

**TAKEOVER RUMORS' IMPACT:  
EVIDENCE FROM THE U.S. BANKING INDUSTRY**

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## **Abstract**

This study is to determine whether there is an association between takeover rumors and the prices paid by the acquiring banks for the target banks subject to prior takeover rumors in successful acquisitions. A sample of 512 U.S. bank mergers from 1991 to 2003 is examined. The results show takeover rumors have a significant positive impact on moving up the target banks' stock price and other factors, such as total asset of the target bank, bank type and method of payment, can also induce the acquiring banks to pay more for such rumored target banks compared to those targets with no prior takeover speculations.

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## Chapter One: Introduction

The January 2004 \$58 billion bank merger between J.P. Moran Chase and Bank One and the fall 2003 \$47 billion acquisition of Bank of America by FleetBoston Financial indicated the start of another mega merger and acquisition activity period in the U.S. banking industry (Frieswick, 2004). The shareholders of the two targeted banks earned significant returns because the stock prices increased prior to the announcement date. The reason for the price increase was a series of takeover rumors surrounding the events. This paper utilizes data collected from public sources since the early 1990s to gain a deeper understanding of the effect of takeover rumors on premiums paid in bank mergers.

Although existing studies have employed financial, market structure, and regulatory data to explain the variation in premiums paid in bank mergers, no study addresses the effect of takeover rumor on premiums in the banking industry. The study of the impact of takeover rumor is important because we are now in a society that is “bombarded by takeover rumors to a degree we haven’t seen” (Greenberg, 1999, pp. 194). Today’s rumors come from various sources: from high-level insiders, including investment bankers, corporate raiders, and also, from ordinary investors. With the rapid development of information technology, takeover rumors proliferate from online traders, speedy flow of information via the Internet and financial cable channels (Greenberg, 1999). The first response from the market is a rapid jump in the stock price of the firm targeted by the rumor. Takeover rumors typically have the power to escalate the target firms’ stock prices before the first public announcement of the proposed takeover (Bettis, 1995).

A merger or an acquisition is considered a special capital investment because billions of dollars are needed to complete the deal (Dolbeck, 2004). Before a deal can occur, boards,

managers and shareholders have many aspects to consider in what eventually makes a successful merger or acquisition. Two of the salient factors are how the combined company will compete in its market, and how the companies will be integrated when the deal closes (Dolbeck, 2004). As salient as these factors, the eventual price paid is also very important.

Empirical studies on mergers and acquisitions of the non-financial firms are extensive. It has been found that acquiring firms pay a premium price for the target firms (Denis and McConnell, 1986; Eckbo, 1983; Torabzadeh and Bertin, 1987; Travlos, 1987). However, in contrast to the abundance of literature on mergers of non-financial firms, studies on bank merger activity in the United States are relatively few (e.g. Strahan, 2002). In addition, the banking industry has changed dramatically in the United States from the last fifteen years to now (Jensen, 1986). In view of these reasons, this study focuses on merger activities in the U.S. banking industry.

Mergers and acquisitions are seen as “a means for banks to penetrate new markets, realize potential economies, and acquire financial power and prestige associated with large size” (Benston, Hunter and Wall, 1995, pp.777). In the mid-1980s there were more than 14,500 commercial banks operating in the United States, but only 9,500 remained in 1998 (Gart, 1998). The change is even more dramatic given the fact that the 34.5 percent reduction occurred while the whole industry was rapidly growing (Gart, 1998; Jackson and Gart, 1999). According to Federal Deposit Insurance Corporation (FDIC)’s report, from 1991 to 1996, more than 2,000 mergers and acquisitions occurred. The total assets of the successfully targeted banks exceeded one trillion dollars (FDIC, 1996). More than one third of the commercial banks, including both bank holding companies (BHC) and independent banks disappeared from the marketplace during

that period of time (Strahan, 2002). This was mainly due to the high frequency of merger and acquisition activities in the banking industry.

Among the factors leading to the sharp increase in merger and acquisition activity, such as technical and financial innovations, the loosening of regulatory restrictions contributed the most (Jensen, 1986). A series of deregulation laws, such as the 1980 enactment of the Depository Institutions Deregulation and Monetary Control Act (DIDMCA), the Garn-St. Germain Depository Institutions Act of 1982 (GSG), and the Interstate Banking and Branching Efficiency Act of 1994 (IBBEA) constituted the principle deregulation acts (Winer, 1982). These series of deregulation acts initiated the removal of all the geographic and state-level restrictions on interstate banking, branch banking and multiple bank ownership (Kane, 1996).

“This surge is enabled by an improving economy, continuing low interest rates, buyers’ pent-up demand for external growth, the difficulty associated with organic growth and the catalytic effect of a handful of recent mega-deals” (Dewese, 2004, pp. 36). Dewese’s statement highlights the importance of this study because, if this is the beginning of another mergers and acquisitions period, this study will be important from not only an academic perspective, but from the practical perspective, it will help practitioners understand the effects of takeover rumors on shareholder value and eventual premium paid in the merger and acquisition activities. Thus, this thesis will fill a gap in the literature by studying mergers and acquisitions in the recently deregulated U.S. banking industry, and by analyzing the effects of takeover rumors on bank mergers and acquisitions in the United States.

Generally, most merger studies have used the event approach, which focuses on stock prices around the announcement date of the merger to detect abnormal returns (e.g., Brown and Warner, 1980, 1985; Malatesta, 1986; Henderson, 1990). In contrast, this study focuses on price-

total asset multiples to explain the premiums from the bank mergers in order to avoid the multiple rumor effect.

Chapter two reviews the literature on four aspects of mergers and acquisitions: history, motivations, auction theory and takeover rumor impact. Chapter three develops the hypothesis of this study and a description of the methodology to be used (data collection, population sample, statistical analysis tools, etc.) is outlined in Chapter four. Chapter five contains the results and discussion of these results. The conclusions of this study, limitations and suggestions for future study are summarized in the final chapter.

## **Chapter Two: Literature Review and Theoretical Perspective**

A takeover, which an outside party seeks to obtain control of a firm, can be grouped to several types: mergers, hostile and friendly tender offers, and proxy contests (Fama and Jensen, 1983). Merger is the combination of the assets and liabilities of both acquiring and acquired firms, while proxy contests is the attempts to gain control by soliciting stockholders to vote to replace the existing management (Jarrell, Brickley and Netter, 1988). A hostile acquisition is happened when the initial bid for the target was neither negotiated with its board prior to being made nor accepted by the board as made. This section reviews the existing literatures on four waves of merger and acquisition, eleven takeover motives, auction theory applied in the takeover market and takeover rumor impact surrounding the announcement date.

### **2.1. History of Mergers**

According to Gaughan (1996), there were four periods of large merger waves that appeared in the world of business. The first merger wave occurred in the late nineteenth and early twentieth century. It started immediately following the depression of 1883 and reached its peak between 1898 and 1902, eventually ending in 1904. This period of mergers primarily affected mining and manufacturing and related industries. Nelson (1959) found that eight industries demonstrated a higher incidence of merger activity during that time. They were: primary metals, food products, petroleum products, chemicals, transportation equipment, fabricated metal products, machinery, and bituminous coal industries (Nelson, 1959).

The second merger wave commenced in 1916 and ended on October 24, 1929, when the Great Depression began due to the 1929 stock market crash. The motive of the second merger wave was the enforcement of antitrust laws. It was also motivated by the federal government's

encouragement of the formation of business cooperatives to enhance the nation's productivity as part of the war effort (Gaughan, 1996).

The third merger wave, from 1965 to 1969, featured a historically high level of merger activities among the four waves due to an economy boom during that period time. The 1960s merger wave showed lots of examples of large-scale diversifications into unrelated fields. Firms in this period often sought to expand by buying other firms in different fields rather than through internal expansion. Schipper and Thomson (1983) analyzed the wealth effects in the firms that announced acquisition programs. They found the increasing number of mergers during 1967 to 1970 period was, also, because regulatory changes such as the Williams Act and the Tax Reform Act of 1969 were in effect in those years.

The downward trend in mergers and acquisitions in the 1970s through 1980 period reversed sharply in 1981. The fourth wave, from 1981 to 1989, differentiated itself from the other three waves by the occurrence of numerous hostile mergers (Shleifer and Vishny, 1991). Hostile mergers enabled some corporations and speculative partners to take advantage of the takeover game to realize very high profits in a short period of time (Gaughan, 1996). During the 1980s the earnings of the acquiring firms rose significantly. In addition, the market responded favorably to these diversified acquisitions by following the rising pattern of earnings (Jensen and Ruback, 1983). When the junk bond market collapsed and the economy moved into a recession at the end of the 1980s, the hectic pace of mergers and acquisition activities slowed down and gradually came to a halt (Gaughan, 1996).

The lull in mergers, however, was short lived and picked up in 1992 with an increasing volume of merger and acquisition transactions (Hayward and Hambrick, 1997). At that time, mega-mergers were back and the level of activity resembled the beginning of another merger

wave. Large deals, some similar in size to those that occurred in the fourth merger wave began to once again occur; however, unlike the fourth wave, in the 1990s more mega-mergers and strategic mergers appeared instead of hostile mergers (Gaughan, 1996). But now it is still too early to say it is a fifth wave.

These four merger waves flowed throughout the twentieth century bringing about business upheavals and massive organizational changes. The reason is why? The next session will deal with the theories of the motives behind the various merger waves.

## **2.2. Motives for takeover**

There are a host of determinants or reasons that firms might engage in takeovers. One of the major reasons is expansion. Acquiring a company in a line of business or geographical area into which the company may want to expand can be a quicker way to expand than internal expansion (Kummwe and Hoffmeister, 1978). An acquisition of a particular company may provide certain synergistic benefits for the acquirer, such as where two lines of business complement one another. However, an acquisition may be part of a diversification program that allows the company to move into other lines of business (Bradley, Desai and Kim, 1988).

Financial factors motivate some mergers and acquisitions. For example, an acquirer's financial analysis may reveal that the target is undervalued. That is, the buyer's estimate of the target's value may be significantly in excess of the market value, even when a premium that is normally associated with changes in control is added to the acquisition price (Gaughan, 1996). Other motives, such as tax motives, also may play a role in an acquisition decision (Jarrell, Brickley and Netter, 1988).

Jensen (1998) proposed the "economic disturbances" theory and argued that mergers could also be caused by valuation differentials among market participants, which are triggered by

some economic shocks, such as changes in technology, industry structure and regulatory laws.

After the takeover, new managers bring with them a fresh view of the business environment and establish new relationships with current employees and communities.

The following subsections highlight most of the current theories regarding the motives for mergers and acquisitions.

### **2.2.1. Synergy**

Synergy is the most often cited motives for mergers and acquisitions, see, for example, Halpern, 1983. Synergy refers to the reactions that occur when two substances or factors combine to produce a greater effect together than the sum of the two operating independently could account for (Berkovitch and Narayanan, 1993). The anticipated existence of synergistic benefits induces firms to incur the expenses of the acquisition process and pay target shareholders a premium for their shares. Synergy may allow combined firms to have a positive net acquisition value (Gaughan, 1996). He divided the synergy effect into operating synergy and financial synergy. Operating synergy may come as a result of economies of scale—decreases in per unit costs that result from an increase in the size or scale of a company's operations. Financial synergy refers to the possibility that the cost of capital can be lowered by combining one or more companies (Gaughan, 1996).

Through acquisitions, a combined firm may increase expected cash flows over their individual sums as independent firms. The synergy motive assumes that the target firms' managers stand on the side of shareholders, trying to maximize shareholder wealth and would engage in takeover activity only if it results in gains to both companies' shareholders (Berkovitch and Narayanan, 1993). An acquiring firm may be able to pay a premium for a target firm because

it anticipates the synergy gains from the improvement of management of the target's business will cover the total cost of the transaction (Halpern, 1983).

### **2.2.2. Antitrust Policy Relaxation**

The revised antitrust policy can be understood as another cause for the takeover wave during and after 1980s. It was initiated when the new Reagan Administration picked a new set of regulations to encourage more within industry takeovers (Shleifer and Vishny, 1991). As they concluded in their research, when antitrust authorities stopped challenging mergers of firms in the same industry, the number of such mergers increased sharply.

Also, Jarrell, Brickley and Netter (1988) concluded that the relaxation of the antitrust policy encouraged a high level of takeover activity. They found antitrust regulators began to recognize that the U.S. market should be supported by domestic mergers to gain an advantage in the increasingly competitive international marketplace. In today's world, the antitrust regulators almost never object to the vertical combinations or even some horizontal mergers within the same industry, which were completely taboo before the 1980's.

### **2.2.3. Incremental Cash flows**

Incremental cash flow is another benefit that takeover activity can bring to the combined firms. It is generated by the combination of previously independent firms or by the achievement of control over the operations of the target firms (Halpern, 1983). Halpern also pointed out the overall cost of the investment decision for takeover was equal to the search and negotiating costs plus the actual dollar amount paid (or the equivalent dollar amount of the securities issued) to the shareholders of the target firm.

#### **2.2.4. Value Maximization Motive**

Since an acquisition decision is a kind of investment decision, the decision makers should meet the same criteria for any other investment decision (Malatesta, 1983). There are a number of acquisition motives that are consistent with the goal of value maximization. In the field of corporate finance, value maximization means allocating corporate resources to the point where marginal costs equal marginal benefits, among all groups or stakeholders in a firm (Ross et al, 2002). The fundamental aim of corporation decision makers ought to be the maximization of a firm's long-term value, which means balancing the corporate resources and benefits at different points in time. Also, those decision makers' role can be extended to incorporate the effects of uncertainty, and it is the essence of modern capital theory (Malatesta, 1983).

Halpern (1983), in explaining the value maximization motive, suggested an acquisition would allow a redeployment of the excess cash either held by the acquirer or by the target firm. The other benefit from the acquisition is that it can reduce the probability of expected bankruptcy costs and increase the debt capacity of the new entity.

#### **2.2.5. Asymmetry in Information**

Asymmetry in information can provide an acquiring firm management team to take advantage of. The asymmetry information hypothesis postulates the acquirer has some information concerning the target firm that is not available to the other participants in the market (Halpern, 1983). This information will not be reflected in the current share price of the target firm, thus allowing the acquiring firm to gain profits when it trades on the target firm's stocks in the following time.

### **2.2.6. Corporate Control**

Another commonly cited motive is based on the assumption that the acquirer wants to gain control of the target firm (Jensen and Ruback, 1983). They define the market for corporate control as a takeover market, in which many different managerial teams are competing for the right to control the management of the corporate resources.

Several researchers investigate corporate control and the gains earned by the acquiring firms and the target firms. Halpern (1983) found that the total profits earned by a merger depended on the price paid for the acquisition, only if the target management was incompetent in regards to the control of the firm or the agency costs were the sole motives for the merger. However, if the market for control was competitive and there were no other unique factors in the acquiring firm, the target firm would earned all of the gains while the acquirer obtained a normal rate of return (Halpern, 1983). Similarly, Jensen and Ruback (1983) found the target firm had a strong possibility to earn a significant positive abnormal return prior to the event date, if corporate control was the rationale for the merger. Correspondingly, the shareholders of the acquired firms realized greater profits due to substantial premiums paid by the acquiring firms. Regarding the shareholders in the acquiring firms, contrary to what Halpern found, Jensen and Ruback (1983) found the results were mixed. Some acquiring firms reported small but marginally positive or zero announcement period returns and others reported small but significantly negative returns. They concluded that corporate takeovers could generate overall positive gains, and the shareholders of target firm could benefit while the acquiring firm shareholders did not lose.

### **2.2.6.1. Mechanisms for Corporate Control**

According to Jensen (1991), the U.S. market for corporate control reached its height of activity and influence in the last years of the 1980s. Within the concept of corporate control, the function of the board of directors of a public corporation, which is to monitor the top management team and to replace management, when necessary, becomes more important (Aziz and Saeed, 1993). When the board of directors fails to discipline the managers, or the whole management team shows poor performance, hostile takeovers will occur. Thus, Jensen (1986) pointed out that the failures of boards of directors were responsible for the advent of those hostile takeovers. On contrary, friendly takeovers seemed to be encouraged by corporate boards that met with poor performance from management teams but were in a healthy and ascending industry (Jensen, 1986).

Morck, Shleifer and Vishny (1989) studied the function of the board of directors in different industries. They found that usually the board of directors looked at other firms in the same industry to benchmark the performance of its firm's managers and replaced its top managers when the firm under-performed. On the other hand, the board was unwilling to change the management in a declining industry, because those changes might harm the employees who were considered more important to the organization than shareholders (Morck, Shleifer and Vishny, 1989). In these cases, a hostile bidder will appear, buy the firm, implement profit-increasing strategies, and satisfy both the board and the top management of the target firm.

### **2.2.6.2. Large Shareholders' Roles**

Large shareholders play a very unique and important role in takeover activities (Shleifer and Vishny, 1989). Even when they cannot monitor the management team themselves, they still

have the ability to facilitate a third party takeover by means of splitting their large gains with the third party bidder.

Shleifer and Vishney also found a strong relationship between takeover and shares owned by large shareholders. Not surprisingly, as a takeover becomes more likely, the price of the firm's shares increases, therefore, increasing the value of shares held by the large shareholders. Thus, large shareholders are more willing to welcome a takeover because when a takeover does occur, they capture some of the takeover premium.

### **2.2.7. Free Cash Flow Theory**

Jensen (1988) defined free cash flow as “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” (pp. 323). Such free cash flow must be paid out to shareholders if the firm is to be efficient and maximize shareholders' value. Jensen (1998) found that another major cause of takeover activity was the agency costs associated with conflicts between managers and shareholders over the payout of free cash flow. Although managers can be regarded as the agents of the shareholders, the interests of the two groups may diverge. This generates conflicts between managers and shareholders on some corporate strategies or investment decisions. Agency costs are used to settle these arrangements (Jensen, 1998). Agency costs include the total costs of monitoring managerial behavior, and the efficiency losses, which are occasionally incurred when the conflicts cannot be resolved.

Palepu (1986) in his study of the determinants of takeover also found evidence on the free cash flow theory for the takeovers. He suggested that the greater the target firms' growth rates and resources mismatched those of the acquiring firms, the more likely the target firm would be taken over.

Where are these free cash flows from? Most are found to be from the acquiring firms. In Asquith's (1983) study, acquiring firms exhibited statistically significant positive abnormal returns in the years preceding acquisition announcements. For example, the average abnormal returns are 14.3% over a 400-day period ending 20 days before the final announcement day. Varaiya (1988) explained that the above abnormal returns might reflect profitable pre-acquisition investments of the acquiring firms, and might provide these firms with substantial internally generated cash flows after the takeover succeeds.

On the macroeconomics level, Jensen (1991) argued corporate investment was a cause of the merger and acquisition activities of the 1980s. His 'free cash flow' theory postulated that corporate restructuring was a response to excessive capital in many sectors of American industry during the 1990s. Capital is considered in a closed economy, although it can be squeezed outside of the low growth industries by the payouts of cash and substitution of debt for equity, it will be recycled back into the economy (Jensen, 1991). The recycling process includes capital being transferred to smaller companies, large inflows to the venture capital market, while organizational changes and resulting efficiency gains at larger companies will be the basis for renewed capital spending.

### **2.2.8. The Hubris Hypothesis**

The price of the bid is dependent on the perception that the bidder thinks how many returns the target firm will bring. Sometimes, the bidder will falsely believe the target can extract higher returns than what the market believes are possible (Roll, 1986). Thus, the hubris of the bidder, or the pride of the managers in the acquiring firm rather than objective analysis, may motivate a takeover (Hayward and Hambrick, 1997).

As Roll (1986) suggested the hubris hypothesis assumed that takeovers could be explained by manager's mistakes and there were no synergy gains. With respect to the relationship between target firms and total returns, no synergy gains can be explained that when there are true synergies in some takeovers evaluation errors made by the managers neutralize the synergy effect. Roll compared hubris motive with the synergy motive and concluded that this scenario was similar to a takeover motivated by synergy but there were measurement errors, instead of managerial errors.

### **2.2.9. Deregulation**

Deregulation also induces merger and acquisition activities by calling forth new strategies and new management teams to implement these new laws (Jensen, 1998). Many newly recently deregulated and restructured industries (financial services, airlines and transportation, oil and gas and broadcasting) in the 1980's have demonstrated good examples of mergers and acquisitions (Jensen, 1986). He conducted research in those deregulated industries and discovered that broadcasting and transportation industries accounted for 20 percent of all mergers and acquisition activity from 1981 and 1984, while oil and gas accounted for another 16.3 percent.

### **2.2.10. Diversification**

Diversification (also called exit by some researchers) played a major role in the acquisitions and mergers that took place in the third merger wave—the conglomerate era (Morck, Shleifer and Vishny, 1989). When management team or shareholders were unsatisfied with the current volatile level of earnings, a company would often plan to pursue diversification outside its own industry (Gaughan, 1996).

According to Gaughan (1996), the diversification process can be divided into horizontal and vertical integration. Horizontal integration refers to the increase in market share and market power that results from acquisitions and mergers of rivals (Eckbo, 1983). Combination of two companies, who were rivals, will give the combined company a greater piece of the pie in current market shares and increase the market power. Since who owns the market power (monopoly power) has the ability to set and maintain prices above competitive levels, horizontal integration has been forbidden in the United States for quite a long time.

Vertical integration mergers occur when companies seek to combine what was formerly a buyer and seller relationship (Porter, 1987). When a company is successful on acquiring former suppliers they gain a cost advantage over rivals. In some industries, vertical integration is necessary when a dependable source of supply is needed. The ability to have a timely and dependable access to suppliers assists organizations to remain a reliable of product (Berkovitch and Narayanan, 1993). Supply chain control is especially important to organizations offering specialized products and in need of constant outputs, thus providing a strong motive for vertical integration for these specialized industries (Gaughan, 1996).

#### **2.2.11. Tax Motives**

Tax gains can be important motives for certain takeovers. A target can become more valuable, if its transferable tax losses can be used by the acquiring firm to offset income (Gaughan, 1996). Similarly, Auerbach and Reishus (1987) found tax benefit was very significant that it could influence the merger decision in potentially 20%.

Above-mentioned factors motivate the merger and acquisition activities in all the industries, however takeover market can also be regarded as the sealed-bid auction market, in

which prospective bidders (acquiring firms) make their bids on order to get the control of sellers (the target firms). Thus those existing auction theories can be also applied to the takeover market.

### **2.3. Auction Theory**

In the concepts proposed by Adam Smith in 1776 (*A Wealth of Nations*), a buyer could only make his own perceptions regarding the value of his purchase and would not be influenced by others. The buyer decided a price according to his evaluation of what resources he had and how much profit he could realize (Bulow and Klemperer, 2002). However, in the real world a buyer's evaluation can be affected by other's perceptions. For example, Bulow and Klemperer (2002) cite an example regarding common-value assets; if buyers don't equally share the information on the assets, buyers may exercise caution on the ascending price auction when compared to their pre-auction estimation price.

#### **2.3.1. The Winner's Curse Hypothesis**

In a sealed-bid auction bidders set the price on an object, which has the same value to all potential buyers but the since the bids are sealed potential buyer are unaware of what other potential have bid (Goeree and Offerman, 2003). This may cause the winner of the auction to pay more than the true value of the object. That phenomenon is called the "winner's curse" (Varaiya, 1988). Varaiya identified the winner's curse of seal-bid auctions as an overestimation of the true value; thus, was cursed by having to pay an over-inflated price for the object. Researches been done on the bidding behavior in different auction markets support the "winner's curse" theory. It was found that winners in sealed-bid auctions failed to recognize they were paying too much and

the price exceeded the object's true value. Thus, the winners were more likely "cursed" in the period following the purchase (Brannman, Klein, and Weiss, 1987; Giliberto and Varaiya, 1989).

Varaiya (1988) postulated the winner's curse hypothesis applied to merger and acquisition situations. Roll (1986) used the winner's curse to support his hubris hypothesis by suggesting the reason why managers overestimated takeover gains and paid a high price for the target firm was because of their hubris and trying to maximize the value.

### **2.3.2. News Curse**

Goeree and Offerman (2003) recently offered a new hypothesis, the "news curse". A "base rate fallacy" can occur since bidders in an auction cannot obtain complete and perfect information on the value of the object. By the term "base rate fallacy" they inferred that bidders were more likely to make evaluation errors, either high or low, because of the lack of the right information on which to make an evaluation. Their lack or neglect of information in the bidding process would lead to a curse on them for either paying too much or not winning the bid (Goeree and Offerman, 2003).

There are two kinds of news curses: good news and bad news. The good news curse referred to the winning bidder setting a price high above average, because they were influenced by good news on the object. In the reverse, bad news curse, bidders will unnecessarily reduce their bid price due to some bad news and have their bid aborted (Goeree and Offerman, 2003).

### **2.3.3. Optimal Bidding**

Optimal bidding strategies are then developed to avoid adverse-selection problems such as recognized by the winner's curse and the news curses (Wilson, 1977). He suggested optimal bidding strategies required the bidders to evaluate both the degree of uncertainty of the

information regarding the value and their competitors when they set their bidding price on the desired object.

#### **2.3.4. Premium**

In the takeover market, the takeover gains are connected with the degree of competition, for example, number of buyers to control the target firm (Shleifer and Vishny, 1989). The larger the number of bidders, the greater the estimated value is. The logic is that if the target firm has a large number of interested bidders then it must be of great value. Therefore, with the increase in the degree of competition, the premium paid in the takeover occurs from the overestimate value of the target firm (Bugeja and Walter, 1995).

Varaiya (1988) applied the winner's curse to the premium paid in the takeover scenario. Takeover premiums were in conjunction with the systematic ex ante overvaluation on the takeover gains by the acquiring firms. In essence, the successful acquiring firms will usually pay more over the true value of the target firm (Lehn and Poulsen, 1987).

Acquisition premiums are calculated in different ways. The most common method is the ratio of the ultimate price paid per target share divided by the price prior to the takeover (Shleifer and Vishny, 1991). Premiums are valued by the acquiring managers based on how much synergistic values the acquiring firm can extract from the target. Premiums also are based on the acquiring firm manager's conviction that the target firm is undervalued concerning its current resources and potential prospects (Jarrell and Poulsen, 1987). Jensen (1993) studied the merger and acquisition activity between 1976 and 1990 and found substantial premiums were common, with an average of 41% (many being over 100%) over the market value. Shleifer and Vishny (1991) conclude that the stock prices of the acquirers were usually marked down by investors

after the takeover announcement date, indicating that they believed the managers of the acquiring firm had paid too much in the takeover bid.

The reason the premium paid is important is not just because it shows the expectation of the acquirers, but also it will affect the acquisition performance (DeAngelo, DeAngelo and Rice, 1984). If the premium paid is too high, it definitely influences the returns of acquirers' shareholders; the higher the premium, the lower the return is to the shareholders. Substantial premiums often can damage both acquiring firm shareholders' short-term and long-term wealth (Haunschild, 1994).

Premiums paid by the acquiring firms can reflect two things: one is the value that can be obtained by replacing the target company's inefficiencies, such as poor-management; the other is the expected value from synergy effects (Jensen and Meckling, 1976).

Various researchers have studied the reasons for the cause of the premiums. Varaiya (1987) found one reason was that the poor performance of the target firm within the industry could cause higher premiums. In examinations of the hubris shown by chief executive officers in the acquiring firms, evidence was found that the exaggerated self-confidence of top managers or the overestimation of the value to be extracted from the takeover offer an explanation as to why the acquiring firms paid high premiums (Roll, 1986; Hayward and Hambrick, 1997). Hayward and Hambrick (1997) discovered four sources for managers' hubris: the acquiring company's recent performance, recent media praise for the CEO, the CEO's self-importance and a composite factor of these three variables.

#### **2.4. Takeover Rumor Impact**

The prediction that takeover rumor has the power to move the price is corroborated by several event studies on public and nonpublic announcements in non-financial industries. Davies

and Canes (1978) and Liu, Smith, and Syed (1990) both studied the impact of disseminations from stock market analysts' recommendation to the public and found the recommendations could affect the stock price of the rumored target. Liu, Smith, and Syed (1990) also found there was a positive abnormal return in a ten-day period before the formal publication and a significant positive abnormal return during the last two days prior to the event date. Mathur and Amjat (1995) studied the recommendations of the column "Inside Wall Street" (*Business Week*) and found the similar result, in that a significant return will occur preceding publication.

Studies examining takeover rumor effects on stock prices found that takeover rumors reported in the *Wall Street Journal* had the power to manipulate the market price (Pound and Zeckhauser, 1990; Zivney, Bertin, and Torabzadeh, 1996). That is, the stock prices of target firms subject to takeover rumors will increase surrounding the published rumor date<sup>1</sup>.

In addition, Zivney, Bertin, and Torabzadeh (1996) analyzed the stock returns patterns with respect to the ultimate outcome of the rumors (true versus false rumors). They found that those rumors that turn out to be true experienced additional abnormal returns in the one-year after the rumor date. The stock price of rumored firm increases by 15% before rumor publication date and with an additional 15% one year after the rumor publication date. As will be seen in this paper, my analysis follows the same pattern. In a recent paper, Bommel (2003) analyzes the phenomena of rumor in a theoretical framework. He suggested that spreading rumors made economic sense, as they increased demand for a security and could drive its price beyond the price that the rumormonger privately knows. His model generates result consistent with empirical findings on rumors. Researchers have applied rumor theory on unpublished tips. For example, Dimson and Marsh (1984) analyzed the usefulness of the advice offered by brokers.

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<sup>1</sup> Published rumour date is the press date that information regarding the takeover rumour first appears in a reputable newspaper (Zivney, Bertin, & Torabzadeh, 1996).

Contrary to what they expected, the results showed that privately disseminated information was more profitable than advice given by brokers. Bagnoli, Beneish and Watts (1999) studied the Internet as another platform for diffusion of stock tips through the messages that occurred everyday on the thousands of forums, message boards on the Internet. They uncovered data that demonstrated that unofficial forecasts and rumors on the Internet could create conspicuous abnormal returns before event date.

### **Chapter Three: Hypothesis Development**

In the commercial banking industry, prior to deregulation, commercial banks were limited in the geographical scope of their operations (Strahan, 2002). In accord with the Douglas Amendment to the 1956 Bank Holding Company (BHC) Act, banks were not permitted to take part in interstate branching and/or operate outside the state where its headquarter was located, unless the state of the target bank permitted operations. Furthermore, many states at that time prohibited intrastate branching (James and Wier, 1987).

Bankers felt more pressures and campaigned for less regulation and more freedom in the banking industry. In response to concerns from the banking industry, the United States has witnessed a dramatic series of bank deregulations over the last two decades (Jeon and Miller, 2003). Deregulation removed all the geographical limitations and permitted intrastate and interstate banking and branching activities. This changed the structure in the U.S. commercial banking industry, resulting in a profusion of nation-wide bank mergers and acquisitions (Jackson and Gart, 1999). The elimination of geographic barriers, the relaxation of antitrust enforcement, and the amplification of volatility in the financial markets contributed to a skyrocket mergers and acquisitions in U.S. banking industry (Bertin, Ghazanfari and Torabzede, 1989).

According to Winer (1982), deregulation in the U.S. banking industry started with the 1980 enactment of the Depository Institutions Deregulation and Monetary Control Act (DIDMCA), and followed shortly thereafter by the Garn-St. Germain Depository Institutions Act of 1982 (GSG). These two legislations allow nationally chartered commercial banks to have the power to operate in the states where savings institutions did not have branching restrictions (Kane, 1996). Before deregulation, only 12 states permitted statewide branching operations, after removing the restrictions, 38 out of 50 states allow unrestricted banking (Strahan, 2002).

Banks failures accelerate the merger and acquisition process in the 1980s (Bertin, Ghazanfari, and Torabzede, 1989). They described the period of 1980s as “a season of economic recession, banking deregulation, high and volatile interest rates, and poor leading practices resulting in significant losses” (pp. 93). They found that the increasing trend in bank failures provided a larger supply of target banks, which offered acquiring banks a larger choice pool and more power under the Garn-St. Germain Depository Institutions Act of 1982’s interstate merger statute.

During and after the deregulation, commercial banks are facing a harsher competitive environment between themselves and other financial institutions, i.e. saving banks, credit unions, savings and loan associations, money market funds, etc (Kroszner and Strahan, 1999; Mukherjee, Ray and Miller, 2001). The harsh competitive environment led to the popularity and increased regularity of merger and acquisition activity in the banking industry.

Today, nearly all of the restrictions that were blocking the development of the banking industry have been swept aside by deregulation. Banks now have fewer limitations placed upon them and have more power to modify their liability structure in order to offer better financial services (Holdren, Bowers and Mason, 1994). Due to interstate deregulation, a state now welcomes an out-of-state bank to acquire its incumbent banks.

The broad influence of deregulation has given the U.S. banking industry a complete makeover. The numerous interstate consolidations, mergers and acquisitions have made the entire industry more competitive, resulting in higher quality customer service at lower prices (Strahan, 2002). The U.S. banking industry has been reshaped into a more competitive and consolidated industry through both vertical and horizontal mergers and acquisitions. This was

largely due to the passage of Interstate Banking and Branching Efficiency Act of 1994 (IBBEA) (Gardner, Mills and Cooperman, 2000).

As a result of deregulation of US banking industry in the 1980s, a profusion of nationwide bank mergers and acquisitions swept through the industry. Along with this, it has been a surge in published takeover rumors. This provides us with an excellent opportunity to test our proposition. At least two forces lead the acquirer to pay higher premium for the takeover rumored firm. First, evidence shows that a takeover rumor places upward pressure on the stock price of a target firm and, for true rumor, the upward pressure will persist over an extended amount of time (Mitchell, Pulvino and Stafford, 2004). There is also evidence that the prevailing market price of a target firm serves as a foundation over which the bidding price is established (Pound and Zeckhauser, 1990). Almost all merger studies find that in a successful takeover, the bidder pays a premium over the market price of the target firm (Bradley and Korn, 1979; Walking and Edmister, 1985). Jackson and Gart (1999) found that in the current merger wave in the banking industry, the acquiring banks commonly paid significantly higher prices over book values for the targets. Hence, for the takeover to be successful, the induced upward pressure is expected to force the bidder to offer additional premium.

Second, rumor provides information and highlights the properties of the target firm. In this context, it serves as an advertising vehicle promoting the target firm as an attractive acquisition partner (i.e. high synergy). Crawford and Lechner (1996) found a positive relationship between the takeover premium and a few strong financial attributes, which result in making the target more attractive for a takeover. The presence of valuable financial attributes demonstrates that the target qualifies for acquisition. Shareholders of the target, aware of the financial attributes, ask for a high acquisition price, resulting in a higher premium being paid by

the buyer (Crawford and Lechner, 1996). The request for a higher price may result in related takeover speculations, which may cause stock prices to rise.

Compared to other industries, and within the context of the premiums paid for a merger or acquisition, enough attention has not been given to research in the banking industry. Recent research on the determinants of merger premium in the banking industry gives some insights on how the financial characteristics of the target relate to the premiums. Jackson and Gart (1999) suggested the merger premium was an opportunity for the target's value increase rather than the ability of the acquirer to pay. The more attractive the target's financial status, the higher the acquisition price relative to book value. Numerous researchers specify that the bank merger premiums are positively related to the target bank's profitability, asset growth, return on assets, capitalization, portfolio condition, cost structure, geographical diversity, ratio of non-interest income to assets, ratio of operating expenses to assets and the rate of economic growth in its market area (Rhoades, 1987, Cheng, Gup and Wall, 1989, Hakes, Brown and Rappaport, 1997). The target bank or acquiring bank's charter (state or federally chartered) and whether the target bank's state needs the bank holding company's merger, will determine the result of approval and time for decision (Gardner, Mills and Cooperman, 2000). Due to that reason, the time for completing a merger and acquisition in the banking industry is often much longer than that required for mergers in non-financial industries.

Varaiya (1987) studied the financial characteristics of the acquiring banks and found the acquirer's financial characteristics also have some impact on paying a high premium for the target bank. Financially strong acquiring banks may afford to pay more for target banks and, thus, outbidding rival banks who have weaker financial characteristics.

Neely (1987) proposed some factors in the banking industry were important to study because merger and acquisition activities among banks were different from those in non-financial industries. For example, the accounting data used in banking studies are not complete, because many of the banks in the United States are very small or they are closely held. Another reason is that most of the large banks' stocks are traded in the over-the-counter (OTC) market. Since the trade volume of large bank shares listed on OTC market is usually light, merging banks' stock price data are not available (Neely, 1987). However, the most important and the greatest difference is that all mergers and acquisitions among banks need approval from both Federal and State bank regulatory agencies (Jarrell and Bradley, 1980). A further difference, in comparison to other industries, is that very few unfriendly takeovers occur amongst bank mergers (Shleifer and Vishny, 1991). Banking is a service-oriented business, and an unfriendly tender offer would antagonize the bank employees and drive out existing bank customers. Regulatory approvals that are required and the closely held nature of the stocks in most OTC banks provide further hindrances to unfriendly takeovers (Calomiris, 2000). Studies of the passed 20 years in the U.S. banking industry suggest that the rapidly changing new technologies, such as deposit-taking and lending, disturb the balance in the arena, and allure more expansion-minded large banks to acquire the small banks (Kroszner and Strahan, 1999; Mukherjee, Ray and Miller, 2001).

In a way, the takeover rumors create an artificial auction market in which the properties of a firm as a potential target are highlighted. In this type of auction market, the identities of the competitors as well as the competing prices remain unknown. Thus, the rumor directly, or indirectly, invites bidders to compete. Also, motivated by the attractiveness of the rumored target,

and fear of losing it to other competitors, an acquisition-seeking firm may agree to pay higher price for the rumored firm.

Based on these works, I hypothesize that takeover rumor plays another economic role: it extracts higher premium from the acquiring bank compared to a takeover with no prior rumor.

In order to test my hypothesis, I compare the premiums of the targets subjected to takeover rumors with the premiums of the non-rumored targets. If rumors play an economic role and extract higher premium, the premiums of the rumored targets will be higher than the non-rumored targets.

## Chapter Four: Research Methodology

### 4.1. Data and Sample

A total of 512 usable bank acquisitions are analyzed in this study. Our bank acquisitions are selected from a list of acquisitions by actively traded banks that are reported in the *Mergers and Acquisitions Rosters* during the period of 1991 to 2003. All the sample banks satisfy the following criteria: (1) they all belong to the financial sectors<sup>2</sup>, and (2) are listed on the New York Stock Exchange, the American Stock Exchange or the NASDAQ stock market.

I searched the *Wall Street Journal (WSJ)* over one year prior to the acquisition date for information on takeover rumor. Specifically, I searched for any phrase such as “takeover rumor”, “takeover speculation”, “attractive target”, and “attractive acquisition candidate” to classify a bank as rumored target. Other data such as total prices paid for the target banks, method of payment (cash, stock, combination of cash and stock), location of the acquiring and target banks, bank type (federal, national, state), and total assets of the target banks are from the *WSJ*, or annual report. All the sample banks are divided into two groups: banks subject to rumors, and those not subject to rumors.

### 4.2. Method

Generally, merger studies have used events methodology, which focuses on the impact of acquisitions on performance (see, for example, Brown and Warner, 1980, 1985, Malatesta, 1986, Henderson, 1990). By measuring the changes in stock prices that occur over a short period surrounding the time of the merger announcement, this methodology can determine net stock

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<sup>2</sup> Financial sectors refer to those banks whose SIC number is 6021(National Commercial Bank), 6022 (State Banks, Member Federal Reserve), and 6035 (Federal Chartered saving institutions).

price gains or losses (Rhoades, 1987). If the market values of both the acquiring firms and target firms are higher before the acquisition announcement, wealth is regarded to be created (Haspeslagh and Jemison, 1991). A second approach studies business motivation behind the merger activities and focuses on the long-run abnormal stock returns of the merger on the actual performance (see, for example, Lyon, Barber and Tsai, 1999).

I use a new methodology, which calculates the price-total assets (P/TA) multiple to explain the premiums paid in bank mergers. The reason I use this new methodology is because the event methodology cannot clearly show the multiple rumor effect. The variables I use are based on theory and empirical evidence. The financial characteristics of the target banks, such as total assets are extracted from the last available financial statements before the acquisition dates.

To present the stock price movement stimulated by takeover rumors, I first use the residual analysis taken from Brown and Warner (1985).

$$AAR_t = \frac{1}{M} \sum_{j=1}^M (R_{jt} - \hat{\alpha}_j - \hat{\beta}_j R_{dt}) \quad (1)$$

Where,

$AAR_t$  = The risk-adjusted average abnormal return;

$M$  = The number of banks;

$R_{jt}$  = The daily rate of return for the common stock of bank  $j$  on day  $t$ ;

$R_{dt}$  = The daily rate of return for the CRSP equally-weighted Index on day  $t$ ; and

$\hat{\alpha}_j, \hat{\beta}_j$  = The ordinary least squares estimates of the market model parameters which are

calculated over the period  $t = -305$  to  $t = -6$  relative to the takeover rumor day,  $t = 0$ .

The average abnormal returns ( $AAR_t$ ) are calculated for an event period of 371 days (from  $t = -5$  to  $t = +365$ ) surrounding the rumor date ( $t = 0$ ). The AARs are summed over the event period to obtain cumulative abnormal returns ( $CAR_T$ ). Finally, the observed values of  $AAR_t$  and

CAR<sub>T</sub> are tested for significant differences from zero using the standard t-tests as in Brown and Warner (1985).

Second, a regression analysis is used to test for differences between the prices paid to the rumored targets and non-rumored targets. Bank-specific factors that may have an impact on the price paid by the acquiring banks are controlled for in the regression model. These factors include rumors (single rumor or multiple rumors), the size of the target bank, the method of payment (cash, stock swap, or combination of cash and stock), bank type (federal, national, or state bank), and locations of acquiring and target bank (the same or different). In addition, to determine the role of interstate banking mergers, I group all the 50 states in the United States into 4 regions: Northeast, Midwest, West, and South.

Region 1 (Northeast): Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia.

Region 2 (Midwest): Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Wisconsin, Wyoming.

Region 3 (West): Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Utah, Washington.

Region 4 (South): Alabama, Florida, Georgia, Louisiana, Mississippi, Tennessee, Texas.

The model is:

$$P/TA = \alpha_0 + \beta_1 R_i + \beta_2 LTA_i + \beta_3 BT_i + \beta_4 MP_i + \beta_5 LOC_i + \beta_6 LOCT_i + e_i \quad (2)$$

Where

Dependent variable:

$P/TA$  = Price paid to the target firm/Target's total assets

Analysis variable:

$R$  = Rumor status (1 if the target was subject to prior takeover rumor, otherwise 0).

Control variables:

$LTA$  = Log of total assets.

$BT$  = Bank type (federal, national, state), federal is the default variable.

$MP$  = Method of payment (cash, stock, combination), combination is the default variable.

$LOC$  = 1 if both target and bidder are from the same state, otherwise 0.

$LOCT$  = Location of target (northeast, south, west, Midwest), south is the default variable.

## Chapter Five: Results

Because the pre-takeover rumors make the rumored target banks' stock prices move up, I use the residual analysis to present the stock price movement of the target banks subject to rumors. Daily average abnormal returns (AAR), cumulative abnormal returns (CAR) and their associated t-statistics for sixty rumored target banks, from 5 days before and 38 days<sup>3</sup> after rumor publication date ( $t = 0$ ) are presented in table 1.

**Table 1**  
**AAR, CAR and associated t-Statistics 5 days before**  
**and 38 days after rumor date ( $t = 0$ )**

Event Day	AAR %	$t_{AAR}$	CAR %	$t_{CAR}$
-5	0.4298978	1.20049639	0.4299	1.200496
-4	0.725178	2.02507114*	1.155078	2.2808204*
-3	1.2232025	3.41581267**	2.3782805	3.83440242**
-2	1.7128283	4.78310043**	4.0911088	5.71224012**
-1	3.9900723	11.142341**	8.0811811	10.0921893**
0	2.0148995	5.62663922**	10.0960806	11.509932**
1	-0.1693249	-0.4728424	9.9267557	10.4774088**
2	-0.5408131	-1.5102291	9.3859427	9.26677189**
3	0.4149594	1.15878069	9.800902	9.12305655**
4	0.0992991	0.27729442	9.9002012	8.74257957**
5	0.1209745	0.33782328	10.0211757	8.43758011**
6	-0.128554	-0.3589891	9.8926217	7.97473668**
7	-0.0396969	-0.1108543	9.8529248	7.63113372**
8	-0.4365382	-1.21904	9.4163865	7.0277423**
9	-0.2970364	-0.8294788	9.1193501	6.57527358**
10	-0.0977652	-0.273011	9.0215849	6.29822852**
11	-0.078977	-0.2205445	8.9426079	6.05668928**
12	-0.2818789	-0.7871514	8.660729	5.7005106**
13	-0.082751	-0.2310835	8.577978	5.4954554**
14	0.0977353	0.27292741	8.6757133	5.41733578**
15	0.3152317	0.88028962	8.990945	5.47887333**
16	0.2136256	0.59655304	9.2045707	5.48009091**
17	-0.4989679	-1.3933759	8.7056028	5.0690957**
18	0.0213933	0.05974122	8.7269961	4.97456057**
19	0.2049348	0.57228381	8.931931	4.98851079**
20	0.1932373	0.53961827	9.1251683	4.99746513**
21	0.0673054	0.1879513	9.1924736	4.94021758**

<sup>3</sup> Day 38 is the first date that the first target bank was delisted.

Table 1 Continued

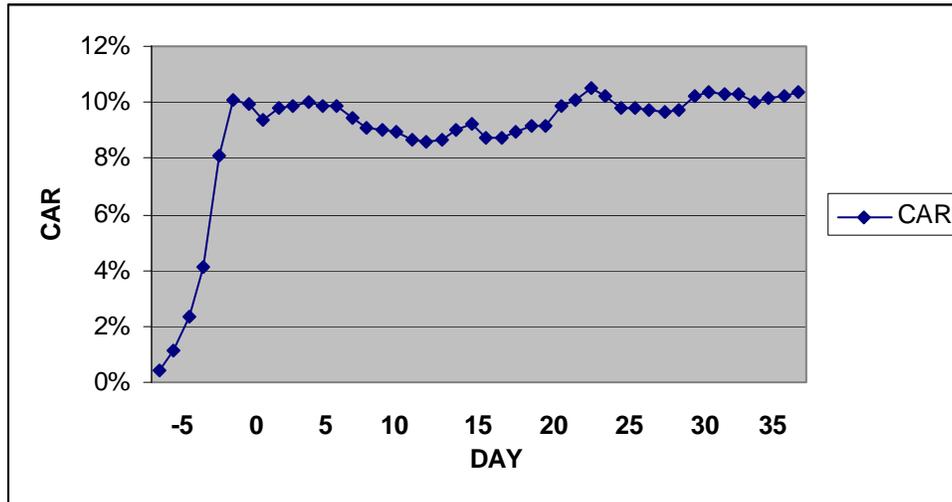
Event Day	AAR %	$t_{AAR}$	CAR %	$t_{CAR}$
22	0.7046349	1.96770439	9.8971086	5.22305853**
23	0.1851168	0.51694175	10.0822254	5.22820948**
24	0.4193913	1.17115698	10.5016167	5.35415718**
25	-0.274879	-0.7676042	10.2267377	5.12922614**
26	-0.4246283	-1.1857815	9.8021093	4.83882735**
27	-0.0001156	-0.0003228	9.8019937	4.76489158**
28	-0.0724622	-0.2023519	9.7295315	4.65959363**
29	-0.0517471	-0.1445047	9.6777844	4.56811986**
30	0.0711437	0.19866984	9.748928	4.53733857**
31	0.4735842	1.32249151	10.2225122	4.69301946**
32	0.1302929	0.36384494	10.3528051	4.68988096**
33	-0.0386831	-0.1080231	10.314122	4.61206629**
34	0.0156699	0.04375839	10.3297919	4.56096937**
35	-0.3088853	-0.8625672	10.0209066	4.37029408**
36	0.1149243	0.32092799	10.1358309	4.3674736**
37	0.0760895	0.21248115	10.2119204	4.34879335**
38	0.1880658	0.52517663	10.3999862	4.37826458**

\* Significant at the 0.05 level

\*\* Significant at the 0.01 level

Stock price movement is presented in Figure 1.

**Figure 1.**  
**Cumulative Abnormal Returns (CAR) 5 days before**  
**and 38 days after rumor date (t = 0)**



The results from the residual analysis indicate the stock price of rumored firm increases by 10 percent 5 days before rumor date because of some information leakage and keep the same trend after that. It suggests that the shareholders of the banks subject to rumors have abnormal

returns in one month after the rumor publication date. The results show similar findings with the prior studies in the other industries, for example, Pound and Zeckhauser (1990), Zivney, Bertin, and Torabzadeh (1996).

### 5.1. Descriptive Statistics

The Descriptive statistics of the 512 target banks in my sample are presented in Table 2.

**Table 2**  
**Descriptive Statistics**  
**N=512**

	Frequency	Percentage
<b>Rumor Status:</b>		
Rumored targets	72	14%
Non-rumored targets	440	86%
<b>Bank Type:</b>		
National Banks	230	43%
State Banks	236	46%
Federal Savings Institutions	56	11%
<b>Method of Payment:</b>		
Cash Transactions	77	15%
Stock Transactions	379	74%
Combination of cash and stock	56	11%
<b>Targets and Acquirers are from:</b>		
The same location	250	49%
Different locations	252	51%
<b>Targets locate in:</b>		
Northeast	230	45%
Mid-West	133	26%
West	62	12%
South	87	17%

As shown in Table 2, non-rumored target banks are six times more than the rumored target banks. For the bank type, national and state commercial banks are nearly the same, both account for around 45 percent of my sample. The federal chartered savings institutions are only 11 percent, and hence, I set it as the default variable in the regression model. In the bank mergers and acquisitions, stock transactions obviously dominate the method of payment, accounting for 74 percent, while cash and the combination of cash and stock are not commonly used method of payment. Almost half of the sample target banks are from the same states as the acquiring banks, and the remaining half are not from the same state as the acquirers. From the descriptive data, we know most bank mergers happened in the Northeast area, basically the states of New York, Pennsylvania and Connecticut. Some bank mergers also occurred in the Midwest area, in the states of Illinois, Kentucky, and Indiana. Compared to Northeast and Midwest, not many target banks are in the west and south area.

## **5.2. Correlations**

The correlation between the dependent variable (Price-Total Asset multiple) and the independent variables (Rumor status, log of total assets, national banks, state banks, federal saving institutions, cash transactions, stock transactions, combination of cash and stock, same location/different location, northeast, midwest, west and south) are presented in Table 3. In the correlation matrix, the correlations between most variables are normal, except the correlation between cash and stock (-0.746), between stock and combination of cash and stock (-0.544), and middle west and north (-0.528). These high correlations may weaken the significance of the coefficient.

**Table 3**  
**Correlation Matrix**

	P/TA	Rumor	LTA	National	State	Federal	Cash	Stock	Combo	Loc	North	MW	West	South
P/TA	1													
Rumor	-.071	1												
LTA	-.423**	.433**	1											
National	.169**	.068	.069	1										
State	.047	-.093	-.137**	-.837**	1									
Federal	-.343**	.045	.109*	-.261**	-.311**	1								
Cash	-.056	-.017	-.121**	-.076	.056	.033	1							
Stock	.146**	.048	.100*	.069	-.03	-.064	-.746**	1						
Combo	-.142**	-.05	-.002	-.006	-.026	.054	-.153**	-.544**	1					
Loc	-.077	.065	.215**	.076*	-.048	-.045	-.099*	.141**	-.084*	1				
North	-.114**	.052	.056	-.05	-.03	.140**	-.041	.004	.047	-.203**	1			
MW	.08	-.056	-.006	.089*	-.046	-.074	-.003	-.008	.015	.090*	-.528**	1		
West	-.02	.055	.027	-.065	.076*	-.021	.114**	-.108**	.017	.008	-.296**	-.234**	1	
South	.073	-.045	-.090*	.015	.027	-.074	-.04	.095*	-.091*	.141**	-.395**	-.312**	-.175**	1

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

### 5.3. Regression Analyses

Table 4 reports the results of linear regression analysis using price-total asset multiple as the dependent variable.

In Table 4, Panel A reports  $R^2$  and adjusted  $R^2$  as 0.347 and 0.334, respectively. The  $R^2$  shows that the independent variables explained 34.7% of the variance in price-total asset multiple. Panel B presents the overall test of the model (Omnibus test). The F statistic ( $F_{10, 501} = 26.666$ ,  $p < .000$ ) is significant for the whole regression model. Panel C reports the coefficient estimates of the regression model along with their t-statistics, significant probability and standard error. Among the 10 independent variables, rumor status ( $t = 3.421$ ,  $p < .001$ ), log of the total asset ( $t = -11.711$ ,  $p < .000$ ), national banks ( $t = 8.181$ ,  $p < .000$ ), state banks ( $t = 6.286$ ,  $p < .000$ ) and stock transactions ( $t = 3.511$ ,  $p < .000$ ) are significant. I also test the newness of the rumors, but the regression results are basically the same.

**Table 4**  
**Results of Regression**  
**N=512**

Panel A: Model Summary

R	R Square	Adjusted R Square	Std. Error of the estimate
.589*	0.347	0.334	0.069

Panel B: ANOVA\*\*

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.305	10	0.131	26.666	0
Residual	2.452	501	0.005		
Total	3.758	511			

Panel C: Coefficients

	Coefficient	t-statistics	Sig.	Std. error
(Constant)	0.53	11.403	0.000	0.046
Rumor Status	0.034	3.421	0.001	0.01
Log of total assets	-0.06	-11.711	0.000	0.005
National	0.086	8.181	0.000	0.011
State	0.066	6.286	0.000	0.01
Cash	0.01	0.844	0.399	0.012
Stock	0.036	3.511	0.000	0.01
Location	-0.011	-1.601	0.110	0.007
North	-0.006	-0.631	0.528	0.009
Midwest	0.009	0.94	0.347	0.01
West	0.001	0.024	0.981	0.012

\* Predictors: (Constant), Rumor Status, log of Total Assets, Method of payment (cash), Method of payment (stock), Bank Type (National), Bank Type (State), Location, Northeast, MidWest, West

\*\* Dependent Variable: P/TA multiple

The rumor status variable suggests acquiring banks pay 3.4 percent higher premiums for the rumored target banks during merger and acquisitions because those pre-takeover rumors increase the stock prices of the target banks prior to the announcement date.

In this study, log of total asset is highly significant in the regression model. This variable is one of the most important indicators of a bank's financial strength. The result suggests that the acquiring banks pay 6 percent less premium for those target banks, which have more total assets. This result is consistent with Varaiya (1987), Crawford and Lechner (1996) and Jackson and Gart (1999). Also, this study suggests that bank type is a significant determinant. The results in this study indicate that national chartered and state chartered acquiring banks generally pay 8.6 percent and 6.6 percent higher premium respectively for their takeovers compared with federal chartered saving institutions. I also find that acquiring banks that pay with stocks pay 3.6 percent higher premium than those pay by cash and combination of stock and cash. Travlos (1987) found the similar results. Although some researchers find geographical diversity determines the bank merger premiums, in this study, the locations of the target banks do not significantly influence the premiums paid by the acquiring banks in the United States.

## Chapter Six: Conclusion

### 6.1. Implications, Limitations and Future Research

To capture the impact of rumors, this study only tests the takeover rumor impact one-year before the announcement date. It is possible that rumors of some mega banks appear more than one year before the announcement date. Thus, future studies can lengthen the time period to capture the effects of rumors that appear in the rumor list more than a year before the announcement date to move up the stock price of the target banks.

Because the U.S. banking industry experienced an overwhelming deregulation in the 1980s than ever before, this study focuses on the period right after that time. But what can we say about the future of banking? It is important for researchers to pay attention on those evolving roles that banks play in our economy, the risks that banks pose on the economy through their roles, and the implications of these roles for further financial stability. For example, policy makers very much need evidence about the risks inherent in the unbundling and repackaging of credit and about the implications of these risks (Samolyk, 2004).

Banking industry has been technologically insulated for most of the time, and recent studies show little interest in the technological changes in this industry. However, high technologies have changed the banks' nature dramatically. Wriston (1989) argued that those technologies developed as a result of computer and electronics, such as financial information transmitting and money transmitting, have pushed the banking industry into a new era. He also predicts that national government depends more on the high technologies to keep their sovereignty over the currency and credit market. As he noted, "The entire globe is linked electronically, with no place to hide" (pp.71) and "markets are no longer geographical locations, but data on a screen transmitted from anywhere in the world" (p.72). In Wriston's view, "no

matter how a country attempts to escape from the system, the world's trading room screens will continue to light up and the market will continue to make judgments" (pp.72). With new technology, customers have come to expect new services, including online cash management, Internet bill payment and other home banking service. For those financial institutions, they have been pressured to invest a lot on expensive new technology. It will increase their fixed costs and increase the incentive for mergers to spread costs over more customers. Based on this, future studies can address the impact of technology put on the banking industry to see whether it is another determinant to affect the premium.

Lined together with fiber networks and direct transmission, banking industry now becomes more globalized. U.S. financial institutions now meet increasing international competition around the world. Managers need to understand many facets than ever before, such as exchange rate fluctuations, interest rate differentials among countries, international supervisory agencies, and varying cultural attitudes toward banking and financial management. Without bloated and bureaucratic managerial climate, the current manager teams are efficient and that is the reason the number of failed banks decreases a lot since 1990s. Other researchers can follow the management issues and performance analysis of banking institutions and how the global opinion from the top managers impacts the takeover market.

Evidence suggests that the public may not be altogether comfortable with or accustomed to the new change. Consumers have been very concerned about recent mega mergers of financial institutions. For instance, a consumer group recently expressed concern about the Citicorp-Travelers Group merger, fearing misuse of personal data about customers and erosion of personal privacy (Gardner, Mills and Cooperman, 2000). These events emphasize the importance of ethical issues in financial institutions for future study.

Banking holding companies (BHCs) have substantially altered the structure of United States Banking. Now they have gone from a barely visible segment to where their affiliate banks now represent about 70% of the total deposits held in all commercial banks in the country (Frieder and Apilado, 1982). Also future studies may research under the topic of economies of scale, since former studies found banks acquired by BHCs exhibited significant gains in operational efficiency (Drum, 1976). Researchers may discuss the economies of scale between the individual banks and affiliate banks. Factors may be included such as what is the optimal size for acquisition (the scale efficient), operational and cost efficiencies.

## **6.2. Conclusion**

The objective of this study is to determine during the merger and acquisition activities, whether the acquiring banks need to pay an extra premium for these target banks that are subject to the prior takeover rumors. A sample of 512 bank merger and acquisition activities happened in the United States during the period of 1991 to 2003 is examined.

The residual analysis suggests the stock prices of rumored banks increase by 10 percent over the five days before the rumor date and price reversals do not occur in the following 38 days. To explain the premiums paid in the U.S. bank mergers, I calculate the price-total assets (P/TA) multiple. The regression analysis using P/TA multiple as the dependent variable, shows that the prior takeover rumors have a significant impact on the acquisition price, it can induce an increase of the target bank's stock price, and consequently the acquiring bank pays rumor premium. In particular, target banks subject to rumor receive 3.4 percent more premiums than the non-rumored target banks. The other factors such as total asset of the target bank, bank type and method of payment also have the force to induce the acquiring banks to pay the premium.

Compared to these, the location of the target banks does not have a significant impact on the premiums paid.

Some prior studies found the takeover rumor impact on the non-financial industries. This study finds the same results in the banking industry. It suggests rumors place an upward pressure and induce the stock price of the rumored target bank increase.

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