also use this determinants model to address potential endogeneity concerns with our primary analysis. Specifically, we use the model to estimate the propensity of switching for each serial acquirer within our sample. From this, we create a matched sample of switching firms to non-switching firms with the closest propensity score. This approach allows us to control for observable acquirer characteristics that could be endogenously related to deal outcomes. Our primary results are still robust even after we control possible endogeouneity problems using this propensity scores matching method.

Our results contribute to the literature in several ways. First, we find that selecting suitable advisors for different deals is beneficial for acquirers. The result that switchers pay lower advisory fees is consistent with Burch, Nanda, and Warther (2005) who find that firms which are loyal to IBs pay higher underwriting fees. This is also consistent with Becker, Gordon, and Juergens (2014) who conclude that maintaining a long-term relationship with IBs is expensive. The other three aspects of our results provide additional evidence that switching is a better strategy.

Second, our finding of the importance of advisor selection among serial acquirers contributes to the existing literature on firms making multiple acquisitions. Aktas, Bodt, Roll (2011) and Croci and Petmezas (2014) both study manager actions in successive acquisitions. Our findings reveal the important role of advisor selection as a potential aspect of managerial skill in serial acquisitions. In general, our study connects the advisor relationship literature with

the serial acquirer literature in order to provide important insights into the valuable decision of advisor selection.

Billett and Qian (2008) as well as Doukas and Petmezas (2007) find decreasing returns in a sequence of acquisitions and interpret these results as overconfident self-attribution bias. Our results also provide another explanation for phenomena described in prior studies. Our findings indicate that the advisor selection can impact the deal outcomes, which can a potential cause of declining returns in high order acquisition deals. Macias, Rau, and Stouraitis (2016) provide evidence that there is heterogeneity among serial acquirers and classify serial acquirers into four categories by the motivations of conducting multiple deals. Our findings further show the existence of heterogeneity among serial acquirers.

The rest of the essay is organized as follow. Section II is summary statistics. Section III reports the determinant model. Section IV report the results. Section V is conclusion.

2.1. Summary Statistics

We define a serial acquirer as a company which undertakes a sequence of at least two takeovers in a 12-month period. This is similar to the definition in Aktas, Bodt, Roll (2011) and Fuller, Netter, Stegemoller (2002) though there are differences. Aktas, Bodt, and Roll (2011) limit their sample to the sequences of takeovers conducted by the same CEO since their work focuses on CEO learning during acquisitions. We do not make this restriction. Fuller, Netter, Stegemoller (2002) use the serial acquirers who undertake five or more deals in three years, which rules out all the acquirers who did less five deals consecutively in a short period of time. Our approach captures more serial acquisitions. We focus on serial acquirers because we want to study the decision by firms to select a different (new) lead advisor from deal to deal. An

important characteristic of our sample, which allows us to study this question, is that the average time interval between two sequential deals is less than three months. The financial advisor is an important part of a takeover because their services help to obtaining better deal prices and terms and also reduce the liability risk of directors and officers.

Furthermore, Bao and Edmans (2011) find that investment banks matter for M&A outcomes because they can help firms identify quality acquisitions, negotiate terms, and hasten the process. Servaes and Zenner (1996) compare acquisitions that were completed in-house versus those that use investment bank advisors and find that an investment bank is used in more complex transactions with asymmetric information, documenting the importance of the advisor's role in the information collection process in mergers and acquisitions. Hunter and Walker (1990) find that merger gains relate positively to investment banking fees and other proxies for investment bank effort, which implies that investment banks on average act in the principles' interests. Bower and Miller (1990) find that the choice to use an investment bank depends on the complexity of the transaction, the type of transaction, the acquirer's prior acquisitions experience, and the degree of diversification of the target firm. This implies that the process of choosing a suitable advisor is complex. These findings indicate that while chasing an appropriate investment bank for each transaction can be time consuming, it is nonetheless very important and can improve M&A outcomes.

Many other researches have studied the advisor choices as well. Hunter and Jagtiani (2003) find that top-tier advisors are more likely to complete deals and to complete them in less time than lower tier advisors; but the synergistic gains realized by the acquirers declined when top advisors were used. Agrawal, Cooper, Lian, and Wang (2013) find common advisors provide more benefits to acquirers than targets. Common advisors are more likely to be picked in deals

that are smaller, involve private targets, use common stock for payment, and have larger relative size. This finding suggests the target firm characteristics can influence the choice of advisors. Francis, Hasan, and Sun (2006) find that firms tend to retain banks that have advised their M&A transactions or underwritten their equity issues in the past. However, we find that in our sample of serial acquisitions more than half of the acquirers (62%) do not retain their advisors from their prior deals. Also, recent literature studying long-term advisor relationships finds that it is expensive to maintain a long-term relationship with banks across all types of financial transactions (Becher, Gordon, and Juergens (working paper 2014)) . Therefore, we are interested in studying, given the cost-benefit tradeoffs associated with selecting an advisor, the value created when serial acquirers decide to switch advisors.

We use the Securities Data Corporation Mergers and acquisitions database (hereafter, SDC) to identify all completed acquisitions made by public companies from January 1, 1992 to December 31, 2012 in which the acquirer uses an M&A advisors. We obtain other financial information from CRSP (the Center for Research of Securities Prices). We require firms to be available in CRSP. The sample includes both public and private targets. There are 2761 deals and 857 acquirers in the sample. Following prior M&A advisor related work we also exclude recapitalizations, self-tenders, exchange offers, repurchases, privatizations, leveraged buyouts spin-offs, and hostile takeovers. We exclude the transactions where acquirers hold more than 50% of the target prior to the acquisition, and we exclude the transactions where the acquirer owned less than 100% after the deals. We require the deal value to be greater than 1 million dollars. Sample size varies across the tables due to the data availability.

Table 2.1 shows the summary statistics of the entire sample. The average 5 day cumulative abnormal return (-2, 2) around the announcement (day 0), which is estimated using

the market model with the value-weighted market index return, is -0.001(-0.1%), which is consistent with prior literature (Aktas, Bodt, and Roll 2011, Ismail (2008)). The acquisition premium a day prior to the announcement date and acquisition premium a week prior the announcement date are approximately 31% and 36% respectively. Acquirers spend about 0.2% of the deal value on financial advisor fees. On average deals are resolved in about 104 days. The average deal value is $768 million. The average market capitalization of acquirers is $11.3 billion. The deal value in our sample and average market capitalization of acquirers are similar to prior literature (Agrawal, Cooper, Lian, and Wang (2013), Francis, Hasan, Sun (2006), Fuller, Neter, and Stegemoller (2002)). For example, Agrawal, Cooper, Lian, and Wang (2013) find that average deal value and acquirer's market value are $ 982 million and $3.011 billion respectively. Francis, Hasan, Sun (2006) find average deal value and acquirer's market value for $1519 million and $13.6 billion. Fuller, Neter, and Stegemoller (2002)) find average deal value and acquirer's market value for $265 million and $5.24 billions respectively. The average relative size of targets and acquirers is about 0.21. Forty-six percent of the targets are public firms, and 15% of the targets are not US companies. About 33% of the targets are in the same industries as the acquirers. About 28.8% of targets are in the high technology industry. Acquirers hire top 5 investment banks as their lead advisors in about 12.5% of deals, and targets hire top 5 advisors in about 7.2 % of the deals. The investment bank rankings are based on the total deal value of the prior year. About10% of deals acquirers and targets has more than one advisor. About 65% of our sample occurred during the fifth M&A wave (1992-2000), 25% during the sixth wave (2003-2008).

We define a switcher-acquirer as a company which switches M&A advisor at least once in a sequence of takeovers. In our sample about 69% of the acquirers are switchers. Table 2.2

Panel A compares these two groups and shows the results of basic univariate tests. There are 861 deals by 325 acquirers in the group of non-switchers and 1900 deals by 533 acquirers in the group switchers. Based on the univariate tests, non-switchers have a higher average cumulative abnormal return (0.009) than switchers (-0.005). Acquisition premiums a day prior to the announcement date and a week prior to the announcement date are 3% and 4% lower for switchers. Switchers pay significantly less advisory fees (0.1%) than non-switchers (0.2%). Also, acquirers save eight days on average on resolving the deals.

Acquirers of larger targets are more likely to switch advisors. The average deal value is 426 million dollars for non-switchers and 912 million dollars for switchers. Switchers are relatively larger companies. About 52% of the targets of switchers are public companies, compared to 33% of targets which are acquired by non-switchers. The targets with higher OPA (0.257) are more like to be acquired by switchers than the targets with lower OPA (0.07). Acquirers are less likely to switch advisors when they are acquiring the targets in the same industry (0.32% v.s. 0.34%). About 31% of targets that are acquired by switchers are high tech companies, and only 24% of targets that are acquired by non-switchers are high tech companies. Acquirers with higher Tobin's Q are more likely to be switchers (1.96) than those with lower Tobin's Q (1.64). The Tobin's Q of targets is not significantly different between two groups. Switchers are more like to hire top IBs than non-switchers and to use multiple advisors in a deal. For non-switchers, about 10% of them change the number of advisors even though they did not change the lead advisors.

Table 2.2 Panel B reports descriptive statistics for the switchers. The average number of switches is 1.65 times within a sequence and maximum is. The average number of distinct advisors in a sequence is 2.34. We calculate the frequency of switch as the number of

switches/(the number of deals in a sequence-1). The average frequency of switching is 0.73, which indicates that these acquirers use different advisors most of the time. The average length of a sequence is 362.84 days, which includes, on average, 3.91 deals in a sequence. This implies, for switchers the average time interval from between deals is 92 days. The average number of acquisitions sequences switchers undertake is 1.24. There are two switchers which engage in five acquisitions sequences, which is the maximum.

2.2. Determinants

In this section we examine whether switching is related to firm, deal and advisor characteristics. This identifies the characteristics associated with switching acquirers and allows us to account for potential endogenous issues. Understanding these factors could help identify important control variables when we turn to investigating the relationship between switching and deal outcomes.

We expect firms are more likely to switch advisors when they confront larger deals. When deals are large, fees for advisors are large. From the acquirers' perspective it is more difficult to manage the large deal, which makes having the right advisors more important. An advisor with specific knowledge can give more bargaining power. From the advisors' perspective larger deals are more valuable in term of fees and visibility so they are likely more advisors seeking the acquirer's business which makes the search cost lower.

However, we predict that the *relative* deal size (market capitalization of target/market capitalization of acquirer) is negatively related to the likelihood of switching advisors. For a given target size, and thus workload for an advisor, advisors prefer larger acquirers ceteris paribus given the potential for larger future deals is greater. Therefore, larger acquires likely

have more investment banks competing for their business and are therefore more likely to find more favorable fees and advisors more skilled in their target's industry if they switch.

A tender offer is a more complicated and expensive alternative than a negotiated deal, and thus requires close cooperation between the acquirer and advisor. Therefore, we expect that acquirers prefer to reduce the unnecessary friction between firms and IBs and information leakage risk by staying with the IBs they have worked with previously. When the target is not a US firm, we expect that acquirers are more likely to switch advisors, since acquirers may choose an IB which is in the country of the target or more familiar with international M&As. We control for the ownership of a target using 'Target is Public', a binary variable that equals one if a target has publicly traded stock and equal zero otherwise. Prior literature emphasizes the difference between public and private targets in M&A (Fuller, Netter, and Stegemoller 2002). Bradley and Sandaram (2006) find that the target organizational form–i.e., whether the target is public or non-public–is the most important determinant of the market reaction to an acquisition announcement. At the same time, public targets have more bargaining powerful than private target. Therefore, we predict that acquirers are more likely to select a more suitable advisor through switching when they confront public targets. Based on univariate test on the use of top 5 advisors grouped by public and private targets, acquirers are more likely to use top advisors when they confront a public target (Unreported results). In addition, deals with public targets more visible may attract larger well known IBs to participant.

Target's leverage (debt ratio) is calculated as total debts divided by total assets. We expect the higher the debt ratio the less likely the acquirer switches, since greater debt reduce the target's advisor's bargaining power. We define 'Tartget's OPA' as Target's EBITA divided by total assets to measure target's performance. The higher the target's OPA the better they operate. The role of a

buyer side advisor concentrate on two things: valuing the target and negotiating a bid price. When a target is in a good condition, it is easier for the acquirer to estimate the value of the firm making it less likely the acquirer switches advisors. However, good operation performance gives that target higher bargaining power, which increases the difficulty of negotiation, which makes the acquirer more likely to switch. So the impact of target's OPA on switching can be ambiguous. In general the higher the target Tobin's Q the strong target's bargaining power. A higher acquirer Tobin's Q reflects more power and thus the additional bargaining power brought by the right advisors is comparatively less.

We use 'Same Industry', a dummy indicator, to identify whether a target and an acquirer are in the same industry (one) or not (zero) (SIC 4 digit). Acquirers face less information asymmetry when the target is in a same industry. In such cases, the role of a suitable advisor is less critical. Based on a univariate test (unreported results), when the target is not in the same industry as the acquirer, the acquirer is more likely to hire a top tier advisors rather than a group of lower ranked advisors. Therefore, we expect that when a target and an acquirer are in the same industry acquirers are less likely to switch advisors. High technology targets are most often (80%) acquired by acquirers in the same industry. Also, high technology targets are more likely to be smaller non-public firms. For these reasons made the acquirers finding the right advisors is less critical. Therefore, we predict that acquirers are more likely to stay with it prior advisor, rather than switching to another.

We use a dummy variable 'Top 5 Acquirer Advisor' to indicate whether the acquirer hires a reputable M&A advisor. Hunter and Jagtiani (2003) find that top-tier advisors are more likely to complete deals and to complete them in less time than lower tier advisors. Bower and Miller (1990) find that the first-tier investment banks help firms to have larger total wealth gains. The

high reputation of M&A advisor gives an acquirer greater incentive to keep top tier advisor as long-term collaborator. So deals with more reputable advisors are less like to switch advisors. The use of multiple advisor allows acquirers to work with various advisors, which makes it more likely they will work with some of these in subsequence deals. So we expect switching to be positively related to acquirers' use of multiple advisors. We use a dummy variable 'Top 5 Target Advisor' to indicate whether target hires a reputable M&A advisor. Agrawal, Cooper, Lian, and Wang (2014 working paper) suggests that the hiring of top M&A advisers improves private sellers' bargaining power and deal valuations. This variable indirectly reflects the importance of the deal to the target. There are two possible reasons why the target may consider this transaction important. First, the target, which is probably not in a good condition, can search a buyer. In this case, the acquirer is less likely to switch advisors since the target's anxiousness reduces its bargaining power, which makes the negotiation process easier for the acquirer. The other possibility is that the target wants a higher price. The conflict of interests will complicate the deal so that the acquirer is more likely to hire a better (more experienced) advisor. If these two reasons are mixed in our sample, the impact of target hiring top-5 lead advisor can be ambiguous. 'Target has multiple advisors' indicates whether the target has more than one advisors. The more advisors targets hire the more information resources they have, which will increase the information asymmetry for acquirer. In this case, hiring more advisors is a better strategy for acquirers than switching to a different advisor. The results from univariate test (unreported results) shows that acquirers are 15% more likely (statistically significant) to hire multiple advisors when targets hire multiple advisors.

We use a Probit model to examine the determinants of switching advisors in serial mergers and acquisitions. We include the M&A wave dummy to control for the time trend. We

also control industry fixed effect by using Fama and French five industry categories. Table 2.5 reports the results from the Probit model. Acquirers are significantly more likely to be switchers in deals that are relatively small, with larger deal values, involve poorly performing targets, targets which are not in the same industry with acquirers; and in deals where targets do not use multiple advisors. Other variables do not make a difference in determining switching advisors or not.

2.3. Results

1. Cumulative Abnormal Returns and Acquisition Premiums

In this section, we investigate the impact of switching advisors on acquirers' announcement returns and acquisitions premiums. To do this analysis, we calculated 5-day cumulative abnormal returns (CAR(-2, +2)) on the acquirer's stock around the announcement dates of the acquisitions. The CAR is estimated using the market model with the value-weighted market index return. For deals involving public targets, we also examine the premiums paid for targets. We have 'Premium A Day Prior', which equals the percentage difference between the deal value and the market capitalization of the target one trading day before the announcement date of the acquisition, and 'Premium A Week Prior', which equals the percent difference between the deal value and the market capitalization of the target five trading days before the announcement date of the acquisition. Our hypothesis predicts that switchers should have higher CARs and pay lower premiums as payoffs of investing time and energy on selecting the best fitted advisors.

We start by examining the CARs between switchers and non-switchers. Our main explanatory variable of interest is the binary variable, Switcher. We control for deal value, relative size between the target and acquirer, deal characteristics (tender offer and Same

Industry), target characteristics (International, Public, Target's Leverage, Target's OPA, Tobin's Q, and High-tech Target), and advisor characteristics (Top-5 Advisor, Multiple Advisors, and the Number of advisors changes). Standard errors are robust and clustered by firms. All the variables are defined in the Appendix Table 2.8. These control variable are based primarily on prior literature on advisors (Agrawal, Cooper, Lian, and Wang (2013), Allen, Jagtiani, and Saunders (working paper), Bill, Francis, Hasan, and Sun (working paper)), we control for Ln(Deal Value) and Ln(Relative Size). We also control tender offers (Dodd and Ruback (1977)) and (Jarrell and Poulsen (1989)).

Datta, Pinches, and Narayanan (2006) find that stock financing has a significant impact on the wealth of both the targets and acquirers' shareholder wealth. Martin (1996) states that payment method of corporate acquisition affects the acquirer stock returns in M&A. Travlos (1987) shows that announcement returns to bidding firms who make cash offers are higher than when stock offers are made. Therefore, we control whether the acquisitions is financed by stocks in the regressions. Fuller, Netter, and Stegemoller (2002) show that bidder shareholders gain when buying a private firm or subsidiary but lose when purchasing a public firm. Therefore, we include the type of targets in the regressions. Also, Yuce and Ng (2005) show that Acquirers pay significantly less to acquire private firms than public firms, especially with stock. Markedis and Ittner (1994) document that on average international acquisitions create values for the acquiring firms. Santos, Errunza, and Miller (2008) suggest that international diversification does not destroy value while industrial diversification leads to discounts. Therefore, we use dummy variables indicating whether targets are not US firms and whether the target are in the same industry with the acquirer. Capron and Shen (2007) find that acquirers of private targets perform better than acquirers of public targets on merger announcement. Based on prior literature

(Agrawal, Cooper, Lian, and Wang (2013), Allen, Jagtiani, and Saunders (working paper), we also use Target's OPA (measuring the target's operating performance and profitability) and Target's Leverage (measuring the target's debt ratio) to capture other characteristics of Targets. Since Servaes (2012) documents that total returns are positively related to acquirer Tobin's and negatively related to target Tobin's Q, we includes acquirer and target Tobin's Q as our control variables. Rau and Vermaelen (1998) show that bidders with high book-to-market ratios pay lower premiums than bidders with low book-to-market ratios. Book-to-market ratio (Book value/Market Capitalization) is been a rough proxy for Tobin's Q (Market Capitalization/Total assets). This implies that bidders with high Tobin's Q pay higher premiums than bidders with low Tobin's Q. Following Humphery-Jenner and Powell (2011) and Harford, Humphery-Jenner, and Powell (2012), we also include a stock run-up as a control variable.

Kohers and Kohers (2000) find that high-tech targets create values for acquirers. Therefore, we use a dummy variable to control high-tech targets. Kale, Kini, Jr (2003) find that the total wealth created in the takeovers is positively related to the reputation of acquirer and target advisors. Bower and Miller (1990) conclude that the first-tier IBs help firms have larger total wealth gains. Therefore, we include two dummies to control the reputation of acquirer and target advisors. We rank IBs by their total M&A transaction value in previous year for each year in our sample, classifying the top five IBs as top tier, the remaining as second tier. For a target or acquirer that uses more than on advisor, we use the rank of lead advisor.

Hunter and Jagtiani (2003) find that the larger number of advisors used by either the target or the acquirer the higher is the likelihood that the deal will be completed, and the greater the number of advisors used by the acquirer the larger the post-acquisition gains realized by the acquirer. Therefore, besides reputations, we also use dummies indicating whether the acquirer or

target use more than one advisor in the deal and whether non-switchers change the number of advisors (add more advisors to the advisory team besides the lead advisors) they use from deal to deal, even though they did not switch the lead advisors, to capture the characteristics of advisors.

Table 2.3 shows the OLS regressions results of the acquirer CAR and the acquisition premiums. The first set of results of Table 2.3 provides evidence that acquirer CARs are 1.15% higher, but not significantly, in deals with switchers. This insignificance may be caused by the acquirers who adjusted their advisory team even though they did not change the lead advisors. Therefore, we add an additional variable, Non-switcher but adjustor into the regression. The result is shown in Model 2. We find that both switcher and non-switchers who adjusted their advisory teams obtain significantly higher CAR(-2, 2) than non-switchers which do not make any adjustment. This is consistent with our hypothesis that when acquirers always spend time and energy on selecting the most suitable advisor even under a tight timeline, the deal will create more value for the acquirers. This implies that shareholders prefer acquirers selecting different more suitable advisors for each deal over staying with the same one all the time. The coefficients of all the control variables are consistent with findings in prior literature. We find that CARs decrease with deal value and Target's OPA and when deals are financed with equity, when the target is a public company.

For the regressions on acquisitions premiums in Model 3 and 5, we use the same set of control variable as we used in the regressions on cumulative abnormal returns. In model 3, we find that switchers have 6.63% lower one-day-prior-to-announcement premium than non-switchers. In model 5, the a-week-prior-to-announcement premium is 7.67% lower for switchers. The average value of targets is 747 million dollars in our sample. Based on our results, switchers saved 63 million dollars on average on acquiring targets, which is significant both economically

and statistically. Since advisors charged advisory fees based on transaction values, lower transaction values imply lower cost on advisory fees. In model 4 and 6, we add 'Non-switcher but adjustor' to the regressions to separate non-switcher which make adjustment to their advisory teams in the sequences of serial acquisitions. The results are consistent with Model 3 and 5. These results are highly consistent with our hypothesis. We also find that acquisition premiums one day prior to announcement is higher when deals are tender offers and are financed by equity and are lower when acquirer has multiple advisors. Acquisition premiums a week prior to announcement are higher when acquirers use tender offers and takeover high-tech targets and are lower when acquirers have multiple advisors.

2. Advisory Fees and Deal Resolution Time

We next examine whether switchers pay lower advisory fees than non-switchers. We calculate advisory fees as the total acquirer dollar value of fees paid to the advisors divided by total deal value. Again, our main variable of interest is Switcher. Following prior literature on advisor fees (Becker, Gordon, and Juergens (Working paper), Hunter and Jagtiano (2003)), we control for relative size between the target and acquirer, deal characteristics (tender offer and Same Industry), target characteristics (International, Public, Target's Leverage, Target's OPA, Tobin's Q, and High-tech Target), and advisor characteristics (Top-5 Advisor, Multiple Advisors, and the Number of advisors changes).

We also control relative size between the target and acquirer (Market capitalization of target/market capitalization of acquirer) because higher relative size implies higher bargaining power of the target, which increases the difficulty of the negotiation process. Hunter and Walker (1990) show a positive relationship between fees and bank effort. Targets with higher debts ratio have lower bargaining power, thus advisory fees will be lower. This also implies that the factors,

such as tender offers, equity financing, and international M&A, which complicate the transaction will increase the advisory fees. Also, the factors, such as same industry, which may reduce the complexity of the deals, may lead to lower advisory fees.

As we explain in the determinant model, the effect of target's operating performance on the deal's difficulty can be ambiguous. Therefore, we include it in the fee regression but we cannot predict whether it is a positive effect or negative effect. We control the reputation of IBs since firms that graduate to higher-quality banks face lower fees (Burch, Nanda, Wrather (2005)). The reputation of the target's advisor is relevant too. Even through a top tier advisor increase the bargaining power of the target, a top tier advisor is probably more experienced and conducts transaction more efficiently, which can help save time and labor for both sides of the transaction.

We also use dummy variables to indicate whether firms use multiple advisors. We expect that when target use multiple advisors, acquirers pay higher advisory fees. This is because multiple advisors may give target information advantage. Thus, targets have high bargaining power, and acquirer advisors should put more effort. As we explain previously that prior literature (Rau and Vermaelen (1998)) suggests that bidders with high Tobin's Q pay higher acquisitions premium. We expect to see acquirer with high Tobin's Q pay more advisory fees. We also include the target's Tobin's Q to control target characteristics.

Table 2.4 Model 1 reports the estimates of fee regressions. Model 1 includes all the control variables. The main result of interest is the coefficient estimate on Switcher is negative and significant. Switchers pay 0.1% (of deal value) lower fees than non-switchers, consistent with our hypothesis. Even though 0.1% is small number, 0.1%of the transaction value is economically significant to the acquirers. Most of the estimations are consistent with prior

literature and our predictions. There are two exceptions. Acquirers pay lower advisory fees when the targets are public, which is opposite from what we expected, but it is consistent with the estimation in Becker, Gordon, and Juergens (Working paper)'s paper. It is probably because it is easier to get information for public firms, which makes valuation process easier for advisors. This may lead to lower advisory fees. Also, acquirers pay lower fees when the targets hire more than one advisor. This may be because multiple advisors working together save time and resources for both acquirers and acquirer advisors, which lead to lower advisory fees. Based the regressions we find that advisory fees increase with relative size and when the deals are tender offers and decrease with target's operating performance and when target has multiple advisors.

Lastly we examine whether the choice of switching affects the time required to complete deals. As discussed above, our hypothesis predicts that switcher deals will be completed more quickly. To test this prediction, we estimate regressions of the number of days to deal completion. Following prior literature (Agrawal, Cooper, Lian, and Wang (2013)), we control for relative size, deal value, and dummy variables for public target, tender offer, same industry, stock payment, and characteristics of acquirer and target advisors. We also control for acquirers' characteristics and targets' characteristics in the regressions. All the variables are defined in the Appendix Table 2.8. The regressions also include dummy variables for the M&A waves and industries. In Model 5 of Table 2.4, the coefficient of the switcher variable is positive but insignificant. The reason may be that most of the private targets do not have information on leverage, operating performance, and market valuation. Adding these variables into the regression reduces the sample size to half. After we exclude this variable from the regression (reposted in Model 7 of Table 2.4), we find that switchers use less time to complete deals than non-switchers significantly. We repeat the same thing, excluding leverage, target's OPA and

target's Tobin's Q from the regression, for advisory fees estimation. Results are shown in the second column of Table 2.4. The coefficient of switcher is still negative and significant, consistent with the original regression. We also repeat the regressions with an additional variable, Non-switcher but adjustor, as we do for CAR(-2, 2) and premiums. Results, reported in Model 2, 4, 6, and 8, are consistent with the original regressions.

3. Propensity Score matching

The OLS regression we discussed above do not account for the possible endogenous selection of different advisors, an issue we address using a propensity score matching methodology. Propensity score matching is commonly used in deal with endogenous selection issues. The reason we use this method is to get as close to the theoretical ideal of matching firm with its self. We use the determinant model to obtain a propensity score and match the treated group with the untreated group by nearest neighbors (no more than five neighbors are used). Panel B of Table 2.5 report the results of propensity score matching. The results indicate that switchers have high CARs, pay lower premiums and advisory fees, and spend less time than non-switchers. These results are consistent with than the results we get from OLS regressions.

4. Robustness Check

In order to see whether our results are robust, we use alternative ways to define our serial acquirers or construct our sample. First of all, we keep our definition of serial acquirers but include all the deals that serial acquirers have done between 1992 and 2012. In this case, even the individual deals which are not in the serial sequence of deal are included in the sample. This looser restriction allows us to have more observations. Switchers are defined as the acquirers which switch at least once through their whole M&A history. The results (Table 2.6) from OLS regressions show that switchers spend significant less money on advisory service and time on

deal resolution. Switchers pay lower premiums. Even though the coefficients are not significant the signs are consistent with our original model. CARs are not significantly different between switcher and non-switchers. Since we include the deals which are not in the serial sequence, these deals may happen many years before or after the serial deals. Many factors can change over a longer period of time.

Next, we use the definition of serial acquirers in Fuller, Netter, Stegemoller (2002). Serial acquirers are defined as the firms who successfully undertake five or more M&A in three years. All other things keep the same. Our sample shrinks by more than 2/3 under this definition. Table 2.7 reports the OLS regression results. The coefficients of Switcher from the regressions have the expected signs, but the coefficients of Switcher are significant only in premium regressions. There are two possible reasons which cause the results to be insignificant. First, the sample is much smaller and excludes the acquirers who undertake four or less deals in a row. Therefore, the definition may cause the sample is not random. Second, a three year period is comparatively long. It is possible that an acquirer can undertake three deals at the beginning of a three year period and undertake another two at the end of the three year period. Separation like that can be two very different strategic initiatives for the firm.

2.4. Conclusion

Whether or not to switch advisors during a sequence of takeovers is an important decision of acquiring firms. Staying with the same advisor for a series of takeovers occurring close together can be efficient for acquirers. First, switching advisors requires time and resources for the acquiring firm to evaluate multiple advisors for each target. Second, staying with the same advisor throughout can foster long-term relationship between the acquirer and the advisor.

However, we observe in our sample of serial acquisitions between 1992 and 2012 that more than 60% of the acquirers switch advisors during a sequence of takeovers. This observation implies that the benefits from switching can outweigh the costs incurred.

We examine the determinants of choices of switching advisors in a sequence of serial takeovers and the consequences of this choice on deal outcomes such as CARs, the speed of deal completion, acquisition premiums, and advisory fees. We also account for the endogenous choice of switching advisors from deal to deal in the sequences of serial takeovers. We find acquirers who switch advisors in the sequences of serial takeovers gain higher CARs, pay lower premiums to the target, spend less on advisory fees, and take shorter time to complete deals. We also find acquirers are significantly more likely to be switchers in deals which have large deal values. Acquirers are significantly less likely to be switchers in deals that have a large relative size between targets and acquirers, involve better performing targets, targets which are in the same industry with acquirers; and in deals where targets use multiple advisors.

In summary, we find evidence that is consistent with shareholders benefiting when firms carefully select their advisor for each target during a sequence of takeovers. While staying with one advisor throughout a sequence of takeovers can foster long term relationships between the acquiring firm and its advisor, our findings suggests that it may not always be in the best interests of shareholders. Rather, shareholders benefit when acquires are careful to pick the adviser best suited for each acquisition.

Table 2.1 Summary Statistics

Variable	Obs	Mean	Std.
CAR(-2, 2)	2595	-0.001	0.074
Acquisition premium a day prior (%)	1047	31.324	30.059
Acquisition premium a week Prior (%)	1044	36.096	32.388
Advisor Fees	974	0.002	0.004
Days to deal resolution	2761	103.603	88.956
Ln(deal value)	2363	4.899	1.840
Ln(relative size)	2237	-2.539	1.612
Tender offer	2761	0.088	0.284
Acquirer pays with stock	2761	0.786	0.410
Target is public	2761	0.46324	0.499
Target is international	2761	0.152	0.360
Target's leverage	1425	0.654	0.359
Target's OPA	1242	0.042	0.262
Same industry	2761	0.325	0.468
High_tech target	2761	0.288	0.453
Tobin's Q of acquirer	2481	1.862	3.071
Tobin's Q of target	1463	2.523	5.046
Top-5 acquirer advisor	2761	0.125	0.331
Top-5 target advisor	2761	0.072	0.258
Acquier has multiple advisors	2761	0.101	0.302
Target has multiple advisors	2761	0.101	0.302
Non-switcher but ajustor	2761	0.034	0.180
Stock run-up	2599	0.00062	0.00055
M&A wave 1 (1992-2000)	2761	0.646	0.478
Gap 1 (2001-2002)	2761	0.028	0.165
M&A wave 2 (2003-2008)	2761	0.250	0.433
Gap2 (2009-1012)	2761	0.076	0.265
Consumer	2761	0.085	0.279
Manufacturing	2761	0.091	0.288
High Tech	2761	0.309	0.462
Health	2761	0.081	0.274
other	2761	0.434	0.496

Notes: This table reports the summary statistics of the entire sample. The sample consists of acquisitions reported by SDC for the period 1992-2012, in which acquirer firms hire at least one financial advisor and make at least one sequence of two or more successful bids within 12 month period. The bids which are not in the sequence are not included in the sample. All the definitions of dependent and independent variables are in Table 2.8.

Table 2.2 Summary Statistics by Switch

Panel A								
	Non-switchers			Switchers				
Variable	Obs	Mean	Std.	Obs	Mean	Std.	Diff=mean(0)-mean(1)	T-stat
CAR(-2, 2)	784	0.009	0.086	1811	-0.005	0.067	0.014	4.47
Acquisition premium a day prior (%)	212	33.748	31.118	835	30.709	29.772	3.039	1.32
Acquisition premium a week Prior (%)	212	39.393	34.855	832	35.256	31.696	4.138	1.66
Advisor Fees	227	0.002	0.005	747	0.001	0.003	0.001	3.75
Days to deal resolution	861	109.121	97.190	1900	101.102	84.871	8.019	2.20
Ln(deal value)	698	4.253	1.795	1665	5.170	1.790	-0.918	-11.36
Ln(relative size)	641	-2.424	1.524	1596	-2.584	1.644	0.160	2.12
Tender offer	861	0.087	0.282	1900	0.089	0.285	-0.002	-0.16
Acquirer pays with stock	861	0.787	0.409	1900	0.785	0.411	0.003	0.16
Target is public	861	0.333	0.472	1900	0.522	0.500	-0.189	-9.36
Target is international	861	0.144	0.351	1900	0.156	0.363	-0.012	-0.83
Target's leverage	343	0.674	0.328	1082	0.648	0.368	0.026	1.17
Target's OPA	281	0.070	0.276	961	0.034	0.257	0.035	2.00
Same industry	861	0.344	0.475	1900	0.316	0.465	0.027	1.43
High_tech target	861	0.235	0.424	1900	0.312	0.463	-0.077	-4.18
Tobin's Q of acquirer	746	1.638	3.232	1735	1.958	2.995	-0.320	-2.38
Tobin's Q of target	370	2.353	5.971	1093	2.581	4.693	-0.228	-0.75
Top-5 acquirer advisor	861	0.109	0.312	1900	0.133	0.339	-0.023	-1.72
Top-5 target advisor	861	0.042	0.200	1900	0.085	0.279	-0.043	-4.11
Acquier has multiple advisors	861	0.091	0.287	1900	0.106	0.308	-0.016	-1.27
Target has multiple advisors	861	0.080	0.272	1900	0.111	0.314	-0.031	-2.49
Stock run-up	786	0.00062	0.00053	1813	0.00063	0.00056	-0.00000924	-0.3934

Non-switcher but adjustor	861	0.108	0.311	1900	0.000	0.000	0.108	15.16
M&A wave 1 (1992-2000)	861	0.633	0.482	1900	0.652	0.476	-0.019	-0.97
Gap 1 (2001-2002)	861	0.023	0.151	1900	0.030	0.171	-0.007	-1.00
M&A wave 2 (2003-2008)	861	0.259	0.438	1900	0.246	0.431	0.013	0.74
Gap2 (2009-1012)	861	0.085	0.279	1900	0.072	0.259	0.013	1.16
Consumer	861	0.111	0.315	1900	0.073	0.260	0.039	3.40
Manufacturing	861	0.110	0.313	1900	0.082	0.275	0.028	2.39
High Tech	861	0.283	0.451	1900	0.320	0.467	-0.037	-1.93
Health	861	0.035	0.183	1900	0.103	0.304	-0.068	-6.07
other	861	0.460	0.499	1900	0.423	0.494	0.037	1.83

Panel B Summary statistics of serial takeovers and switcher

Variable	Obs.	Mean	Std.	Max	Min
The number of switches	1900	1.649871	1.755961	12	0
The number of advisors	1900	2.337256	1.090756	11	1
Frequency of switch	1900	0.727367	0.35762	1	0
The number of deals in a sequence	1900	3.908422	3.701927	23	1
The number of windows	1900	1.246046	0.574282	5	1
The length of a window (No. of days)	1900	362.8411	358.0462	1697	0

Notes: Panel A reports the summary statistics of the sample by separating the sample in to non-switcher and switcher groups. The sample consists of acquisitions reported by SDC for the period 1992-2012, in which acquirer firms hire at least one financial advisor and make at least one sequence of two or more successful bids within 12 month period. The bids which are not in the sequence are not included in the sample. Panel B shows the descriptive statistics of serial acquirers and switchers. All the definitions of dependent and independent variables are in Table 2.8.

Table 2.3 The Impact of Switching Advisors on CAR(-2,+2) and Acquisition Premiums

	CAR(-2, 2)		Premium a day prior		Premium a week prior	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Switcher	0.00636	0.0116*	-6.608**	-6.914**	-7.661**	-8.176**
	(0.311)	(0.088)	(0.013)	(0.020)	(0.011)	(0.013)
Ln(Deal value)	-0.00399**	-0.00435**	0.896	0.917	0.252	0.288
	(0.039)	(0.026)	(0.297)	(0.286)	(0.796)	(0.768)
Ln(relative size)	-0.00127	-0.00116	-0.0385	-0.0472	-0.178	-0.194
	(0.437)	(0.478)	(0.961)	(0.952)	(0.831)	(0.816)
Tender offer	0.00705	0.00773	10.66***	10.63***	15.15***	15.10***
	(0.202)	(0.163)	(0.001)	(0.001)	(0.000)	(0.000)
Acquirer pays with stock	-0.0190***	-0.0187***	4.824*	4.847*	3.857	3.893
	(0.000)	(0.001)	(0.089)	(0.088)	(0.222)	(0.219)
Target is international	0.00394	0.00379	-0.361	-0.334	0.544	0.593
	(0.566)	(0.582)	(0.927)	(0.933)	(0.900)	(0.892)
Target is public	-0.0330***	-0.0332***	13.63***	13.75***	14.91***	15.12***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.003)
Target's leverage	0.0141	0.0141	-0.795	-0.828	1.853	1.789
	(0.120)	(0.113)	(0.855)	(0.849)	(0.724)	(0.734)
Target's OPA	-0.0239*	-0.0238*	-11.07	-11.09	-11.39	-11.43
	(0.063)	(0.065)	(0.177)	(0.176)	(0.240)	(0.238)
Tobin's Q of acquirer	0.00128	0.0012	0.236	0.243	0.0462	0.0568
	(0.27)	(0.29)	(0.62)	(0.61)	(0.94)	(0.92)
Tobin's Q of target	-0.000683	-0.00068	0.575	0.567	0.852	0.839
	(0.428)	(0.420)	(0.331)	(0.337)	(0.252)	(0.257)
Same industry	0.0018	0.0014	-2.896	-2.922	-3.089	-3.129
	(0.703)	(0.762)	(0.194)	(0.191)	(0.190)	(0.185)
High-tech target	0.00196	0.00155	4.628	4.656	7.391**	7.439**
	(0.811)	(0.849)	(0.159)	(0.157)	(0.046)	(0.045)
Acquirer has a top-5 lead advisor.	0.0031	0.00331	-3.582	-3.588	-3.069	-3.078

	(0.576)	(0.550)	(0.176)	(0.175)	(0.302)	(0.301)
Target has a top-5 lead advisor.	0.00921	0.00906	4.491	4.496	4.372	4.374
	(0.166)	(0.166)	(0.221)	(0.222)	(0.269)	(0.271)
Acquirer has multiple advisors.	-0.00163	-0.00308	-7.835***	-7.729***	-7.053**	-6.870**
	(0.809)	(0.645)	(0.002)	(0.002)	(0.013)	(0.016)
Target has multiple advisors.	0.00551	0.00523	-3.248	-3.233	-2.62	-2.596
	(0.38)	(0.40)	(0.18)	(0.18)	(0.33)	(0.34)
Stock run-up	5.924	5.285	-5,666***	-5,618***	-7,169***	-7,090***
	(0.134)	(0.176)	(0.006)	(0.006)	(0.002)	(0.002)
Non-switcher but adjustor		0.0417**		-2.242		-3.782
		(0.012)		(0.618)		(0.523)
M&A wave 1 (1992-2000)	0.0037	0.00529	-17.39***	-17.50***	-14.52***	-14.70***
	(0.656)	(0.502)	(0.000)	(0.000)	(0.005)	(0.005)
Gap 1 (2001-2002)	0.0129	0.0144	-15.49	-15.6	-19.39	-19.56
	(0.336)	(0.270)	(0.128)	(0.126)	(0.110)	(0.107)
M&A wave 2 (2003-2008)	0.0077	0.00991	-15.25***	-15.40***	-17.03***	-17.26***
	(0.332)	(0.190)	(0.001)	(0.001)	(0.001)	(0.001)
Consumer	0.0167	0.0179	2.398	2.385	2.707	2.678
	(0.132)	(0.108)	(0.523)	(0.526)	(0.523)	(0.528)
Manufacturing	0.0217***	0.0224***	4.263	4.246	6.089	6.057
	(0.003)	(0.002)	(0.285)	(0.287)	(0.131)	(0.132)
High Tech	-0.00168	-0.000509	-0.0116	-0.0327	0.75	0.708
	(0.853)	(0.955)	(0.997)	(0.993)	(0.852)	(0.860)
Health	0.00537	0.00622	-2.364	-2.387	-3.239	-3.282
	(0.537)	(0.471)	(0.541)	(0.538)	(0.451)	(0.446)
Constant	0.0203	0.0161	31.00***	31.12***	35.33***	35.52***
	(0.267)	(0.380)	(0.005)	(0.005)	(0.007)	(0.007)
Observations	1,051	1,051	818	818	818	818
R-squared	0.081	0.089	0.11	0.11	0.129	0.129

Notes: The table shows estimates of Original Least Square regressions of 5-day cumulative abnormal returns, acquisition premium of a day before the announcement date, and acquisition premium of a week before the announcement date. Model 1, 3, and 5 include all control variables. Model 2, 4, and 6 include all the control variables and an additional variable, 'Non-switcher But Adjustor,' which separate non-switchers into two groups, adjusting the number of advisors and not adjusting the number of advisors. The sample consists of acquisitions reported by SDC for the period 1992-2012, in which acquirer firms hire at least one financial advisor and make at least one sequence of two or more successful bids within 12-month period. The bids which are not in the sequence are not included in the sample. All the definitions of dependent and independent variables are in Table 2.8. We use M&A wave dummies to capture the time trend of the data, and use Fama and French five industry classification to control industry characteristics. The superscript ***, **, and * denote statistical significance at the 1%,, 5%, and 10% level, respectively, in two-tailed tests.

Table 2.4 The Impact of Switching Advisors on the Advisory Fees and the Speed of Deal Completion

	Advisory Fees				Resolution Time			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Switcher	-0.00111**	-0.00119**	-0.00110***	-0.00108**	-9.501	-7.669	-15.29***	-9.601*
	(0.013)	(0.023)	(0.006)	(0.014)	(0.185)	(0.295)	(0.005)	(0.052)
Ln(Deal value)					3.52	3.407	1.871	1.971
					(0.137)	(0.154)	(0.283)	(0.247)
Ln(relative size)	0.000646***	0.000646***	0.000604***	0.000604***	2.171	2.206	3.135**	3.407***
	0.000	0.000	0.000	0.000	(0.184)	(0.178)	(0.019)	(0.010)
Tender offer	0.00196***	0.00195***	0.00192***	0.00192***	-45.07***	-44.85***	-21.52**	-25.54***
	(0.000)	(0.000)	(0.001)	(0.001)	0.000	0.000	(0.020)	(0.000)
Acquirer pays with stock	0.000312	0.000301	7.24E-05	7.55E-05	10.40*	10.53*	7.004	8.478**
	(0.491)	(0.509)	(0.844)	(0.837)	(0.086)	(0.081)	(0.133)	(0.047)
Target is international	0.000295	0.000341	0.00148	0.00148	5.922	5.881	-21.22***	-18.54***
	(0.824)	(0.801)	(0.245)	(0.246)	(0.517)	(0.519)	(0.000)	(0.000)
Target is public	-0.00102	-0.00102	-0.00076	-0.000759	28.32***	28.24***	49.16***	50.66***
	(0.146)	(0.146)	(0.109)	(0.105)	(0.003)	(0.003)	0.000	0.000
Target's leverage	-0.000612	-0.000612			26.87***	26.86***		
	(0.314)	(0.313)			(0.001)	(0.001)		
Target's OPA	-0.00221***	-0.00220***			5.376	5.395		
	(0.009)	(0.010)			(0.590)	(0.589)		
Tobin's Q of acquirer	3.58E-05	3.88E-05	4.12E-05	4.05E-05	-2.257**	-2.326**	-2.636***	-2.834***
	(0.51)	(0.48)	(0.34)	(0.36)	(0.03)	(0.02)	(0.00)	(0.00)
Tobin's Q of target	-5.90E-05	-5.76E-05			-0.871*	-0.859*		
	(0.124)	(0.132)			(0.088)	(0.096)		

Same industry	-0.000163	-0.000156	-0.000129	-0.00013	-2.55	-2.654	0.156	0.486
	(0.547)	(0.564)	(0.607)	(0.604)	(0.618)	(0.602)	(0.966)	(0.893)
High-tech target	0.000126	0.000126	0.000325	0.000327	-6.448	-6.585	-13.48**	-12.96**
	(0.805)	(0.805)	(0.471)	(0.467)	(0.412)	(0.404)	(0.011)	(0.014)
Acquirer has a top-5 lead advisor.	-0.00045	-0.000455	-0.000640**	-0.000639**	7.648	7.761	3.56	4.216
	(0.146)	(0.146)	(0.029)	(0.030)	(0.333)	(0.325)	(0.549)	(0.478)
Target has a top-5 lead advisor	-0.000392	-0.000395	-0.000333	-0.000333	-9.902	-9.943	-8.92	-8.692
	(0.234)	(0.228)	(0.330)	(0.331)	(0.153)	(0.152)	(0.128)	(0.133)
Acquirer has multiple advisors	0.000213	0.000245	0.000392	0.000383	9.108	8.514	32.50***	24.75***
	(0.609)	(0.565)	(0.432)	(0.417)	(0.291)	(0.331)	(0.001)	(0.001)
Target has multiple advisors	-0.00095***	-0.00094***	-0.00101***	-0.00101***	5.38	5.244	5.759	5.011
	(0.00)	(0.00)	(0.00)	(0.00)	(0.41)	(0.42)	(0.32)	(0.38)
Stock run-up	-0.242	-0.232	-0.333	-0.336	-11,349**	-11,562**	-13,235***	-13,190***
	(0.588)	(0.600)	(0.369)	(0.365)	(0.050)	(0.046)	(0.001)	(0.001)
Non-switcher but adjustor		-0.000464		9.36E-05		14.3		44.88**
		(0.484)		(0.919)		(0.548)		(0.029)
M&A wave 1 (1992-2000)	-0.000129	-0.000167	0.000235	0.00024	34.89***	35.47***	39.87***	39.23***
	(0.813)	(0.758)	(0.629)	(0.625)	(0.000)	(0.000)	(0.000)	(0.000)
Gap 1 (2001-2002)	-0.00169	-0.00174	-0.00161	-0.0016	42.04*	42.61*	7.513	8.469
	(0.153)	(0.144)	(0.133)	(0.138)	(0.061)	(0.058)	(0.544)	(0.499)
M&A wave 2 (2003-2008)	-0.000837*	-0.000873*	-0.000566	-0.000559	6.072	6.83	9.553	10.23
	(0.099)	(0.086)	(0.215)	(0.229)	(0.496)	(0.438)	(0.164)	(0.130)
Consumer	0.0011	0.00108	0.00107	0.00107	-31.10***	-30.67***	-52.43***	-50.86***

	(0.241)	(0.240)	(0.210)	(0.207)	(0.001)	(0.002)	0.000	0.000
Manufacturing	0.000594	0.000588	0.000935*	0.000934*	-9.097	-8.825	-16.99	-20.87*
	(0.227)	(0.233)	(0.086)	(0.083)	(0.568)	(0.578)	(0.183)	(0.065)
High Tech	0.000412	0.000387	0.000233	0.000236	-21.58**	-21.13**	-41.02***	-39.64***
	(0.426)	(0.461)	(0.649)	(0.650)	(0.032)	(0.034)	(0.000)	(0.000)
Health	0.00120**	0.00119**	0.00173***	0.00173***	-24.18***	-23.83**	-42.77***	-41.88***
	(0.031)	(0.034)	(0.008)	(0.008)	(0.010)	(0.010)	(0.000)	(0.000)
Constant	0.00532***	0.00543***	0.00420***	0.00418***	81.38***	79.82***	100.3***	93.68***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	0.000	0.000
Observations	721	721	902	902	1,055	1,055	2,115	2,115
R-squared	0.181	0.182	0.162	0.162	0.248	0.249	0.341	0.348

Notes: The table shows estimates of Original Least Square regressions of advisory fees and the speed of deal completion. Model 1, 2, 5, and 6 include all control variables. Model 3, 4, 7, and 8 do not include targets' leverage, OPA, and Tobin's Q. Model 2, 4, 6, and 8 include an additional variable, 'Non-switcher But Adjustor,' which separate non-switchers into two groups, adjusting the number of advisors and not adjusting the number of advisors. The sample consists of acquisitions reported by SDC for the period 1992-2012, in which acquirers hire at least one financial advisor and make at least one sequence of two or more successful bids within 12 months. The bids which are not in the sequence are not included in the sample. Dependent and independent variables are defined in Table 2.8. We use M&A wave dummies to capture the time trend of the data, and use Fama and French five industry classification to control industry characteristics. The second regression of resolution time does not include target's leverage ratio, tobin's Q and OPA since including these control variables reduces the sample size by half. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 2.5 Determinants of Switching Advisors and Propensity Score Matching

Panel A		
Variables	Coefficient	P-value
	Coef.	P>|z|
Ln(Deal value)	0.223***	0.000
Ln(relative size)	-0.148***	0.001
Tender offer	-0.036	0.814
Acquirer pays with stock	0.109	0.420
Target is international	0.243	0.211
Target is public	0.215	0.212
Target's leverage	-0.035	0.838
Target's OPA	-0.397*	0.057
Tobin's Q of acquirer	-0.015	0.478
Tobin's Q of target	-0.012	0.270
Same industry	-0.244**	0.020
High-tech target	-0.024	0.870
Acquirer has a top-5 lead advisor.	-0.190	0.230
Target has a top-5 lead advisor.	-0.076	0.646
Acquirer has multiple advisors.	0.112	0.504
Target has multiple advisors.	-0.323**	0.012
Stock run-up	55.446	0.594
M&A wave 1 (1992-2000)	0.282	0.217
Gap 1 (2001-2002)	0.385	0.316
M&A wave 2 (2003-2008)	0.083	0.712
Constant	-1.062***	0.008
Industry fixed effect	Yes	
Observations	1068	
Pseudo R-squared	0.073	

Panel B Propensity Score Matching (ATT)		
	Differences	T-Stat
CAR(-2, 2)	0.019	2.14
Acquisition premium a day prior (%)	-6.78	-1.72
Acquisition premium a week Prior (%)	-7.678	-1.69
Advisor Fees	-0.0013	-2.39
Days to deal resolution	-16.204	-1.94

Notes: Panel A of this table shows that Probit estimates of determinants of switching advisors in serial takeovers. Panel B shows the differences and t-statistics of propensity score matching. We use the model in Panel A for estimating ATT (average treatment effect for the treated) of Switcher. We use a maximum of five nearest neighbors for the matching. The sample consists of acquisitions reported by SDC for the period 1992-2012, in which acquirer firms hire at least one financial advisor and make at least one sequence of two or more successful bids within 12-month period. The bids which are not in the sequence are not included in the sample. Dependent and independent variables are defined in Table 2.8. We use M&A wave dummies to capture the time trend of the data, and use Fama and French five industry classification to control industry characteristics. The superscript ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively, in two-tailed tests.

Table 2.6 Alternative Sample

	CAR(-2, 2)		Acquisition Premium A Day Prior to Announcment		Acquisition Premium A Week Prior to Announcment	
	(1)	(2)	(3)	(4)	(5)	(6)
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Company is a switcher	-0.004	-0.001	-4.341	-2.966	-6.678*	-5.890
	(0.655)	(0.91)	(0.213)	(0.432)	(0.073)	(0.152)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Wave fix effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fix effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observation	1555	1555	1419	1419	1419	1419
Adjusted R-squared	0.088	0.086	0.0835	0.08	0.0992	0.096

	Financial Advisor Fee		Financial Advisor Fee		Days to Deal Resultution		Days to Deal Resultution	
	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Company is a switcher	-0.002***	-0.002***	-0.001**	-0.0014**	-16.07	-20.107*	-10.977*	-13.317**
	(0.010)	(0.01)	(0.031)	(0.03)	(0.159)	(0.092)	(0.091)	(0.044)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave fix effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fix effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observation	1058	1058	1,359	1,359	1562	1562	3348	3348
Adjusted R-squared	0.169	0.168	0.137	0.137	0.2318	0.23	0.3027	0.294

Notes: This table shows estimates of Original Least Square regressions of 5-day cumulative abnormal returns, acquisition premium of a day before the announcement date, and acquisition premium of a week before the announcement date, advisory fees, and resolution time. Model (2), (4), (6), (8), (10), (12), and (14), include all the control variables and the variable 'Non-switcher But Adjust', which separate the non-switcher into two groups, adjusting the number of advisors and not adjusting the number of advisors. For resolution time, model (11) and (12) includes all the control variables; model (13) and (14) does not include the target leverage, target OPA and

target's Tobin's Q. For advisory fees, model (9) and (10) includes all the control variables; model (13) and (14) does not include the target leverage, target OPA and target's Tobin's Q. This sample consists of acquisitions reported by SDC for the period 1992-2012, in which acquirers hire at least one financial advisor and make at least one sequence of two or more successful bids within 12 months. All the definitions of dependent and independent variables are in Table 2.8. We use M&A wave dummies to capture the time trend of the data, and use Fama and French five industry classification to control industry characteristics. The superscript ***, **, and * denote statistical significance at the 1%,, 5%, and 10% level, respectively, in two-tailed tests. P-values are in the parenthesis.

Table 2.7 Alternative Definition of Switcher

	CAR(-2, 2)		Acquisition Premium A Day Prior to Announcment		Acquisition Premium A Week Prior to Announcment	
	(1)	(2)	(3)	(4)	(5)	(6)
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Company is a switcher	0.002	0.002	-13.15***	-13.621***	-13.81***	-13.952***
	(0.803)	(0.759)	(0.000)	(0.000)	(0.000)	(0.000)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Wave fix effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fix effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observation	450	450	361	361	361	361
Adjusted R-squared	0.145	0.056	0.146	0.143	0.150	0.149

	Financial Advisor Fee		Financial Advisor Fee		Days to Deal Resultution		Days to Deal Resultution	
	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Company is a switcher	-0.0007	-0.0006	-0.0001	-0.0001	-19.985*	-19.720	-18.962	-17.360
	(0.279)	(0.293)	(0.765)	(0.84)	(0.100)	(0.109)	(0.156)	(0.189)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave fix effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fix effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observation	298	298	385	385	405	405	857	857
Adjusted R-squared	0.193	0.196	0.155	0.157	0.317	0.317	0.344	0.329

Notes: This table shows estimates of Original Least Square regressions of 5-day cumulative abnormal returns, acquisition premium of a day before the announcement date, and acquisition premium of a week before the announcement date, advisory fees, and resolution time. Model (2), (4), (6), (8), (10), (12), and (14), include all the control variables and the variable 'Non-switcher But Adjust', which separate the non-switcher into two groups, adjusting the number of advisors and not adjusting the number of advisors. For resolution time, model (11) and (12) includes all the control variables; model (13) and (14) does not include the target leverage, target OPA and

target's Tobin's Q. This sample consists of acquisitions reported by SDC for the period 1992-2012, in which acquirers hire at least one financial advisor and make at least one sequence of five or more successful bids within three years. The bids which are not in the sequence are not included in the sample (Fuller, Netter, and Stegemoller 2002). All the definitions of dependent and independent variables are in Table 2.8. We use M&A wave dummies to capture the time trend of the data, and use Fama and French five industry classification to control industry characteristics. The superscript ***, **, and * denote statistical significance at the 1%,, 5%, and 10% level, respectively, in two-tailed tests. P-values are in the parenthesis.

Table 2.8 Definitions of All the Variables

Variable Names	Definition
Panel A Dependent variables	
CAR(-2,+2)	Acquirer's cumulative abnormal returns 5 days around announcement date.
Acquisition premium a day prior	(The deal value / target's market value of equity a trading day before the acquisition announcement)*100
Acquisition premium a week prior	(The deal value / target's market value of equity a trading week before the acquisition announcement)*100
Advisor Fees	The fees paied by acquirer divided by deal value.
Resolution time	The number of days between announcement date and effective date.
Panel B Independent variables	
Switcher	A dummy variable that equals one if an acquirer changes the lead M&A advisors in a sequence of serial takeovers, and equals zero otherwise.
Deal value	The amount paid by the acquirer for the target.
Relative size	Deal value divided by the market value of equity of the acquirer.
Tender offer	A dummy variable that equals one if the acquirer bypasses then management and board of directors of a public target to make an offer directly to its shareholders, and equals zero otherwise.
Acquirer pays with stock	A dummy variable that equals one if target shareholders receive acquirer stock when selling their target shares, and equals zero otherwise.
Target is international	A dummy variable that equals one if the target is not US company, and equals zero otherwise.
Target is public	A dummy variable that equals one if the target is a publicly traded company, and equals zero otherwise.
Target's leverage	Target's total debt divided by total assets.
Target's OPA	Target's EBITDA divided by total assets.
Tobin's Q of acquirer	Acquirer's market value divided by total assets.
Tobin's Q of target	Deal value divided by the total assets of target.
Same industry	A dummy variable that equals one if the target and the acquirer are in the same industry.
High-tech target	A dummy variable that equals one if the target is in the high-tech industry, and equals zero otherwise.
Acquirer has a top-5 lead advisor.	A dummy variable that equals one if an acquirer is advised by a top-5 lead advisor, and equals zero otherwise.

Target has a top-5 lead advisor.	A dummy variable that equals one if a target is advised by a top-5 lead advisor, and equals zero otherwise.
Acquirer has multiple advisors.	A dummy variable that equals one if an acquirer has more than one advisor, and equals zero otherwise.
Target has multiple advisors.	A dummy variable that equals one if an target has more than one advisors, and equals zero otherwise.
Non-switcher but adjustor	A dummy variable that equals one if advisor is not a switcher but the number of advisors changes, and equals zero otherwise.
Stock run-up	The acquirer's stock returns for days (-270 to -30) relative to the announcement date.
M&A wave 1 (1992-2000)	A dummy variable that equals one if the takeover was announced between 1992 and 2000, and equals zero otherwise.
Gap 1 (2001-2002)	A dummy variable that equals one if the takeover was announced between 2001 and 2002, and equals zero otherwise.
M&A wave 2 (2003-2008)	A dummy variable that equals one if the takeover was announced between 2003 and 2008, and equals zero otherwise.
Gap 2(2009-2012)	A dummy variable that equals one if the takeover was announced between 2009 and 2012, and equals zero otherwise.
Consumer	A dummy variable that equals one if an acquirer is in the following categories, Consumer Durables, NonDurables, Wholesale, Retail, and Some Services (Laundries, Repair Shops), and equals zero otherwise.
Manufacturing	A dummy variable that equals one if an acquirer is in the following categories, Manufacturing, Energy, and Utilities, and equals zero otherwise.
High Tech	A dummy variable that equals one if an acquirer is in the following categories, Business Equipment, Telephone and Television Transmission, and equals zero otherwise.
Health	A dummy variable that equals one if an acquirer is in the following categories, Healthcare, Medical Equipment, and Drugs, and equals zero otherwise.
Other	A dummy variable that equals one if an acquirer is in the following categories, Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment, Finance, and equals zero otherwise.

CHAPTER 3

THE ROLE OF BUYER BROKERS IN BUYER AND SELLER MARKETS

When the Federal Trade Commission (FTC) released its 1984 residential brokerage industry report, it was readily apparent that the majority of home buyers and sellers did not have a clear understanding of who the broker represented. Many buyers believed that the broker or salesperson they worked with represented their interests in dealing with sellers. This might put these buyers at a competitive disadvantage since they would be more likely to inadvertently reveal confidential information to a broker, which, in turn, would reduce their ability to effectively negotiate with sellers. This problem was pronounced when seller sub-agency was the predominant form of brokerage agreement.

In response to the FTC's findings, states began to promulgate mandatory agency disclosure statutes in the early 1990s, which are now in effect in all 50 states. The increasing realization that brokers did not represent them created a derived demand for buyer representation. Now, it is not uncommon for brokers to enter into exclusive buyer agency contracts, disclosed dual agency, or non-agency transaction brokerage agreements.

Although there is a substantial body of research that examines the role of real estate brokers[2], only a few studies have addressed the impact of buyer brokerage. Elder, Zumpano, and Baryla (2000) are the first to study buyer brokers. They found that under normal market conditions buyer brokers had no effect on price, but did reduce buyer search time.

[2] See for example, Baryla and Zumpano(1995), Black and Nourse (1995), Elder and Zumpano (1999), and Jud (1983).

Buyer brokers have a fiduciary duty to their buyers so they are obligated to represent the best interests of their clients. In this case that would mean the lowest possible price and shortest search time.[3] Bajtelsmit and Worzala (1997) theoretically derive that buyer brokers can help buyers achieve lower purchase prices than traditional brokers. Curran and Schrag (2000) find evidence that buyer brokers lower buyers' search cost and improves buyers' negotiation position in the case of high-end properties. However, none of the studies above takes market conditions into account when they examine whether buyer brokers are able to meet buyer expectation than non-buyer brokers who do not have a principal-agent relationship with the buyers they work with.

Prior literature provides evidence that there are differences between a seller's market, a buyer's market and a normal equilibrium market. Case and Shiller (1988) find evidence that home buyers have different expectations in different markets. In a seller's market, buyers are eager to buy since they expect the house prices will continue rising; sellers are reluctant to sell since they expect house prices will continue to increase in the near term. The resulting excess demand will push housing prices still higher until buyers are literally priced out of the market. In this case, it is normal to observe that a seller receives several offers from different buyers at the same time (Han and Strange 2014) as buyers compete with each other for the limited supply of homes. In a buyer's market, on the other hand, excess supply will drive the price down and slow down the market on average. Buyers are more patient and careful when they search for houses as falling prices reduce the opportunity costs of waiting. Are buyer brokers better able to meet to satisfy buyer expectations when market conditions change than is the case with more traditional brokers?

In a seller's market, excess demand will drive prices up, giving more negotiation power to the seller which could in turn, limit the effectiveness of buyer brokers at a time. Especially, in

[3] Buyer brokers may also help their clients find homes better suited to their tastes which offer home buyers more utility than might be the case with more traditional brokers. We, however, do not study this aspect of home search.

bidding wars, buyer brokers may need to recommend buyers bid higher prices if they wish to get the house they desire.[4] Alternatively, a seller's market may make the services of a buyer broker more important. With limited negotiating leverage, buyers might be able to obtain lower prices because of professional intermediation by a buyer broker than might be the case when using traditional brokers. In terms of search duration, if buyer brokers can give buyers the right recommendation on bidding price, buyers close search faster. On the other hand, if buyer brokers focus on negotiating a lower price, buyers may miss the houses they want and have to lengthen their search duration.

Conversely, the excess supply in a buyer's market will drive the prices down, which may enhance both buyers and their agent's negotiating leverage.[5] In these situations it is certainly possible for buyers to negotiate the same price discounts as would their buyer brokers thereby reducing the demand for buyer brokers. On the other hand, the lower trading volume and slow market pace may cause buyer brokers push the deal through by not taking time to negotiate with sellers (recommend buyers to make higher offers).[6] In this case, buyers may conclude their house hunting process faster but probably overpay. Since the falling prices reduce the opportunity costs of waiting, buyer broker may suggest buyers to shop around and take a look at more house, which may lengthen the search duration.

It is worth pointing out that the earlier studies of buyer brokerage largely pre-dates the widespread use of the internet by the brokerage industry and home buyers and sellers. It may be that in certain markets the internet may substitute for buyer brokers and reduce the negotiating

[4] It has also been suggested that the current compensation arrangements for most buyer brokers creates a conflict of interest between broker and client and a moral hazard problem. See Yavas and Colwell (1999) who argue that so long as buyer brokers are paid a percentage of selling price their interests are not aligned with those of their buyers.
[5] Such markets may also reduce the need for buyer brokers
[6] Current agent compensation arrangement determines that buyer brokers' income comes from selling houses. The quantity and price of houses affect buyer broker's income directly, which may cause a conflict of interest between broker and client and a moral hazard problem.

advantages of brokers and buyer brokers in particular. A study by Richardson and Zumpano (2012) finds evidence that online search can extend search duration, thereby increasing seller holding costs. This, in turn, could change market outcomes.

The purpose of this research is to examine the effects of buyer brokers on selling prices and search duration under different market conditions. In other words, we examine whether buyer brokers save homebuyers time and/or money compared to traditional non-buyer brokerage firms.

We use ordinary least square regression and probit models to examine the temporal and pricing impacts of using of a buyer broker on market outcomes. We also apply propensity score matching techniques to address possible selection bias issues. Our results indicate that the effect of buyer brokers on purchase prices and search duration varies as market condition changes. We find buyer brokers cannot help buyers save time comparing to non-buyer brokers in either a seller's or a buyer's market. On the other hand, the results suggest buyer brokers may have positive effect on prices in a buyer's market while having no effect in a seller's market.

The rest of the essay is organized as follow. Section II is data and summary statistics; Section III is purchase price equation; Section IV is search duration equation; Section V includes determinants estimation and propensity score matching; Section VI is conclusion.

3.1. Data and Summary Statistics

This essay uses data from the 2006 and 2012 National Association of Realtors Survey of Home Buyers and Sellers (NAR). The 2006 and 2012 NAR surveys collected information on

home buyers who purchased houses in the later part of 2005 and 2011 respectively. We focus on these two time periods since the housing market before June 2006 was a very strong seller's market, and the period between 2011 and 2012 is generally considered to be a buyers' market.

The surveys generated 7648 and 8501 usable responses[7], including both broker-assisted and for-sale-by owner (FSBOs). Since we are only interested in broker-assisted transactions[8], this left us 5710 for the year 2006 and 7222 observations for the year 2012. Sample size varies across tables due to the data availability.

We define a buyer-broker-assisted transaction based on the responses to question D3 in the 2012 NAR Home Buyer and Seller Surveys (or q47 for 2006 NAR survey).

D3. Did you have a "buyer representation" arrangement with an agent so the agent represented only you and not the seller?

1. Yes, an oral arrangement

2. Yes, a written arrangement

3. no

4. Don't know

According to the property of the survey questions, we define buyer-broker-assisted transactions in two ways. First, if the response is "Yes, an oral arrangement" or "Yes, a written arrangement," then the transaction is classified as a buyer-broker-assisted transaction (hence forth referred to as DEFINITION 1). This is the same as the definition that Elder et al. (2000) used previously. Table 3.1 shows the summary statistics of our sample. Panel A shows the summary statistics for 2006. We summarize the data by separating the sample into two groups:

[7] We excluded observations with either inconsistent or contradictory responses from the data base.
[8] Buyers answered Section D in NAR survey means these transactions are broker assisted. I section D leaves blank then those transactions are excluded from our sample.

35.7% of the sample is broker-assisted purchases of which and 64.3% are buyer-broker-assisted transactions. Panel B includes the summary statistics for year 2012. About 41.2% of transactions are broker-assisted purchases, of which 58.8% transactions are buyer-broker-assisted purchases. Compared to the summary statistics in Elder, Zumpano, and Baryla (2000), we find more buyers hire buyer brokers as time passes. In the 2006 data, the average purchase price of broker-assisted purchase is $272,823.3, while the average purchase price of buyer-broker-assisted purchase is $273,518.9, which is slightly higher than the non-buyer-broker-assisted purchases. In the 2012 data, the average purchase price of non-buyer-broker-assisted purchase is $233,676, which is lower than the average purchase price of buyer-broker-assisted purchase in 2012 ($255,996). In general, house prices are lower in 2012 than in 2006, which show the evidence of different market situations in these two years. The average age of the household head is around 40 in the 2006 survey compared with about 44.4 in the 2012 survey. Buyers in our sample are older than those in the prior literature. About 83% of buyers are white and 5% are Asian in both years. In both 2006 and 2012 surveys, buyers with buyer brokers have more income earners in the households. About 11% of purchases assisted by brokers are caused by family changes, and 10% of purchases assisted by buyer brokers are caused by family changes in 2006. In 2012, about 9% of buyers move because job relocation, and about 8% of buyers move because change of family. A majority of buyers use the Internet to search for houses in both 2006 and 2012. The summary statistics are generally consistent with Baryla, Zumpano, and Elder (2000), though there are small differences due to the change of survey questions and the pools from year to year. The one major difference from the sample in prior study is that the major composition of the households that participated in 2012 NAR survey is single males and females instead of married couples.

Second, due to concern the binding of constraint that an oral arrangement can hold, we have DEFINITION 2 of buyer-broker-assisted transactions. For DEFINITION 2, a transaction is a buyer-broker-assisted transaction if only if the response must be"Yes, a written arrangement" to question D3 (or q47) in NAR survey. The summary statistics based on this new definition is in Panel C and D in Table 3.1. In 2006 NAR survey, 54.6% of buyers hired brokers responded that they did not have a written buyer representation arrangement, and 45.4% of them had a written buyer representation arrangement. Based on 2012 NAR survey, 58.5% of buyers who hired brokers responded that they did not a have a written buyer representation arrangement, and 41.5% of then had a written buyer representation arrangement. All other statistics are similar to the ones based on DEFINITION 1.

3.2. The Purchase Price

We begin by examining the effect of the impact of buyer brokers on purchase prices. We use the original least square to regress the log of purchase prices on BUYER, the house and buyer characteristics and the reason for purchase. Our main independent variable is BUYER, which is a dummy variable, takes value 1 for buyer-broker-assisted transaction and takes 0 otherwise. The selling-price model is specified as

$$\begin{aligned}\text{SELLING PRICE} = f(&\text{BUYER, INCOME, AGE, SINGLE, ASIAN, WHITE, CHILDREN,}\\ &\text{TWO EARNERS, THREE EARNERS, NUMKIDS, PREOWNER,}\\ &\text{DISTANCE, EXISTING, DISCLOSE,SQFT, SFH, URBAN,}\\ &\text{SUBURB, SELLER PAY, INTERNET USE, FAMILY CHANGE, EMPMAN)}\end{aligned} \tag{1}$$

where SELLING PRICE is the log of selling price, and main independent variable, BUYER, is defined by DEFINITION 1 and DEFINITION 2. We include house characteristics along with household information in order to control for price difference attributable to the house purchased

by buyers. In addition to the control variables used in prior literature[9], we add two more control variables. First, the Internet has become an important tool in the house searching process. Beracha and Wintoki (2013) find positive relations between the online search intensity of a city in prior periods and abnormal house price changes. Therefore, we include a categorical variable INTERNET USE to measure the buyer's internet house search frequency based on the survey question, which will help us understand the relationship between Internet search behavior and buyers' choice on house price ranges. Second, we add a dummy variable indicating who pays for the brokers' commissions. The dummy variable takes a value of one if the sellers pay for the commissions; otherwise the dummy equals zero. If sellers pay the commissions, sellers will share these cost by increasing the listing price. Therefore, we expect to see that buyers pay higher price if sellers pay the commissions. All the variables are defined in Table 3.6.

Table 3.2 presents the estimates of the selling-price equations. Model 1 and 2 use the sample of a seller's market (2006 NAR Survey), and Models 3 and 4 use the sample of a buyer's market (2012 NAR Survey). In Models 1 and 3, the main independent variable is defined using DEFINITION 1; and in Models 2 and 4, the main independent variable is defined using DEFINITION 2. We find that, in a seller's market, using buyer brokers does not impact the purchase prices regardless how we define buyer-broker-assisted transactions.

However, in a buyer's market, buyers who are assisted by buyer brokers pay significantly higher prices than buyers who are assisted by listing agents. There are couple reasons to explain this phenomenon. First, this positive relationship can be attributed to moral hazard problem. The current compensation arrangement of buyer brokers creates a serious conflict of interest between buyers and brokers. The commission of the buyer brokers totally depends on the price and quantity of houses they sell. In order to gain higher income, a buyer broker need to either sell

[9] Elder, Zumpano, and Baryla (2000) and Baryla and Zumpano (1995)

more houses or to sell the houses at higher prices. In a buyer's market, house prices are low, and less buyers are searching for houses, which make the conflict of interest more distinct. Zietz and Newsome (2001) find that for the market segment of lower-priced houses buyer brokers do not act in the best interest of their clients. Second, since the real estate market is always running in cycles, when the market is bust, it is actually a good opportunity to buy. Based their professional knowledge and experience, brokers expect the market to go up in the future. Therefore, the buyer brokers may encourage buyers to buyer houses with larger squared footage, newer condition, or better locations, which accordingly increases prices.

Consistent with prior literature (Elder, Zumpano, and Baryla, 2000), household incomes, age of the head of household, and size of the houses are highly positively related to selling prices in both market conditions. The number of children in the household does not affect the sale price in a buyer's or a seller's market. The number of income earners of a household is negatively associated with the sales price.

Furthermore, we find that the purchase prices are positively associated with internet search frequency. This may be explained by the findings of Richardson and Zumpano (2012). They find evidence that online search increases search durations, which may actually slow the market clearing process and increase seller holding costs if lengthening search duration is the only effect of online search. Further, sellers will share this extra holding costs with buyers, which may further increase sale prices. We also find that buyers pay higher purchase prices when the sellers are responsible for the commissions, which is consistent with our prediction.

3.3. Search Duration

We next examine the effect of buyer brokers on search duration. The dependent variable is the log of the number of weeks that a buyer searches for a new residence. The independent variables we used include BUYER, buyer income, proxies for housing-market information, search costs of the buyer, and the physical characteristics of the house. The equation of search duration is specified as:

$$\begin{aligned}\text{SEARCH DURATION} = f(&\text{BUYER, INCOME, AGE, SINGLE, ASIAN, WHITE,}\\ &\text{TWO EARNERS, THREE EARNERS, NUMKIDS, PREOWNER,}\\ &\text{DISTANCE, EXISTING, DISCLOSE, FAMILY CHANGE,}\\ &\text{EMPMAN, INTERNET USE)}\end{aligned} \tag{2}$$

BUYER is the main variable of interest, and is defined in the previous section. In this model, BUYER should capture the effect of using a buyer broker on SEARCH DURATION. In addition, we include INTERNET USE, which is a categorical variable indicating the internet search intensity (Richardson and Zumpano, 2012).

Table 3.3 reports the results estimate result for the search duration equations. Models 1 and 2 use the sample of a seller's market (2006), and models 3 and 4 use the sample of a buyer's market (2012). In Model 1 and 3, the variable BUYER is defined by DEFINITION 1; and in Model 2 and 4, the variable BUYER is defined by DEFINITION 2. Our results show that buyer brokers do not affect the search duration in a buyer's market or a seller's market. Elder, Zumpano, and Baryla (2000) find that buyer brokers can help buyers save a significant amount of time under a normal market condition. However, this does not seem to be the case in either a seller's market or a buyer's market. The reason buyer brokers cannot help buyers significantly reduce search duration in a seller's market is that, on average, buyers spend less time searching in a seller's market, since the fast-growing housing prices motivate all buyers to act faster (Chernobai and Hossain 2012, Baryla, Zumpano, Elder 2000). On the contrary, buyers in a buyer's market spend longer time searching and selecting the right house than in other market conditions.

Typically, with longer searching duration, the chance is higher for a buyer to find a better house within the same budget, or pay a cheaper price for the same house in a buyers' market with plenty house supply. Therefore, in a buyer's market time saving may not be buyers' core interest.

Moreover, we find older buyers are more patient when searching for houses, while high income people spend less time searching. Our finding is consistent with the buyers' opportunity cost of search. Younger people and high income people have relative higher opportunity cost of search than the other groups. Married home buyers spend more time on average than single home buyers in a buyer's market. This can be attributed to the fact that it is usually harder to reach an agreement if more people are involved in making the purchasing decision and there are more factors to consider. Distance reduces the search duration in both the seller's and buyer's market, because buyers relocating from a distance have higher searching cost. Race has some impact on search duration in a buyer's market but not in a seller's market. Consistent with past literature, buyers who form a new family or relocate jobs have shorter search duration in both market conditions. Previous home owners spend less amount of time on searching since they are more experienced. Buyers who use the internet to search houses intensively have longer search duration. These findings are consistent with Richadson and Zumpano (2012).

3.4. Robustness Check

The OLS regressions we discussed above do not account for the possible endogenous selection bias of hiring buyer brokers. Self-selection may exist when buyers choose whether to search with a buyer broker's assistance. In other words, our main independent variable is potentially related to the error terms of our price and search duration models. Therefore, in this section we perform propensity score matching to address this potential problem and check the

robustness of our results. We first create a determinant model to estimate what factors impact buyers' decision on hiring a buyer broker. Second, we use the propensity score obtained by the determinant model to match buyer-broker assisted transactions and non-buyer-broker-assisted transactions to compare their purchase price and search duration.

1. The Buyer-Broker-Choice Estimates

We examine which factors influence the buyer's choice of using a buyer broker based on the original definition of buyer broker. This identifies the characteristics associated with different types of real estate brokers and allows us to account for potential selection bias issues. In this section, the dependent variable is BUYER and equals 1 if the transaction is a buyer-broker-assisted transaction and 0 otherwise. We use probit model regressions to examine the buyers' choice. Following the determinant model estimation in prior literature (Elder, et al., 2000), we include a series of explanatory variables such as buyer income, the demographic characteristics of buyers, experience and information variables, the presence or absence of agency disclosure, and the reasons of relocation. At the same time, we expand the determinants. Zumpano, Johnson, and Anderson (2003) emphasize the importance of internet search in real estate market. We include INTERNET_USE, which describe how often buyers use the internet to search for house information. The internet is not just an information resource, but it can also serve as an adjunct to or substitute for more traditional types of intermediation. Therefore, we include this variable in our regression to control for its effect. The buyer broker determinant model is specified as follow:

$$\begin{aligned} \text{BUYER} = f(&\text{INCOME, AGE, SINGLE, ASIAN, WHITE, TWO EARNERS,} \\ &\text{THREE EARNERS, DISTANCE, PREOWNERS, EXISTING, DISCLOSURE,} \\ &\text{FAMILY CHANGE, EMPMAN, INTERNET USE)} \end{aligned} \tag{3}$$

The results for the buyer-broker usage are shown in Table 3.4. The first two sets of estimates are based on the data from a seller's market (2006) while the last two sets of estimates

are based on the data from a buyer's market (2012). The variable BUYER is defined consistently with the former definition. Our findings indicate, in a seller's market, age and income do not have an impact on the choice of buyer brokers. Previous home owners are less likely to hire buyer brokers. With the restriction of a written arrangement, single home buyers, Asians, households with more children are more likely to hire home buyers. The number of income earners is negatively associated with the likelihood of choosing buyer brokers.

In a buyer's market, middle aged buyers, high income buyers, and previous homeowners are more likely to use the service provided by buyer brokers. Buyers with a job relocation are more likely to hire buyer broker. In both market conditions, the disclosure of brokerage representation increases the chance that buyers choose buyer brokers. This implies that buyers are still not familiar with the difference with listing agents and buyer brokers even though buyer brokers have existed for more than two decades. Lastly, we find internet search intensity is positively related to the likelihood of choosing a buyer broker.

2. Propensity Score Matching

Propensity score matching is commonly used to deal with endogenous selection issues. The reason we use this method is we can match the treated group, buyer-broker-assisted transactions, with the control group, non-buyer-broker assisted transactions, which has similar characteristics to the treated group. In other words, we match buyers who hire buyer brokers with those buyers who should choose to use buyer brokers based on our determinant model but they do not.

We use the determinant model we discussed earlier to obtain a propensity score. This score predicts a probability that a buyer chooses to hire a buyer broker. We then match the

treated group (buyers who use a buyer broker) with the control group by a Kernel matching. The advantage of Kernel marching is that Kernel matching is a non-parametric matching estimator that use weighted averages of all individuals in the control group to construct counterfactual outcomes. Thus, more information is used. The weight is calculated by the propensity score distance between a treatment case and all control cases. We set bandwidth at 0.1 and use Epanechnikov Kernel for matching.[10]

Table 3.5 reports the results of propensity score matching. The results indicate buyer brokers do not impact search durations in either a buyer's market or seller's market. Buyer brokers have no effect on price in a seller's market but have a positive effect on price in a buyer's market. Buyers with assistance from buyer brokers pay more than 4% higher price than buyers with assistance from non-buyer brokers. Buyers who has a written buyer representation arrangement paid 7% higher price. The results indicate that after control the selection bias problem we still have consistent results with our OLS regressions.

3.5. Conclusion

This essay empirically examines the effects of buyer brokers on the home search process in different market situations. This essay is inspired by Elder, Zumpano, and Baryla (2000), which study the role of buyer brokers in an average market condition using 1996 NAR survey data. We address the questions of whether buyer brokers have the same effects when the market condition varies. We use 2006 NAR survey data and 2012 NAR survey data to represent a seller's and a buyer's market condition respectively. The sample size of the 2006 and 2012 NAR survey is much larger than the 1996 sample, which may better represent the average home buyer.

[10] Heckman, Ichimura, and Todd (1998), Heckman, Ichimura, and Todd (1997), and Smith and Todd (2005) derive and apply the Kernel matching.

Different from prior studies, we only focus on the buyer brokers so we only examine the transactions with broker's assistance.

The sales price estimations reveal that buyers who hire buyer brokers on average pay a significantly higher price in a buyer's market than buyers who hire traditional brokers in a buyer's market, while buyer brokers make no difference in a seller's market. The search duration estimations reveal that buyers who hire buyer brokers spend the same amount of time as buyers who hire listing agents in both market conditions. We also find that internet house search intensity is positively associated with both purchase price and search duration.

We use a probit regression to examine the determinant factor for choosing a buyer broker. This identifies the characteristics associated with different types of real estate brokers. We find that high income buyers are more likely to choose buyer brokers in a buyer's market, which is consistent with past studies, but not in a seller's market. Agency disclosure still plays an important role motivating the buyer to hire a buyer broker. We also find that employer-mandated moves are positively associated with the decision to have a written buyer representation arrangement in a buyer's market. Buyers who use internet search intensively prefer hiring buyer brokers to non-buyer brokers in both a buyer's and seller's market. Based the determinant estimations, we constructed a propensity score matching to address the selection bias issue in our sample. We find consistent results after taking account for the potential selection biases.

Our results indicate that the effects of buyer brokers vary as the market condition changes. Even though prior literature indicates that buyers may receive benefits on reducing search duration from hiring a buyer broker when the market is in a normal or equilibrium condition, our results show buyers who hire a buyer broker do not save either money or time when they are facing a seller's market and even pay higher price when facing a buyer's market.

To be noticed, however, these results do not suggest that buyer brokers bring no benefits to buyers in a seller's or a buyer's market. In a seller's market, when many buyers are competing for one house, buyers are less sensitive to prices because getting the houses they like becomes the most important thing, which can be challenging in a seller's market. A buyer broker may help the buyers to obtain the house they desire in a bidding war. In a buyer's market, buyer brokers may use their knowledge about the market and houses to help buyers get houses with better conditions and locations with the same budget rather than help them negotiate a lower price for the same houses. In terms of saving time, even though our evidence suggests that buyers with buyer brokers spend the same number of weeks as buyers with non-buyer brokers, buyer brokers may help buyers spend fewer hours each week on getting information about houses, understanding the local markets, arranging house tours, and doing paper works. These questions are still left open for future studies.

Table 3.1 Summary Statistics

Panel A: 2006						
	Broker-Assisted Purchase 2076 (35.7%)			Buyer-Broker-Assisted Purchase 3734 (64.3%)		
	#Obs.	Mean	SD	#Obs.	Mean	SD
Purchaser Characteristics						
Age of household head	2049	5.111	2.760	3685	4.892	2.634
Household Income	1933	6.389	3.184	3505	6.471	3.135
Single(%)	2076	76.83%	42.20%	3734	78.82%	40.87%
Previous homeowner (%)	2076	97.35%	16.06%	3734	98.13%	13.56%
Two-income household (%)	2076	47.16%	49.93%	3734	50.11%	50.01%
Number of children	2045	1.677	0.969	3691	1.640	0.928
Percentage white	2039	83.08%	37.50%	3671	83.68%	36.96%
Percentage Black	2039	7.26%	25.95%	3671	7.79%	26.81%
Frequency of Internet use	2047	2.432	0.782	3723	2.566	0.702
Reasons for Move						
Change of family	2076	0.113	0.317	3734	0.100	0.300
Job related	2076	0.125	0.331	3734	0.138	0.345
House Characteristics						
Squared footage	2015	4.503	1.871	3654	4.501	1.765
Detached single-family house(%)	2076	73.70%	44.04%	3734	75.25%	43.16%
Urban location (%)	2076	17.00%	37.58%	3734	18.18%	38.58%
Suburban location (%)	2076	51.35%	49.99%	3734	51.71%	49.98%
Existing house(%)	2076	86.13%	34.57%	3734	87.76%	32.78%
Purchase Price (%)	1944	273049.600	212701.300	3589	273733.500	202976.600
Transaction Characteristics						
Sellers pay for agents (%)	2076	0.605	0.489	3734	0.648	0.478
Search duration (week)	2007	13.513	17.169	3658	13.522	17.078

Panel B: 2012						
	Broker-Assisted Purchase			Buyer-Broker-Assisted Purchase		
	2973 (41.2%)			4249 (58.8%)		
	# Obs.	Mean	SD	# Obs.	Mean	SD
Purchaser Characteristics						
Age of household head	2973	5.511	3.084	4249	5.447	2.889
Household Income	2824	6.754	3.476	4070	7.287	3.441
Single(%)	2973	82.41%	38.08%	4249	82.82%	37.73%
Previous homeowner (%)	2973	39.52%	48.90%	4249	37.11%	48.32%
Two-income household (%)	2973	49.92%	50.01%	4249	51.40%	49.99%
Number of children	2860	0.763	1.632	4075	0.783	1.305
Percentage white	2973	85.70%	35.01%	4249	85.81%	34.90%
Percentage Black	2973	3.97%	19.53%	4249	4.19%	20.04%
Frequency of Internet use	2953	2.666	0.660	4219	2.781	0.540
Reasons for Move						
Change of family	2973	0.088	0.284	4249	0.081	0.273
Job related	2973	0.087	0.282	4249	0.098	0.298
House Characteristics						
Squared footage	2803	2043.603	973.810	4107	2138.925	988.1973
Detached single-family house(%)	2973	76.56%	42.37%	4249	79.52%	40.36%
Urban location (%)	2973	16.48%	37.11%	4249	15.23%	35.93%
Suburban location (%)	2973	11.44%	31.83%	4249	11.25%	31.60%
Existing house(%)	2973	85.84%	34.87%	4249	88.73%	31.63%
Purchase Price	2866	233675.9	186012.1	4138	255,996	191,094.10
Transaction Characteristics						
Sellers pay for agents (%)	2973	56.51%	49.58%	4249	62.37%	48.45%
Search duration (week)	2919	18.577	21.772	4182	18.380	20.741

Panel C: 2006						
	Transactions WITHOUT a written buyer representation arrangement			Transactions WITH a written buyer representation arrangement		
	3195 (54.6%)			2615 (45.4%)		
	# Obs.	Mean	SD	# Obs.	Mean	SD
Purchaser Characteristics						
Age of household head	3129	5.09	2.77	2605	4.82	2.56
Household Income	2963	6.33	3.16	2475	6.58	3.14
Single(%)	2963	78%	0.41	2475	78%	0.41
Previous homeowner (%)	3129	61%	0.49	2605	63%	0.48
Two-income household (%)	3129	46%	0.50	2605	52%	0.50
Number of children	3129	1.66	0.95	2605	1.65	0.93
Percentage white	3115	0.82	0.38	2594	0.85	0.36
Percentage Black	3115	0.07	0.26	2594	0.08	0.27
Frequency of Internet use	3149	2.45	0.77	2621	2.60	0.68
Reasons for Move						
Change of Family	3129	0.11	0.31	2605	0.10	0.29
Job related	3129	0.12	0.33	2605	0.15	0.36
House Characteristics						
Squared footage	3093	4.45	1.81	2575	4.56	1.79
Detached single-family house(%)	3129	73%	0.44	2605	76%	0.42
Urban location (%)	3129	18%	0.39	2605	17%	0.38
Suburban location (%)	3129	51%	0.50	2605	52%	0.50
Existing house(%)	3129	87%	0.34	2605	88%	0.33
Distance	3129	3.79	2.71	2605	3.92	2.72
Purchase Price	3047	270563.80	209920.00	2539	276471.00	199942.00
Transaction Characteristics						
Sellers pay for agents	3129	0.62	0.49	2605	0.65	0.48
Duration (Week)	3091	7.51	14.13	2574	6.78	12.79

Panel D: 2012						
	Transactions WITHOUT a written buyer representation arrangement			Transactions WITH a written buyer representation arrangement		
	4223 (58.5%)			2999 (41.5%)		
	# Obs.	Mean	SD	# Obs.	Mean	SD
Purchaser Characteristics						
Age of household head	4223	5.52	3.06	3272	5.41	2.83
Household Income	4071	6.81	3.47	2893	7.41	3.43
Single(%)	4223	82%	0.38	3272	84%	0.37
Previous homeowner (%)	4223	40%	0.49	3272	35%	0.48
Two-income household (%)	4223	50%	0.50	3272	52%	0.50
Number of children	4095	0.75	1.56	2912	0.80	1.27
Percentage white	4198	2.55	1.07	3024	2.62	0.99
Percentage Black	4198	0.04	0.19	3024	0.04	0.21
Frequency of Internet use	4193	2.69	0.64	3009	2.79	0.53
Reasons for Move						
Change of Family	4223	0.09	0.28	3272	0.08	0.27
Job related	4223	0.08	0.28	3272	0.11	0.31
House Characteristics	4223			3272		
Squared footage	4223	4.30	1.92	3272	4.63	1.93
Detached single-family house(%)	4223	77%	0.42	3272	80%	0.40
Urban location (%)	4223	17%	0.37	3272	14%	0.35
Suburban location (%)	4223	11%	0.32	3272	11%	0.32
Existing house(%)	4223	87%	0.34	3272	89%	0.32
Distance	4219	3.58	2.72	3017	3.68	2.71
Purchase Price	4111	234839.20	184113.30	2946	263162.30	194913.00
Transaction Characteristics						
Sellers pay for agents	4223	0.57	0.49	3272	0.63	0.48
Duration (Week)	4191	18.63	21.54	2982	18.13	20.54

Notes: This table shows the summary statistics. Panel A and B are summarized based on DEFINITION 1; Panel C and D are summarized based on DEFINITION 2.

Table 3.2 OLS Estimates of Price

	2006				2012			
	Buyer Broker (1)		Written Agreement (2)		Buyer Broker (3)		Written Agreement (4)	
	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
Buyer	0.0119	0.471	0.00459	0.819	0.0295**	0.0499	0.0439***	0.00396
Age 30-39	0.0753***	0.000358	0.0754***	0.000352	0.0802***	0.000250	0.0808***	0.000218
Age 40-49	0.0784***	0.00117	0.0782***	0.00120	0.0900***	0.000498	0.0910***	0.000428
Age 50-64	0.0595**	0.0236	0.0594**	0.0240	0.0318	0.254	0.0335	0.228
Age 65 and over	0.133***	0.000537	0.133***	0.000549	0.151***	1.42e-05	0.153***	1.09e-05
Income $55000-64999	0.180***	0	0.180***	0	0.154***	1.05e-07	0.155***	8.63e-08
Income $65000-74999	0.225***	0	0.225***	0	0.259***	0	0.259***	0
Income $75000-84999	0.341***	0	0.341***	0	0.309***	0	0.309***	0
Income $85000-99999	0.370***	0	0.370***	0	0.417***	0	0.416***	0
Income $100000-149999	0.557***	0	0.557***	0	0.526***	0	0.526***	0
Income $150000 and over	0.853***	0	0.853***	0	0.849***	0	0.849***	0
Single	-0.0445	0.267	-0.0445	0.267	0.0571***	0.00368	0.0565***	0.00402
Asian	0.367***	0	0.367***	0	0.175***	0	0.175***	0
White	0.0553**	0.0313	0.0552**	0.0313	0.00407	0.659	0.00354	0.701
No. of Children	-0.0161	0.367	-0.0162	0.362	0.00302	0.682	0.00299	0.686
Two-income	-0.0372**	0.0197	-0.0371**	0.0203	-0.0459***	0.00225	-0.0459***	0.00221
Three-income	0.0126	0.875	0.0122	0.880	-0.208***	3.88e-05	-0.210***	3.36e-05
Distance	-0.00246	0.459	-0.00243	0.465	-0.00664**	0.0316	-0.00663**	0.0318
Sqft under 2000	0.0700**	0.0342	0.0702**	0.0337	0.131***	8.16e-05	0.130***	8.59e-05
Sqft 2001-3000	0.260***	0	0.260***	0	0.365***	0	0.364***	0
Sqft 3001-4000	0.449***	0	0.450***	0	0.558***	0	0.557***	0
Sqft 4001-5000	0.649***	0	0.649***	0	0.725***	0	0.725***	0

Sqft 5001 and over	0.760***	0	0.760***	0	0.950***	0	0.949***	0
Urban	0.0953***	0.000144	0.0956***	0.000140	0.0987***	6.44e-06	0.0993***	5.70e-06
Suburban	0.0426**	0.0111	0.0427**	0.0110	-0.0520**	0.0205	-0.0520**	0.0204
Detached Single Family Home	-0.0677***	0.000941	-0.0676***	0.000949	-0.0154	0.440	-0.0156	0.431
Prevowner	0.130***	2.26e-10	0.130***	2.54e-10	-0.0479**	0.0208	-0.0469**	0.0236
Existing	0.0129	0.500	0.0131	0.493	-0.0935***	5.52e-07	-0.0936***	5.71e-07
Disclosure	-0.0279*	0.0917	-0.0239	0.130	-0.00780	0.612	-0.0185	0.261
Family Change	0.0131	0.612	0.0128	0.619	-0.0768***	0.00220	-0.0767***	0.00224
Empman	-0.0120	0.628	-0.0116	0.639	0.0298	0.244	0.0288	0.261
Internet use	0.0213*	0.0796	0.0216*	0.0751	0.0449***	0.00155	0.0449***	0.00154
Seller pays broker fees	0.0497***	0.00158	0.0497***	0.00159	0.0644***	9.80e-06	0.0638***	1.17e-05
Constant	11.68***	0	11.68***	0	11.46***	0	11.47***	0
Observations	4,203		4,203		4,961		4,961	
R-squared	0.439		0.439		0.477		0.477	

Notes: OLS estimates of sales prices. Model 1 and 2 are for a seller's market (2006); Model 3 and 4 are for a buyer's market. Model 1 and 3 are based on DEFINITION 1 of buyer-broker-assisted transactions. Model 2 and 4 are based on Definition 2 of buyer-broker-assisted transactions. The sample of a seller's market consists of 2006 NAR home-buying and –selling survey data. The definitions of the entire variable are in Table 3.6.

Table 3.3 OLS Estimates of Search Duration

	2006				2012			
	Buyer Broker (1)		Written Agreement (2)		Buyer Broker (3)		Written Agreement (4)	
	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
buyer	-0.00588	0.872	0.00305	0.943	0.0213	0.482	0.00424	0.890
Age 30-39	0.0968*	0.0523	0.0967*	0.0524	0.0727*	0.0932	0.0737*	0.0888
Age 40-49	0.257***	2.90e-06	0.257***	2.89e-06	0.152***	0.00205	0.154***	0.00189
Age 50-64	0.213***	0.000310	0.212***	0.000311	0.264***	2.07e-07	0.265***	1.96e-07
Age 65 and over	0.268***	0.00229	0.268***	0.00232	0.167**	0.0117	0.167**	0.0114
Income $55000-64999	0.0146	0.799	0.0145	0.800	-0.00538	0.924	-0.00455	0.936
Income $65000-74999	0.0159	0.790	0.0157	0.793	0.0287	0.574	0.0291	0.568
Income $75000-84999	-0.143**	0.0265	-0.143**	0.0264	0.0410	0.459	0.0412	0.457
Income $85000-99999	-0.0257	0.676	-0.0257	0.676	-0.0380	0.454	-0.0374	0.461
Income $100000-149999	-0.0329	0.514	-0.0331	0.512	-0.00537	0.901	-0.00447	0.918
Income $150000 and over	0.164**	0.0101	0.164**	0.0102	0.0540	0.263	0.0550	0.254
Single	0.0226	0.802	0.0224	0.804	-0.0754**	0.0448	-0.0758**	0.0437
Asian	-0.0689	0.419	-0.0688	0.418	0.0978***	0.00402	0.0982***	0.00389
White	-0.0655	0.187	-0.0654	0.188	-0.0427***	0.00570	-0.0427***	0.00564
No. of Children	0.0438	0.270	0.0438	0.270	0.0168*	0.0507	0.0167*	0.0522
Two-income	0.0411	0.239	0.0412	0.239	0.0282	0.343	0.0280	0.347
Three-income	-0.0260	0.845	-0.0259	0.845	0.00251	0.979	0.00401	0.967
Distance	-0.0360***	1.30e-06	-0.0361***	1.27e-06	-0.0101*	0.0994	-0.0101*	0.0988
Prevowner	-0.127***	0.00242	-0.127***	0.00251	0.0672*	0.0755	0.0679*	0.0727
Existing	-0.0280	0.567	-0.0281	0.565	0.0123	0.766	0.0127	0.758
Disclosure	0.0575	0.118	0.0561	0.114	-0.0101	0.744	-0.00559	0.864
Family Change	-0.160***	0.00308	-0.160***	0.00311	-0.0923**	0.0477	-0.0922**	0.0477
Empman	-0.334***	1.19e-09	-0.334***	1.18e-09	-0.377***	0	-0.377***	0

Internet use	0.230***	0	0.230***	0	0.310***	0	0.311***	0
Constant	1.567***	0	1.564***	0	1.688***	0	1.692***	0
Observations	4,261		4,261		5,036		5,036	
R-squared	0.056		0.056		0.055		0.055	

Notes: OLS estimates of search duration. Model 1 and 2 are for a seller's market (2006); Model 3 and 4 are for a buyer's market. Model 1 and 3 are based on DEFINITION 1 of buyer-broker-assisted transactions. Model 2 and 4 are based on Definition 2 of buyer-broker-assisted transactions. The sample of a seller's market consists of 2006 NAR home-buying and –selling survey data. The definitions of the entire variable are in Table 3.6.

Table 3.4 Probit Estimates of Buyer-Broker Use

	2006				2012			
	Buyer Broker		Written Agreement		Buyer Broker		Written Agreement	
	(1)		(2)		(3)		(4)	
	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
Age 30-39	0.0169	0.791	0.0170	0.810	0.144**	0.0215	0.0515	0.419
Age 40-49	-0.0334	0.630	0.0649	0.400	0.184***	0.00913	0.0624	0.382
Age 50-64	-0.0161	0.826	0.106	0.190	0.0549	0.440	-0.0749	0.304
Age 65 and over	0.0102	0.923	0.248**	0.0297	0.0794	0.364	-0.0725	0.421
Income $55000-64999	0.0461	0.524	0.0806	0.310	0.119	0.122	0.0175	0.822
Income $65000-74999	0.0711	0.349	0.135*	0.0956	0.0624	0.397	0.0197	0.793
Income $75000-84999	0.0497	0.537	0.0458	0.604	0.0405	0.585	0.0422	0.586
Income $85000-99999	0.00601	0.937	-0.000291	0.997	0.112	0.107	0.136*	0.0596
Income $100000-149999	0.0672	0.280	0.0417	0.553	0.152***	0.00782	0.125**	0.0310
Income $150000 and over	0.0539	0.464	-0.0205	0.807	0.158**	0.0110	0.122*	0.0563
Single	0.0669	0.547	0.226*	0.0647	-0.0494	0.345	0.0290	0.584
Asian	-0.104	0.351	0.270**	0.0225	0.0418	0.421	-0.0153	0.764
White	-0.0311	0.625	-0.0439	0.538	-0.000197	0.993	0.0387*	0.0885
No. of Children	-0.0149	0.763	0.0907*	0.0936	-0.0236	0.113	-0.0128	0.415
Two-income	0.00612	0.887	-0.108**	0.0236	-0.0379	0.344	-0.0303	0.459
Three-income	-0.0426	0.815	0.0203	0.922	0.265**	0.0390	0.336***	0.00501
Distance	0.00991	0.277	0.00648	0.513	-0.00234	0.770	-0.00297	0.717
Prevowner	-0.116**	0.0304	-0.146**	0.0133	0.0863*	0.0997	-0.0133	0.801
Existing	0.0566	0.347	0.0224	0.739	0.0671	0.240	0.0341	0.568
Disclosure	0.820***	0	-0.407***	0	0.789***	0	1.277***	0
Family Change	-0.0808	0.233	-0.0134	0.858	-0.0109	0.875	-0.0161	0.819
Empman	0.0602	0.402	-0.105	0.193	0.0662	0.353	0.122*	0.0944
Internet use	0.0916***	0.00255	0.00256	0.940	0.158***	4.11e-06	0.125***	0.000674
Constant	-0.379*	0.0675	-0.938***	3.77e-05	-0.828***	3.17e-08	-1.561***	0

Observations	4,386	4,386	5,093	5,093
Pseudo R^2	0.0753	0.0324	0.0813	0.1653

Notes: Probit estimates of buyer-broker use. Model 1 and 2 are for a seller's market (2006); Model 3 and 4 are for a buyer's market. Model 1 and 3 are based on DEFINITION 1 of buyer-broker-assisted transactions. Model 2 and 4 are based on Definition 2 of buyer-broker-assisted transactions. The sample of a seller's market consists of 2006 NAR home-buying and –selling survey data. The definitions of the entire variable are in Table 3.6.

Table 3.5 Results of Propensity Score Matching

		2006		2012	
		Difference	T-stat	Difference	T-stat
Price	Buyer Broker	-0.0019	-0.08	**0.0421**	**1.91**
	Written	0.0089	0.35	**0.0717**	**3.28**
Search Duration	Buyer Broker	-0.0259	-0.65	0.0320	0.97
	Written	0.0045	0.1	-0.0126	-0.39

Notes: Results of propensity score matching. The table shows the average treatment effect for the treated (ATT) of *buyer brokers* using Kernel matching. For Kernel marching the band width is 0.1. The sample of a seller's market consists of 2006 NAR home-buying and –selling survey data. The definitions of the entire variable are in Table 3.6.

Table 3.6 Description of Variables

Independent variables	Explanations
AGE	An interval variable indicating age of the buyer.
INCOME	An interval variable indicating total household income.
SINGLE	A dummy variable, if buyer is single then dummy equals 1, else dummy equals 0.
WHITE	A dummy variable, if buyer is white then dummy equals 1, else dummy equals 0.
CHILDREN	A variable indicating how many children in a household.
TWO EARNERS	A dummy variable that takes 1 if there are two income earners in a household and 0 otherwise.
THREE EARNERS	A dummy variable that takes 1 if there are three income earners in a household and 0 otherwise.
PREOWNER	A dummy variable that takes 1 the value 1 if a buyer has not previously owned a home and 0 otherwise. A dummy variable that takes 1 the value 1 if a buyer has not previously owned a home and 0 otherwise.
DISTANCE	The distance that the buyer moved from the old to the new home.
DISCLOSURE	A dummy variable that takes the value 1 if a disclose agreement was signed by the buyer, and 0 otherwise.
SQFT	An interval variable indicating size of the house.
URBAN	Takes 1 if the location is urban, 0 otherwise.
SUBURB	Takes 1 if the location is suburban, 0 otherwise.
EXISTING	An indicator variable that takes 1 if the existing home was purchased before and 0 otherwise.
SELLER PAY	A dummy indicator that takes 1 if sellers pay for broker's compensation.
INTERNET USE	A categorical variable indicates that how often the buyer uses the internet to search for homes.
EMPMAN	An indicator variable that takes the value of 1 if a move is the result of an employer-mandated transfer and 0 otherwise.
SFH	A dummy indicator that takes 1 if the house is a detached single family home.
FAMILY CHANGE	A dummy indicator that takes 1 if there is a change in family situation.

Notes: This table contains definitions of all variables we used in This essay.

CONCLUSION

In this dissertation, we explored three types of agency related issues. In the first essay, we contribute to the growing literature in corporate governance on the impact of the CEO's background on a firm's decision and performance. We also contribute to the literature that studies the role of legal professionals in corporations. We find evidence that CEO's with a legal background are associated with significantly different firm policy decisions. Specifically, we find they are associated with less risk and better performance in the short-run, which is reflective of their more conservative management style. We also find evidence that their style is associated with better operating performance and we find some evidenced of law CEOs being associated with lower firm value. The association with lower firm value could be due to underinvestment because we also find evidence that firms with a law CEO are associated with lower levels of R&D investment. However, when firms are faced with litigation, we find evidence law CEOs can better manage their firms through the litigious period relative to firms without a law CEO. In addition to lower volatility during a litigious period, firms with a law CEO pay less in settlements and achieve better operating performance than other firms. Finally, we address the endogenous firm-CEO matching problem with an instrumental variable, proximity to top law firms, and continue to find support for our main results. Thus, the evidence in this study provide new insights into CEO styles and how they relate to firm financial policies and outcomes.

In the second essay, we examine the agency related issue between acquirers and M&A advisors. We find acquirers who switch advisors in the sequences of serial takeovers gain higher CARs, pay lower premiums to the target, spend less on advisory fees, and take shorter time to complete deals. We also find acquirers are significantly more likely to be switchers in deals which have large deal values. Acquirers are significantly less likely to be switchers in deals that have a large relative size between targets and acquirers, involve better performing targets, targets which are in the same industry with acquirers; and in deals where targets use multiple advisors. In summary, we find that selecting suitable advisors for different deals is beneficial for acquirers.

In the third essay, we examine the effects of buyer brokers on selling prices and search duration under different market conditions. We address the questions of whether buyer brokers have the same effects when the market condition varies. We use 2006 NAR survey data and 2012 NAR survey data to represent a seller's and a buyer's market condition respectively. The sample size of the 2006 and 2012 NAR survey is much larger than the 1996 sample, which may better represent the average home buyer. In a seller's market, we find that buyer brokers do not have any impact on prices a search duration. In a buyer's market, our finding suggests buyers assisted by buyer brokers pay higher prices and did not experience short search duration. These results are consistent with the conflict of interest between buyers and buyer brokers.

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