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Product Market Competition and Corporate Mergers and Acquisitions

Yen-Chih Liu
Old Dominion University

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by

Yen-Chih Liu
B.A. June 1997, National Taiwan Ocean University
M.B.A. December 2002, Old Dominion University

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Approved by:

Kenneth Yung (Director)

Mohammad Najand (Member)

David Selover (Member)

Abstract

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Yen-Chih Liu
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Director: Dr. Kenneth Yung

Conventional models assume competition improves corporate efficiency as firms strive to outperform competitors. In the context of agency models, the link between competition and managerial behavior becomes fuzzy. Hart (1983) and Schmidt (1997) posit that competition reduces managerial slack. Scharfstein (1988) argues that competition might increase managerial shirking. Recent studies on the relation between managerial compensation and competition further document conflicting evidence. In this study, I examine the effect of product market competition on corporate mergers and acquisitions. My initial results suggest that the definition of competition is critical in evaluating corporate mergers and acquisitions. Using three new dimensions (product substitutability, market density, and entry cost) to measure competition, I find the manager's M&A decisions could have different implications across the three dimensions. Regarding acquisition premium, my results consistently show a negative relation between competition and the size of the premium.

This Dissertations is dedicated to my beloved parents, Cheng-Fong Liu and Pei-Hua Huang, my lovely wife, Hui-Wan and my beautiful daughter, Katherine

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Introduction

According to Adam Smith, monopoly is a great enemy to good management (1976, bk. 1, chap. 1 1, p. 165; cited in Armstrong et al [1994]). In other words, competition is a good thing. It is generally believed that a competitive economy allocates resources more efficiently. It is also a common belief that competition results in downward pressure on costs, decreases slack, provides incentives for the efficient organization of production, and even promotes innovation. In competitive markets, inefficient firms must either become efficient or exit, whereas in markets where potential competitors are driven away by insurmountable barriers of entry, monopolists can survive even if inefficient.

The effect of competition could be multi-dimensional. A review of the literature suggests that competition could affect innovation, productivity, productivity growth, and technical efficiency. Given the multi-dimensional impacts of competition, many researchers suggest that the effect of competition is theoretically ambiguous and not supported by unanimous empirical evidence (Aghion and Howitt, 1992; Grossman and Helpman, 1991; Nickell, 1992 and 1996). Schumpeter (1943), for example, has argued that competition could have negative effects because it prevents firms from accumulating rents that can be used for research and development. Lowering the innovation rate also lowers the rate of long-run growth. For firms without retained earnings, competition may deter restructuring and improvements in efficiency by lowering profits. Furthermore, corporate restructurings induced by competition frequently involve downsizing. In these restructurings, operation efficiency may become lower as firms are forced to excessively reduce their use of labor and capital. For empirical evidence, Nickell (1996) examines the

productivity performance of a large number of U.K. manufacturing companies and concludes that the there is not overwhelming empirical evidence that competition improves firm productivity. Nickell et al. (1992) find that firms with high market share appear to have higher productivity growth. Similar competition effects on the level of productivity are confirmed by Haskel (1990) and Hay and Liu (1994). On the contrary, Van Wijnbergen and Venables (1993) find that the trade liberalization and deregulation undertaken by Mexico during 1986-88 resulted in an increase in competition and a significant increase in productivity growth. Geroski (1990) find evidence that concentration and other measures of monopoly power tend to reduce the rate of innovation and, hence, productivity growth. Caves and Barton (1990), and Caves et al. (1992) find that an increase in market concentration above a certain threshold tends to reduce technical efficiency.

To sum up, the extant literature has reported substantial conflicting empirical evidence as well as contradictory theoretical expositions regarding the effect of competition.

1.1 The Relevance of Agency Theory

Competition exists in factor and product markets. In this dissertation, I focus on the relation between production market competition (PMC) and the behavior of the firm. It is beyond doubt that competition has an impact on efficiency and growth. However, a critical link that needs to be considered is the human factor involved. That is, how do corporate managers behave in response to competition in the market place? If the manager is also the owner of the firm, then the (positive and negative) effects of

competition would likely be as straightforward as those predicted by conventional economic models which typically assume the owner-manager paradigm. However, it is commonly known that managers are merely agents whose interests may be different from those of the firm since the advent of separation of ownership and control (Berle and Means, 1932). That is, the manager is not necessarily the same as the firm if the manager does not have equity ownership of the company. To study the behavior of the firm in a competitive environment, we therefore need a better understanding of the behavior of the manager. In finance literature, agency theory has offered theoretical explanations as well as empirically testable implications regarding managerial behavior. According to agency theory, the firm is viewed as a set of contracts between firm owners and employees, with each entity motivated by its self-interest. Managers are agents hired with contractual obligations to promote the interest of the firm owners. But agency theory suggests that managers may act in a way that protects their personal benefits more than enhancing the financial well-being of the firm. Thus, I intend to study the relation between product market competition and managerial behavior in the context of agency theory.

Agency theory has been used in finance literature to examine and explain the behavior of corporate managers. Three articles have been particularly influential. Jensen and Meckling (1976) explored the ownership structure of the corporation, including how equity ownership by managers aligns managers' interests with those of owners. Fama (1980) discussed the role of efficient capital and labor markets as information mechanisms that are used to control the self-serving behavior of top executives. Fama and Jensen (1983) described the role of the board of directors as an information system that the stockholders within large corporations could use to monitor the opportunism of

top executives. A common theme in these studies is the opportunistic or self-serving behaviors of corporate managers. One of the earliest studies of this type was conducted by Amihud and Lev (1981). In their study, Amihud and Lev explored why firms engage in conglomerate mergers. The general understanding in finance is that conglomerate mergers are not in the interests of the stockholders because stockholders can diversify directly through their stock portfolio. Conglomerate mergers represent a duplication of the effort as well as a waste of corporate resources. Amihud and Lev posited that conglomerate mergers may be attractive to managers who have fewer avenues available to diversify their own risk. Hence, these authors linked merger and diversification activities to the self-serving behavior of the firm manager. Exploring similar corporate events, Walking and Long (1984) studied managers' resistance to takeover bids. Their sample included 105 large U.S. corporations that were targets of takeover attempts between 1972 and 1977. Financial economists consider that resistance to takeover bids is not in the stockholders' interests, but it may be in the interests of managers because they can lose their jobs during a takeover. Consistent with the general predictions of agency theory, Walking and Long found that managers who have substantial equity positions within their firms were less likely to resist takeover bids. Kosnik (1987) examined another example of managerial opportunism. She examined 110 large U. S. corporations that were greenmail targets between 1979 and 1983. She related the characteristics of the board of directors to whether greenmail was actually paid (paying greenmail is considered not in the stockholders' interests). Consistent with the predictions of agency theory, Kosnik found that boards of companies that resisted greenmail had a higher proportion of outside board directors. Jensen (1986) examined the agency

problems associated with free cash flow of corporations. His findings reinforce the conclusions of other researchers. Free cash flow is cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital. Conflicts of interest between shareholders and managers over payout policies are especially severe when the firm has substantial free cash flow. The problem is how to motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on inefficient activities. As explained by Jensen, agency theory offers insights into why firm managers would expend free cash flow on takeovers and diversifications that are not beneficial to the shareholders. Managers extract personal benefits when executive compensation (perquisites consumption) is tied to firm size or when the firm becomes more dependent on the manager as acquisitions increase the firm size. Such low-profit mergers are more likely in industries with large cash flows but have few growth opportunities.

In sum, there is significant evidence in finance literature supporting the predictions of agency theory that managerial behavior is frequently associated with promoting the self-interest of managers rather than the welfare of shareholders. It is based on these findings that I examine the effect of product market competition on managerial behavior.

1.2 Competition and Ethics

The literature on the effect of competition has provided differing opinions regarding how managers behave in competitive environments. Shleifer (2004) links corporate managerial behavior with competition. However, he focuses on ethics instead of efficiency. The study of Shleifer suggests that in the short run competition may lead to

unethical managerial behavior; despite he is optimistic that in the long run competition will improve efficiency sufficiently that ethical behavior would be promoted in society. Building on the ideas in Gary Becker's (1957) classic study of discrimination, Shleifer finds a broad range of circumstances where competition promotes censured conduct. He examined several types of ethically questionable corporate behavior.

On the issue of child labor, Shleifer points out that competition brings children into the labor force. A firm would hire children if it is cheaper than hiring adults (even taking into account differences in productivity). The firm hiring children can reduce prices; its competitors must then hire children also, or be driven out of business. On the supply side, families also compete to send their children to work if doing so elevate their positions to compete for food or status. Either of these two forces of competition would bring children into the labor force.

On corruption, Shleifer explains that a firm facing competition has incentives to bribe if it can reduce costs and pass on the savings to customers. In a competitive market, then, every firm must itself pay bribes or go out of business. In such an environment, competition has a positive correlation with the pervasiveness of corruption. Moreover, competition for government jobs also intensifies corruption. In some countries, positions allowing extensive bribe collection are auctioned off by senior officials. The officials who get the jobs are the ones who can collect the most bribes.

On executive compensation, Shleifer posits that competition for executives is partly responsible for the gigantic remuneration paid to executive in recent years. He argues that in a market that is less than efficient, managers who possess a superior ability to create or sustain a bubble in the value of company stock reduce the firm's cost of equity capital.

For these managers, their compensation is determined by the competition among firms for this service. Companies will pay for the services of such managers even though the executives may have nothing to improve the profitability of the firm.

On earnings management, Shleifer also points to the impact of competition on aggressive corporate accounting practices. According to Shleifer, if earnings manipulation helps sustain a high level of stock valuation, it reduces the cost of capital, enabling companies to make acquisitions for stock, to attract better executives and workers with stock options, and even to issue new shares. There is strong incentive to manipulate reported earnings because for some companies, this involves the firm's survival in a competitive environment. Without using creative accounting, some firms may find their cost of capital too high for them to survive. Even for mature firms, there is incentive to manage earnings so that a high equity valuation could alleviate the probability of being acquired by a corporate raider.

In short, Shleifer (2004) suggests that competition could lead to managerial behavior that might be ethically questionable.

1.3 Competition and Managerial Incentives

To understand the link between competition and managerial behavior, researchers have also investigated how competition affects managerial incentives. However, researchers have conflicting predictions regarding the effect of competition on managerial effort.

1.3.1 Competition Reduces Managerial Slack

Hart (1983) introduces a model of managerial incentives that shows how competition between firms may promote managerial incentives. Specifically, Hart considers an economic environment where firms are subject to agency problems due to the non-observability of managerial effort and managerial performance (managers can manipulate earnings). When profits or other measures of performance are not observable, monetary incentive schemes are no longer feasible to motivate managers. As managers do not respond well to monetary incentives, managers are likely to slack. According to Hart, product market competition provides a solution to the problem because competition provides more information about the market and the information enhances performance evaluation of the manager. At the same time, managers would be concerned about their job security if competition causes the firm to go bankrupt. Thus, an increase in competition leads to less slack on the part of the manager. Therefore competition acts as an incentive scheme to ensure that managers do not buy themselves a 'quiet life'. Along similar lines of research, Holmstrom (1982) and Nalebuff and Stiglitz (1983) analyze the use of relative performance evaluation. If the number of competitors in a market increases, and if the shocks affecting each firm's costs are correlated, then an increase in competition generates additional information which can be used to mitigate moral hazard problems. Therefore competition improves incentives. Schmidt (1997) also acknowledges that competition may increase an inefficient firm's likelihood of going bankrupt, thus, exerting pressure on the firm manager to work harder.

1.3.2 Competition Increases Managerial Slack

Scharfstein (1988) suggests that the conclusion of Hart could reverse if managers are highly responsive to monetary incentives. That is, competition increases managerial shirking when a manager's marginal utility from income is strictly positive. Martin (1993) and Horn, Lang, and Lundgren (1994) also find that increased competition is associated with reduced managerial effort. Despite Schmidt(1997) suggests that an increase in competition might increase managerial incentives, he also points out that a decrease in profits and market share due to competition may discourage managers to work harder if they feel the extra efforts to reduce costs is no longer justifiable. Hermalin (1992) also finds the effect of competition on managerial effort ambiguous. He suggests that the effects of competition on managerial behavior can be decomposed into four component effects, and each of the components has an ambiguous sign. Specifically, Hermalin identifies four mechanisms of the influence of product market competition on management performance. These are an income effect of reduced profits in a more competitive environment, a risk-adjustment effect if profit risks vary with the degree of competition, an effect of change in returns to managerial effort, and the effect of improved information in the presence of more rival firms. Managerial shirking increases in some cases when the four effects interact. For example, a more informative information structure reduces the risk to which the executive must expose himself to commit credibly to a given action. According to Hermalin, this is equivalent to increasing the executive's income. Since agency goods are normal goods, there is a tendency for the executive to consume more agency goods. Recently, Karuna (2007) provides empirical evidence that there is a positive relation between managerial compensation and

competition. That is, managers must be paid more to work harder in a competitive environment. The result of Karuna implies that competition increases managerial slack.

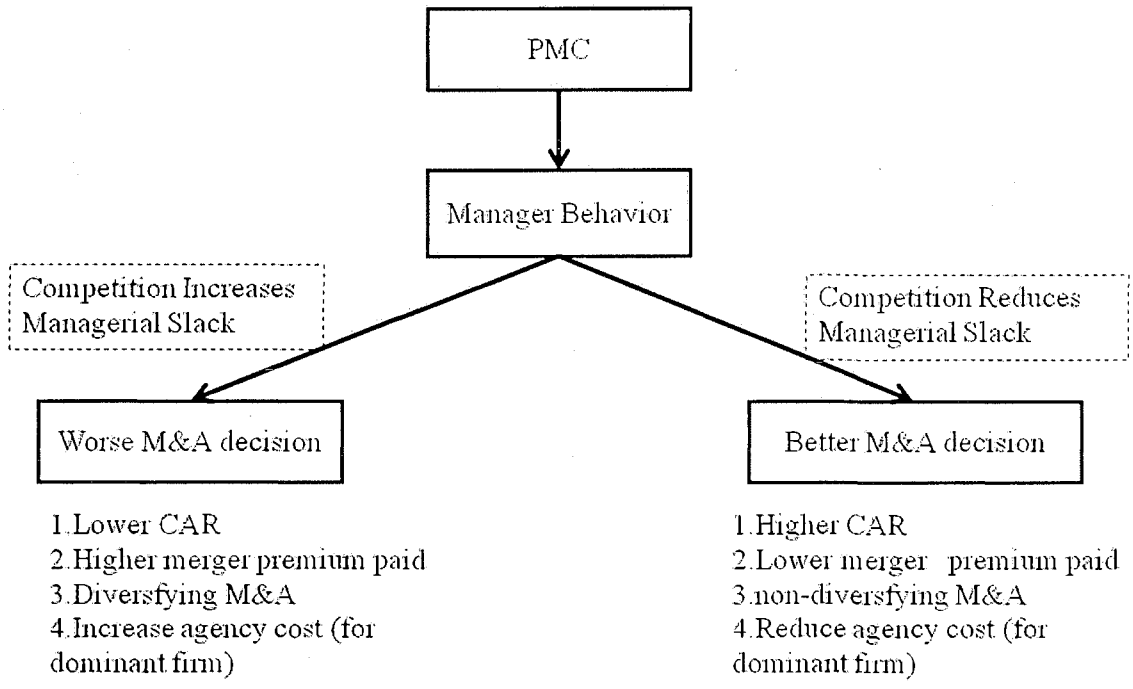
So far, the literature review has suggested that competition may or may not improve efficiency (innovation, growth, productivity, technical efficiency). In addition, the literature also is filled with conflicting predictions regarding how managers will behave in a competitive environment. Researchers have provided no clear visions as whether managers will work harder or less hard in face of competition. Similarly, we are left with an unclear picture if competition promotes or decreases ethically questionable managerial behavior. To avoid being drowned in such a vast literature of conflicting opinions and empirical findings, I use a dichotomous approach that largely categorizes the effects of competition into two groups. The first group includes effects that are positive. That is, competition improves innovation, productivity, efficiency, and enhances managerial effort. The second group includes effects of competition that are negative. That is, competition decreases innovation, efficiency, productivity, and promotes managerial shirking. It is based on such a premise that I investigate the effect of product market competition on managerial behavior. Specifically, I use corporate mergers and acquisitions as the events for investigating the relation between product market competition and managerial behavior.

1.4 Why Corporate Mergers and Acquisitions

The acquisition of one firm by another or the merger of two companies is one of the most dramatic or controversial activity in corporate finance. Tremendous amounts of resources are involved every year in mergers and acquisitions (M&A). In the US alone,

the yearly average of the number of corporate M&A is close to 10000 over the last two decades. For example, US companies announced 10833 M&A in 2000 with a total value in excess of $1.28 trillion. Significant accounting and finance research resources have focused on understanding the value creation process related to M&A, as well as to the factors that drive them. Researchers have suggested that corporate restructurings such as M&A, leveraged buy-outs, spin-offs, etc. play an important role in helping the economy adjust to significant competitive changes in the last several decades. The competition among alternative management teams for corporate resources allows firms to move huge amounts of economic resources to their most efficient and valuable use. Theoretically, substantial benefits for the economy and the shareholders are to be generated in the process. Empirical evidence however point to a different picture. It is frequently found that shareholders of the acquiring firm do not enjoy any significant gains. Thus, researchers have questioned the motives for M&A. With managers acting as agents more interested in promoting their own benefits, M&A have been considered as a major conduit through which managerial shirking prevails. Thus, what started as a likely response to competition is burdened with agency problems of various kinds. The setting represents an ideal situation for my investigation of the effect of product market competition on managerial behavior in the context of agency theory. Before I go into details in the following chapters, below is a presentation of the theoretical framework of this study.

Figure 1. Theoretical Framework of This Study



Based on the literature review that competition could have opposite effects on managerial behavior, I do not make any assumptions regarding how managers behave in M&A. Instead, I will examine the effects of product market competition on M&A empirically and deduce from the results how managers have behaved. As shown in the figure, the four investigations that I will conduct in this study include

a) How do investors react to M&A announcements?

b) What is the size of the premium paid?

c) Do firms engage in diversifying M&A when facing competition?

d) How do dominant firms behave in M&A?

If product market competition improves efficiency and cuts managerial slack, investors would have responded positively to M&A announcements. The acquirer manager would have avoided paying an excessive premium; acquiring firms would have likely avoided diversification M&A; and acquirers that are also dominant firms in their industries would have acted in the interests of the shareholders. If product market competition decreases efficiency and increases managerial shirking, investors would have responded negatively to M&A announcements. The acquirer manager would have paid an excessive premium; acquiring firms would have likely pursued diversification M&A; and acquirers that are also dominant firms in their industries would have acted to promote the interests of the managers only.

The organization of the dissertation is as follows. Chapter2 discusses the motive for mergers and acquisitions. Chapter 3 discusses the issue of the manager's propensity to diversify the firm when facing competition. Chapter 4 discusses the relation between competition and the size of merger premiums. Chapter 5 describes the sample and methodology. Chapter 6 shows the results for each issue. Chapter 7 summarizes the findings and concludes with a short discussion of the study's possible extensions.

Chapter 2

Motives for Mergers and Acquisitions

To evaluate managerial behavior in corporate mergers and acquisitions, an understanding of the motives for M&A is required. Existing studies on mergers and acquisitions have classified motives for mergers and acquisitions into five broad categories including (1) market timing, (2) response to industry shocks, (3) agency, (4) hubris, and (5) synergy. The theories behind these motives are based on different sets of assumptions and investors are predicted to respond differently.

2.1 Market Timing

In market timing models, it is argued that acquiring firms deliberately time their M&A decisions in order to take advantage of the stock market's over-valuations of their common stocks. Since market misvaluations tend to occur in clusters over time, market timing models suggest that M&A also occur in waves. However, market timing models in general do not focus on the self-interests of managers. That is, market timing could be consistent with either promoting the welfare of shareholders and/or the personal benefits of the acquiring manager.

Shleifer and Vishny (2003) introduced a model of mergers and acquisitions based on stock market misvaluations of both the target and acquiring firms. The authors assume that investors could be irrational and firms are hence incorrectly valued form time to time. Managers are hypothesized to take advantage of share value mispricing through merger activity, using overvalued shares to takeover firms whose shares are relatively less overvalued. The authors also predict that acquiring firms whose shares are

overvalued prefer to use stock-exchange as the choice of payment medium, whereas firms whose shares are not overpriced tend to use cash to buy out the targets. Also it is hypothesized that overvalued acquirers have a tendency to pay a larger premium for the target. In general, it is expected that overvalued acquirers, after the M&A, would see a decline in firm performance as investors recognize the earlier misvaluation. Dong, Hirshleifer, Richardson and Teoh (2006) test the Shleifer and Vishny model and provide strong empirical support. Dong et al. (2006) use two proxies to measure market misevaluation: the price-to-book value of equity (P/B) ratio and the price to residual income value (P/V) ratio. According to Dong et al., P/V is less controversial because it does not measure misvaluation based on historical cost. P/V is a better measure because residual income value is a forward-looking information given by analysts' forecasts of future earnings. Using a long sample period from 1978 to 2000, Dong et al.(2006) examined the pre-1990 and the 1990-2000 merger waves. Some major results of their study include (1) acquirers are more highly overvalued than targets; (2) more overvalued targets are more often be purchased by equity than by cash; (3) high-valuation acquirers are more likely to use stock rather than cash in acquiring targets and they also tend to pay higher premium especially when stock is the payment method; (4) acquisitions by overvalued acquirers are frequently followed by lower post-merger abnormal returns.

Another important market timing model is developed by Rhodes-Kropf and Viswanathan (2004). Their model assumes the managers of the target and acquirer firms are rational, but the target manager does not have information about the value of the equity offered by the acquirer. The target manager also does not have information about the value of the merger to the acquirer due to the market's misvaluations of the stocks of

the target and acquirer. According to the authors, there are two components of market misevaluation of share value – a firm-specific component and a market-wide component. Acquirer firm managers know the stand-alone value of their firms and also the potential value of the merger. The target manager knows the stand-alone value of his firm but does not know the components of the misvaluation, and therefore finds it difficult to assess the offer. In a follow-up study, Rhodes-Kropf, Robinson and Viswanathan (2005) empirically test and find support for the predictions of their model as well as those of the Shleifer and Vishny model. Rhodes-Kropt et al. (2005) decompose the M/B ratio of a firm into two components: market to true value and true value to book value. The first component measures market misvaluation due to either irrational behavior or information asymmetry that could be firm-specific or industry-wide. The second component measures growth opportunities without being contaminated by the mispricing part. There are several important findings in their study. First, they find that acquiring firms are valued significantly higher than targets. Second, a large part of the difference in M/B between acquirers and targets is due to the difference in their firm-specific misvaluation. About 60% of the acquirer's M/B is attributable to firm-specific misvaluation, while almost none of the target's M/B is attributable to firm-specific misvaluation. Third, acquirers and targets are frequently firms in industries with high sector-wide misvaluations. That is, they tend to share a misvaluation component that stems from common causes in the sector. Fourth, cash targets are typically undervalued while equity targets are slightly overvalued. Similarly, cash acquirers are less overvalued than equity acquirers. Fifth, low long-run value-to-book firms tend to buy high long-run value-to-book firms. The average long-run value-to-book component of M/B of targets is three to five times higher than

that of acquirers. Sixth, sector-wide misvaluation explains about 15% of acquisition activity. That is, factors such as industry productivity shocks also play an important role in explaining merger waves. Finally, they observe unambiguous evidence that misvaluation waves drive merger waves. During merger waves, highly overvalued bidders account for 65% of the merger activities.

2.2 Response to Industry Shocks

Some researchers consider mergers as responses to various industry shocks induced by regulatory changes, price shocks, technology breakthroughs, etc. Firms engage in M&A to improve efficiency and increase profitability. Investors are hypothesized to respond positively to such M&A because firm value is expected to be higher after the merger. Several types of mergers that are related to industry shocks have been examined in the literature. Coase (1937) posits that technology is a major determinant of firm size and thus suggests that technological change is a motive for mergers and acquisitions. According to Jarrell, Brickley, and Netter (1988), the antitrust deregulations of the 1980s provide a major impetus for corporate takeovers in the affected industries. Similarly, Weston and Chung (1990) point out that the takeover activities in 1980s have been high in industries that have either undergone deregulation or experienced oil price shocks. They cited the corporate restructurings among airlines, oil firms, and telecommunication companies were basically responses to structural changes in the competitive market. Jensen (1993) also suggests that input price shocks are related to merger activity, such as the merger activities in the 1980s that are primarily responses to the energy price volatility in 1970s. Comment and Schwert (1995) argue that relatively broad-based

economic factors, rather than state laws and firm-specific antitakeover amendments, are responsible for the occurrence of M&A.

In evaluating the relation between takeover activities and broad based economic changes, Mitchell and Mulherin (1996) examined industry-level merger activities across 51 industries between 1982 and 1989 and find significant differences in both the rate and time-series clustering of these activities. They find the links between M&A and industry shocks such as deregulation, energy shocks, foreign competition and financing innovations are significant, especially those involving deregulations and financing innovations. Along the same line, Mulherin and Boone (2000) study the acquisition and divestiture activity of a sample of 1305 firms from 59 industries between 1990 and 1999. They find significant clustering in both acquisitions and divestitures over time, which they argue is consistent with the implication that economic change is a driving force for M&A. Andrade and Stafford (2004) find that firms involved in same-industry mergers tend to have excess capacity before the merger. The authors consider such finding consistent with the view that takeover is an effective means for industries with excess capacity to induce exit and utilize resources more efficiently.

In comparing the relative significance of industry shocks and market timing as the motive for mergers and acquisitions, Hartford (2005) studies the industry-level merger waves in 1980s and 1990s. Despite he agrees that economic, regulatory or technological shocks are important factors responsible for industry merger waves, he further adds that for merger waves to exist there must be sufficient capital liquidity to make takeovers occur. That is, this liquidity component causes industry merger waves to cluster even if

industry shocks do not. In short, Hartford finds both market timing and industry shocks responsible for M&A waves.

2.3 The Agency Motive

According to the agency motive, some takeovers are motivated by the self-interest of the acquiring manager. Corporate managers are hypothesized to put their personal interests ahead of those of firm owners. A number of reasons have been suggested for such phenomena. Amihud and Lev (1981) suggest that mergers help the acquiring manager to diversify his own portfolio risk. Managers who have few avenues to diversify their own risk therefore are likely to pursue diversifying M&A. Hence, these authors linked merger and diversification activities to the self-serving behavior of the firm manager. Jensen (1986) postulates that acquiring managers use the acquiring firm's free cash flow for M&A in order to expand the firm size. As a consequent, the acquiring firm will depend more on the acquiring manager to run the company (Shleifer and Vishny (1989)). The common theme in most of these explanations is that acquisitions result in the extraction of value from the acquirer shareholders to by the acquirer manager. Such management actions result in agency costs that reduce the total value of the combined firm available to shareholders. Another important implication in these studies is that the target firm is identified by the acquiring manager as one that is most suited to increase his personal benefits. Target shareholders, realizing their value in such situations, would extract some of the value from the merger. The more severe the agency problem, the higher the gain enjoyed by the target shareholders. Very often, the target and acquirer gains are negatively related. Empirical studies on mergers have documented supportive

findings for the agency motive. Dodd (1980) found that the return to the acquirer firm is significantly negative following takeover announcements. Malatesta (1983) finds that mergers are value-creating transactions for target firms but value-destroying transactions for acquiring firms and concludes that takeovers are motivated by agency cost.

2.4 The Hubris Motive

The models of agency and hubris are quite similar in predicting a value destroying effect of mergers. There are slight differences between the two in terms of the behavior of the corporate manager. The agency cost hypothesis suggests that corporate managers perform takeovers because they want to enhance their personal benefits by expanding the firm size. The hubris hypothesis argues that corporate managers engage in M&A because their managerial pride make mistakes in evaluating target firms, and engage in acquisitions even when there is no synergy (Roll 1986). Since the synergy is presumed zero, the payment to the target firm represents a wealth transfer from the acquirer to the target. The higher the target gain, the lower the bidder gain, and that the total gain is zero. In its strictest form, one would not positive total gains in takeovers. For empirical evidence, Moeller, Schlingemann, and Stulz (2004) show that larger firms, which are more likely run by hubris-filled managers, tend to offer higher takeover premium and are more likely to complete a takeover than their smaller counterparts. Hayward and Hambrick (1997) finds a significant loss in the acquirer's shareholder value following an acquisition, and the greater the CEO hubris and acquisition premium, the greater the shareholders' losses.

2.5 The Synergy Motive

The synergy hypothesis assumes that managers act to maximize shareholders wealth. The theory posits that firms would engage in acquisitions only if they result in gains to shareholders of the acquirer and target. The synergy theory therefore predicts a positive post-merger performance. Jensen and Ruback (1983) find evidence that corporate takeovers generate positive gains, in which target firm shareholders gain and yet the bidding firm shareholders do not lose. Healy, Palepu and Ruback (1992) examine post-acquisition performance of the fifty largest U.S. mergers between 1979 and mid-1984. They find that merged firms experienced significant improvements in asset productivity relative to their industries, leading to higher operating cash flow returns. This performance improvement is particularly strong for firms with highly overlapping businesses. They consider the finding support of the synergy motive for M&A. Bradley, Desai and Kim (1988) study a sample of tender offers that occurred in the period from 1963 to 1984 and document a combined value increase for the target and acquiring firms by an average of 7.4 percent. They conclude that "successful tender offers generate synergistic gains and lead to a more efficient allocation of corporate resources" (p.13). Maksimovic and Phillips (2001) find that acquisition on average results in productive gains for the assets acquired; a result that is consistent with the synergy hypothesis.

2.6 Hypotheses Development

Of the above-mentioned five motives generally considered in finance literature, the hypotheses of market timing, agency, and hubris imply a loss in the firm value for the acquiring firm. Hence it is expected that investors would react negatively to takeover

announcements. On the other hand, the models of synergy and industry response suggest that firm value is likely to be increased. Thus, we expect a positive response from investors when such takeovers are announced. Existing studies on the motives for M&A do not specifically address market competition in their models. So there is no a priori prediction linking managerial behavior and motives for M&A when the market is competitive. Thus, I make inferences regarding managerial behavior in M&A by observing investors' responses. I specifically control for the effect of competition in my analysis.

If product market competition improves efficiency and cuts managerial slack, investors would have responded positively to M&A announcements. Acquirers that are also dominant firms in their industries would have acted in the interests of the shareholders. This leads to the following hypotheses:

Hypothesis 1a: Acquiring firms in more competitive industries are likely to enjoy higher stock returns when they announce merger and acquisition decisions.

Hypothesis 2a: Dominant acquiring firms (acquirers with more agency problems) in more competitive industries are likely to have higher stock returns when they make merger and acquisition announcements.

However, if product market competition decreases efficiency and increases managerial shirking, investors would have responded negatively to M&A announcements. Acquirers that are also dominant firms in their industries would have acted to promote the interests of the managers only. This leads to the following hypotheses:

Hypothesis 1b: Acquiring firms in more competitive industries are likely to have lower acquiring returns when they make merger and acquisition decisions.

Hypothesis 2b: Dominant acquiring firms (acquirers with more agency problems) in more competitive industries are likely to have lower acquiring returns when they make merger and acquisition announcements.

Chapter 3

Corporate Diversification and Competition

The second issue I address in my dissertation is the manager's propensity to diversify the firm when facing competition. Based on the literature review of corporate diversification, if competition reduces managerial slack, it is likely that competition will lead to a lower diversification effort. If competition promotes managerial shirking, then the manager is more likely to diversify the firm.

It is generally agreed in finance literature that corporate diversification destroys shareholder wealth, causing the shares of diversified firms sell at a discount. Yet, U.S. firms remain highly diversified. For example, Montgomery (1994) finds that two-thirds of the Fortune 500 companies had at five distinct lines of business (defined by four-digit SIC codes) as late as 1992. From 1990 to 1996, diversified firms accounted for nearly 50% of U.S. employment and owned about 60% of the total assets of publicly traded firms.

3.1 Diversification and Agency Theory

Among the various explanations for corporate diversifications, agency theory considers diversification the outcome of managers pursuing self-interest at the expense of firm owners. Managers have a desire to diversify because a larger firm size is expected to (1) increase their compensation (Jensen and Murphy, 1990), power, and prestige (Jensen, 1986); (2) enhance their job security with the firm by making investments that require their particular skills via manager-specific investments (Shleifer and Vishny, 1990a,b); or (3) reduce the risk of their personal investment portfolio by reducing firm risk (Amihud

and Lev, 1981). Agency models argue that corporate diversification aggravates managerial agency problems. In diversified firms, managers are more likely to over invest given their access to an internal market for capital. Wulf (1998) suggests agency problems in diversified firms could lead to efficiency problems because the managers of large, established divisions have an incentive to use their influence to skew capital budgeting in their favor. In addition, efficiency problems may result in diversified firms given that the information asymmetry problem within the firm is relatively more severe than non-diversified firms. Some researchers even argue that diversified firms become less efficient as divisional managers do not have incentives to work hard when they cannot influence the performance of other divisions. In short, agency models suggest that diversification is associated with an inefficient allocation of capital within diversified firms. Agency models, however, have not considered the impact of competition. If one agrees with conventional models that competition promote managerial efforts, then it is likely that agency problems are mitigated in diversified firms. In the extreme situation, one might see a movement away from diversification if competition promotes the need to enhance efficiency. On the other hand, if competition promotes managerial shirking, then it is likely that the firm would pursue further diversifications so that managers can entrench more and consume more perquisites.

3.2 Diversification and Competition

Without relying on agency arguments, Villalonga (2000) posits that the motives for diversification are anti-competition responses. She argues that firms diversify in order to beat competition. For example, diversified firms can use the profits generated by the firm

in one industry to support predatory pricing in another. Firms could also diversify in order to form an ally with other firms that compete with the firm simultaneously in multiple markets. Firms might use corporate diversification to engage in reciprocal buying with other large firms in order to squeeze out smaller competitors. The idea that some firms acquire other firms in order to survive or remove the threat of competition is not new. Researchers who have suggested this include Dann and DeAngelo (1988), Shleifer and Vishny (1989), and Berkovitch and Narayanan (1993). Some banks in the 1980s and early 1990s actually announced that they were acquiring other bank in order to remain independent. However, the anti-competition explanation does not explicit address the agency motives in the model. It is possible that firms diversify to avoid competition so that the managers could protect their self-interests more securely. On the other hand, firms may diversify to squeeze out competitors with the intent to increase profitability. In short, this line of explanation does not indicate clearly if diversification creates or destroys value.

3.3 Diversification and Economies of Scope

Another explanation offered by researchers on the motives for corporate diversification is related to the idea of economies of scope. Diversified firms enjoy economies of scope in various functions such as marketing and distribution. In the marketing aspect, diversified firms could use strategies such as product bundling, product lining, and family branding to more efficiently market the firm's products. Diversified firms could use the same distribution channel to sell the firms services and goods. Similarly, the firm could use its corporate staffs to support operations in different lines of

operations. Lewellen (1971) postulates that diversified firms have lower cash flow volatilities because of the coinsurance effect derived from combining businesses whose cash flows are less than perfectly correlated. In addition, a diversified firm's cash flows may support an internal capital market. Having an internal market to fund the firm's needs for capital offers a number of possible sources of value to the firm's owners. First of all, internally raised equity capital is less costly than funds raised in the external capital market. The firm avoids the transaction costs associated with the sale of securities to the public, as well as the costs of overcoming information asymmetry problems encountered when selling securities in the capital market. Furthermore, with an internal source of financing, the firm's managers can exercise superior decision control over project selection, rather than leaving the firm's investment decisions to the whims of less well-informed investors in the external capital market. Finally, corporate diversification may create shareholder value by mitigating failures in product, labor, and financial markets. This could be particularly important in emerging and less developed markets. In this strand of literature, diversification is considered a firm-value enhancing activity. The stipulations offered by these models are consistent with the implication that managers strive to improve firm efficiency through diversification and diversification creates value.

3.4 Diversification Destroys Firm Value

Theoretical models have contradictory predictions regarding the effect of diversification on firm value. Empirical studies are also dotted with inconsistent findings. Some researchers conclude that diversified firms destroy value based on the evidence that diversified firms tend to have lower Tobin's Q; their shares are traded at discounts of up

to 15%, when compared to the share value of comparable stand-alone firms; they face an increased likelihood of being broken up through reorganization that varies directly with the size of the discount; and the stock market tends to react favorably to increases in corporate focus. In general, it is argued that diversified firms are more likely to misallocate their resources. Many studies have found empirical evidence supporting the capital misallocation hypothesis. Shin and Stulz (1988) find that divisions of a diversified firms cross-subsidize each other in terms of cash flow needs. But the sensitivity of a division's capital expenditures to the cash flows of the other divisions within the conglomerate firm does not depend on whether its investment opportunities are better than those of the firm's other divisions. This may lead to over investment.

Scharfstein (1998) supports the cross-subsidization hypothesis when he finds that diversified firms invest too much in low Q segments and too little in high Q segments. There is some evidence that the diversification discount suffered by diversified firms is caused by agency problems. For example, Palia (1999) finds that the diversification discount is diminished by larger pay-performance sensitivity and by smaller board size. Similarly, Anderson et al. (1998) finds that CEOs in diversified firms have lower stock ownership, higher levels of pay and lower sensitivity of pay to firm performance. Some researchers have argued that the diversification discount might be a result of lower efficiency instead of agency problems. Maksimovic and Philips (2001) find that conglomerate firms are less productive than single-segment firms of similar size. Finally, researchers have also concluded that diversification is value destroying based on the results of short- and long-term event studies. For example, based on a sample of mergers from 1981 to 1984, Bradley et al. (1988) find that acquirers suffer negative abnormal

returns close to 3%. Agrawal et al. (1992) find that acquiring firms suffer a statistically significant loss of 10% during the five-year post-merger period. Megginson et al. (2000) examine long-term abnormal returns for mergers that increase corporate diversification and find that these firms suffer a loss in stockholder wealth of 25% by the third post-merger year.

On the other hand, activities that increase a firm's focus have been found to increase share value. For example, Desai and Jain (1999) find that long-run abnormal returns during the three- year period after a focus-increasing spin-off are 47% greater than the returns to firms that engage in non-focus-increasing spinoffs.

3.5 Diversification Creates Firm Value

In more recent studies on diversification, researchers argue that diversification in fact is associated with a premium instead of a discount. These researchers argue that data and methodological issues have led to previous conclusions that diversified firms suffer a value discount relative to their non-diversified counterparts. In some studies, researchers question the interpretation of the diversification discount or even its validity. For example, Graham, Lemmon, and Wolf (1999) or Campa and Kedia (1999) suggest that the discount should not be interpreted as value destruction due to diversification, since firms which diversify are already discounted prior to diversifying. Villalonga (2000a,c) claims that after correcting for data problems (Compustat segment classification bias), a sample of diversified firms that traded at a discount earlier now is found to trade at a significant premium when compared to non-diversified firms from the same industry. Hadlock et al. (2001) find that seasoned equity offerings of diversified firms have a less

negative market reaction than focused firms. They attribute the reason to the better access to capital markets by diversified firms than focused firms due to valuation problems faced by investors in the presence of asymmetric information. Moreover, Denis and Thothadri (1998) find that previous studies of diversified firms exhibit substantial cross-sectional variability in their findings. Morck and Yeung (1998) show that cross-industry diversification, geographic diversification and firm size add value in the presence of intangibles related to R&D or advertising, but destroy value in the absence of these intangibles. Thus, there is some evidence that diversification may add value to the firm.

3.6 Hypotheses Development

If product market competition improves efficiency and cuts managerial slack, investors would have responded positively to M&A announcements. Acquiring firms would have likely avoided diversification M&A. However, if product market competition decreases efficiency and increases managerial shirking, acquiring firms would have likely pursued diversification M&A. This leads to the following hypotheses:

Hypothesis 3a: Acquiring firms in more competitive industries are likely to pursue non-diversifying acquisitions.

Hypothesis 3b: Acquiring firms in more competitive industries are likely to pursue diversifying acquisitions.

Chapter 4

Competition and Acquisition Premium

Researchers have found that firm and deal characteristics affect the premium paid by the bidder. For example, Officer (2003) finds that takeover premiums are significantly higher in takeovers that are paid with cash. Huang and Walkling (1987) suggest that this is likely due to the tax-related consequences of cash offers. Officer also finds that the premium size is related to the market values of the bidder and target. Larger bidders tend to offer higher premiums whereas large targets are likely to receive lower premiums. This is consistent with Moller et al. (2004) that there is a firm size effect on takeover premium. According to Officer (2003), premiums are higher in intra-industry mergers than in inter-industry transactions, except in the financial services industry. It is observed that bank mergers in general have significantly lower premiums than takeovers in other industries. Premiums are also higher if the bidder uses a tender offer during the acquisition process, but significantly lower when the bidder has a toehold ownership of more than 5% of the target's outstanding equity. Bidders with high market-to-book ratios (growth opportunities) are likely to pay significantly higher premiums. Rhoades-Kropf et al. (2005) show that the market-to-book ratio of the acquiring firm could be decomposed to reflect several types of market misvaluation of the acquirer's firm value. A higher market-to-book ratio suggests a higher degree of misvaluation. Thus, Officer's findings imply that more overvalued acquirers are more likely to pay higher premiums. This is consistent with expositions of Shleifer and Vishy (2003) and Rhodes-Kropf and Viswanthan (2004). Contrary to Officer's findings, Schwert (2000) finds only weak evidence that takeover premiums are negatively related to target firm size. His

investigation shows that a decrease of $57 million in equity capitalization increases the premium received by the target by 1 percent. In addition, Shcwert finds that firm performance variables are not reliably related to takeover premiums. The observation is consistent with the results of Comment and Schwert (1995). Also consistent with the results of Officer (2003), Schwert finds that auctions, cash offers, and tender offers all lead to higher than average premiums.

Moeller et al. (2004) specifically examine the relation between the size of the bidder and takeover premiums. They find empirical evidence that large bidders tend to pay more for acquisitions. The premium paid increases with firm size after controlling for firm and deal characteristics. In addition, large firms are also more likely to complete an offer. Their finding is consistent with the hubris motive for M&A and the empire-building hypothesis of agency theory. Both the hubris and agency models suggest that the higher takeover premium represents a loss suffered by the shareholders of the acquiring firm. This is consistent with the finding of Moeller et al. that the combined dollar return of the target and acquiring firms significantly negative for large firms. That is, larger acquirers are more likely to pursue value-decreasing acquisitions. In other words, there are no dollar synergy gains for acquisitions by large firms. The hubris and/or empire-building hypotheses are very consistent with the findings observed by Moeller et al., (2004) that large acquirers paying higher premiums also have a higher success rate in their takeover bids. That is, large bidders likely pay more due to either overestimation or fulfillment of self-interests instead of promoting the welfare of the firm.

Gupta and Misra (2007) question if larger bid premiums represent a source of wealth transfer from acquiring to target firm shareholders or do they signal greater expected

merger gains? They argue it depends on the market's assessment of the managerial objectives of the bidding firm. Good managers link corporate restructurings such as M&A with maximizing firm value. Managers interested in personal benefits may initiate mergers to maximize personal gains at the expense of the firm's shareholders. The authors hypothesize that value-enhancing managers will bid higher premiums only if they expect the takeover to have larger value creating potential. Thus, the size of the bid premium may serve as a signal of deal quality, and this implies a positive relation between merger gains and the size of the takeover premium. On the other hand, managers with agency motives would pay a higher premium if they expect larger personal gains even though at the expense of the shareholders. Thus, it implies a negative relation between merger gains and the size of the takeover premium. Their results find empirical evidence that premium size is positively related to the size of the merger gain for value-enhancing deals. That is, the bid premium may likely serve as a signal of deal quality in value-enhancing takeovers. In addition, Gupta and Misra (2007) find that managerial compensation also influence M&A decisions. Their results show that highly paid CEOs are more likely to engage in value-enhancing mergers, compared to CEOs who are not highly paid.

The size of the takeover premium may also be related to the market misvalutaion of the acquiring firm's share value. In the merger-waves models of Rhoades-Kropf et al. (2005) and Shleifer and Vishny (2004), it is postulated that acquiring firms tend to use their overvalued shares to buyout targets whose shares are relatively less overvalued. A higher overvaluation of the bidder's share value might lead to a larger bid premium in takeover transactions. Since market misvaluations tend to occur in clusters, possibly

affected by herd-like investor optimism or pessimism, mergers and acquisitions also tend to occur in waves over time. So it is likely that when the market is overvalued (investors are over- optimistic), higher takeover premiums are the norm. When the market is depressed (investors are over-pessimistic), lower takeover premiums are more likely. A casual observation of the history of M&A transactions appears to support this conjecture. Before the dot.com bubble of the technology industry occurred in the 1995-2001 period, high-tech start-ups were gulped by other high-tech firms at stratospheric premiums. Misvaluations of technology firms were rampant during this period, yet investors seldom complained about the excessive takeover premiums paid by acquiring firms.

The choice of payment method in corporate mergers and acquisitions is also likely linked to the size of the acquisition premium. Some researchers indicate the choice of acquisition financing is driven by the desire of the acquiring manager to maintain control of the acquiring firm (see, e.g., Stulz, 1988; Amihud et al., 1990; Ghosh and Ruland, 1998). Such managers are more likely willing to pay a higher premium. Faccio and Masulis (2005) suggest that the payment method in M&As is largely a tradeoff between the threats of corporate control and financing constraints. Other researchers have related the choice of payment method in M&As to the asymmetric information between the acquiring firm and outsiders (Travlos, 1987; Hansen, 1987; Shleifer and Vishny, 2003; Rhodes-Kropf et al., 2005; Dong et al., 2006). It is generally argued that the acquiring firm will prefer stock financing when the acquiring manager believes his firm's stock is overvalued. Thus, cash deals are likely to have lower takeover premiums and stock deals are more likely to have higher premiums.

4.1 Hypotheses Development

If product market competition improves efficiency and cuts managerial slack, the acquirer manager would have avoided paying an excessive premium; and acquirers that are also dominant firms in their industries would have acted in the interests of the shareholders. Therefore, they would not pay an excessive premium. This leads to the following hypotheses:

Hypothesis 4a: Acquiring firms in more competitive industries are less likely to overpay the acquisition premium for mergers and acquisitions.

Hypothesis 5a: Dominant acquiring firms (acquirers with more agency problems) in more competitive industries are less likely to overpay the acquisition premium for mergers and acquisitions.

In contrast, if product market competition decreases efficiency and increases managerial shirking, the acquirer manager would have paid an excessive premium; and acquirers that are also dominant firms in their industries would have acted to promote the interests of the managers only. Therefore, they would pay an excessive premium. This leads to the following hypotheses:

Hypothesis 4b: Acquiring firms in more competitive industries are more likely to overpay the acquisition premium for mergers and acquisitions.

Hypothesis 5b: Dominant acquiring firms (acquirers with more agency problems) in more competitive industries are more likely to overpay the acquisition premium for mergers and acquisitions.

Chapter5

Data and Methodology

5.1 Sample Description

I examine a sample of successful U.S. mergers and acquisitions occurring between 1986 and 2006.The sample is drawing from the Securities Data Corporation's (SDC) U.S. Merger and acquisitions data base by using the following criteria:

1. The MA event is completed.

2. All bidders are public firms.

3. The deal value of MA event is over one million U.S. dollars.

4. Bidders acquire at least 50% of targets, thereby implying control.

5. The method of payment only includes all cash, all stock, and mixed.

For merger premium, I require the one-month merger premium data is either directly available from SDC database or can be calculated from the information I get from SDC database.

Then I collect the annual financial statement information of firms from Compustat and stock return data from the CRSP. The data for PMC is obtained from the segments database in Compustst on WRDS. The insider holding information and institutional holding information are obtained from Thomson Financial database. All dollar items are CPI-adjusted to year 2006 to adjust for the effect of inflation.

As panel A of table 1 shows, the sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. Panel A also reports annual mean and median bidder market value of equity, deal value, and

relative deal size, defined as the ratio of deal value to bidder market value of equity. Both bidder market value of equity and deal value appear to peak during the 1999-2000 periods.

Panel B of table 1 provides the distribution of merger premium sample. The sample consists of 750 completed U.S. merger and acquisitions (listed in SDC) between 1987 and 2006 made by public U.S. firms. Panel B also reports annual mean and median premium (%) acquirer paid and the method of payments. The total annual mean and median premium (%) acquirer paid are 45% and 37%. In our sample, 357 firms choose to finance with stock only, 202 firms choose to finance with cash only, and 191 firms choose to finance with mixed.

<Insert Table 1 here>

5.2 Variable Construction

In the next subsections, we discuss the measurement of three categories of variables: acquirer return and merger premium acquirer paid as our dependent variable, three determinants of competition (product substitutability, market size, and entry costs) as our interested explanatory variables, and acquirer- and deal-specific characteristics as our control variables.

5.2.1 Acquirer Return

I measured bidder announce effect by market model stock returns around initial acquisition announcements. The announcement dates are obtained from SDC's U.S. merger and acquisitions data base. I compute 2-day cumulative abnormal returns (CARs)

during the window encompassed by event days (0, +1), where event day 0 is the acquisition announcement date. I use the CRSP equal-weighted return as the market return and estimate the market model parameters over the 255-day period from event day -274 to event day -20.

The market model is used to estimate normal or expected returns of common stocks of sample events. Market models assume that security returns follow a single factor market model,

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt} \qquad (1)$$

Where R_{jt} is the rate of return of common stock of the j^{th} firm on day t; R_{mt} is the rate of return of market index on day t; ε_{jt} is a random variable that, by construction, must have an expected value of zero, and is assumed to uncorrelated with R_{mt}, uncorrelated R_{kt} for $k \neq j$, not autocorrelated, and homoskedastic. β_j is a parameter that measures the sensitivity of R_{jt} to the market index.

Abnormal return for the common stock of the j^{th} firm on day t is defined as:

$$A_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt}) \qquad (2)$$

Where the coefficients α_j and β_j are ordinary least squares estimates of α_j and β_j in equation (1). The cumulative abnormal return (CAR) is calculated by summing average abnormal returns over the event period.

As panel A of table 2 shows, the mean 2-day CAR for whole sample is 0.717%, significantly different from zero at 1% level. The median 2-day CAR for whole sample is 0.253%. For deals financed with all cash, the mean CAR is about 0.997%, which is significant (1% level). In contrast, for deals financed with all stock, the mean CAR is about -0.083%, which is not significant. For deals financed with mixed payment, the

mean CAR is about 0.961%, which is significant (1% level). Acquisitions of subsidiary targets are associated with highest bidder return, with mean CAR of 1.568%. Next, the mean CAR of acquisitions of private targets is 1.214%, which is significant (1% level). However, deals involving public targets generate the lowest abnormal return to bidder shareholders, with the mean CAR of -2.014%, which is significant (1% level). I find the same pattern for median CARs. These results are consistent with those prior studies such as Moeller et al. (2004) and Masulis et al. (2007).

5.2.2 Merger Premium

For merger premium, I require the one-month merger premium data is either directly available from SDC database or can be calculated from the information we get from SDC database.

As panel B of table 2 shows, the mean merger premium (%) for whole sample is 45%, significantly different from zero at 1% level. The median for whole sample is 37% and significant.

<Insert Table 2 here>

5.2.3 Measure of Competition

Following with Karuna (2007), I focus on three determinants of competition: product substitutability, market size, and entry cost in this study. Prior studies predominantly use the level of concentration (Herfindahl index or the k-firm concentration ratio (CR_k)) to proxy competition (Harris, 1998; Defond and Park, 1999; Engel et al., 2003; Masulis et al., 2007). These studies assume that market structure is exogenous, that price (and thus

unit margins) decline as concentration falls (Bain, 1956), and thus that lower concentration reflects higher competition. However, recent studies suggest that when market structure is assumed to be endogenous, it is not clear whether low values of concentration capture low or high competition, especially in cross-industry analyses (e.g., Aghion et al., 2001; Raith, 2003). The three determinants of competition in this study capture the different dimensions of competition as they illustrate how competition arises from product market fundamentals. Karuna (2007) suggest that there are numerous benefits to analyze the individual effects of each competition determinant, while controlling for the other two, given the level of concentration in the industry. First of all, controlling for the other determinants as well as the level of concentration makes it possible to test the incremental effect that each determinant has on CAR and merger premium. Second, some industries may defy uni-dimensional labels of competition, perhaps because both product substitutability and entry costs may be high, as is the case in their industry (Raith, 2003). I will discuss the role of each of these three determinants of competition next.

5.2.3.1 Product Substitutability

Most studies in the Industrial Organizations literature have used the price-cost margin to measure product substitutability in an industry. The price-cost margin is defined here as the negative reciprocal of the price elasticity of demand (Karuna, 2007). In other word, the price elasticity of demand has a positive relation with the extent of product substitutability. This suggests that low (high) levels of the price-cost margin signify high (low) levels of product substitutability. The closer to perfect competition an industry is,

the more prices approximates marginal cost. Therefore, the greater competition, the smaller the price-cost margin. Following with Karuna (2007), I calculate the price–cost margin as sales divided by operating costs, all at the four-digit SIC code level. My measures for product substitutability, or product differentiation, are labeled Diff1 and Diff2. To obtain product substitutability, I compute industry sales and operating costs by taking the sum of primary industrial segment sales and operating costs for firms in a given industry, respectively. The higher the value of Diff, the higher the extent of differentiation, or lower substitutability. Based on definition of operating cost, I find that there two different ways to compute the sum of depreciation, depletion, and amortization in Compustat database(non-accumulated or accumulated). For Diff1, the operating cost is the sum of data41, data189, data14 and data174. However for Diff2, the operating cost is the sum of data41, data189, data196. I will report Diff1 and Diff2 in subsequent statistical analyses.

I also assume that price–cost margin depends on firms' pricing strategies (reflecting market conduct), which in turn partly depend on exogenous factors related to product substitutability. A component of the price–cost margin can be regarded as endogenous, as it can be affected by other industry factors such as market structure.

5.2.3.2 Market Size

Market size mirrors the density of consumers in a market or industry. Following with Karuna (2007), I measure an industry's market size by industry sales. This reflects the fact that, when market demand for a product increases at any given price, sales of that product also increase. Table 3 shows that market size is highly skewed to the right.

However, its natural log transformation brings the mean and median values closer together. So, I use the log-transformed variable (labeled MKTSIZE) in subsequent statistical analyses.

<Insert Table 3 here>

5.2.3.3 Entry Cost

Following with Karuna (2007), I define entry costs as the minimal level of investment (exogenous sunk cost) that must be incurred by each entrant firm to an industry prior to commencing production (i.e., set-up costs). To capture the minimal level of investment in a particular industry, I compute the weighted average gross value of the cost of property, plant and equipment for firms for which this is the primary industry (at the four-digit SIC code level), weighted by each firm's market share in this industry. I compute market share by dividing the segment sales figure for the primary industrial segment of a firm by the sum of the segment sales of all firms that have this particular industry as their primary industry. Table 3 shows that the entry costs measure is highly skewed; its natural log transformation is not. Therefore, I use the log-transformed entry costs measure (labeled ENTCOST) in subsequent statistical analyses.

5.2.4 Control Variables

In our regression analysis in this study, I include several control variables documented in prior research as having an effect on CAR model, diversifying acquisition decision model, and merger premium model. The definition of all variables is shown on table 4.

<Insert Table 4 here>

5.2.4.1 Control Variables for CAR Model

Prior studies predominantly use the level of concentration to proxy competition. Common indices of industry concentration are the k-firm concentration ratio (CR_k) and the Herfindahl–Hirschman index (HHI) (e.g. Harris, 1998; Defond and Park, 1999; Engel et al., 2003; Masulis et al., 2007). I include the four-firm concentration ratio (labeled CONC) for an industry, which reflects the proportion of sales in an industry accounted for by the four largest firms (by sales). I obtain the data to compute CONC from the Segments database. In the initial regressions, I also consider Herfindahl–Hirschman index (HHI). Again, I obtain the data to compute HHI from the Segments database.

In addition to the level of concentration, I also consider two groups of factors that are related to acquirer returns: bidder characteristics and deal characteristics.

Bidder characteristics: The bidder traits that I control for are firm size, Tobin's q, leverage, free cash flow (FCF), liquidity, CEO equity ownership, and institutional ownership (BLOCK), all of which are measured at the fiscal year-end prior to the acquisition announcement, and pre-announcement stock price runup, which is measured over the 100-day window from event day –130 to event day –31.

Moeller, Schlingemann, and Stulz (2004) find that bidder size is negatively correlated with the acquirer's announcement-period CAR. They interpret this size effect as evidence supporting the managerial hubris hypothesis (Roll (1986)), because they find that in general larger acquirers pay higher premiums and make acquisitions that generate negative dollar synergies. Hence, we would expect that manager of larger firms are more entrenched and more likely to make worse acquisitions decisions. I define firm size as

bidder's total assets (Compustat item 6). Table 3 shows that the total assets measure is highly skewed; its natural log transformation is not. Therefore, I use the log-transformed total assets measure (labeled Log Total assets) in subsequent statistical analyses.

Prior studies find that an acquirer's Tobin's *q* has an ambiguous effect on CAR. Lang, Stulz, and Walking (1991) document a positive relation for tender offer acquisitions, while Moeller, Schlingemann, and Stulz (2004) find a negative relation in a comprehensive sample of acquisitions. Following with Masulis et al. (2007), I define Tobin's *q* as the ratio of a bidder's market value of assets over its book value of assets, where the market value of assets is computed as the book value of assets minus the book value of common equity (item 60) plus the market value of common equity (item 25 × item 199).

According to Jensen's (1986) free cash flow hypothesis, I also control for the acquirer's financial leverage and FCF. Some researchers suggest that leverage is an important governance mechanism, since higher debt levels help reduce future free cash flows and limit managerial discretion (Stulz, 1990; Masulis et al., 2007).

On the other hand, some researchers suggest that leverage provides incentives for managers to improve firm performance, since managers have to cede significant control to creditors and often lose their jobs if their firms fall into financial distress (Gilson and Vetsuypens, 1994; Baird and Rasmussen, 2001; Gilson (1989, 1990)).

Powell and Yawson, (2007) suggest that firms with high growth, but low resources are more likely to be acquired by firms with opposite imbalance - low growth and high financial resource. Similarly, firms with low growth, but high financial resources are more likely to be acquired by firms with the opposite imbalance –high growth and low

financial resources. Therefore, I include leverage and liquidity as control variables and expect leverage to have a positive effect on CAR. The free cash flow hypothesis predicts a negative coefficient for current FCF, since managers at firms with more free cash flows have more resources available to them to engage in empire building. However, higher free cash flows can also proxy for better recent firm performance, which could be correlated with higher quality managers, who tend to make better acquisition decisions (Masulis et al., 2007). Therefore, FCF could turn out to be either positively or negatively related to acquirer announcement returns. Following with Masulis et al. (2007), leverage is defined as a firm's book value of long-term debt (item 9) and short-term debt (item 34) divided by its market value of total assets, and FCF is equal to operating income before depreciation (item 13) minus interest expense (item 15) minus income taxes (item 16) minus capital expenditures (item 128), scaled by book value of total assets. Following with Schwert (2000), liquidity is measured as the ratio of net liquid assets to total assets (items (4-5)/6). I also control for a bidder's stock price runup before the acquisition announcement. I measure the bidder's pre-announcement stock price runup by the bidder's buy-and-hold abnormal return, which is measured over the 100-day window from event day –130 to event day –31 with using the CRSP value-weighted market index as the benchmark.

Masulis et al. (2007) suggest that equity ownership can help align the interests of managers with those of shareholders. Lewellen, Loderer, and Rosenfeld (1985) also find that bidder returns are increasing in bidder managers' stock ownership. I measure the CEO equity ownership as top 5 executives' percentage ownership of the firm. Cremers and Nair (2005) find evidence that the market for corporate control is effective only when

a firm's internal corporate governance is strong. To control for the effect of institutional ownership, I measure institutional ownership (BLOCK) as the fraction of bidder's common stock held by bidder's institutional blockholder.

Both CEO equity ownership and institutional ownership (BLOCK) information are obtained from Thomson Financial database. Finally, to investigate the behavior of dominant firms in M&A, I create the dummy variable denoted by Dominant that is equal to one for firm having the largest market share at time t in a four-digit SIC industry and zero otherwise.

Deal characteristics: I control for deal characteristics variables such as target ownership status, method of payment, relative deal size, and whether the bidders are from high tech industries.

Fuller et al. (2002) find that acquirers have significantly negative abnormal returns when they acquire public target and significantly positive abnormal returns when they acquire private targets or subsidiaries. They argue that bidders capture a liquidity discount when they buy private or subsidiary targets. Moeller et al. (2004) also find similar results. In addition, they find that acquiring subsidiary targets generate the highest abnormal bidder returns. To control for target ownership status, I create three dummy variables denoted by public targets, private targets, and subsidiary target to represent targets in these three categories.

Existing studies also suggest that the method of payment is also related to the stock market's response to acquisition announcements. It is generally believed that acquirers have significantly negative abnormal returns when they pay for their acquisitions with equity. This is generally attributed to the adverse selection problem in equity issuance

analyzed by Myers and Majluf (1984). To control for methods of payment, I create three dummy variables denoted by all cash deal and all stock deal, and mixed deal. Similar with Masulis et al., (2007), to fully capture the effects of target ownership status and deal payment method, I consider the interaction variables in subsequent statistical analyses. Asquith, Bruner, and Mullins (1983) and Moeller, Schlingemann, and Stulz (2004) find that bidder announcement returns increase in relative deal size, although the reverse is true for the subsample of large bidders in Moeller et al., (2004) paper. I also control for relative deal size, which is measured as deal value (from SDC) over bidder market value of equity.

I also create a dummy variable denoted by high tech that equals one if acquirers are in high tech industries defined by Loughran and Ritter (2004) and zero otherwise, since Masulis et al., (2007) suggest that acquirers in these high tech transactions are more likely to underestimate the costs and overestimate the synergies generated by the combination.

Based on the discussion in chapter 3, the predicted effect of diversifying acquisitions on bidder returns is ambiguous. It is generally agreed in finance literature that corporate diversification destroys shareholder wealth, causing the shares of diversified firms sell at a discount. Yet, U.S. firms remain highly diversified. For example, Montgomery (1994) finds that two-thirds of the Fortune 500 companies had at five distinct lines of business (defined by four-digit SIC codes) as late as 1992. However, some researchers argue that data and methodological issues have led to previous conclusions that diversified firms suffer a value discount relative to their non-diversified counterparts. For example, Graham, Lemmon, and Wolf (1998) or Campa and Kedia (1999) suggest that the

discount should not be interpreted as value destruction due to diversification, since firms which diversify are already discounted prior to diversifying. Villalonga (2000a,c) claims that after correcting for data problems (Compustat segment classification bias), a sample of diversified firms that traded at a discount earlier now is found to trade at a significant premium when compared to non-diversified firms from the same industry. To control for the effect of diversifying acquisitions on bidder returns, I classify an acquisition as diversifying if the target and the bidder do not share the same four-digit SIC code, and I create the dummy variable denoted by diversifying acquisition that is equal to one for diversifying acquisitions and zero otherwise.

5.2.4.2 Control Variables for Diversifying Acquisition Decision Model and Merger Premium Model

Based on the discussion in chapter 3 and chapter 4, I also consider the level of concentration and two groups of factors: bidder characteristics and deal characteristics. The definition of these variables is the same with those discussed above. However, for merger premium model, I also control for target characteristics at the same time. The definition of target characteristics is same with that of bidder characteristics.

5.3 Methodology

To examine the effects of product market competition on M&A empirically and deduce from the results how managers have behaved. I use the several equations to test. For Hypothesis 1, I use the following equation:

$CAR(0,+1) = \beta_0 + \beta_1$ Diff $+ \beta_2$ Log Market Size(MKTSIZE) $+ \beta_3$ Log Entry Cost (ENTCOST) $+ \beta_4$ Concentration ratio(CONC) $+ \beta_5$ Log Total assets $+ \beta_6$ Tobin's Q $+ \beta_7$ Leverage $+ \beta_8$ Free Cash Flow (FCF) $+ \beta_9$ Liquidity $+ \beta_{10}$ Stock price runup $+\beta_{11}$ CEO equity ownership $+ \beta_{12}$ Block $+ \beta_{13}$ High tech $+ \beta_{14}$ Public target x all cash deal $+\beta_{15}$ Private target x all cash deal $+\beta_{16}$ Subsidiary target x all cash deal $+\beta_{17}$ Public target x all stock deal $+\beta_{18}$ Private target x all stock deal $+\beta_{19}$ Subsidiary target x all stock deal $+\beta_{20}$ Relative deal size $+\beta_{21}$ Diversifying acquisition + Year dummy $+\varepsilon$ (3)

For Hypothesis 2, I use above equation (3) and adding dominant firm dummy variable and the interaction variables of PMC and dominant firm dummy variables.

For Hypothesis 3, I use the following equation:

Diversifying acquisition $=\beta_0 +\beta_1$ Diff $+\beta_2$ Log Market Size(MKTSIZE) $+\beta_3$ Log Entry Cost (ENTCOST) $+\beta_4$ Concentration ratio(CONC) $+\beta_5$ Dominant$+\beta_6$ Log Total assets $+\beta_7$ Tobin's Q $+\beta_8$ Leverage $+\beta_9$ Free Cash Flow (FCF) $+\beta_{10}$ Liquidity $+\beta_{11}$ Stock price runup $+\beta_{12}$ CEO equity ownership $+\beta_{13}$ Block $+\beta_{14}$ High tech $+\beta_{15}$ Public target x all cash deal $+\beta_{16}$ Private target x all cash deal $+\beta_{17}$ Subsidiary target x all cash deal $+\beta_{18}$ Public target x all stock deal $+\beta_{19}$ Private target x all stock deal $+\beta_{20}$ Subsidiary target x all stock deal $+\beta_{21}$ Relative deal size + Year dummy $+\varepsilon$ (4)

For Hypothesis 4, I use the following equation:

Merger premium=β_0 +β_1 Diff +β_2 Log Market Size(MKTSIZE) +β_3 Log Entry Cost (ENTCOST) +β_4 Concentration ratio(CONC) +β_5 Dominant+ +β_6 Tobin's Q_A +β_7 $Leverage_A$ +β_8 Free Cash Flow (FCF) $_A$ +β_9 Liquidity $_A$+β_{10} Tobin's Q_T +β_{11} $Leverage_T$ +β_{12} Free Cash Flow (FCF) $_T$ +β_{13} Liquidity $_T$ +β_{14} relative firm $size_{A/T}$ +β_{15} Relative deal size +β_{16} Diversifying acquisition +β_{17} all cash deal +β_{18} all stock deal +Year dummy +ε (5)

For Hypothesis 5, I use above equation (5) and adding the interaction variables of PMC and dominant firm dummy variables.

Chapter 6

Empirical Results

The results for the test conducted in this dissertation are given from table 5 to table 17.

6.1 The Results for CAR Model

Table 5 provides the result for an OLS regression conducted on equation (3) in chapter 5. In column (1), I only consider the control variables and do not consider the three PMC variables. Consistent with previous studies, the coefficient of Log Total asset is -0.302 which is negative and significant at 1% level. This suggests that larger acquirers are more likely to pay higher premiums and make acquisitions that generate negative dollar synergies. Consistent with Moeller, Schlingemann, and Stulz (2004), the coefficient of Tobin's Q is -0.300 which is negative but is not significant. The coefficient of Leverage is -0.023 which is negative and significant at 5 % level. However the coefficient of free cash flow (FCF) and liquidity are -0.015 and 0.122, respectively. Both are not significant. The coefficient of liquidity is negative but not significant.

I also control two other governance mechanisms: CEO equity ownership and institutional ownership (BLOCK). The coefficient of CEO equity ownership is almost closed to zero and not significant. The coefficient of BLOCK is -0.009 which is negative and significant. This finding is contrast with that of Masulis et al., 2007. In their paper, both the coefficients of CEO equity ownership and institutional ownership (BLOCK) are not significant.

The coefficient of high tech is negative and significant. This supports Masulis et al. (2007) argument that acquirers in these high tech industries are more likely to underestimate the cost and overestimate the synergies generated by combination.

Following with Fuller et al. (2002), I control Target status and the method of payment. Our results show that acquirers experience significantly positive CAR when they buy subsidiary target Public target using all cash financing and buy private target using all stock financing. However they experience significantly negative CAR when they buy public target using all stock financing. Consistent with Moeller, Schlingemann, and Stulz (2004) finding, the coefficient of relative deal size is 1.634 which is positive and significant at 1% level. The coefficient of diversifying acquisition is -0.02 which is negative and not significant.

In column (2) and column (3), I use Herfindahl index and four-firm concentration ratio (CONC) to proxy for competition as previous studies used. The coefficient of Herfindahl index and four-firm concentration ratio (CONC) are 1.559 and 1.544, respectively. Both coefficients are significant at 1% level. Higher CONC means less competition and higher Herfindal index also means less competition. The result suggests that firms make good M&As when there is less competition. However our result is contrast with Masulis et al.,(2007) result. In column (4) the coefficient of Diff1 is -2.082 and significant at 5% level; the coefficient of MKTSIZE is -0.227 and significant at 5% level; the coefficient of ENTCOST is 0.165 and significant at 10% level; and the coefficient of CONC is 0.468 but not significant. The interpretations for column (4) would be that: (1) Firms make bad M&As when Diff is high. A high Diff means lower substitutability, that is, less competition; (2) Firms make good M&As when MKTSIZE is

large (less competition); (3) Firms make good M&As when ENTCOST is high (less competition).

In column (5), all three coefficients of product market competition (PMC) variables are not significant. The sign and figure of coefficients of control variables in column (2), column (3), column (4), and column (5) are similar with those in column (1).

Based the results of this table, I argue that CONC and Herfindhal index gives ambiguous measures of competition and thus not reliable (as argued by Karuna, 2007). So using Diff, MKTSIZE, ENTCOST are more reliable. But Diff and MKTSIZE and ENTCOST give conflicting result in column 4 of table 5. In subsequent statistical analyses, I will also consider removing CONC and only consider one of three PMC variables when I run the regressions.

<Insert Table 5 here>

Table 6 provides the result for an OLS regression conducted on equation (3) in chapter 5 but without CONC. In column (4) the coefficient of Diff1 is -2.240 and significant at 5% level; the coefficient of MKTSIZE is -0.269 and significant at 1% level; the coefficient of ENTCOST is 0.179 and significant at 10% level. In column (3) and column (5), the coefficient of Diff1 and Diff2 are both negative and significant. In column (1) and column (6), the coefficients of ENTCOST are -0.177 and -0.272, respectively. Both of them are significant at 1% level. The sign and figure of coefficients of other control variables in table 6 are similar with those in table 5. Table 6 provides the consistent results: (1) Firms make worse M&As when Diff is high. A high Diff means lower substitutability, that is, less competition; (2) Firms make worse M&As when MKTSIZE

is large (more competition); (3) Firms make better M&As when ENTCOST is high (less competition).

<Insert Table 6 here>

Table 7 shows the effect of being dominant firm on relation between product market competition and cumulative abnormal return. In column (1) the coefficient of Diff1 is -2.369 and significant at 5% level; the coefficient of MKTSIZE is -0.214 and significant at 5% level; the coefficient of ENTCOST is 0.188 and significant at 5% level. The coefficient of interaction between Diff and Dominant is 7.008 and significant at 5% level. This suggests that dominant firms make good M&As when Diff is high. A high Diff means lower substitutability, that is, less competition. The coefficient of Dominant is -6.418 and significant at 10% level. This suggests that dominant firms are more likely to make worse M&As. In column (2) none of the coefficients of three PMC variables and the interactions between three PMC variables and Dominant is significant. Again, the sign and figure of coefficients of other control variables in table 7 are similar with those in table 5.

<Insert Table 7 here>

Table 8 also shows the effect of being dominant firm on relation between product market competition and cumulative abnormal return without CONC and the interactions between three PMC variables and Dominant. The coefficients of Dominant in all columns are positive and significant when I do not consider the interactions between three PMC variables and Dominant. In column (4) the coefficient of Diff1 is -2.226 and significant at

5% level; the coefficient of MKTSIZE is -0.255 and significant at 1% level; the coefficient of ENTCOST is 0.193 and significant at 5% level. In column (3) and column (5), the coefficient of Diff1 and Diff2 are both negative and significant. The sign and figure of coefficients of other control variables in table 8 are similar with those in table 5.

<Insert Table 8 here>

Table 9 also shows the effect of being dominant firm on relation between product market competition and cumulative abnormal return without CONC but with the interactions between three PMC variables and Dominant. Table 9 shows that the coefficient of the interaction between MKTSIZE and Dominant is 0.060 and significant at 10% level, the coefficient of the interaction between ENTCOST and Dominant is 0.060 and significant at 1% level, and the coefficients of the interaction between Diff (both Diff1 and Diff2) and Dominant are 0.687 and 0.931, respectively, and both are significant at 1% level. Again, the sign and figure of coefficients of other control variables in table 9 are similar with those in table 5. These results suggest that (1) Dominant firms make better M&As when Diff is high. A high Diff means lower substitutability, that is, less competition; (2) Dominant firms make better M&As when MKTSIZE is large (more competition); (3) Firms make better M&As when ENTCOST is high (less competition).

<Insert Table 9 here>

To summarize the results above, I find that the four-firm concentration ratio (labeled CONC) and Herfindhal index gives ambiguous measures of competition and thus not

reliable (as argued by Karuna, 2007). So using Diff, MKTSIZE, ENTCOST are more reliable. For acquirers, I find that (1) Firms make worse M&As when Diff is high. A high Diff means lower substitutability, that is, less competition; (2) Firms make better M&As when MKTSIZE is large (more competition); (3) Firms make better M&As when ENTCOST is high (less competition). There is no clear relation between competition and CAR.

For dominant firms, I find that (1) Dominant firms make better M&As when Diff is high. A high Diff means lower substitutability, that is, less competition; (2) Dominant firms make better M&As when MKTSIZE is large (more competition); (3) Firms make better M&As when ENTCOST is high (less competition). There is no clear relation between competition and the reaction of Dominant firm through M&As.

6.2 Robustness Check for CAR Model

Table 10 provides the robustness check for relation between product market competition and cumulative abnormal return. Table 10 shows the results for the OLS regression conducted on equation (3) in chapter 5 and adding dominant firm dummy variable and the interaction variables of PMC and dominant firm dummy variables. However, for the dependent variable, I use the bidder's 5-day (-2, +2) cumulative abnormal returns instead of using the bidder's 2-day (0, +1) cumulative abnormal returns. In column (1) the coefficient of Diff1 is -2.746 and significant at 5% level; the coefficient of MKTSIZE is -0.223 and significant at 10% level; the coefficient of ENTCOST is 0.237 and significant at 5% level. In column (2) the coefficient of Diff1 is -2.760 and significant at 5% level; the coefficient of MKTSIZE is -0.227 and significant at 10%

level; the coefficient of ENTCOST is 0.266 and significant at 5% level. The sign and figure of coefficients of other control variables in table 10 are similar with those in table 5. Table 10 provides the consistent results that (1) Firms make worse M&As when Diff is high. A high Diff means lower substitutability, that is, less competition; (2) Firms make better M&As when MKTSIZE is large (more competition); (3) Firms make better M&As when ENTCOST is high (less competition).

<Insert Table 10 here>

6.3 The Results for Diversifying Acquisition Decision Model

Table 11 provides the result for the logit regression conducted on equation (4) in chapter 5. The dependent variable, diversifying acquisition, is a dummy variable which takes a value of 1 if bidder and target do not share the same SIC code at four-digit level, 0 otherwise. In column (1), I only consider the control variables and do not consider the three PMC variables. The coefficient of Dominant is 0.136 and significant at 10% level. This suggests that for Dominant firms, the probability of making diversifying M&As is higher. The coefficient of Tobin's Q is -0.011 and significant at 5% level. For acquirers with high Tobin's Q the probability of making diversifying M&As is lower. The coefficients of free Cash Flow (FCF) and Liquidity are positive and significant. This suggests that for firms with more financial resources, the probability of making diversifying M&As is higher. The coefficient of Relative deal size is -0.127 and significant at 1% level. This means that when the relative deal size is large, the probability of making diversifying M&As is lower. In column (2), using the CONC to proxy competition, I find that the coefficient of CONC is 2.158 and significant at 1%

level. This suggests that the probability of acquirer making diversifying M&As is higher when CONC is high(less competition). In column(3) and column(4),the significant negative coefficient on DOMINANT means the probability of making diversifying M&As is lower after controlling for the effect of competition. This suggests that PMC has a disciplinary effect on managerial behavior. In column (3) the coefficient of Diff1 is -1.507 and significant at 1% level; the coefficient of MKTSIZE is -0.205 and significant at 1% level; the coefficient of ENTCOST is 0.086 and significant at 1% level. The result suggests that (1) the probability of acquirer making diversifying M&As is lower when Diff is high. A high Diff means lower substitutability, that is, less competition; (2) the probability of acquirer making diversifying M&As is lower when MKTSIZE is large (more competition); (3) the probability of acquirer making diversifying M&As is higher when ENTCOST is high (less competition). In addition, most coefficients of High tech are positive and significant. This suggests that for the acquirers in high tech industries, the probability of acquirer making diversifying M&As is higher. Most coefficients of Log Total assets are positive and significant. This suggests that for the acquirers having larger firm size, the probability of acquirer making diversifying M&As is higher.

<Insert Table 11 here>

As I argue that the four-firm concentration ratio (labeled CONC) and Herfindhal index gives ambiguous measures of competition and thus not reliable, Table 12 provides the result for the logit regression conducted on equation (4) in chapter 5 without CONC. In column (4) the coefficient of Diff1 is -1.942 and significant at 1% level; the coefficient of MKTSIZE is -0.314 and significant at 1% level; the coefficient of ENTCOST is 0.122

and significant at 1% level. The sign and figure of coefficients of other control variables in table 12 are similar with those in table 11.

<Insert Table 12 here>

For three PMC variables, both results of table 11 and table 12 suggest that (1) the probability of acquirer making diversifying M&As is lower when DIFF is high. A high DIFF means lower substitutability, that is, less competition; (2) the probability of acquirer making diversifying M&As is lower when MKTSIZE is large (more competition); (3) the probability of acquirer making diversifying M&As is higher when is high (less competition). Again, there is no clear relation between competition and the bidder's choice of diversifying acquisition vs. non- diversifying acquisition

6.4 The Results for Merger Premium Model

Table 13 provides the result for the OLS regression conducted on equation (5) in chapter 5 without the interactions between three PMC variables and Dominant. None of the coefficients of three PMC variables is significant. The coefficients of bidders' Tobin's Q are positive and significant. This suggests that firms with larger value of Tobin's Q are more likely to pay more premiums. Lakonishok et al. (1994) suggest that glamour firms usually experience high past growth in cash flows and earnings, which could cause manager overconfidence. Dong et al. (2006) argue that firms with high market-to-book ratios are more likely to be overvalued. The result is also consistent with the information asymmetry hypothesis that glamour firm managers have more information and thus wish to convert these into real assets through M&As. However, the

coefficients of targets' Tobin's Q are negative and significant. This indicates that for glamour targets, acquirers would pay fewer premiums. The coefficients of targets' Leverage are positive and significant, which suggests that for targets with high leverage ratio, acquirers would pay more premiums. The coefficients of Diversifying acquisition are negative and significant. This means that when making diversifying acquisitions deals, acquirers would pay fewer premiums.

<Insert Table 13 here>

Table 14 provides the result for the OLS regression conducted on equation (5) in chapter 5 with the interactions between three PMC variables and Dominant. In column (6) the coefficient of Diff2 is 30.97 and significant at 1% level; the coefficient of MKTSIZE is -2.73 and significant at 5% level; the coefficient of ENTCOST is 4.799 and significant at 1% level. The coefficient of the interaction between MKTSIZE and Dominant is 6.819 and significant at 10% level, the coefficient of the interaction between ENTCOST and Dominant is -18.894 and significant at 1% level, and the coefficients of the interaction between Diff (Diff2) and Dominant are -143.371 and significant at 1% level. The sign and figure of coefficients of other control variables in table 14 are similar with those in table 13.

For acquirers, the results of column (6) generally show that greater product substitutability, greater market size and lower entry costs are associated with smaller premium, suggesting that competition is negatively related to merger premium. This supports hypothesis H4a that Acquiring firms in more competitive industries are less likely to overpay the acquisition premium for mergers and acquisitions.

However, for dominant firms, the results of column (6) generally show that the greater product substitutability, greater market size and lower entry costs are associated with greater premium, suggesting that competition is positively related to merger premium. This supports hypothesis H5b that Dominant acquiring firms (acquirers with more agency problems) in more competitive industries are more likely to overpay the acquisition premium for mergers and acquisitions.

<Insert Table 14 here>

Table 15 provides the result for the OLS regression conducted on equation (5) in chapter 5 without CONC and the interactions between three PMC variables and Dominant. None of the coefficients of three PMC variables is significant. The sign and figure of coefficients of other control variables in table 15 are similar with those in table 13.

<Insert Table 15 here>

Table 16 provides the result for the OLS regression conducted on equation (5) in chapter 5 without CONC but with the interactions between three PMC variables and Dominant. In column (6) the coefficient of Diff2 is 31.059 and significant at 1% level; the coefficient of MKTSIZE is -2.76 and significant at 1% level; the coefficient of ENTCOST is 4.813 and significant at 1% level. The coefficient of the interaction between MKTSIZE and Dominant is 6.818 and significant at 10% level, the coefficient of the interaction between ENTCOST and Dominant is -18.893 and significant at 1% level, and the coefficients of the interaction between Diff (Diff2) and Dominant are

-143.511 and significant at 1% level. The sign and figure of coefficients of other control variables in table 16 are similar with those in table 14. Table 15 and table 16 provide consistent result for table 13 and table 14, respectively.

<Insert Table 16 here>

Table 17 provides the result for the OLS regression conducted on equation (5) in chapter 5 without CONC but with the interactions between three PMC variables and Dominant and the acquirer's CEO equity ownership. I want to investigate the effect of insider ownership on the merger premiums. In column (2) the coefficient of Diff2 is 31.057 and significant at 1% level; the coefficient of MKTSIZE is -2.758 and significant at 1% level; the coefficient of ENTCOST is 4.804 and significant at 1% level. The coefficient of the interaction between MKTSIZE and Dominant is 6.827 and significant at 10% level, the coefficient of the interaction between ENTCOST and Dominant is -18.894 and significant at 1% level, and the coefficients of the interaction between Diff (Diff2) and Dominant are -143.33 and significant at 1% level. The sign and figure of coefficients of other control variables in table 17 are similar with those in table 14. These results are similar with those in table 14 and table 16. However, the coefficient of acquirer's CEO equity ownership is negative and not significant. This means that acquirer's CEO equity ownership has no impact on merger premiums.

<Insert Table 17 here>

Chapter 7

Conclusion

Conventional models assume competition improves corporate efficiency as firms strive to outperform competitors. In the context of agency models, the link between competition and managerial behavior becomes fuzzy. Hart (1983) and Schmidt (1997) posit that competition reduces managerial slack. Scharfstein (1988) argues that competition might increase managerial shirking. Recent studies on the relation between managerial compensation and competition further document conflicting evidence. In this study, I examine the effects of product market competition on M&A empirically and deduce from the results how managers have behaved. The four investigations that I will conduct in this study include

a) How do investors react to M&A announcements?

b) What is the size of the premium paid?

c) Do firms engage in diversifying M&A when facing competition?

d) How do dominant firms behave in M&A?

My initial results suggest that the definition of competition is critical in evaluating corporate mergers and acquisitions. Consistent with Karuna(2007), I find that the four-firm concentration ratio (labeled CONC) and Herfindhal index gives ambiguous measures of competition and thus not reliable.

Using three new dimensions (product substitutability, market density, and entry cost) to measure competition, I find the manager's M&A decisions could have different implications across the three dimensions. I find that (1) Firms make worse M&As when DIFF is high. A high DIFF means lower substitutability, that is, less competition; (2)

Firms make better M&As when MKTSIZE is large (more competition); (3) Firms make better M&As when ENTCOST is high (less competition). Hence, there is no clear relation between competition and CAR.

For dominant firms, I find that (1) Dominant firms make better M&As when DIFF is high. A high DIFF means lower substitutability, that is, less competition; (2) Dominant firms make better M&As when MKTSIZE is large (more competition); (3) Firms make better M&As when ENTCOST is high (less competition). There is no clear relation between competition and the reaction of Dominant firm through M&As.

For the issue of the manager's propensity to diversify the firm when facing competition, my results suggest that there is no clear relation between competition and the bidder's choice of diversifying acquisition vs. non- diversifying acquisition

Regarding acquisition premium, my results consistently show a negative relation between competition and the size of the premium. The results indicate that greater product substitutability, greater market size and lower entry costs are associated with smaller premium, suggesting that competition is negatively related to merger premium. This supports hypothesis H4a that acquiring firms in more competitive industries are less likely to overpay the acquisition premium for mergers and acquisitions.

However, for dominant firms, the results indicate that the greater product substitutability, greater market size and lower entry costs are associated with greater premium, suggesting that competition is positively related to merger premium. This supports hypothesis H5b that dominant acquiring firms (acquirers with more agency problems) in more competitive industries are more likely to overpay the acquisition premium for mergers and acquisitions. This study contributes to the literature on mergers

and acquisitions by using new proxies for competition to examine the relation between CAR and competition, and the relation between merger premium and competition. In addition, this study also considers the effect of insider ownership.

There are two limitations to this dissertation. First, I rely on Standard and Poor's primary industrial segment classification on WRDS to assign firms to industries. The primary industry could change during the sample period in this dissertation. Second, the use of price-cost margin variable assumes there is a one-to-one correspondence between four-digit sic codes and product markets. However, this correspondence is not perfect, as some industries may include several products that are not themselves close substitutes for each other.

Future extension to this dissertation is to include other governance Mechanisms such as GIM index, BCF index, CEO equity-based pay, CEO/chairman duality, and board characteristics (board size and independent board).

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Table1
Sample Distribution by Announcement Year

Panel A provides the distribution of cumulative abnormal return sample. The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. Panel B provides the distribution of merger premium sample. The sample consists of 750 completed U.S. merger and acquisitions (listed in SDC) between 1987 and 2006 made by public U.S. firms. Variable definitions are in the table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation.

Panel A: Cumulative abnormal return sample

Year	Number of Acquisitions	Mean Acquirer Market Value of Equity ($mil) (Median)	Mean Deal Value($mil) (Median)	Mean Relative Size (Median)
1986	1	72	123	1.71
		(72)	(123)	(1.71)
1987	8	4920	89	0.08
		(770)	(55)	(0.07)
1988	2	545	23	0.05
		(545)	(23)	(0.05)
1989	3	12493	805	0.37
		(251)	(223)	(0.06)
1990	16	9970	306	0.07
		(1681)	(108)	(0.06)
1991	45	3405	163	0.21
		(798)	(40)	(0.05)
1992	65	2464	99	0.11
		(718)	(27)	(0.06)
1993	92	1423	111	0.12
		(577)	(24)	(0.06)
1994	131	2960	201	0.18
		(678)	(38)	(0.07)
1995	240	2080	172	0.21
		(471)	(36)	(0.07)
1996	331	4201	419	0.22
		(653)	(42)	(0.06)
1997	493	3609	215	0.19
		(545)	(36)	(0.08)

(continued)

Table 1-Continued

Panel A: Cumulative abnormal return sample-continued

Year	Number of Acquisitions	Mean Acquirer Market Value of Equity ($mil) (Median)	Mean Deal Value($mil) (Median)	Mean Relative Size (Median)
1998	520	5889	526	0.19
		(665)	(45)	(0.08)
1999	479	22220	983	0.22
		(1158)	(72)	(0.06)
2000	438	23444	1030	0.22
		(1632)	(65)	(0.05)
2001	347	14115	585	0.18
		(1337)	(52)	(0.06)
2002	338	9497	358	0.16
		(1085)	(47)	(0.04)
2003	360	5552	210	0.19
		(746)	(57)	(0.08)
2004	433	8321	414	0.21
		(1018)	(53)	(0.06)
2005	451	9822	729	0.18
		(1111)	(58)	(0.06)
2006	472	9976	607	0.16
		(1204)	(60)	(0.05)
Total	5265	9793	519	0.19
		(901)	(50)	(0.06)

Table 1-Continued

Panel B: Merger premium sample

Year	Number of Acquisitions	Premium(%) (Median)	Cash	Stock	Mixed
1986	0	0(0)	0	0	0
1987	2	33(33)	1	1	0
1988	1	115(115)	0	1	0
1989	0	0(0)	0	0	0
1990	4	66(56)	3	1	0
1991	3	69(88)	1	2	0
1992	2	42(42)	1	0	1
1993	11	44(36)	5	3	3
1994	11	63(46)	0	9	2
1995	37	41(39)	3	28	6
1996	50	42(34)	5	36	9
1997	65	42(36)	8	40	17
1998	82	54(48)	11	51	20
1999	98	51(47)	17	54	27
2000	57	51(39)	12	27	18
2001	70	43(44)	15	29	26
2002	31	49(41)	12	11	8
2003	44	45(32)	12	19	13
2004	52	30(27)	21	17	14
2005	70	38(29)	33	18	19
2006	60	36(33)	42	10	8
Total	750	45(37)	202	357	191

Table 2
Sample Distribution by Payment and Target Status

Panel A provides the distribution of cumulative abnormal return sample. The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. Panel B provides the distribution of merger premium sample. The sample consists of 750completed U.S. merger and acquisitions (listed in SDC) between 1987 and 2006 made by public U.S. firms. Variable definitions are in the table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively.

Panel A: Cumulative abnormal return

		Whole Sample	All Cash	Mixed	All Stock	Public Target	Private Target	Subsidiary Target
CAR (0,+1)	Mean	0.717[a]	0.997[a]	0.961[a]	-0.083	-2.014[a]	1.214[a]	1.568[a]
	Median	0.253[a]	0.443[a]	0.256[a]	-0.291	-1.269[a]	0.551[a]	0.559[a]
Number of obs.		5265	2836	1098	1331	984	2711	1570

Panel B: Merger premium sample

		Whole Sample	All Cash	Mixed	All Stock	Public Target	Private Target	Subsidiary Target
Premium (%)	Mean	45[a]	45[a]	42[a]	46[a]	45[a]	0	46[a]
	Median	37[a]	37[a]	35[a]	39[a]	37[a]	0	46[a]
Number of obs.		750	202	191	357	748	0	2

Table 3
Summary Statistics

Panel A provides the summary statistics of cumulative abnormal return sample. The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. Panel B provides the summary statistics of merger premium sample. The sample consists of 1286 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. Variable definitions are in the table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation.

Panel A: Cumulative abnormal return sample

Variable	Mean	Median	25th Percentile	75th Percentile	St. Dev.
CAR (Dependent Variable):					
CAR (0,+1)	0.717	0.253	-2.393	3.286	7.425
Product Market Competition:					
Extent of product Substitutability (Diff1-diff2)					
Diff1	1.161	1.132	1.086	1.230	0.116
Diff2	0.953	0.962	0.882	1.041	0.159
Market Size($mil)	67646.680	26461.923	7069.683	94379.929	102647.795
Log Market Size(MKTSIZE)	10.008	10.183	8.864	11.455	1.806
Entry Cost ($mil)	12194.242	3945.931	1132.137	12646.876	20450.566
Log Entry Cost (ENTCOST)	8.199	8.280	7.032	9.445	1.776
Concentration ratio(CONC)	0.669	0.668	0.473	0.855	0.219
Bidder Characteristics:					
Total assets($mil)	3813.060	539.138	159.479	2200.337	11059.763
Log Total assets	6.438	6.290	5.072	7.696	1.884
Market value of equity ($mil)	9793.158	900.912	274.804	3393.810	38150.038
Tobin's Q	3.007	2.004	1.423	3.136	3.832
Leverage	0.847	0.206	0.002	0.655	7.181
Free Cash Flow (FCF)	0.024	0.048	0.005	0.087	0.141
Liquidity	0.284	0.255	0.104	0.436	0.227
Stock price runup	8.874	2.327	-12.843	20.655	47.543

(continued)

Table 3-Continued

Panel A: Cumulative abnormal return sample-continued

Variable	Mean	Median	25th Percentile	75th Percentile	St. Dev.
CEO equity ownership	6.214	1.003	0.192	4.782	23.484
Block	54.349	55.780	34.746	73.338	27.525
Dominant (dummy)	0.070	0.000	0.000	0.000	0.256
Deal Characteristics:					
Public (dummy)	0.187	0.000	0.000	0.000	0.390
Private (dummy)	0.515	1.000	0.000	1.000	0.500
Subsidiary (dummy)	0.298	0.000	0.000	1.000	0.458
All Cash (dummy)	0.539	1.000	0.000	1.000	0.499
Mixed (dummy)	0.209	0.000	0.000	0.000	0.406
All Stock (dummy)	0.253	0.000	0.000	1.000	0.435
Diversifying acquisition (dummy)	0.650	1.000	0.000	1.000	0.477
High tech (dummy)	0.349	0.000	0.000	1.000	0.477
Relative deal size	0.192	0.063	0.020	0.184	0.401

Table 3-Continued

Panel B: Merger premium sample

Variable	Mean	Median	25th Percentile	75th Percentile	St. Dev.
Premium (%) (Dependent Variable):					
Premium (%)	44.726	37.259	20.456	62.130	39.361
Product Market Competition:					
Extent of product substitutability (DIFF1~DIFF2)					
Diff1	1.176	1.157	1.095	1.242	0.115
Diff2	0.938	0.962	0.860	1.038	0.168
Market Size($mil)	91461.038	33310.702	12569.209	121663.274	131570.344
Log Market Size(MKTSIZE)	10.370	10.414	9.439	11.709	1.785
Entry Cost ($mil)	15164.164	5618.576	1683.873	16812.608	23241.205
Log Entry Cost (ENTCOST)	8.530	8.634	7.429	9.730	1.680
Bidder Characteristics:					
Dominant	0.097	0.000	0.000	0.000	0.297
Tobin's Q_A	3.059	2.116	1.479	3.130	3.868
$Leverage_A$	1.164	0.323	0.026	0.092	12.630
Free Cash Flow (FCF)$_A$	0.033	0.051	0.010	0.092	0.121
$Liquidity_A$	0.231	0.197	0.057	0.361	0.216
Target Characteristics:					
Tobin's Q_T	2.440	1.642	1.225	2.669	2.468
$Leverage_T$	1.416	0.129	0.000	0.741	18.215
Free Cash Flow (FCF)$_T$	-0.037	0.021	-0.055	0.063	0.220
$Liquidity_T$	0.315	0.305	0.098	0.517	0.253

(continued)

Table 3-Continued

Panel B: Merger premium sample -continued

Variable	Mean	Median	25th Percentile	75th Percentile	St. Dev.
Deal Characteristics:					
Public (dummy)	0.997	1.000	1.000	1.000	0.052
Private (dummy)	0.000	0.000	0.000	0.000	0.000
Subsidiary (dummy)	0.003	0.000	0.000	0.000	0.052
All Cash (dummy)	0.269	0.000	0.000	1.000	0.444
Mixed (dummy)	0.255	0.000	0.000	1.000	0.436
All Stock (dummy)	0.476	0.000	0.000	1.000	0.500
Diversifying acquisition (dummy)	0.593	1.000	0.000	1.000	0.492
Relative firm $size_{A/T}$	1.508	1.345	1.135	1.686	0.611
Relative deal size	0.385	0.178	0.045	0.517	0.521

Table 4 The definitions of variables

Variable	Method of calculation
Panel A:Cumulative Abnormal Return and Merger Premium	
CAR(0,+1)	Two-day cumulative abnormal return (in percentage) calculated by using the market model. The market model parameters are estimated over period (-275,-20) with the CRSP equally-weighted return as market index.
Premium (%)	The merger premium which is defined as four-week pre-announcement premium. It equals the difference between the initial bid price and the target price four weeks prior to the announcement divided by the same target price four weeks prior to the announcement
Panel B :Product market competition	
Extent of product substitutability in industry (Diff1-Diff2) (at four-digit SIC code level) Opcost1=sum of data41, data189, data14 and data174 Opcost2=sum of data41, data189,and data196	it is equal to sales/operating costs, for each industrial segment; operating costs include cost of goods sold, selling, general, and administrative expense, and depreciation, depletion, and amortization
Level of market size in industry (at four-digit SIC code level)	Natural log of industry sales (industry sales is computed as the sum of segment sales for firms operating in the industry)
Level of entry costs in industry (at four-digit SIC code level)	Level of entry costs in industry is equal to natural log of weighted average of gross value of cost of property, plant and equipment for firms in industry, weighted by each firm's market share in industry
Four-firm concentration ratio in industry (at four-digit SIC code level)	Proportion of sales in the industry accounted for by the four largest firms (by sales) in the industry (industry sales is as computed in MKTSIZE above)

Table 4- Continued

Panel C:Firm Characteristics	
Variable	Method of calculation
Dominant firm	Dummy variable: 1 for the firm having the largest market share at time t in a four-digit SIC industry, 0 otherwise.
Firm size (Log Total assets)	Log of book value of total assets (item6).
Tobin's *q*	Market value of assets over book value of assets: (item6−item60 + item25 ∗ item199)/item6.
Market value of equity	Number of shares outstanding multiplied by Calendar year end close price
Leverage	the ratio of debt to equity (COMPUSTAT items 9/60)
Free cash flow	Operating income before depreciation (item13) – interest expenses (item15) – income taxes (item16) – capital expenditures (item128), scaled by book value of total assets (item6).
Liquidity	The net liquidity to total assets(item(4-5)/6) (Gaspar et al., 2005)
Stock price runup	Bidder's buy-and-hold abnormal return (BHAR) during the period (−130, −31). The market index is the CRSP value-weighted return.
CEO equity ownership	TOP 5 executives' percentage ownership of the firm
BLOCK	Fraction of bidder's common stock held by bidder's institutional blockholder
Panel D: Deal Characteristics	
Public target	Dummy variable: 1 for Public targets, 0 otherwise.
Private target	Dummy variable: 1 for Private targets, 0 otherwise.
Subsidiary target	Dummy variable: 1 for Subsidiary targets, 0 otherwise.
All cash	Dummy variable: 1 for deals all cash-financed, 0 otherwise.
All stock	Dummy variable: 1 for deals all stock-financed, 0 otherwise.
Mixed	Dummy variable: 1 for deals mixed-financed, 0 otherwise.
Diversifying acquisition	Dummy variable: 1 if bidder and target do not share the same four-digit SIC code, 0 otherwise.
High tech	Dummy variable: 1 if bidders are from high tech industries defined by Loughran and Ritter(2004), 0 otherwise.
Relative deal size	Deal value (from SDC) over bidder market value of equity defined above.

Table 5
The Relation between Product Market Competition and Cumulative Abnormal Return

The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the bidder's 2-day (0,+1) cumulate abnormal return in percentage points.Variable definitions are in the table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)) . [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

				Diff1	Diff2
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Product Market Competition:					
Diff				-2.082[b]	-1.198
				(-2.100)	(-1.502)
Log Market Size(MKTSIZE)				-0.227[b]	-0.170
				(-2.238)	(-1.560)
Log Entry Cost (ENTCOST)				0.165[c]	0.078
				(1.930)	(0.766)
Concentration ratio(CONC)			1.544[a]	0.468	0.971
			(3.305)	(0.728)	(1.553)
Herfindahl index		1.559[a]			
		(3.359)			
Bidder Characteristics:					
Log Total assets	-0.302[a]	-0.289[a]	-0.284[a]	-0.281[a]	-0.286[a]
	(-3.995)	(-3.789)	(-3.715)	(-3.595)	(-3.667)
Tobin's Q	-0.030	-0.026	-0.024	-0.023	-0.023
	(-0.719)	(-0.628)	(-0.573)	(-0.555)	(-0.556)
Leverage	-0.023[b]	-0.024[b]	-0.024[b]	-0.025[b]	-0.025[b]
	(-2.215)	(-2.231)	(-2.303)	(-2.368)	(-2.374)
Free Cash Flow (FCF)	-0.015	-0.269	-0.356	-0.242	-0.237
	(-0.014)	(-0.262)	(-0.346)	(-0.234)	(-0.229)
Liquidity	0.122	0.117	0.095	0.147	0.218
	(0.179)	(0.173)	(0.140)	(0.214)	(0.319)

(continued)

Table 5-Continued

Variable	(1)	(2)	(3)	Diff1 (4)	Diff2 (5)
Stock price runup	-0.004	-0.004	-0.004	-0.004	-0.004
	(-1.159)	(-1.170)	(-1.213)	(-1.214)	(-1.253)
CEO equity ownership	0.000	0.000	0.001	0.000	0.001
	(0.136)	(0.153)	(0.183)	(0.130)	(0.207)
Block	-0.009[c]	-0.009[b]	-0.009[b]	-0.009[b]	-0.008[c]
	(-1.922)	(-1.977)	(-2.040)	(-1.887)	(-1.870)
Deal Characteristics:					
High tech	-0.598[a]	-0.387	-0.386	-0.307	-0.229
	(-2.516)	(-1.565)	(-1.578)	(-1.248)	(-0.899)
Public target x all cash deal	0.132	0.115	0.085	0.135	0.131
	(0.326)	(0.284)	(0.209)	(0.332)	(0.321)
Private target x all cash deal	0.314	0.281	0.284	0.276	0.282
	(0.957)	(0.859)	(0.867)	(0.841)	(0.860)
Subsidiary target x all cash deal	0.948[a]	0.940[a]	0.925[a]	0.887[a]	0.897[a]
	(2.964)	(2.945)	(2.894)	(2.774)	(2.811)
Public target x all stock deal	-3.368[a]	-3.375[a]	-3.366[a]	-3.317[a]	-3.337[a]
	(-6.988)	(-7.010)	(-6.994)	(-6.917)	(-6.955)
Private target x all stock deal	1.065[b]	1.036[b]	1.038[b]	1.080[b]	1.071[b]
	(2.360)	(2.299)	(2.305)	(2.398)	(2.376)
Subsidiary target x all stock deal	0.234	0.146	0.145	0.122	0.123
	(0.248)	(0.155)	(0.153)	(0.129)	(0.131)
Relative deal size	1.634[a]	1.645[a]	1.637[a]	1.608[a]	1.609[a]
	(3.027)	(3.060)	(3.049)	(2.994)	(2.991)
Diversifying acquisition	-0.020	-0.121	-0.153	-0.225	-0.200
	(-0.095)	(-0.568)	(-0.716)	(-1.046)	(-0.931)
Intercept	10.466[a]	10.302[a]	9.838[a]	13.536[a]	12.325[a]
	(8.169)	(8.029)	(7.546)	(6.506)	(6.879)
Adjusted-R^2	4.1%	4.2%	4.2%	4.4%	4.3%
F-statistic	7.065	7.131	7.140	6.863	6.795
P-value	0.000	0.000	0.000	0.000	0.000
Number of obs.	5265	5265	5265	5265	5265

Table 6
The Relation between Product Market Competition and Cumulative Abnormal Return (without CONC)

The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the bidder's 2-day (0,+1) cumulate abnormal return in percentage points.Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)) . [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

			Diff1		Diff2	
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Product Market Competition:						
Diff			-2.778[a]	-2.240[b]	-1.318[b]	-0.998
			(-2.938)	(-2.374)	(-1.990)	(-1.282)
Log Market Size(MKTSIZE)	-0.177[a]			-0.269[a]		-0.272[a]
	(-2.941)			(-3.288)		(-3.152)
Log Entry Cost (ENTCOST)		-0.024		0.179[b]		0.121
		(-0.394)		(2.126)		(1.225)
Bidder Characteristics:						
Log Total assets	-0.257[a]	-0.297[a]	-0.306[a]	-0.280[a]	-0.324	-0.278[a]
	(-3.266)	(-3.841)	(-4.054)	(-3.569)	(-4.302)	(-3.563)
Tobin's Q	-0.027	-0.029	-0.025	-0.024	-0.029	-0.026
	(-0.641)	(-0.710)	(-0.605)	(-0.580)	(-0.689)	(-0.625)
Leverage	-0.024[b]	-0.023[b]	-0.023[b]	-0.025[b]	-0.023[b]	-0.025[b]
	(-2.286)	(-2.216)	(-2.272)	(-2.363)	(-2.256)	(-2.353)
Free Cash Flow (FCF)	-0.263	-0.050	-0.076	-0.182	0.113	-0.123
	(-0.254)	(-0.048)	(-0.075)	(-0.176)	(0.110)	(-0.119)
Liquidity	0.137	0.111	0.040	0.160	0.191	0.253
	(0.202)	(0.163)	(0.058)	(0.234)	(0.280)	(0.370)
Stock price runup	-0.004	-0.004	-0.003	-0.004	-0.004	-0.004
	(-1.153)	(-1.148)	(-1.110)	(-1.200)	(-1.188)	(-1.232)
CEO equity ownership	0.000	0.000	0.000	0.000	0.001	0.001
	(0.073)	(0.119)	(0.056)	(0.106)	(0.185)	(0.165)

(continued)

Table 6-Continued

			Diff1		Diff2	
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Block	-0.009[b]	-0.009[c]	-0.008[c]	-0.008[c]	-0.008[c]	-0.008[c]
	(-2.064)	(-1.946)	(-1.876)	(-1.873)	(-1.740)	(-1.850)
Deal Characteristics:						
High tech	-0.388	-0.587[b]	-0.553[b]	-0.325	-0.520[b]	-0.273
	(-1.588)	(-2.465)	(-2.305)	(-1.320)	(-2.134)	(-1.081)
Public target x all cash deal	0.098	0.125	0.148	0.146	0.174	0.147
	(0.243)	(0.307)	(0.365)	(0.359)	(0.426)	(0.362)
Private target x all cash deal	0.281	0.310	0.295	0.278	0.320	0.288
	(0.855)	(0.942)	(0.898)	(0.848)	(0.974)	(0.877)
Subsidiary target x all cash deal	0.936[a]	0.950[a]	0.911[a]	0.889[a]	0.926[a]	0.906[a]
	(2.926)	(2.971)	(2.837)	(2.777)	(2.897)	(2.836)
Public target x all stock deal	-3.359[a]	-3.368[a]	-3.312[a]	-3.312[a]	-3.342[a]	-3.337[a]
	(-6.980)	(-6.986)	(-6.893)	(-6.909)	(-6.947)	(-6.954)
Private target x all stock deal	1.062[b]	1.062[b]	1.071[b]	1.090[b]	1.082[b]	1.090[b]
	(2.353)	(2.351)	(2.374)	(2.413)	(2.397)	(2.413)
Subsidiary target x all stock deal	0.198	0.238	0.212	0.138	0.224	0.155
	(0.209)	(0.251)	(0.225)	(0.146)	(0.237)	(0.163)
Relative deal size	1.644[a]	1.637[a]	1.614[a]	1.606[a]	1.606[a]	1.610[a]
	(3.056)	(3.032)	(2.990)	(2.990)	(2.966)	(2.990)
Diversifying acquisition	-0.128	-0.026	-0.113	-0.213	-0.035	-0.166
	(-0.599)	(-0.125)	(-0.536)	(-0.987)	(-0.166)	(-0.771)
Intercept	12.157	10.646[a]	13.573[a]	14.209[a]	11.806[a]	13.175[a]
	(8.772)	(7.804)	(7.970)	(8.171)	(8.138)	(7.764)
Adjusted-R^2	4.2%	4.1%	4.2%	4.4%	4.1%	4.3%
F-statistic	7.099	6.882	7.140	7.023	6.982	6.909
P-value	0.000	0.000	0.000	0.000	0.000	0.000
Number of obs.	5265	5265	5265	5265	5265	5265

Table 7
The Effect of being Dominant firm on the Relation between Product Market Competition and Cumulative Abnormal Return

The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the bidder's 2-day (0,+1) cumulate abnormal return in percentage points.Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)) . [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

	Diff1	Diff2
Variable	**(1)**	**(2)**
Product Market Competition:		
Diff	-2.369[b]	-1.229
	(-2.312)	(-1.498)
Log Market Size(MKTSIZE)	-0.214[b]	-0.168
	(-2.079)	(-1.504)
Log Entry Cost (ENTCOST)	0.188[b]	0.102
	(2.107)	(0.950)
Concentration ratio(CONC)	0.388	0.874
	(0.595)	(1.379)
Diff2 x Dominant	7.008[b]	1.694
	(2.378)	(0.537)
Log Market Size(MKTSIZE) x Dominant	0.130	0.043
	(0.529)	(0.175)
Log Entry Cost (ENTCOST) x Dominant	-0.289	-0.101
	(-1.199)	(-0.370)
Bidder Characteristics:		
Dominant	-6.418[c]	-0.704
	(-1.654)	(-0.177)
Log Total assets	-0.305[a]	-0.307[a]
	(-3.723)	(-3.756)
Tobin's Q	-0.025	-0.024
	(-0.598)	(-0.577)
Leverage	-0.025[a]	-0.025[b]
	(-2.358)	(-2.364)
Free Cash Flow (FCF)	-0.249	-0.211
	(-0.240)	(-0.203)

(continued)

Table 7-Continued

	Diff1	Diff2
Variable	**(1)**	**(2)**
Liquidity	0.112	0.203
	(0.163)	(0.298)
Stock price runup	-0.004	-0.004
	(-1.214)	(-1.263)
CEO equity ownership	0.000	0.001
	(0.133)	(0.229)
Block	-0.008[c]	-0.008[c]
	(-1.864)	(-1.863)
Deal Characteristics:		
High tech	-0.291	-0.211
	(-1.180)	(-0.825)
Public target x all cash deal	0.139	0.139
	(0.343)	(0.342)
Private target x all cash deal	0.266	0.278
	(0.811)	(0.847)
Subsidiary target x all cash deal	0.892[a]	0.899[a]
	(2.790)	(2.809)
Public target x all stock deal	-3.316[a]	-3.348[a]
	(-6.915)	(-6.975)
Private target x all stock deal	1.092[b]	1.077[b]
	(2.424)	(2.387)
Subsidiary target x all stock deal	0.138	0.132
	(0.146)	(0.139)
Relative deal size	1.619[a]	1.618[a]
	(3.017)	(3.008)
Diversifying acquisition	-0.217	-0.190
	(-1.009)	(-0.888)
Intercept	13.658[a]	12.262
	(6.483)	(6.720)
Adjusted-R	4.3%	4.3%
F-statistic	6.359	6.245
P-value	0.000	0.000
Number of obs.	5265	5265

Table 8
The Effect of being Dominant firm on the Relation between Product Market Competition and Cumulative Abnormal Return (without CONC)

The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the bidder's 2-day (0,+1) cumulate abnormal return in percentage points.Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)) . [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Product Market Competition:				
Diff			-2.680[a]	-2.226[b]
			(-2.831	(-2.360)
Log Market Size(MKTSIZE)	-0.156[a]			-0.255[a]
	(-2.523)			(-3.102)
Log Entry Cost (ENTCOST)		0.006		0.193[b]
		(0.097)		(2.284)
Diff x Dominant				
Log Market Size(MKTSIZE) x Dominant				
Log Entry Cost (ENTCOST) x Dominant				
Bidder Characteristics:				
Dominant	0.553[c]	0.813[a]	0.731[b]	0.651[b]
	(1.791)	(2.625)	(2.415)	(2.093)
Log Total assets	-0.278[a]	-0.327[a]	-0.327[a]	-0.305[a]
	(-3.434)	(-4.130)	(-4.258)	(-3.784)
Tobin's Q	-0.027	-0.030	-0.025	-0.024
	(-0.642)	(-0.712)	(-0.599)	(-0.584)
Leverage	-0.024[b]	-0.023[b]	-0.023[b]	-0.025[b]
	(-2.272)	(-2.207)	(-2.263)	(-2.349)
Free Cash Flow (FCF)	-0.252	-0.034	-0.099	-0.163
	(-0.244)	(-0.033)	(-0.097)	(-0.158)

(continued)

Table 8-Continued

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Liquidity	0.115	0.096	0.016	0.142
	(0.170)	(0.140)	(0.024)	(0.208)
Stock price runup	-0.004	-0.004	-0.003	-0.004
	(-1.163)	(-1.176)	(-1.124)	(-1.218)
CEO equity ownership	0.000	0.000	0.000	0.000
	(0.083)	(0.144)	(0.062)	(0.125)
Block	-0.009[b]	-0.009[c]	-0.008[c]	-0.008[c]
	(-2.054)	(-1.917)	(-1.885)	(-1.851)
Deal Characteristics:				
High tech	-0.379	-0.551[b]	-0.509[b]	-0.308
	(-1.547)	(-2.297)	(-2.108)	(-1.249)
Public target x all cash deal	0.095	0.124	0.139	0.145
	(0.237)	(0.306)	(0.343)	(0.358)
Private target x all cash deal	0.279	0.306	0.287	0.276
	(0.849)	(0.931)	(0.876)	(0.842)
Subsidiary target x all cash deal	0.934[a]	0.943[a]	0.907[a]	0.884[a]
	(2.920)	(2.951)	(2.827)	(2.766)
Public target x all stock deal	-3.375[a]	-3.389[a]	-3.333[a]	-3.330[a]
	(-7.013)	(-7.036)	(-6.936)	(-6.949)
Private target x all stock deal	1.063[b]	1.068[b]	1.073[b]	1.094[b]
	(2.357)	(2.364)	(2.377)	(2.421)
Subsidiary target x all stock deal	0.209	0.243	0.222	0.147
	(0.220)	(0.257)	(0.235)	(0.155)
Relative deal size	1.654[a]	1.650[a]	1.630[a]	1.617[a]
	(3.073)	(3.056)	(3.019)	(3.009)
Diversifying acquisition	-0.123	-0.029	-0.119	-0.208
	(-0.572)	(-0.137)	(-0.565)	(-0.966)
Intercept	12.032[a]	10.533[a]	13.564[a]	14.040[a]
	(8.655)	(7.708)	(7.968)	(8.047)
Adjusted-R	4.2%	4.3%	4.3%	4.4%
F-statistic	6.963	6.245	7.043	6.911
P-value	0.000	0.000	0.000	0.000
Number of obs.	5265	5265	5265	5265

Table 8-Continued

	Diff2	
Variable	**(5)**	**(6)**
Product Market Competition:		
Diff	-1.467[b]	-1.032
	(8.319)	(-1.326)
Log Market Size(MKTSIZE)		-0.256[a]
		(-2.945)
Log Entry Cost (ENTCOST)		0.134
		(1.350)
Diff x Dominant		
Log Market Size(MKTSIZE) x Dominant		
Log Entry Cost (ENTCOST) x Dominant		
Bidder Characteristics:		
Dominant	0.891[a]	0.675[b]
	(2.925)	(2.168)
Log Total assets	-0.352[a]	-0.305[a]
	(-4.590)	(-3.793)
Tobin's Q	-0.028	-0.026
	(-0.674)	(-0.628)
Leverage	-0.023[b]	-0.025[b]
	(-2.252)	(-2.339)
Free Cash Flow (FCF)	0.097	-0.101
	(0.094)	(-0.098)

(continued)

Table 8-Continued

	Diff2	
Variable	**(5)**	**(6)**
Liquidity	0.167	0.235
	(0.245)	(0.343)
Stock price runup	-0.004	-0.004
	(-1.205)	(-1.249)
CEO equity ownership	0.001	0.001
	(0.194)	(0.184)
Block	-0.008[c]	-0.008[c]
	(-1.731)	(-1.824)
Deal Characteristics:		
High tech	-0.456[c]	-0.254
	(-1.850)	(-1.004)
Public target x all cash deal	0.168	0.147
	(0.413)	(0.363)
Private target x all cash deal	0.311	0.286
	(0.947)	(0.871)
Subsidiary target x all cash deal	0.918[a]	0.901[a]
	(2.872)	(2.823)
Public target x all stock deal	-3.363[a]	-3.355[a]
	(-6.993)	(-6.996)
Private target x all stock deal	1.086[b]	1.094[b]
	(2.406)	(2.422)
Subsidiary target x all stock deal	0.234	0.164
	(0.247)	(0.173)
Relative deal size	1.622[a]	1.621
	(2.996)	(3.010)
Diversifying acquisition	-0.048	-0.161
	(-0.229)	(-0.752)
Intercept	12.080[a]	13.052[a]
	(8.319)	(7.685)
Adjusted-R	4.2%	4.3%
F-statistic	6.930	6.805
P-value	0.000	0.000
Number of obs.	5265	5265

Table 9
The Effect of being Dominant firm on the Relation between Product Market Competition and Cumulate Abnormal Return (without CONC and Dominant)

The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the bidder's 2-day (0,+1) cumulate abnormal return in percentage points. Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)) . [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Product Market Competition:				
Diff			-2.702[a]	-2.311[b]
			(-2.857)	(-2.408)
Log Market Size(MKTSIZE)	-0.162[a]			-0.249[a]
	(-2.631)			(-2.925)
Log Entry Cost (ENTCOST)		-0.005		0.203[b]
		(-0.086)		(2.313)
Diff x Dominant			0.687[a]	1.895
			(2.626)	(1.364)
Log Market Size(MKTSIZE) x Dominant	0.060[c]			-0.023
	(1.845)			(-0.105)
Log Entry Cost (ENTCOST) x Dominant		0.100[a]		-0.181
		(2.537)		(-0.742)
Bidder Characteristics:				
Dominant				
Log Total assets	-0.280[a]	-0.327[a]	-0.329[a]	-0.298[a]
	(-3.428)	(-4.101)	(-4.282)	(-3.656)
Tobin's Q	-0.027	-0.029	-0.025	-0.025
	(-0.641)	(-0.705)	(-0.600)	(-0.601)
Leverage	-0.024[b]	-0.023[b]	-0.023[b]	-0.025[b]
	(-2.271)	(-2.204)	(-2.262)	(-2.355)
Free Cash Flow (FCF)	-0.253	-0.036	-0.104	-0.171
	(-0.245)	(-0.034)	(-0.101)	(-0.165)

(continued)

Table 9-Continued

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Liquidity	0.116	0.096	0.013	0.138
	(0.171)	(0.141)	(0.019)	(0.201)
Stock price runup	-0.004	-0.004	-0.003	-0.004
	(-1.165)	(-1.175)	(-1.124)	(-1.206)
CEO equity ownership	0.000	0.000	0.000	0.000
	(0.081)	(0.132)	(0.060)	(0.134)
Block	-0.009[b]	-0.009[c]	-0.008[c]	-0.008[c]
	(-2.043)	(-1.900)	(-1.883)	(-1.881)
Deal Characteristics:				
High tech	-0.381	-0.559[b]	-0.505[b]	-0.303
	(-1.555)	(-2.337)	(-2.093)	(-1.225)
Public target x all cash deal	0.093	0.120	0.138	0.153
	(0.231)	(0.295)	(0.341)	(0.378)
Private target x all cash deal	0.281	0.311	0.287	0.268
	(0.856)	(0.944)	(0.874)	(0.816)
Subsidiary target x all cash deal	0.936[a]	0.946[a]	0.908[a]	0.882[a]
	(2.926)	(2.961)	(2.829)	(2.758)
Public target x all stock deal	-3.376[a]	-3.390[a]	-3.333[a]	-3.319[a]
	(-7.014)	(-7.035)	(-6.937)	(-6.919)
Private target x all stock deal	1.064[b]	1.069[b]	1.074[b]	1.093[b]
	(2.359)	(2.366)	(2.379)	(2.419)
Subsidiary target x all stock deal	0.207	0.247	0.223	0.145
	(0.219)	(0.260)	(0.237)	(0.153)
Relative deal size	1.655[a]	1.651[a]	1.632[a]	1.613[a]
	(3.075)	(3.058)	(3.022)	(3.003)
Diversifying acquisition	-0.125	-0.032	-0.120	-0.202
	(-0.582)	(-0.151)	(-0.571)	(-0.939)
Intercept	12.093[a]	10.627[a]	13.595[a]	13.953[a]
	(8.720)	(7.793)	(7.989)	(7.985)
Adjusted-R	4.2%	4.1%	4.3%	4.4%
F-statistic	6.958	6.782	7.055	6.616
P-value	0.000	0.000	0.000	0.000
Number of obs.	5265	5265	5265	5265

Table 9-Continued

	Diff2		Diff1	Diff2
Variable	**(5)**	**(6)**	**(7)**	**(8)**
Product Market Competition:				
Diff	-1.497[b]	-1.030	-2.497[a]	-1.051
	(-2.241)	(-1.312)	(-2.551)	(-1.311)
Log Market Size(MKTSIZE)		-0.259[a]	-0.249[a]	-0.259[a]
		(-2.881)	(-2.933)	(-2.879)
Log Entry Cost (ENTCOST)		0.143	0.200[b]	0.142
		(1.391)	(2.270)	(1.361)
Diff x Dominant	0.931[a]	1.070	6.958[b]	1.562
	(3.025)	(0.763)	(2.359)	(0.496)
Log Market Size(MKTSIZE) x Dominant		0.056	0.126	0.053
		(0.230)	(0.516)	(0.219)
Log Entry Cost (ENTCOST) x Dominant		-0.122	-0.279	-0.101
		(-0.522)	(-1.164)	(-0.370)
Bidder Characteristics:				
Dominant			-6.373[c]	-0.602
			(-1.642)	(-0.151)
Log Total assets	-0.352[a]	-0.302[a]	-0.305[a]	-0.303[a]
	(-4.601)	(-3.705)	(-3.721)	(-3.702)
Tobin's Q	-0.028	-0.027	-0.026	-0.027
	(-0.677)	(-0.639)	(-0.618)	(-0.639)
Leverage	-0.023[b]	-0.025[b]	-0.025[b]	-0.025[b]
	(-2.253)	(-2.343)	(-2.353)	(-2.343)
Free Cash Flow (FCF)	0.096	-0.106	-0.198	-0.106
	(0.093)	(-0.102)	(-0.191)	(-0.102)

(continued)

Table 9-Continued

	Diff2		Diff1	Diff2
Variable	**(5)**	**(6)**	**(7)**	**(8)**
Liquidity	0.165	0.233	0.122	0.233
	(0.243)	(0.341)	(0.178)	(0.340)
Stock price runup	-0.004	-0.004	-0.004	-0.004
	(-1.205)	(-1.246)	(-1.204)	(-1.246)
CEO equity ownership	0.001	0.001	0.000	0.001
	(0.196)	(0.194)	(0.113)	(0.193)
Block	-0.008[c]	-0.008[c]	-0.008[c]	-0.008[c]
	(-1.737)	(-1.843)	(-1.853)	(-1.841)
Deal Characteristics:				
High tech	-0.452[c]	-0.250	-0.305	-0.249
	(-1.834)	(-0.988)	(-1.236)	(-0.983)
Public target x all cash deal	0.171	0.152	0.148	0.153
	(0.420)	(0.375)	(0.365)	(0.377)
Private target x all cash deal	0.310	0.283	0.268	0.283
	(0.946)	(0.863)	(0.817)	(0.864)
Subsidiary target x all cash deal	0.921[a]	0.904[a]	0.893[a]	0.905[a]
	(2.881)	(2.831)	(2.792)	(2.830)
Public target x all stock deal	-3.362[a]	-3.351[a]	-3.313[a]	-3.351[a]
	(-6.993)	(-6.980)	(-6.911)	(-6.980)
Private target x all stock deal	1.087[b]	1.093[b]	1.100[b]	1.094[b]
	(2.408)	(2.420)	(2.436)	(2.421)
Subsidiary target x all stock deal	0.235	0.160	0.151	0.161
	(0.248)	(0.168)	(0.160)	(0.170)
Relative deal size	1.623[a]	1.620[a]	1.618[a]	1.620[a]
	(2.998)	(3.009)	(3.015)	(3.010)
Diversifying acquisition	-0.048	-0.159	-0.206	-0.159
	(-0.230)	(-0.738)	(-0.960)	(-0.743)
Intercept	12.108[a]	12.990[a]	14.211	13.024
	(8.339)	(7.590)	(8.037)	(7.531)
Adjusted-R	4.2%	4.3%	4.4%	4.3%
F-statistic	6.936	6.495	6.497	6.347
P-value	0.000	0.000	0.000	0.000
Number of obs.	5265	5265	5265	5265

Table 10
Robustness Check for the Relation between Product Market Competition and Cumulative Abnormal Return

The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the bidder's 5-day (-2,+2) cumulate abnormal return in percentage points.Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)) . [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

	Diff1		Diff2	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Product Market Competition:				
Diff	-2.746[b]	-2.760[b]	-1.527	-1.404
	(-2.066)	(-2.020)	-1.519	-1.357
Log Market Size(MKTSIZE)	-0.223[c]	-0.227[c]	-0.151	-0.167
	(-1.781)	(-1.782)	-1.126	-1.215
Log Entry Cost (ENTCOST)	0.237[b]	0.266[b]	0.126	0.165
	(2.103)	(2.261)	0.953	1.187
Concentration ratio(CONC)	1.408[b]	1.361	2.064[a]	1.990[a]
	(1.670)	(1.592)	2.563	2.437
Diff x Dominant		1.402		-1.479
		(0.329)		-0.366
Log Market Size(MKTSIZE) x Dominant		0.230		0.321
		(0.756)		0.948
Log Entry Cost (ENTCOST) x Dominant		-0.354		-0.415
		(-1.150)		-1.046
Bidder Characteristics:				
Dominant		-0.683		1.965
		(-0.125)		0.397
Log Total assets	-0.327[a]	-0.339[a]	-0.332[a]	-0.343[a]
	(-3.640)	(-3.619)	-3.683	-3.637
Tobin's Q	-0.085[c]	-0.086[c]	-0.085[c]	-0.086[c]
	(-1.650)	(-1.669)	-1.649	-1.666
Leverage	-0.020[c]	-0.020[c]	-0.020[c]	-0.020
	(-1.690)	(-1.681)	-1.711	-1.703
Free Cash Flow (FCF)	-0.654	-0.647	-0.650	-0.638[c]
	(-0.440)	(-0.434)	-0.437	-0.428

(continued)

Table 10-Continued

	Diff1		Diff2	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Liquidity	0.384	0.371	0.477	0.468
	(0.467)	(0.451)	0.585	0.574
Stock price runup	-0.014[a]	-0.014[a]	-0.014[a]	-0.014[a]
	(-3.678)	(-3.678)	-3.729	-3.733
CEO equity ownership	-0.003	-0.002	-0.002	-0.002
	(0.133)	(-0.650)	-0.586	-0.564
Block	-0.014[b]	-0.014[b]	-0.014[b]	-0.014[c]
	(-2.443)	(-2.446)	-2.424	-2.423
Deal Characteristics:				
High tech	-0.055	-0.041	0.047	0.051
	(-0.164)	(-0.123)	0.135	0.146
Public target x all cash deal	0.427	0.432	0.421	0.420
	(0.834)	(0.843)	0.821	0.818
Private target x all cash deal	0.802[b]	0.795[b]	0.810[b]	0.805[b]
	(1.996)	(1.980)	2.016	2.005
Subsidiary target x all cash deal	1.059[a]	1.059[a]	1.073[a]	1.069[a]
	(2.700)	(2.700)	2.740	2.726
Public target x all stock deal	-3.096[a]	-3.099[a]	-3.123[a]	-3.130[a]
	(-5.243)	(-5.246)	-5.282	-5.289
Private target x all stock deal	1.861[a]	1.863[a]	1.849[a]	1.848[a]
	(3.059)	(3.061)	3.033	3.028
Subsidiary target x all stock deal	-0.573	-0.577	-0.571	-0.583
	(-0.524)	(-0.527)	-0.523	-0.533
Relative deal size	1.834[a]	1.837[a]	1.836[a]	1.837[a]
	(3.529)	(3.536)	3.527	3.528
Diversifying acquisition	-0.370	-0.359	-0.336	-0.324
	(-1.311)	(-1.272)	-1.190	-1.147
Intercept	21.198[a]	21.084[a]	19.549[a]	19.356[a]
	(8.700)	(8.554)	9.721	9.388
Adjusted-R	3.9%	3.9%	3.9%	3.8%
F-statistic	6.261	5.728	6.187	5.662
P-value	0.000	0.000	0.000	0.000
Number of obs.	5265	5265	5265	5265

Table 11
Logit Regression Explaining Bidder's choice of Diversifying Acquisition Vs. Non-Diversifying Acquisition Decision in Mergers and Acquisitions Deal.

The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable , Diversifying Acquisition, is Dummy variable which takes a value of 1 if bidder and target do not share the same SIC code at four-digit level, 0 otherwise. Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are z-statistics. [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

			Diff1	Diff2
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Product Market Competition:				
Diff			-1.507[a]	-0.659[a]
			(-5.114)	(-2.735)
Log Market Size(MKTSIZE)			-0.205[a]	-0.180[a]
			(-5.915)	(-4.891)
Log Entry Cost (ENTCOST)			0.086[a]	0.039
			(3.127)	(1.209)
Concentration ratio(CONC)		2.158[a]	1.117[a]	1.457[a]
		(14.155)	(5.508)	(7.349)
Bidder Characteristics:				
Dominant	0.136[c]	-0.188	-0.244[c]	-0.256[b]
	(1.839)	(-1.469)	(-1.856)	(-1.944)
Log Total assets	0.013	0.060[a]	0.078[a]	0.077[a]
	(0.987)	(2.757)	(3.436)	(3.412)
Tobin's Q	-0.011[b]	-0.010	-0.009	-0.010
	(-2.195)	(-1.145)	(-1.061)	(-1.116)
Leverage	-0.004	-0.009[c]	-0.009 [c]	-0.009[c]
	(-1.490)	(-1.820)	(-1.897)	(-1.900)
Free Cash Flow (FCF)	0.395[a]	0.167	0.195	0.193
	(3.013)	(0.763)	(0.875)	(0.867)
Liquidity	0.246[b]	0.367[b]	0.401[b]	0.446[a]
	(2.540)	(2.289)	(2.475)	(2.758)

(continued)

Table11-Continued

			Diff1	Diff2
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Stock price runup	0.000	0.000	0.000	0.000
	(0.500)	(0.148)	(0.347)	(0.222)
CEO equity ownership	-0.001	-0.002	-0.002	-0.002
	(-1.312)	(-1.097)	(-1.246)	(-1.142)
Block	-0.001	-0.003[b]	-0.002[c]	-0.002[c]
	(-1.302)	(-1.996)	(-1.765)	(-1.767)
Deal Characteristics:				
High tech	-0.052	0.186[a]	0.264[a]	0.310[a]
	(-1.229)	(2.577)	(3.543)	(4.133)
Public target x all cash deal	0.214[b]	0.284[c]	0.316[b]	0.307[b]
	(2.339)	(1.843)	(2.033)	(1.983)
Private target x all cash deal	0.176[a]	0.250[a]	0.238[a]	0.242[a]
	(3.216)	(2.748)	(2.600)	(2.644)
Subsidiary target x all cash deal	0.103[c]	0.137	0.110	0.120
	(1.898)	(1.521)	(1.214)	(1.322)
Public target x all stock deal	0.040	0.075	0.119	0.102
	(0.547)	(0.623)	(0.972)	(0.843)
Private target x all stock deal	0.182[b]	0.257[b]	0.285[a]	0.277[a]
	(2.797)	(2.366)	(2.607)	(2.539)
Subsidiary target x all stock deal	0.143	0.101	0.102	0.102
	(1.048)	(0.442)	(0.444)	(0.444)
Relative deal size	-0.127[a]	-0.208[a]	-0.223[a]	-0.221[a]
	(-2.745)	(-2.708)	(-2.905)	(-2.874)
Intercept	-6.171	-21.356	-17.862	-18.846
	(-0.001)	(-0.001)	(-0.001)	(-0.001)
McFadden-R^2	1.3%	4.3%	5.4%	5.1%
Number of obs.	5265	5265	5265	5265

Table 12
Logit Regression Explaining Bidder's choice of Diversifying Acquisition Vs. Non-Diversifying Acquisition Decision in Mergers and Acquisitions Deal (without CONC)

The sample consists of 5265 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable , Diversifying Acquisition, is Dummy variable which takes a value of 1 if bidder and target do not share the same SIC code at four-digit level, 0 otherwise. Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are z-statistics. [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Product Market Competition:				
Diff			-2.780[a]	-1.942[a]
			(-9.730)	(-6.646)
Log Market Size(MKTSIZE)	-0.261[a]			-0.314[a]
	(-12.623)			(-10.854)
Log Entry Cost (ENTCOST)		-0.097[a]		0.122[a]
		(-5.199)		(4.588)
Bidder Characteristics:				
Dominant	-0.215[c]	0.062	0.143	-0.163
	(-1.657)	(0.492)	(1.152)	(-1.251)
Log Total assets	0.098[a]	0.047[b]	0.018	0.078[a]
	(4.445)	(2.189)	(0.841)	(3.500)
Tobin's Q	-0.014[c]	-0.017[b]	-0.014	-0.012
	(-1.670)	(-2.014)	(-1.625)	(-1.344)
Leverage	-0.009[c]	-0.007	-0.007	-0.009[c]
	(-1.742)	(-1.462)	(-1.517)	(-1.830)
Free Cash Flow (FCF)	0.288	0.509[b]	0.568[a]	0.332
	(1.315)	(2.355)	(2.606)	(1.494)
Liquidity	0.432[a]	0.364[b]	0.325[b]	0.434[a]
	(2.698)	(2.296)	(2.036)	(2.681)

(continued)

Table 12-Continued

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Stock price runup	0.000	0.000	0.000	0.000
	(0.604)	(0.765)	(0.651)	(0.471)
CEO equity ownership	-0.002	-0.002	-0.002	-0.002
	(-1.408)	(-1.431)	(-1.442)	(-1.364)
Block	-0.003[b]	-0.002[c]	-0.001	-0.002
	(-2.102)	(-1.768)	(-1.134)	(-1.546)
Deal Characteristics:				
High tech	0.184[a]	-0.049	-0.039	0.232[a]
	(2.536)	(-0.713)	(-0.559)	(3.134)
Public target x all cash deal	0.304[b]	0.324[b]	0.369[b]	0.342[b]
	(1.992)	(2.149)	(2.422)	(2.216)
Private target x all cash deal	0.243[a]	0.273[a]	0.270[a]	0.243[a]
	(2.682)	(3.054)	(3.001)	(2.654)
Subsidiary target x all cash deal	0.150[c]	0.176[b]	0.131	0.111
	(1.671)	(1.991)	(1.464)	(1.222)
Public target x all stock deal	0.090	0.071	0.119	0.129
	(0.748)	(0.596)	(0.993)	(1.064)
Private target x all stock deal	0.285[a]	0.282[a]	0.302[a]	0.307[a]
	(2.633)	(2.642)	(2.804)	(2.814)
Subsidiary target x all stock deal	0.181	0.246	0.211	0.142
	(0.797)	(1.095)	(0.933)	(0.619)
Relative deal size	-0.200[a]	-0.194[a]	-0.227[a]	-0.228[a]
	(-2.623)	(-2.563)	(-2.973)	(-2.966)
Intercept	-18.109	-19.799	-17.249	-16.411
	(-0.001)	(-0.001)	(-0.001)	(-0.001)
McFadden-R^2	3.8%	1.7%	2.8%	4.6%
Number of obs.	5265	5265	5265	5265

Table 12-Continued

Variable	Diff2 (5)	Diff2 (6)
Product Market Competition:		
Diff	-0.551[a]	-0.374
	(-2.797)	(-1.569)
Log Market Size(MKTSIZE)		-0.345[a]
		(-11.583)
Log Entry Cost (ENTCOST)		0.110[a]
		(3.531)
Bidder Characteristics:		
Dominant	0.256[b]	-0.152
	(2.074)	(-1.162)
Log Total assets	0.010	0.085[a]
	(0.475)	(3.819)
Tobin's Q	-0.018[b]	-0.014
	(-2.146)	(-1.648)
Leverage	-0.007[a]	-0.009[c]
	(-1.459)	(-1.808)
Free Cash Flow (FCF)	0.694[a]	0.360
	(3.205)	(1.632)
Liquidity	0.432	0.499[a]
	(2.722)	(3.102)

(continued)

Table 12-Continued

	Diff2	
Variable	**(5)**	**(6)**
Stock price runup	0.000	0.000
	(0.483)	(0.375)
CEO equity ownership	-0.002	-0.002
	(-1.252)	(-1.268)
Block	-0.001	-0.002
	(-1.027)	(-1.620)
Deal Characteristics:		
High tech	-0.048	0.256[a]
	(-0.688)	(3.439)
Public target x all cash deal	0.370[a]	0.329[b]
	(2.451)	(2.147)
Private target x all cash deal	0.289[a]	0.248[a]
	(3.249)	(2.730)
Subsidiary target x all cash deal	0.160[c]	0.129
	(1.805)	(1.427)
Public target x all stock deal	0.077	0.104
	(0.646)	(0.860)
Private target x all stock deal	0.305[a]	0.303[a]
	(2.861)	(2.794)
Subsidiary target x all stock deal	0.231	0.153
	(1.032)	(0.670)
Relative deal size	-0.216[a]	-0.219[a]
	(-2.850)	(-2.865)
Intercept	-19.933	-17.668
	(-0.001)	(-0.001)
McFadden-R^2	1.4%	4.3%
Number of obs.	5265	5265

Table 13
The Relation between Product Market Competition and Corporate Mergers Premiums

The sample consists of 750 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the merger premium which is defined as four-week pre-announcement premium. It equals the difference between the initial bid price and the target price four weeks prior to the announcement. Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)). [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

Variable	(1)	(2)	(3)	(4)
Product Market Competition:				
Diff				
Log Market Size(MKTSIZE)			0.015	
			(0.016)	
Log Entry Cost (ENTCOST)				0.948
				(0.876)
Concentration ratio(CONC)		7.643	7.722	9.501
		(1.121)	(0.878)	(1.304)
Diff x Dominant				
Log Market Size(MKTSIZE) x Dominant				
Log Entry Cost (ENTCOST) x Dominant				
Bidder Characteristics:				
Dominant	4.359	3.081	3.082	3.518
	(0.760)	(0.521)	(0.522)	(0.604)
Tobin's Q_A	1.925[a]	1.960[a]	1.961[a]	1.959[a]
	(2.745)	(2.814)	(2.809)	(2.844)
$Leverage_A$	-0.048	-0.057	-0.057	-0.055
	(-1.392)	(-1.462)	(-1.459)	(-1.385)
Free Cash Flow (FCF) $_A$	-15.201	-16.422	-16.421	-15.136
	(-1.220)	(-1.326)	(-1.326)	(-1.222)

(continued)

Table 13-Continued

Variable	(1)	(2)	(3)	(4)
$Liquidity_A$	4.586	4.165	4.165	4.935
	(0.507)	(0.460)	(0.459)	(0.548)
Target Characteristics:				
Tobin's Q_T	-2.189[b]	-2.137[b]	-2.138[b]	-2.245[b]
	(-2.449)	(-2.422)	(-2.429)	(-2.505)
$Leverage_T$	0.031[c]	0.033[b]	0.033[b]	0.031[b]
	(1.952)	(2.101)	(2.102)	(1.985)
Free Cash Flow $(FCF)_T$	0.026	-0.334	-0.341	-0.844
	(0.003)	(-0.039)	(-0.040)	(-0.099)
$Liquidity_T$	8.841	8.692	8.693	9.724
	(1.043)	(1.027)	(1.026)	(1.142)
Deal Characteristics:				
Relative firm $size_{A/T}$	9.378[a]	9.681[a]	9.678[a]	9.340[a]
	(2.798)	(2.891)	(2.878)	(2.791)
Relative deal size	0.486	0.446	0.447	0.404
	(0.187)	(0.171)	(0.171)	(0.155)
Diversifying acquisition	-5.040[c]	-5.747[c]	-5.744[c]	-5.672[c]
	(-1.674)	(-1.878)	(-1.878)	(-1.859)
all cash deal	1.804	1.254	1.256	1.486
	(0.400)	(0.274)	(0.275)	(0.323)
all stock deal	-1.213	-1.276	-1.274	-1.230
	(-0.305)	(-0.320)	(-0.320)	(-0.308)
Intercept	4.673	-1.161	-1.364	-10.051
	(0.350)	(-0.082)	(-0.073)	(-0.569)
Adjusted-R	5.3%	5.3%	5.2%	5.3%
F-statistic	2.299	2.266	2.197	2.229
P-value	0.000	0.000	0.000	0.000
Number of obs.	750	750	750	750

Table 13-Countined

	Diff1		Diff2	
Variable	**(5)**	**(6)**	**(7)**	**(8)**
Product Market Competition:				
Diff	12.499	11.523	3.214	15.664
	(0.973)	(0.871)	(0.366)	(1.393)
Log Market Size(MKTSIZE)		-0.962		-1.811
		(-0.802)		(-1.424)
Log Entry Cost (ENTCOST)		1.469		2.735
		(1.106)		(1.594)
Concentration ratio(CONC)	9.749	7.522	7.358	2.307
	(1.358)	(0.800)	(1.060)	(0.259)
Diff x Dominant				
Log Market Size(MKTSIZE) x Dominant				
Log Entry Cost (ENTCOST) x Dominant				
Bidder Characteristics:				
Dominant	2.993	3.618	2.952	3.600
	(0.503)	(0.615)	(0.498)	(0.608)
Tobin's Q_A	1.974[a]	1.944[a]	1.958[a]	1.893[a]
	(2.833)	(2.841)	(2.795)	(2.751)
$Leverage_A$	-0.056	-0.056	-0.058	-0.060
	(-1.423)	(-1.383)	(-1.439)	(-1.288)
Free Cash Flow (FCF) $_A$	-17.057	-15.079	-16.911	-15.215
	(-1.385)	(-1.209)	(-1.375)	(-1.228)

(continued)

Table 13-Continued

	Diff1		Diff2	
Variable	**(5)**	**(6)**	**(7)**	**(8)**
$Liquidity_A$	4.250	5.447	3.691	4.097
	(0.470)	(0.602)	(0.405)	(0.452)
Target Characteristics:				
Tobin's Q_T	-2.171[b]	-2.256[a]	-2.129[b]	-2.258[a]
	(-2.446)	(-2.499)	(-2.403)	(-2.479)
$Leverage_T$	0.032[b]	0.030[c]	0.032[c]	0.024
	(2.028)	(1.885)	(1.998)	(1.496)
Free Cash Flow $(FCF)_T$	-0.428	-0.748	-0.267	-0.611
	(-0.050)	(-0.088)	(-0.031)	(-0.072)
$Liquidity_T$	8.560	10.139	8.138	8.909
	(1.012)	(1.188)	(0.944)	(1.035)
Deal Characteristics:				
Relative firm $size_{A/T}$	9.416[a]	9.127[a]	9.667[a]	9.040[a]
	(2.815)	(2.724)	(2.882)	(2.689)
Relative deal size	0.254	0.179	0.448	0.288
	(0.096)	(0.068)	(0.171)	(0.110)
Diversifying acquisition	-5.491[c]	-5.579[c]	-5.678[c]	-5.544[c]
	(-1.783)	(-1.813)	(-1.846)	(-1.811)
all cash deal	1.297	1.545	1.198	1.445
	(0.283)	(0.335)	(0.261)	(0.314)
all stock deal	-1.509	-1.532	-1.366	-1.797
	(-0.378)	(-0.383)	(-0.341)	(-0.451)
Intercept	-16.141	-15.959	-3.207	-12.711
	(-0.788)	(-0.606)	(-0.220)	(-0.609)
Adjusted-R	5.3%	5.2%	5.2%	5.3%
F-statistic	2.224	2.138	2.201	2.172
P-value	0.000	0.000	0.000	0.000
Number of obs.	750	750	750	750

Table 14
The Relation between Product Market Competition and Corporate Mergers Premiums (with interactions between PMC variables and Dominant)

The sample consists of 750 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the merger premium which is defined as four-week pre-announcement premium. It equals the difference between the initial bid price and the target price four weeks prior to the announcement. Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)). [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Product Market Competition:				
Diff			19.709	19.153
			(1.562)	(1.483)
Log Market Size(MKTSIZE)	0.321			-0.992
	(0.340)			(-0.823)
Log Entry Cost (ENTCOST)		1.685		2.275[c]
		(1.622)		(1.729)
Concentration ratio(CONC)	7.692	10.164	10.552	10.242
	(0.875)	(1.389)	(1.464)	(1.094)
Diff x Dominant			-87.571	-45.841
			(-1.427)	(-0.935)
Log Market Size(MKTSIZE) x Dominant	-4.928			3.430
	(-1.035)			(0.830)
Log Entry Cost (ENTCOST) x Dominant		-11.777[c]		-13.364[b]
		(-1.946)		(-2.125)
Bidder Characteristics:				
Dominant	50.175	95.953[c]	104.067	128.618
	(1.053)	(1.919)	(1.419)	(1.554)
Tobin's Q_A	1.993[a]	1.921[a]	1.940[a]	1.870[a]
	(2.863)	(2.799)	(2.752)	(2.717)
$Leverage_A$	-0.055	-0.051	-0.055	-0.051
	(-1.450)	(-1.310)	(-1.380)	(-1.265)
Free Cash Flow $(FCF)_A$	-15.708	-13.734	-15.916	-13.612
	(-1.270)	(-1.110)	(-1.290)	(-1.092)

(continued)

Table 14-Continued

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
$Liquidity_A$	3.115	3.332	4.346	4.410
	(0.342)	(0.367)	(0.479)	(0.483)
Target Characteristics:				
Tobin's Q_T	-2.185[b]	-2.247[a]	-2.155[b]	-2.241[a]
	(-2.483)	(-2.563)	(-2.424)	(-2.532)
$Leverage_T$	0.034[b]	0.033[b]	0.031[b]	0.030[b]
	(2.218)	(2.217)	(2.033)	(2.048)
Free Cash Flow $(FCF)_T$	-0.411	-1.401	-0.667	-1.557
	(-0.048)	(-0.165)	(-0.078)	(-0.183)
$Liquidity_T$	10.013	11.251	9.161	11.199
	(1.182)	(1.332)	(1.082)	(1.311)
Deal Characteristics:				
Relative firm $size_{A/T}$	9.743[a]	9.505[a]	9.181[a]	9.033[a]
	(2.892)	(2.838)	(2.754)	(2.701)
Relative deal size	0.310	-0.044	0.018	-0.411
	(0.122)	(-0.018)	(0.007)	(-0.168)
Diversifying acquisition	-5.750[c]	-5.289[c]	-5.304[c]	-4.931
	(-1.878)	(-1.748)	(-1.733)	(-1.612)
all cash deal	1.263	1.586	1.208	1.633
	(0.277)	(0.347)	(0.265)	(0.356)
all stock deal	-1.236	-0.811	-1.867	-1.322
	(-0.311)	(-0.203)	(-0.468)	(-0.329)
Intercept	-0.974	-8.551	-26.801	-26.872
	(-0.055)	(-0.555)	(-1.228)	(-1.079)
Adjusted-R	5.3%	6.5%	5.6%	6.4%
F-statistic	2.200	2.490	2.259	2.311
P-value	0.000	0.000	0.000	0.000
Number of obs.	750	750	750	750

Table 14-Continued

Variable	Diff2 (5)	Diff2 (6)
Product Market Competition:		
Diff	7.424	30.970[a]
	(0.836)	(2.893)
Log Market Size(MKTSIZE)		-2.730[b]
		(-2.108)
Log Entry Cost (ENTCOST)		4.799[a]
		(2.889)
Concentration ratio(CONC)	6.355	0.293
	(0.909)	(0.033)
Diff x Dominant	-95.706[a]	-143.371[a]
	(-2.664)	(1.666)
Log Market Size(MKTSIZE) x Dominant		6.819[c]
		(1.666)
Log Entry Cost (ENTCOST) x Dominant		-18.894[a]
		(-2.879)
Bidder Characteristics:		
Dominant	96.973[a]	227.593[a]
	(2.648)	(3.024)
Tobin's Q_A	1.947[a]	1.749[a]
	(2.764)	(2.507)
$Leverage_A$	-0.058	-0.059
	(-1.390)	(-1.091)
Free Cash Flow (FCF) $_A$	-16.555	-13.625
	(-1.346)	(-1.101)

(continued)

Table 14-Continued

	Diff2	
Variable	**(5)**	**(6)**
$Liquidity_A$	3.464	2.033
	(0.381)	(0.224)
Target Characteristics:		
Tobin's Q_T	-2.091[b]	-2.177[b]
	(-2.356)	(-2.435)
$Leverage_T$	0.031[b]	0.020
	(1.948)	(1.295)
Free Cash Flow (FCF) $_T$	-0.041	-1.119
	(-0.005)	(-0.132)
$Liquidity_T$	7.825	8.454
	(0.911)	(0.985)
Deal Characteristics:		
Relative firm $size_{A/T}$	9.596[a]	8.865[a]
	(2.873)	(2.666)
Relative deal size	0.229	-0.617
	(0.088)	(-0.257)
Diversifying acquisition	-5.637[c]	-4.692
	(-1.840)	(-1.554)
all cash deal	0.529	0.597
	(0.115)	(0.131)
all stock deal	-1.882	-2.218
	(-0.470)	(-0.560)
Intercept	-13.367	-33.480
	(-0.713)	(-1.531)
Adjusted-R	5.6%	7.8%
F-statistic	2.276	2.621
P-value	0.000	0.000
Number of obs.	750	750

Table 15

The Relation between Product Market Competition and Corporate Mergers Premiums (without CONC and interactions between PMC variables and Dominant)

The sample consists of 750 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the merger premium which is defined as four-week pre-announcement premium. It equals the difference between the initial bid price and the target price four weeks prior to the announcement. Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)). [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Product Market Competition:				
Diff			6.755	8.330
			(0.531)	(0.661)
Log Market Size(MKTSIZE)	-0.571			-1.631
	(-0.751)			(-1.635)
Log Entry Cost (ENTCOST)		0.621		1.690
		(0.605)		(1.268)
Concentration ratio(CONC)				
Diff x Dominant				
Log Market Size(MKTSIZE) x Dominant				
Log Entry Cost (ENTCOST) x Dominant				
Bidder Characteristics:				
Dominant	3.833	4.849	4.501	4.367
	(0.677)	(0.866)	(0.787)	(0.774)
Tobin's Q_A	1.923[a]	1.918[a]	1.927[a]	1.903[a]
	(2.755)	(2.750)	(2.740)	(2.789)
$Leverage_A$	-0.053	-0.046	-0.047	-0.053
	(-1.459)	(-1.308)	(-1.337)	(-1.381)
Free Cash Flow (FCF) $_A$	-15.708	-14.164	-15.363	-14.024
	(-1.259)	(-1.134)	(-1.235)	(-1.115)

(continued)

Table 15-Continued

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
$Liquidity_A$	4.431	5.158	4.695	5.833
	(0.489)	(0.572)	(0.519)	(0.646)
Target Characteristics:				
Tobin's Q_T	-2.122[b]	-2.267[a]	-2.215[a]	-2.245[a]
	(-2.393)	(-2.499)	(-2.468)	(-2.472)
$Leverage_T$	0.032[b]	0.030[c]	0.030[c]	0.029[c]
	(2.043)	(1.875)	(1.902)	(1.826)
Free Cash Flow $(FCF)_T$	0.164	-0.251	0.029	-0.333
	(0.019)	(-0.029)	(0.003)	(-0.039)
$Liquidity_T$	8.766	9.541	8.792	10.470
	(1.032)	(1.118)	(1.037)	(1.224)
Deal Characteristics:				
Relative $firm\ size_{A/T}$	9.625[a]	9.106[a]	9.189[a]	9.109[a]
	(2.855)	(2.709)	(2.732)	(2.711)
Relative deal size	0.456	0.465	0.388	0.222
	(0.175)	(0.179)	(0.148)	(0.085)
Diversifying acquisition	-5.420[c]	-4.879	-4.797	-5.387[c]
	(-1.788)	(-1.623)	(-1.568)	(-1.753)
all cash deal	1.528	2.043	1.909	1.799
	(0.338)	(0.447)	(0.422)	(0.395)
all stock deal	-1.304	-1.173	-1.329	-1.508
	(-0.327)	(-0.294)	(-0.335)	(-0.378)
Intercept	10.028	-0.225	-2.554	-2.277
	(0.691)	-(0.014)	(-0.135)	(-0.112)
Adjusted-R	5.2%	5.2%	5.2%	5.2%
F-statistic	2.242	2.241	2.235	2.183
P-value	0.000	0.000	0.000	0.000
Number of obs.	750	750	750	750

Table 15-Continued

	Diff2	
Variable	**(5)**	**(6)**
Product Market Competition:		
Diff	4.381	16.309
	(0.507)	(1.485)
Log Market Size(MKTSIZE)		-2.046[b]
		(-1.942)
Log Entry Cost (ENTCOST)		2.849[c]
		(1.695)
Concentration ratio(CONC)		
Diff x Dominant		
Log Market Size(MKTSIZE) x Dominant		
Log Entry Cost (ENTCOST) x Dominant		
Bidder Characteristics:		
Dominant	4.117	3.825
	(0.712)	(0.661)
Tobin's Q_A	1.923[a]	1.880[a]
	(2.730)	(2.760)
$Leverage_A$	-0.050	-0.059
	(-1.363)	(-1.287)
Free Cash Flow (FCF) $_A$	-15.930	-14.971
	(-1.289)	(-1.209)

(continued)

Table 15-Continued

	Diff2	
Variable	**(5)**	**(6)**
$Liquidity_A$	3.919	4.168
	(0.431)	(0.461)
Target Characteristics:		
Tobin's Q_T	-2.175[b]	-2.259[a]
	(-2.423)	(-2.474)
$Leverage_T$	0.030[c]	0.023
	(1.842)	(1.442)
Free Cash Flow $(FCF)_T$	0.098	-0.487
	(0.011)	(-0.057)
$Liquidity_T$	8.077	8.940
	(0.935)	(1.038)
Deal Characteristics:		
Relative firm $size_{A/T}$	9.374[a]	8.999[a]
	(2.794)	(2.677)
Relative deal size	0.487	0.283
	(0.187)	(0.109)
Diversifying acquisition	-4.983[c]	-5.449[c]
	(-1.650)	(-1.797)
all cash deal	1.699	1.527
	(0.374)	(0.335)
all stock deal	-1.340	-1.826
	(-0.335)	(-0.456)
Intercept	1.586	-10.109
	(0.112)	(-0.529)
Adjusted-R	5.2%	5.5%
F-statistic	2.234	2.236
P-value	0.000	0.000
Number of obs.	750	750

Table 16
The Relation between Product Market Competition and Corporate Mergers Premiums (without CONC)

The sample consists of 750 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the merger premium which is defined as four-week pre-announcement premium. It equals the difference between the initial bid price and the target price four weeks prior to the announcement. Variable definitions are in the Table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)). [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Product Market Competition:				
Diff			13.166	14.607
			(1.051)	(1.164)
Log Market Size(MKTSIZE)	-0.262			-1.883[c]
	(-0.356)			(-1.827)
Log Entry Cost (ENTCOST)		1.327[c]		2.548[c]
		(1.354)		(1.929)
Concentration ratio(CONC)				
Diff x Dominant			-83.330	-44.862
			(-1.368)	(-0.917)
Log Market Size(MKTSIZE) x Dominant	-4.934			3.113
	(-1.043)			(0.765)
Log Entry Cost (ENTCOST) x Dominant		-11.629[c]		-12.910[b]
		(-1.925)		(-2.065)
Bidder Characteristics:				
Dominant	50.984	96.217[c]	100.799	127.960
	(1.078)	(1.924)	(1.380)	(1.549)
Tobin's Q_A	1.956[a]	1.878[a]	1.891[a]	1.819[a]
	(2.809)	(2.696)	(2.651)	(2.635)
$Leverage_A$	-0.051	-0.041	-0.045	-0.047
	(-1.451)	(-1.213)	(-1.283)	(-1.255)
Free Cash Flow (FCF) $_A$	-14.997	-12.713	-14.144	-12.199
	(-1.204)	(-1.019)	(-1.133)	(-0.967)

(continued)

Table 16-Continued

			Diff1	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
$Liquidity_A$	3.379	3.591	4.822	4.925
	(0.371)	(0.396)	(0.531)	(0.539)
Target Characteristics:				
Tobin's Q_T	-2.169[b]	-2.271[a]	-2.202[b]	-2.227[a]
	(-2.447)	(-2.555)	(-2.449)	(-2.494)
$Leverage_T$	0.033[b]	0.031[b]	0.030[c]	0.029[b]
	(2.156)	(2.086)	(1.894)	(1.960)
Free Cash Flow $(FCF)_T$	0.092	-0.760	-0.164	-0.975
	(0.011)	(-0.089)	(-0.019)	(-0.114)
$Liquidity_T$	10.088	11.036	9.382	11.670
	(1.188)	(1.302)	(1.105)	(1.363)
Deal Characteristics:				
Relative firm $size_{A/T}$	9.689[a]	9.252[a]	8.948[a]	9.014[a]
	(2.869)	(2.749)	(2.667)	(2.685)
Relative deal size	0.319	0.027	0.174	-0.340
	(0.126)	(0.011)	(0.068)	(-0.140)
Diversifying acquisition	-5.428[c]	-4.446	-4.565	-4.693
	(-1.789)	(-1.494)	(-1.503)	(-1.535)
all cash deal	1.535	2.181	1.872	1.973
	(0.339)	(0.480)	(0.414)	(0.434)
all stock deal	-1.266	-0.755	-1.656	-1.297
	(-0.318)	(-0.189)	(-0.418)	(-0.323)
Intercept	10.374	1.933	-11.634	-8.067
	(0.767)	(0.144)	(-0.573)	(-0.420)
Adjusted-R	5.3%	6.4%	5.4%	6.4%
F-statistic	2.244	2.501	2.262	2.342
P-value	0.000	0.000	0.000	0.000
Number of obs.	750	750	750	750

Table 16-Continued

Variable	Diff2 (5)	Diff2 (6)
Product Market Competition:		
Diff	8.549	31.059[a]
	(0.983)	(2.972)
Log Market Size(MKTSIZE)		-2.760[a]
		(-2.559)
Log Entry Cost (ENTCOST)		4.813[a]
		(2.949)
Concentration ratio(CONC)		
Diff x Dominant	-98.446[a]	-143.511[a]
	(-2.785)	(-3.648)
Log Market Size(MKTSIZE) x Dominant		6.818[c]
		(1.668)
Log Entry Cost (ENTCOST) x Dominant		-18.893[a]
		(-2.881)
Bidder Characteristics:		
Dominant	100.667[a]	227.755[a]
	(2.795)	(3.030)
Tobin's Q_A	1.917[a]	1.747[a]
	(2.712)	(2.537)
$Leverage_A$	-0.052	-0.059
	(-1.327)	(-1.096)
Free Cash Flow (FCF) $_A$	-15.701	-13.593
	(-1.271)	(-1.101)

(continued)

Table 16-Continued

	Diff2	
Variable	**(5)**	**(6)**
$Liquidity_A$	3.653	2.042
	(0.403)	(0.226)
Target Characteristics:		
Tobin's Q_T	-2.129[b]	-2.177[b]
	(-2.372)	(-2.436)
$Leverage_T$	0.029[c]	0.019
	(1.810)	(1.277)
Free Cash Flow $(FCF)_T$	0.280	-1.103
	(0.033)	(-0.131)
$Liquidity_T$	7.764	8.458
	(0.903)	(0.986)
Deal Characteristics:		
Relative firm $size_{A/T}$	9.342[a]	8.859[a]
	(2.800)	(2.665)
Relative deal size	0.255	-0.618
	(0.099)	(-0.257)
Diversifying acquisition	-5.038[c]	-4.680
	(-1.676)	(-1.567)
all cash deal	0.941	0.607
	(0.207)	(0.135)
all stock deal	-1.874	-2.223
	(-0.468)	(-0.558)
Intercept	-9.537	-33.168
	(-0.512)	(-1.625)
Adjusted-R	5.7%	7.9%
F-statistic	2.320	2.694
P-value	0.000	0.000
Number of obs.	750	750

Table 17
The Relation between Product Market Competition and Corporate Mergers Premiums (without CONC and adding acquirer's CEO equity ownership)

The sample consists of 750 completed U.S. merger and acquisitions (listed in SDC) between 1986 and 2006 made by public U.S. firms. The dependent variable is the merger premium which is defined as four-week pre-announcement premium. It equals the difference between the initial bid price and the target price four weeks prior to the announcement. Variable definitions are in the table 4. All dollar items are CPI-adjusted to year-2006 dollars to adjust for the effect of inflation. In parentheses are t-statistics based on standard errors adjusted for heteroskedasticity (White(1980)). [a], [b], [c] stand for statistical significance based on two-sided test at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose coefficient estimates are suppressed.

	Diff1	Diff2
Variable	**(1)**	**(2)**
Product Market Competition:		
Diff	14.593	31.057[a]
	(1.163)	(2.971)
Log Market Size(MKTSIZE)	-1.880[c]	-2.758[a]
	(-1.822)	(-2.557)
Log Entry Cost (ENTCOST)	2.528[c]	4.804[a]
	(1.916)	(2.960)
Diff x Dominant	-44.447	-143.330[a]
	(-0.907)	(-3.639)
Log Market Size(MKTSIZE) x Dominant	3.143	6.827[c]
	(0.771)	(1.666)
Log Entry Cost (ENTCOST) x Dominant	-12.931[b]	-18.894[a]
	(-2.066)	(-2.878)
Bidder Characteristics:		
Dominant	127.311	227.470[a]
	(1.536)	(3.017)
Tobin's Q_A	1.818[a]	1.747[a]
	(2.633)	(2.535)
$Leverage_A$	-0.048	-0.059
	(-1.259)	(-1.097)
Free Cash Flow (FCF) $_A$	-12.268	-13.623
	(-0.972)	(-1.103)
$Liquidity_A$	5.031	2.091
	(0.545)	(0.229)

(continued)

Table17-Continued

	Diff1	Diff2
Variable	**(1)**	**(2)**
CEO equity ownership	-0.030	-0.014
	(-0.188)	(-0.088)
Target Characteristics:		
Tobin's Q_T	-2.233[a]	-2.179[b]
	(-2.495)	(-2.434)
$Leverage_T$	0.029[b]	0.019
	(1.953)	(1.273)
Free Cash Flow $(FCF)_T$	-0.996	-1.113
	(-0.117)	(-0.132)
$Liquidity_T$	11.632	8.442
	(1.358)	(0.983)
Deal Characteristics:		
Relative firm $size_{A/T}$	8.997[a]	8.851[a]
	(2.675)	(2.658)
Relative deal size	-0.327	-0.612
	(-0.134)	(-0.254)
Diversifying acquisition	-4.683	-4.676
	(-1.533)	(-1.567)
all cash deal	1.979	0.610
	(0.435)	(0.136)
all stock deal	-1.292	-2.221
	(-0.322)	(-0.557)
Intercept	-7.857	-33.068
	(-0.412)	(-1.631)
Adjusted-R	6.2%	7.8%
F-statistic	2.279	2.622
P-value	0.000	0.000
Number of obs.	750	750