Conflict of Interest Between Investment Banking and Stock Analysis:

Effects of Regulation on the Behavior of Investment Banks

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Spring 2004

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I. Introduction

The passage of the Financial Services Modernization Act in 1999 marked the end of prohibitions against the consolidation of banks, securities firms and insurance companies in place since the Glass-Steagall Act of 1933. Affiliations amongst banks, securities firms, and insurance companies were now permissible. Starting with the Citigroup's merger with Travelers, many banks, investment banks, and insurance companies merged. Banks were quick to use their new relationships with individual investors to help leverage their more profitable investment banking division. Through a combination of internal pressure and financial incentives, equity analysts issued overly optimistic stock research reports in order to retain and win investment banking business for their firms. While investment banks did previously have equity analysts, these analysts were not marketed to ordinary investors until after the passage of FSMA.

The conflict of interest between investment banking and stock research was fully ingrained in the culture of investment banks. The full extent of these conflicts was not understood until Eliot Spitzer, New York State Attorney General, released the findings of his investigation into the matter. It was a Wall Street scandal with wide-ranging consequences. In an email uncovered in Spitzer's investigation, a former Goldman Sachs analyst, when asked what his three most important goals were for 2000, wrote "1. Get more investment banking revenue. 2. Get more investment banking revenue. 3. Get more investment banking revenue." (Smith, Craig & Solomon, 2003). Clearly the interests of the investing public, namely receiving accurate and unbiased stock research, were not aligned with the interests of the investment banks providing the research. The actions of the investment banks during the late nineties and early 2000s led to historic settlement agreements and regulatory changes.

The agreement reached with Eliot Spitzer established new rules that force brokerage companies to make structural changes in how they handle research. Analysts, for instance, are no longer allowed to accompany investment bankers during sales pitches to investment banking clients. Securities firms must now have separate reporting and supervisory structures for their research and banking operations. Analysts' compensation must be tied to the quality and accuracy of their research, rather than the amount of investment banking fees they help to generate.

The stated goals of regulators in pursuing the agreement were two fold. First, it was a punitive measure meant to punish investment banks for defrauding the investing public. Second, and more importantly, regulators sought to restore faith in the capital markets. It is vitally important that the investing public have confidence in stock research because over 50 million American households made investments in the stock market as of January 2002. While institutional and professional investors presumably know not to blindly trust potentially biased research from brokerage banks, the typical individual investor often relies upon the advice of large well-known Wall Street firms such as Morgan Stanley, Citigroup, or Goldman Sachs. They trust what the "experts" on Wall Street have to say. Most investors have no way of knowing about the conflicts of interest, real or potential, that exist between the research and investment banking departments of these large firms. Investors assume that the commissions charged by their broker "pay" for reliable professional advice and unbiased research. With a discount broker, investors pay as little as $5 a trade but do not expect advice.

Using an event study analysis, I endeavored to determine what impact, if any, this scandal and the resulting historic agreement had on the valuation of the investment banks. An event study uses stock prices to determine the impact an event has on the valuation of a firm.

Using the market model I found the abnormal effect on the valuations of the investment bank. Two possible explanations may account for why the negative impacts on the investment banks. The first is that the new enforcement regime raised the cost of business for investment banks. The second possibility is that investment banks have altered their behavior in compliance with the regulations and their profits were negatively impacted because of it.

The results of the regression imply that in fact the investment banks were significantly harmed by these changes. I believe that the evidence shows that the events surrounding the settlement did change the behavior of the Wall Street firms. There seems to be little evidence that investment banks are continuing to engage in illegal behavior on a widespread basis. Not only is there the threat of civil penalties and loss of reputation, but also as star banker Frank Quattrone recently learned, jail time is a possibility for bankers.

In this paper I first explain the business structure of an investment bank to provide the context for where, how and why the conflicts of interest arose. I identify the different divisions within investment banks and how each division generates its profits. Next, an industry overview provides important insights into the operational behavior of investment banks. To understand how investment banks earn their fees, I discuss previous literature concerning fee structures for corporate finance deals.

While highly competitive, the investment banking industry has historically remained relatively stable. I explore two contrasting theories on the determinants of market share: the superior deal hypothesis and the deal completion hypothesis. I then look at the critical role of reputation in the investment banking industry. Corporate clients look to retain high profile investment banks. With fees varying little from firm to firm, why not hire the biggest and best?

This paper also examines the "costs" high profile investment banks incur when their reputations are soiled in the eyes of the investing public.

Next, I examine the principal agent problem faced by stock analysts, their investment banks, and the investors. Research analysts serve two masters – their own bank and the investors who read their research. The conflicts of interest stemmed from an asymmetry of information and the self-interests of analysts that did not align with the interests of the investors. The fraud equity analysts engaged in misled the investing public while filling the pockets of bankers with hundreds of millions of dollars.

I then detail the history of the events surrounding the settlement reached in 2003. Using documents uncovered by New York State Attorney General Eliot Spitzer, I quote incriminating statements by investment bankers and stock researchers to demonstrate these egregious conflicts of interest. Through anecdotal evidence, I describe the enormous financial incentives for issuing overly optimistic reports. I conclude with a careful explanation of my event study and an analysis of my results.

The goal of this research paper is to determine whether large investment banks altered their behavior in response to negative publicity, vigorous government investigation and stricter regulation. Self-preservation should dictate such behavioral changes and many were indeed found. However, this study also produced some unexpected results.

II. Investment Bank Divisions

A typical investment bank concentrates its efforts in five business areas or divisions which can either work together when completing deals or act independently. These five divisions are corporate finance, sales, trading, research, and syndicate. Not all investment banks have all of these components. Some focus only on corporate finance – specifically mergers and acquisitions. Sales, trading, and research all go hand in hand – without one you cannot successfully have the other categories.

Corporate Finance

Corporate Finance is typically the most profitable of the investment banking businesses. Corporate finance is broken down into two services: (1) mergers and acquisitions advisory, and (2) underwriting.

Mergers & Acquisitions

With the exception of short periods of market volatility, mergers and acquisitions (M&A) activity has been brisk in response to demands upon corporations to go global, keep pace with competition, and expand earnings by any means. M&A bankers assist executive officers and their attorneys in negotiating and structuring a merger between companies. When a company decides to purchase or merge with another company, an investment bank will help finalize the purchase price, structure of the deal, and generally ensure a smooth transaction (Prior & Lott, 2001).

Rendering M&A advisory services is very profitable for investment banks. Banks typically charge between one and two percent of the total deal size, well in excess of the cost of completing the transaction. As discussed later, the effects of reputation and relationships between firms and banks have helped keep such fees from eroding.

Investment bankers working in M&A have many sources for deals. Small privately owned companies seek to sell to a larger firm in order for the owner to cash out and retire. Large companies often seek to purchase a competitor through a stock swap. M&A bankers handle these transactions and many others. In mergers and acquisitions investment bankers often rely on research analysts to “bless” the merger, helping convince shareholders in the companies that the deal is a good one for all involved (Prior & Lott, 2001).

Investment banks can represent either the target firm or the acquirer. Investment banks do not typically specialize in only representing the target or acquiring firm. Banks representing the target firm generally have a greater probability of completing the deal. This is desirable since bankers make their fees only if the deal is completed. Also known as sell-side work, this type of work is initiated when a company approaches an investment bank with the desire to sell. The investment bank may also create M&A business by making the initial approach and propose a deal to a potential seller. Companies can sell their entire company or just a division. Investment bankers then write a strategic memorandum and contact potential buyers (Prior & Lott).

Representing the acquirer is more risky for investment banks. The advisory services are similar to those when representing the target. However, most proposals for purchasing a company do not result in a completed transaction. Investment banks can waste months on a proposal that is never completed. Firms often pay investment banks a non-refundable retainer fee and hire the bank to find a potential target. However, the real money is made when the deal is completed. Typical fees are 1%. On a smaller size deal of $100 million, an investment bank will earn $1 million. As such, investment banks prefer to represent the target all other things being equal (Prior & Lott, 2001).

Financial Restructurings

When a company cannot meet its cash obligations, it may be forced to declare bankruptcy – thereby protecting itself from creditors. At this point firms can either shut down the company or restructure. Restructuring involves renegotiating payment terms on debt obligations, issuing new debt, and restructuring payables to vendors. Bankers help a company by recommending the sale of assets, the issuing of special securities such as convertible stocks or bonds, restructuring debt or even working with M&A bankers to sell the company in its entirety. Typically, investment banking fees in restructuring depend on what new securities are issued post-bankruptcy and whether the company is sold. Like M&A deals when the investment bank represents the acquirer, the firm does usually pay investment banks a retainer. Since companies are already in financial trouble, the monthly retainer is usually small with the bank hoping that once the deal is completed the payout will be highly lucrative and the bank will enjoy a steady stream of business (Prior & Lott, 2001).

Underwriting

Bankers performing underwriting services assist companies to raise capital. They do this either through equity or debt offerings (as well as more exotic securities). There are two different types of equity offerings – initial public offerings (IPOs) and secondary equity offerings. An initial public offering is the process by which a private company turns into a publicly traded company. This is the first time the company's shares are available to ordinary investors and is traded on exchanges such as the New York Stock Exchange (NYSE) or the Nasdaq. The primary reason a company decides to go public is to raise cash to fund the growth of the company. Another benefit is the ability to use the company's stock for merger and acquisition purposes. Going public also offers entrepreneurs the potential of cashing out on their investment. Firms

that are too small or do not have growth potential will not find a bulge bracket firm willing to underwrite their equity (Prior & Lott, 2001).

In a secondary (or follow-on) offering, a company that is already publicly traded issues new shares of stock to the public. One common reason for a secondary offering is that a company may be growing rapidly and needs additional capital. Another reason for a secondary offering is that a large investor (usually a CEO or founder) wants to liquidate a substantial portion of their shares at one time. The reason why this is necessary rather than a simple stock sale is that they may own unregistered stock. According to Securities and Exchange Commission regulations, all stock must be registered by filling an S-1 or similar document before it can be traded on a public exchange. Pre-IPO shareholders (such as a founder) who do not sell shares in the initial public offering hold unregistered stock. As such, they are prohibited from selling them on the open market unless the company registers them. The result of a secondary offering of new shares is a dilution of the vale of the shares owned by investors as they now own a smaller percentage of the company (Prior & Lott, 2001).

Sales

There are three different types of salespeople in a typical investment bank: the classic retail broker, the institutional salesperson, and the private client service representative. Retail brokers develop relationships and give advice to ordinary investors. They effectuate the purchases and sales of stocks. Institutional salespeople manage large groups of assets for mutual funds, pension funds, and corporations. Private Client Service (PCS) representatives provide brokerage and money management services for extremely wealthy individual. Institutional sales and private client services provide the greatest profits for the sales division of investment banks (Prior & Lott, 2001).

Trading

Traders facilitate the buying and selling of stocks, bonds, and other securities such as currencies and futures. They do this by carrying an inventory of securities for sale or by executing a given trade for a client. Traders play two roles for an investment bank. The first role is to provide the investment bank with liquidity. Traders provide clients with the ability to buy or sell securities almost immediately. Traders accomplish this by standing ready to purchase or sell shares for the client when the trade must be executed immediately. Traders performing this market maker function generate fees by selling the securities at a slightly higher price than they pay for them. Proprietary trading is the other role traders play in an investment bank. Proprietary traders use the investment banks' own money and trade positions on behalf of the firm. These traders seek to profit off the rise and fall of the price of securities. The same person typically performs both trading functions for a given security (Prior & Lott, 2001).

Research

Research analysts follow stocks and make recommendations on whether investors should buy, sell, or hold those securities. It is also the job of the research analyst to forecast future earnings (an important aspect in determining the current stock price). Equity analysts typically focus on one industry and cover up to twenty companies within that industry. Researchers work on fixed income and follow a particular segment such as a particular industry's high yield bonds. Salespeople within the investment bank will often use the research published by their own stock analysts to convince clients to buy or sell securities through the firm. Corporate finance bankers rely on stock analysts as experts in the industry they are currently working. Reputable research analysts generate substantial corporate finance business for their firm as well as substantial trading activity. While directly research analysts do not generate much in revenue, they have a

great deal of pressure to help produce research for the purposes of trading and corporate finance (Prior & Lott, 2001).

Syndicate

The syndicate group provides a vital link between salespeople and corporate finance. The syndicate group facilitates the placing of securities in a public offering. In a corporate or municipal debt deal, syndicate also determines the allocation of bonds (Prior & Lott, 2001).

IIII. Industry Overview

The banking world has faced a tug-of-war between relationships and competition since its inception. The investment banking world had long been dominated by men who would establish lasting relationships with each other who often close deals with a handshake. Reputation was paramount for banks. Banks were willing to incur the costs of establishing relationships only if imperfect competition created rent that compensated their costs. If the investment banks did not earn higher than perfectly competitive fees, as defined by zero economic profit on the transaction, they would not undertake the costly measures of developing relationships with the firms.

Investment banking, while highly competitive, does not meet the conditions necessary to be classified as a textbook competitive industry. In many ways, the bulge brackets[1] coexist with a large number of second and third tier banks without engaging in price competition. There are two ways investment banking deals are awarded. With a relationship-based banking system, firms are locked into a relationship with one bank. Arm's-length deals are awarded competitively on a project-by-project basis. Typically, the larger investment banks engage in more relationship-based deals whereas the smaller banks with arm's-length deals.

There is evidence of relationships between large corporations and investment banks. A study performed by Baker (1990) examined the relationships between corporations worth $50 million or more and investment banks between 1981 and 1985. Baker found that for the 1091 corporations that made two or more deals during the period studied, the average bank used three lead investment banks on an average of eight deals. All but nine of these firms generated more

[1] Bulge bracket firms are the top five investment banks. Second tier banks are the next fifteen banks. Third tier banks include all other banks.

than 50% of their business to their top three investment banks. On average, 59% of the business was given to the top bank.

Other studies have confirmed these close relationships. Eccles and Crane (1988) found that amongst the 500 most active corporations in the market during the period 1984 to 1986, 55.6% used predominantly one bank to float their securities with the rest maintaining relationships with only a few banks. James (1992) found that in the first common stock security offering after an IPO, 72% of firms chose the same lead bank as before. For debt offerings James found that 65% did not switch banks.

Smith (1986) found that there are minimal regulatory barriers to entry and exit in the investment banking industry. Since the repeal of the Glass-Steagall Act such barriers have been lowered even further. The identities of the top banks have changed over time. More than half of the top investment banks in the 1950s were no longer major banks by the 1980s (Anand & Galetovic, 2000). *The Economist* best states the paradoxical nature of investment banking:

> "No other business, investment bankers will assure you, is quite as brutally competitive as theirs. It is surely odd, then, that in America the fees investment banks charge to underwrite shares have not budged in more than a decade. In Britain, fixed underwriting fees are the subject of an antitrust investigation… But how does this happen in an industry as intensely competitive as investment banking?"[2]

An important aspect of the investment banking industry is there is not much price competition. Matthews (1994) found that spreads of high-quality, long-term corporate bonds have been 7/8% of capital raised for many decades. In England, underwriting fees have been 1.25% of capital raised for several decades as well (Anand & Galetovic 2000). In a later section, this paper discusses how there is a clustering of initial public offering spreads at seven percent.

[2] *The Economist* "Investment Banking: Overcharging Underwriters" June 27, 1998.

Theories as to why investment banks earn such high fees are based on collusion (implicit or explicit) or an average cost pricing behavior – which may or may not imply economic profit.

Another characteristic of the investment banking industry is the high concentration of business amongst the top firms, regardless of time period and investment banking category (Anand & Galetovic, 2000). The top six investment banks accounted for 76% of the securities underwriting volume in 1986. These same firms also accounted for 72% of the total M&A deal volume on which they were advisors between 1983 and 1997. More impressive, they accounted for 91% of Rule 415 debt underwriting[3] in 1988 (Anand & Galetovic, 2000). This high concentration of deals amongst the tops banks was accompanied by excess returns. Matthews (1994) found that the top investment banks earned on average a 30% pre-tax return on equity between 1981 and 1991. Betas for investment banks are in the range of 1 to 1.5. Even accounting for their market risk their return on equity exceeded their expected rate of return over the same time period. Such returns on equity make firms in nearly every industry envious.

Even though there is the appearance of an oligopoly amongst the top firms, it is still a competitive industry. The importance of relationships appears to vary both by cross-section and across time (Anand & Galetovic, 2000). Smaller firms do engage banks on an as-needed basis and there are consistently a large number of third tier investment banks. Now, more than before, firms actively try to establish relationships with multiple investment banks. Syndicates are now used more than they were during the 1980s. Moreover, investment banks may be engaging in non-price dimensions such as sales effort or advertising (Anand & Galetovic, 2000).

There are not significant switching costs in the investment banking industry either. A key feature of relationships is the "loose linkage" between the costs that investment banks incur in

[3] Rule 415 is an SEC rule allowing for shelf registrations of securities that will be issued in the future, when market conditions are more favorable.

establishing and maintaining relationships, and the fees they generate from deals (Eccles & Crane). There are not fixed fee contracts in investment banking, and the fees are set at the time of each deal, when the costs incurred to establish and maintain the relationship was already a sunk cost. Moreover, most large banks appear to reside within the same "strategic group" (Anand & Galetovic, 2000). While some investment banks specialize in certain industry, the bulge bracket firms all have important presences in most industries. Moreover, intellectual property right protections for service innovations are weak. If an investment bank comes up with an innovative way of structuring a deal, every other bank can copy its strategy. Finally, investment banks can quickly gain expertise and clients by hiring away top bankers from other investment banks, a practice that is widespread on Wall Street.

It appears informal rules restrain price competition in the investment banking industry. Rolfe and Troob note that:

> "because there has always been an unspoken agreement among the bankers that when it comes to underwriting fees they won't compete on price. The spreads are sacrosanct. He who cuts spreads will himself become an outcast… The community of investment banks has always been small enough so that if one bank were to break ranks on the pricing issue, the others would join forces and squash the offender… Every banker knows that the pricing issue is a slippery slope best avoided because once the price cutting begins, there's no telling where it will end." (Anand & Galetovic, 2000)

To best understand how the investment banking industry operates one must realize that investment banks do not have incentives to deviate from the self-enforcing norms. To understand why investment banks began engaging in illegal behavior we must first look at other important factors driving the industry.

IV. Investment Banking Fees

The casual observer may wonder how investment banks can generate such high profits and fees for corporate advisory and underwriting services. Investment banking is a competitive industry filled with highly motivated people. A smaller investment bank or new entrant could potentially gain market share by charging lower fees. Third-tier banks that do not have a large enough market share need not worry about a downward spiral in investment banking fees, as many bulge bracket firms do. The potential market-share gain would most certain compensate for the lower fees. Collusion might be possible amongst the bulge bracket firms but those firms' interests do not perfectly align with the second and third-tier banks.

Initial Public Offerings

Studying investment banking fees for initial public offerings can offer insight into their general business practices. Robert Hansen (2001) found that the 7% spread has become commonplace for investment banks marketing initial public offerings. Once relatively rare, there were only six 7% contracts in 1981, the rest typically offered at lower fees. In contrast, there were hundreds of 7% contracts per year in the late nineties. There are two competing theories why this 7% contract standard emerged. The first is the cartel theory that states that there is collusion amongst investment banks in the IPO market to maximize profits from the 7% spread (Hansen, 2001). The second is the efficient contract theory that states which postulates that this is the contract that emerged from a competitive marketplace (Hansen, 2001).

Collusion Theory:

In economic theory for a cartel to exist in equilibrium, the actions of the members must be observable if there is an incentive to deviate from the cartel behavior. The ability to observe behavior does not seem to be possible for investment banking. While investment banks may

announce the fee structure for an initial public offering there may be hidden incentives. Since many investment banks offer a wide range of services it is possible for them to receive the 7% spread on the IPO but then offer reduced rates for other services.

There can be either explicit or implicit collusion in the IPO market. Since actions are not observable, the expected gains from continuing to charge 7% are likely to exceed the gains expected from defection (Hansen, 2001). In explicit collusion, bankers from several banks jointly agree to fix the spread at 7%. As this type of collusion is illegal and more easily detected by regulatory agencies, explicit collusion does not usually occur. It would be hard to keep such collusion a secret amongst so many investment banks without it being discovered by an outsider or regulator.

Chen and Ritter (2000) promote implicit collusion amongst independent bankers as the more likely cause of the 7% spread. Their study actually inspired a class action lawsuit against 27 banks for not competing on price. It also helped bring about a Department of Justice investigation of "alleged conspiracy among securities underwriters to fix underwriting fees." (Hansen 314)

Survivorship Principal:

The survivorship principal states that in a competitive market if a contract persists it must be efficient (Hansen, 2001). Smith and Warner (1979) who argue that the survival of bond covenants is because they are efficient. In the case of initial public offerings the competition occurs between the lead banks that provide certification services. "The IPO contract has multiple dimensions, including underpricing and certification and marketing services, so limiting the spread is not evidence of anticompetitive price setting because competition will decide the

contract's price in its other dimensions." (Hansen, 2001) Put simply, if firms pay a smaller fee they will get an inferior service.

An example of how competition can lead to the 7% contract is if the amount of certification and marketing necessary requires a spread higher than 7%. The bank could respond by underpricing the security thereby lessening the placement burden and bringing the contract to a 7% equivalent (Hansen, 2001). A less prestigious bank can also receive the same 7% underwriting fee by underpricing the issue. Since investors are less willing to purchase IPOs marketed by less reputable firms the lower price will stimulate interest in the stock. The underpricing thus will compensate for the firm's lesser reputation and still let them earn the 7% spread.

Hansen suggests there are even benefits of the standard 7% spread. First, the spread narrows the "informational externalities spawned by the large ex ante error in valuing speculative IPO firms." (Hansen, 2001) If the spread deviates from what investors expected they would be suspicious about the firm's value and the motives of the underwriter. Investors will discount speculative firms more if they suspect that an unexpected narrow spread signals a collusive effort to cause overvaluation. It may also be that overvaluation is signaled by an unexpected generous spread (Hansen, 2001). Either way investors are provided with valuable signals as to IPO pricing. Moreover, a uniform spread across IPOs eliminates doubt as to what the underwriter will earn. Lower suspicion concerning the veracity of the underwriter should lead to lower underwriter and management exposure to ex post lawsuits claiming deliberate wrong valuation (Hansen, 2001).

Implications:

Hansen's study suggests that there most likely is not collusion to maintain the 7% contract. He notes that despite the Department of Justice investigation, the 7% spread contract has persisted. If there were illegal collusion occurring, surely they would terminate their illegal behavior – without an admission of guilt of course. While it is possible that they believed that the monetary gains from collusion would outweigh any fine imposed by the government, the loss of reputation could make such a proposition unprofitable in the long run.

The lack of evidence supporting the collusion theory suggests that investment banking lacks the conditions necessary to make collusion profitable. Perhaps it is the lack of enforcement options that makes collusion unprofitable. Since collusion is illegal it is not possible to enforce collusion amongst all the investment banks. Hansen notes that for explicit collusion to work the threats and punishments required to control cheating in charging spreads and sharing of profits might be too costly to sustain. Moreover, perhaps it is too likely that regulatory agencies would discover such collusion. Explicit collusion will likely invite "the lethal legal reprisal from opportunistic opponent banks." (Hansen, 2001)

Hansen also concludes that implicit collusion is not widespread. By definition, implicit collusion lacks the threat of explicit enforcement. Another problem with implicit collusion is it is not possible to observe the spread. An investment bank may list the 7% on the prospectus but this is not necessarily representative of the true fee the investment bank earns. An example is if lead bank were able to grant secret concessions to issuers within reciprocal agreements. Finally collusion is unlikely to occur, as the 7% contract is not profitable enough to run the risk of high fines and ruined careers for bankers. Investment bankers may not be adequately rewarded for taking on the additional legal and financial risk of involvement in illegal collusion.

V. Determinants of Market Share

While highly competitive, the investment banking industry is relatively stable. Rau measured the average market share for each investment bank as a fraction of the total value of the transactions advised by investment banks in any single year. Using this method, he found there is a stable ranking across the years 1980-1994. The top five banks every year, typically known as the bulge bracket firms, remain in the bulge bracket for a majority of the years the study covered. Rau also found that the next fifteen banks, known as the major bracket (or second tier), almost never made it into the bulge bracket. The remaining banks, the third-tier, remain in the third-tier in all but a few instances over the period 1980-1994.

There are two contrasting theories on the determinants of the market share of an investment bank in corporate advisory services for mergers and tender offers. The superior deal hypothesis argues that the market share of investment banks is determined by the performance of the acquirer in the mergers and tender offers (Rau, 2000). The deal completion hypothesis states that the valuation of the deal is of secondary importance.

Superior Deal

Superior deal predicts that the acquirers advised by bulge bracket (top-tier) investment banks should earn higher announcement period excess returns on average than acquirers advised by lower-tier investment banks (Rau, 2000). Since the top-tier investment banks have the greater market share, the performance of the acquirer is thus a determinant of market share.

By looking at the abnormal returns theoretically, you can determine if investment banks complete superior deals. If the market recognizes the relationship between market share and performance it will capitalize this information into the stock prices on the announcement date (Rau, 2000). Rau found that the prediction of superior deal does not hold for mergers. Acquirers

advised by first-tier investment banks earn consistently lower announcement-period returns than those advised by either second or third-tier investment banks (Rau, 2000).

Firms represented by first-tier investment banks earned a cumulative 0.37% abnormal market-adjusted return in the three days around the announcement date (Rau, 2000). Second-tier investment banks earned 0.81% and third-tier investment banks earned 1.01%. Under the superior deal hypothesis we would expect the opposite to be true. Rau's results remained consistent whether using a market model or a comparison period model to compute the abnormal returns.

Tender offers produce different results. Acquirers using first-tier investment banks earned higher abnormal returns than those advised by second and third-tier investment banks. In the initial two-day period (day of announcement and following day) acquirers advised by first-tier banks earn significant market-adjusted returns of 3.56% while those advised by second and third-tier banks earn insignificant returns of 0.18% and 0.31% respectively (Rau, 2000). This supports the superior deal hypothesis.

Deal Completion

There is a strong incentive in the fee structure for investment banks advising acquirers and tender offers to complete the deal (Rau, 2000). As such, their primary goal is simply to complete the deal. Profits depend upon success. Therefore, the market share of the investment bank will depend on a bank's ability to complete deals (Rau, 2000). This hypothesis further predicts that there should be no positive relation between the excess returns earned by the acquirer and the market share of the investment bank advising the deal (Rau, 2000).

Rau found insufficient evidence to support the deal completion hypothesis. According to this theory we should be able to predict the market share for investment banks based on the

number of deals the bank has completed in the past. When controlling for the target advisor, the difference between the three categories of banks becomes statistically insignificant. In mergers, third-tier investment banks completed more acquisitions than first-tier banks (90% versus 88%) with the difference significant at a 1% level using a chi-squared test (Rau, 2000). However, third tier banks complete significantly more acquisitions when the target is also advised by a third-tier bank rather than by a first-tier bank. The completion rate for first-tier banks was found to be roughly the same regardless the target advisor (Rau, 200).

When looking at tender offers Rau found evidence supporting the deal completion hypothesis. First-tier investment banks complete their deals in a significantly higher proportion (86%) than second (75%) and third-tier investment banks (74%). The results were significant at 1% level and remain significant even when controlling for the target advisor bank (Rau, 2000). This suggests that the reputation of the investment bank does not matter so much as its ability to complete deals when predicting market share.

This is a completely surprising result. One would expect reputation to be a key determinant of market share. Evidence shows, however, that this result does not necessarily hold true for initial public offerings where there is a greater asymmetry of information. Perhaps the reason why reputation does not matter in mergers and acquisitions is companies are already publicly traded, have financial histories, and a board of directors elected by the shareholders. Multiple analysts cover most large publicly traded companies. Therefore, investors do not need to rely on the reputation of the investment bank to guarantee the strength of the deal. The ability to successfully complete the transaction is more important.

VI. Reputation and Investment Banking

The role of investment banks as information producers has been widely studied and criticized in recent years. Investment banks earn their fees when underwriting a security by successfully marketing that security to investors and raising capital. Temporarily ignoring the potential for a loss of reputation, an investment bank marketing a firm has an inherent interest to represent the firm's projects as worthy investments. This is true even if the firm has spent very little capital investigating the projects (Chemmanur & Fulghieri, 1994). A fine line separates salesmanship from deceit and fraud.

Conflicts of Interest

Conflicts of interest concerning research and investment banking revolve around an asymmetry of information. Firm insiders have access to information outside investors enabling them to better value the firm's business. It is the role of the investment bank to do extensive research on the firm to help bridge this information gap. This is especially true of private companies seeking to "go public" in an initial public offering. As these companies were not previously publicly traded, there is very little, if any, information on their finances and business performance publicly available. Investors must trust the due diligence of the investment banks underwriting the security that the company's IPO price has been fairly valued.

Complicating matters is that investment banks can and often do make mistakes in good faith. The future of a company or the market is uncertain. Investment banks must make their best effort to predict the future and let investors know of the risks. However, even the most stringent evaluation procedures are subject to error. Investment banks can make honest mistakes. This makes it difficult to determine whether the investment bank was acting in good faith and those acting in their own best interests at the expense of the outside investor. An example is the

technology stock boom of the late 1990s. While clearly most analysts were very wrong about the implications of the new economy and the valuation of stocks, certainly some analysts believed their evaluations. Many acted in bad faith as my research shows but it was certainly not universal.

Reputation and Market Share

Chemmanur and Fulghieri (1994) developed a model determining the role of reputation acquisition in enabling the intermediary (investment bank) to act as a producer of credible information. They then derived implications for the valuation of financial securities sold by the intermediary (Chemmanur & Fulghieri, 1994). They developed their model in the context of an investment bank underwriting a stock issue. Chemmanur and Fulghieri note that their model could also be applied to seasoned equities.

In Chemmanur and Fulghieri's model there are three agents: entrepreneurs, investment bankers, and ordinary investors. Entrepreneurs go to the equity market to raise capital for their projects. They enter the market only once and their raise funds directly or through an underwriter. "Investment banks are information producers that interact repeatedly with the equity market. They produce noisy evaluations of entrepreneurs' projects, which they report to investors when marketing equities in return for a fee from the entrepreneur." (Chemmanur & Fulghieri, 1994) Ordinary investors buy the securities and determine its market value. Investors cannot observe how much time and care investment banks put into their analysis. As such, ordinary investors use the investment bank's past performance, measured by the quality of the firms previously represented by the bank, as a proxy to appraise credibility. Ordinary investors then value the equity accordingly (Chemmanur & Fulghieri, 1994).

Investment banks have conflicting short and long run economic interests. In the short-term, an investment bank can increase profits by spending less on research. Strict-evaluation processes are costly. A more thorough evaluation of companies is beneficial in the long run as it reduces the risk of marketing a firm that causes investors to lose their investment dollars. Marketing poor companies damages the reputation of the investment bank. A lower reputation leads to lower market values for equities they market in the future which equates to lower fees earned by the investment bank. As Chemmanur and Fulghieri note, the "evaluation standard set by investment banks, their reputations, valuation of firms by investors, investment banking fees, and entrepreneurs' choice between underwritten and direct sales of equity emerge endogenously in the equilibrium of this dynamic game."

Implications of the Model

Chemmanur and Fulghieri outline the six implications of the empirical evidence. The first implication is that investment banks with greater reputation capital are more effective in reducing the impact of information asymmetry in the equity market. Several economists[4] have argued that the under-pricing of initial public offerings is a consequence of the information asymmetry between firm insiders and outside investors. In economic terms this makes sense. Information asymmetry creates a unique risk for a project. As there is uncertainty of the future success of the project investors must be compensated adequately for assuming this risk. Consequently we should expect IPOs with greater information asymmetry to be under-priced to appropriately accommodate for the additional risk. Chemmanur and Fulghieri's model therefore predicts that the under-pricing of IPOs is a decreasing function of the reputation of the investment bank. The more reputable the investment bank the lesser the degree of under-pricing.

[4] Allen and Faulhaber (1989), Grinblatt and Hwang (1989), and Welch (1989)

They note that research by Logue (1973), Tinic (1988), and Carter and Manaster (1990) presented evidence supporting this theory.

These predictions can be extended for seasoned securities. Some argue that the negative stock price reaction around seasoned equity issues is also due to asymmetric information[5]. The negative stock price reaction should by less for seasoned firms employing the services of a more reputable investment bank. Problems of adverse selection and information asymmetry are more pronounced in the case of initial public offerings than seasoned equity issues. Presumably seasoned firms have made public disclosures of its finances and businesses to the Securities and Exchange Commission. Moreover, many publicly traded companies are covered by one of more stock analysts producing reports on their businesses. As a result the empirical results should be stronger for initial public offerings than for seasoned equities (Chemmanur & Fulghieri, 1994).

Second, more prestigious investment banks engage in underwriting contracts with less risky client firms. Chemmanur and Fulghieri found that underwriters with greater 'reputational capital' had a lower variance of possible firm values of the firms it markets. Lower variance of value equates into less uncertainty of the true value. There has been evidence supporting this implication in initial public offerings by Carter and Manaster (1990) and Johnson and Miller (1988). Schadler and Manuel (1989) showed evidence that extends this implication to seasoned equities as well.

Third, the underwriters with the best reputation are able to charge the highest fees. This implication is no longer relevant as investment banks have since made the 7% IPO contract standard. Fourth, the proceeds to the firm selling equity, net of underwriter fees, increase with underwriter reputation. Initial evidence provided by Carter and Manaster supports these

[5] Myers and Majluf (1984)

implications. More recent evidence by Hansen (2001) suggests that there may be a standard "7% plus contract" for initial public offerings amongst the investment banks, as was previously discussed.

Fifth, investment banks that over price equity subsequently lose market share. Chemmanur and Fulghieri note that firms prefer to use the most prestigious investment bank that offers to market their equity, even when such banks charge higher fees. Firms that over price equities lose reputational capital. The model thus predicts that firms that over price offerings will lose market share as firms will seek out more prestigious banks. Beatty and Ritter (1986) found that for IPOs underwriters whose offerings "have average initial returns not commensurate with their ex ante uncertainty subsequently lose market share."

Sixth, in equity markets characterized by asymmetric information, all firms prefer to market equities using an investment bank; only firms that do not face a significant degree of adverse selection, or firms unable to obtain the services of an investment bank, engage in non-underwritten equity offering. Chemmanur and Fulghieri note that firms choosing not to underwrite equity offerings fall into two categories. The first category is firms a low degree of information asymmetry in the equity market – e.g., firms with a long track record. Even still many firms with long track records making follow-up equity offerings will likely use the services of an investment bank. The second category is firms unable to obtain the services of an investment bank. Since these firms cannot obtain the services of an investment bank they have no choice but to use non-underwritten equity offerings or alternative financing methods.

Investment Bank Behavior and the Theoretical Framework

In such a theoretical context one must question why investment banks were so willing to risk their reputation for short-term gain. Investment bank behavior can counter to the core

implications Chemmanur and Fulghieri's theoretical model would predict. Reputation is a critical component of the banking world. The accounting firm Arthur Andersen's involvement in the Enron scandal alone was enough to lead to the demise of the company. Thus is the importance of reputation. J.P. Morgan was also implicated for wrongdoing in the case of Enron. Why then did this investment bank remain relatively unscathed?

Were an investment bank to gain of reputation of pushing "lemon" stocks it would surely be hurt in the long run. Investors, knowing the investment bank's past history of marketing lemon stocks would require a higher risk premium from such stocks in the absence of reliable inside information on the company's business. The increased risk premium would cause a lower offering price for the IPO than what might have otherwise been earned. It is in the entrepreneur's interest to receive the highest offering price possible, thereby raising more capital for their company. Knowing that an investment bank has a poor reputation and would require a higher risk premium, investors with good projects will likely choose an investment bank with a better reputation. Therefore, the only companies with poor projects that more reputable investment banks would rejected would choose the investment banks with a poor reputation. For investment banks, this can lead to a downward spiral of adverse selection. A decline in reputation can lead to the loss of their better clients and a deterioration of their business and market share.

Logically investment banks should not have engaged in the business practices they did before the settlement with the Security and Exchange Commission and the New York State Attorney General. However, as evidenced by testimony uncovered in the settlement, this behavior was not limited to a few banks but rather spread across the board. All the bulge bracket firms were behaving disreputably. Morgan Stanley, Merrill Lynch, J.P. Morgan, CSFB, Goldman Sachs, and other top investment banks all paid fines in the range of a hundred of million dollars.

Perhaps investment banks were willing to engage in questionable behavior because they felt safety in numbers. Since all the investment banks were behaving in a similar manner they felt that all banks would be affected equally. Since there would still be a need for investment banks firms would need to still pick from the same group. Morgan Stanley CEO Purcell illustrated this mindset when he remarked that his firm came out on top in the settlement even though Morgan Stanley was cited for numerous improprieties and paid a huge fine. As all the investment banks were behaving poorly, Morgan Stanley's not-as-bad behavior meant it would gain business, not lose it. Perhaps this is why J.P. Morgan did not meet the same fate as Arthur Andersen. This implies that the profits of investment banks would not be significantly harmed. The event study analysis I ran suggests that the profitability of investment banks were diminished by tighter regulation.

VII. Analyst Ratings

Investment banks market their stock analysts as experts on the industries they cover. Analysts, in theory, are responsible for objectively studying their segment as a whole and the individual firms that make up their industry. They delve over corporate financial records and government filings. Analysts speak to key executives inside the corporations about management, debt, new products or services and other critical business issues. The investing public expects stock market analysts to be objective advisors on the industry they cover. It is the job of the stock market analyst to make objective research available to enable the individual investor to make an informed decision on where and when to invest (Atty Gen. 4).

In theory, a well-diversified portfolio should mitigate the problems of bad advice on individual stocks. A well-diversified portfolio can eliminate the idiosyncratic risk involved in holding stock in a single company. Poorly informed investors should invest their money in a mutual fund or an index fund. The analyst problem arises because people want to outperform the market. During the late 1990s stories were abound of everyone down to truck drivers striking it rich in the stock market. To beat the market you need an information edge over everyone else. Many investors believed that their stock analysts provided that edge.

Individual investors often entrust their future financial well being to investment banks. Their hard earned money is invested in the stock market to pay for college tuitions and to provide a stream of income for retirement. People need to be able to trust that independent research is truly independent. Analysts broke this trust when they gave high ratings and glowing prospects to companies they privately believed were not good buys. The key component is not that they were wrong about their conclusions, because projections are always educated guesses and the future is uncertain. Rather they knowingly defrauded the investing public by identifying

a stock as a good buy publicly while privately telling insiders that the same stock was junk. As an analyst told an institutional investor in an email message, “well, ratings and price targets are fairly meaningless anyway,” later adding “but, yes, the ‘little guy’ who isn’t smart about the nuances may get misled, such is the nature of my business” (Morgenson, 2003).

The conflicts of interest that arose following the repeal of Glass-Steagall stemmed from asymmetric information and the interests of analysts that did not align with the interests of the investors. Several Wall Street firms tied the compensation of its analysts directly to the amount of investment banking fees they helped generate. Analysts had an incentive to puff up their ratings of certain companies in order to help their firm win their investment banking business. Optimistic forecasts will usually push the price of a stock higher. However, when that optimistic forecast is unwarranted, investors pay more for the stock than it is worth and the stock may not perform as well as the unwarranted rating would suggest.

A candid comment made by a Bear Stearns analyst demonstrates how the interests did not align. He told his friend that he was trying to make the company look good with his questions and then added “we got paid for this, and I am going to Cancun tomorrow because of it” (Morgenson, 2003). Stock analysts would not exist if everyone invested in the market portfolio. In reality, many investors only hold stock in a handful of companies. In order to protect the integrity of the stock market it is critically important that investors have access to accurate and unbiased research. Otherwise investor confidence will suffer and fewer people will participate in our stock markets.

Principal-Agent Problem

Stocks analysts are the slaves of two masters. The stock research analyst is an agent with two principals – his or her investment bank and the investing public. This common agency

problem arises out of a bilateral principal agent model. The actions of one individual agent affects not just one but several other principals whose preferences for possible actions and interests typically conflict (Bernheim, 1986).

Common agency fall into one of two categories: (1) when the agency is delegated and (2) when the agency is intrinsic. Delegated common agency arises when several parties voluntarily bestow the right to make certain decisions upon a single common agent. Examples include products marketed through merchandise agents and brokers such as commission merchants. Such merchants often represent the potentially conflicting interests of several principals. These problems also arise in the travel, insurance, and real estate businesses.

Intrinsic common agency arises when an individual is "naturally" endowed with the right to make a particular decision affecting other parties, who may in turn attempt to influence that decision (Bernheim, 1986). Government agencies are often accused of pursuing narrow legislative mandates to the detriment of social objectives that fall under the auspices of other regulatory bodies (Bernheim, 1986). The conflict of interest regarding stock analysts is best modeled by intrinsic common agency because investors and firms both give analysts the right to perform their stock research.

The common agent in this model is the stock analyst. The agent's utility function is based on a variety of inputs. Most importantly, a stock analyst derives utility, or gratification, from compensation. Higher compensation will lead to a higher utility for the agent. The agent also derives satisfaction from being right and having a good reputation within his industry. Reputation and compensation are often correlated so that the better the agent's reputation, the higher his or her compensation will be. Investors seek analysts with good reputations. If more investors use a firm's research, more trading revenues will be generated. The problem arises

when compensation is linked to other divisions of the investment bank, such as the corporate finance business that the analyst helped retain.

Research by itself does not generate revenues for investment banks. It is estimated that the research division of brokerage banks typically cost between $30 million and $40 million a year. Brokerage banks typically provide research reports to institutional investors at no cost to help retain good clients and generate commissions from the investor services department of the firm (Dugar & Nathan, 1995). Independent research firms do exist but their revenues are a rounding error compared to those of investment banks. Moreover, most of the revenues for the independent firms come from institutional investors, not individual investors.

Sales and trading divisions likewise want their analysts to issue optimistic reports because they help generate commissions. When sell side analysts release an optimistic earnings forecast and a buy recommendation on a stock, brokers will call their institutional clients to urge them to buy the stock (Dugar & Nathan, 1995). This results in more brokerage revenues. With pessimistic reports, brokers can only call their clients who already own the stock and recommend they sell to generate revenue.

Analysts also worry about angering the companies they follow. Access to a company is critical for a stock analyst's ability to provide good research. Issuing a negative report can cause a company to cut off the analyst's access to its executives. An analyst who is unable to get pertinent information from a company is useless to his or her investment bank. This does not necessarily imply that analysts will issue overly optimistic reports but it does suggest that analysts are naturally reluctant to issue reports critical of a company.

The other principal, the investor, needs to rely upon the analyst to provide an accurate report. If the report is overly optimistic, the investor will earn a lower than expected return. If the

report is outright fraudulent, the investor could lose a significant portion of his or her investment. The investor's sole concern is to receive accurate forecasts from the stock analyst in order to base his or her investment decisions. One might believe that knowing that bias exists, investors should be able to apply a filter on the report and discount the optimism. This is not optimal because investors cannot know whether they should discount forecasts by ten percent, twenty percent, thirty percent, or more. It is impossible to know how much of a premium was placed on the report without doing the complete analysis yourself.

Analyst Compensation

Evidence from surveys suggests that sell-side analysts' compensation depends on a variety of sources (Dugar & Nathan, 1995). One source is the volume of trading generated by their research reports. Brokers often use sell-side analyst research reports to help generate trades and thus commissions. Their reputation is another important factor in their compensation as banks benefit from having highly reputable and high profile analysts (Dugar & Nathan, 1995). The link between compensation and reputation is direct – the higher the reputation of the analyst the higher their pay. Reputation is often measured by their standing in the *Institutional Investor* polls. These polls are not perfectly accurate because reputation is subjective and the polls are based on opinions, but they are still considered the best available measure for reputation. Most relevant to this paper is compensation based on research analysts' ability to retain investment banking clients for their firm.

When a company is a client of the investment banking department of a brokerage firm, stock analysts face additional pressure to color their recommendations. Such pressure comes either directly or indirectly from the investment banking division fearing the loss of a valued client if their stock analyst issues an unfavorable report about the client (Dugar & Nathan, 1995).

This pressure is in addition to the normal pressure to generate brokerage revenues. As stock analyst compensation was based on both brokerage commissions generated and investment banking business retained, analysts had a high incentive to issue overly optimistic reports.

An example of how investment banks compensated analysts based on corporate finance business won or retained is Morgan Stanley. According to the Securities Exchange Commission, Morgan Stanley based research analyst compensation on the degree to which they helped win investment banking business. As part of the annual performance evaluation process, Morgan Stanley analysts were asked to submit self-evaluations that often included a discussion of their involvement in investment banking. This included a description of specific transactions and the fees generated. Morgan Stanley then used this information to determine the analyst's compensation.

Federal laws required, and the analysts' Code of Ethics recommends, that sell-side analysts' research reports disclose the firm's investment banking relation with the client company (Dugar & Nathan, 1995). Since this information is publicly available, we would expect that efficient investors would discount investment banker analysts' earnings forecasts and rely more on the forecasts by non-investment banker analysts (Dugar & Nathan, 1995). Dugar and Nathan claim that non-investment bank analyst forecasts are a better proxy for the market's expectations of earnings than investment bank analyst forecasts. They predict there will be a larger reaction to earnings forecasts errors by non-investment bank analysts than those employed by investment banks.

Dugar and Nathan's research is not irreconcilable with this paper. The rise of star stock analysts, whose names were known even by your average investors, made the recommendations of investment banking analysts even more relevant than they were prior to 1995. Moreover, for

the purpose of this study, as long as investment bank analysts had an effect on the stock price of stocks the conflicts of interest can, and did, arise. Merely because non-investment banking analyst forecasts had a large impact does not necessarily imply that their investment banking counterparts were irrelevant.

Initial Public Offerings vs. Secondary Equity and Debt Offerings

It is important to note the dissimilarity in how conflicts of interest affect different investment banking businesses. There are major differences in initial public offerings and secondary equity and debt offerings. IPO investors know which investment bank is handling the transaction. Investors know that the information in the prospectus is highly speculative. Investment banks cannot price the IPO too high because they will be unable to convince institutional investors to buy the stock and the price would collapse. Very few "small" investors are involved in the IPO process until after the company is publicly traded on a stock exchange.

It is the joint responsibility of both the issuing firm and the investment bank to ensure the accuracy of the prospectus. If companies want to remain in good standing with the investment community, it is in their interest to give their investment bank accurate information. However, a firm's projections of the future may be overly optimistic and it is the responsibility of the investment bank to reign in such expectations. Everyone involved is aware of the conflicts of interest the investment bank has in offering a completely fair an unbiased analysis in the prospectus.

Secondary equity and debt offerings are different situations. There is not a clear-cut link between the research and investment banking work. If General Electric needs to raise a billion dollars, it is not clear that the research reports issued two months earlier had any impact on banks winning that deal. The CEO of GE wants to get the best possible research and credit ratings to

push up the stock price and lower the cost of capital. Chief Executive Officers can punish investment bankers by refusing to give investment banking deals to banks whose research arm gave the company an unflattering analysis. As such, investment banks colored their research to keep companies happy and win investment-banking business. For the ordinary investor it is nearly impossible to see this connection. Unlike an IPO where the bank is listed on the front cover of the prospectus, there is no way of knowing what went on behind closed doors. This type of conflict of interest is the most detrimental.

Previous Studies

Previous economic research has documented these principal-agent problems. Pratt (1993) contends that sell recommendations may harm a brokerage firm's investment banking relationships. As such, investment bankers at the firm usually discouraged the analysts from giving negative research reports. Dugar and Nathan (1995) investigated investment recommendations by sell-side analysts. The recommendations of non-brokerage firms were not included in the sample. They compared the recommendations of sell-side analysts of brokerage firms who have underwriting relationships with the corporation being analyzed to the recommendations of sell-side analysts of brokerage firms who do not have underwriting relationships with the corporation being analyzed. In a sample of 250 corporations, they find significantly more optimistic recommendations given by the analysts who work for investment banking firms that have underwriting relationships with the corporation. One possibility is that analysts have greater access to a firm that has an underwriting relationship and their more optimistic reports are a function of better information. However, one would expect this additional information to equate into less optimistic reports. More likely, and what was later found to be true, is that analysts wanted to please investment banking clients.

Lin and McNichols (1993, 1997) also found strong evidence that analysts offer more favorable earning forecasts and recommendations on companies that are underwriting clients (seasoned issues) to their brokerage firm. Michaely and Womack (1997) examined analysts' recommendations of 391 initial public offerings in 1990 and 1991. They show that underwriters' buy recommendations of their own underwritings perform poorly, as compared to recommendations by non-underwriters, prior to, at the time of, and subsequent to the recommendation date. Michaely and Womack attributed this finding to conflict-of-interest bias.

According to the Analyst's Consensus Estimates (ACE) database, the institutions or environments through which research is generated can be categorized into three classes: national brokerage firms, regional brokerage firms, and non-brokerage firms. National firms are defined as those conducting securities business throughout the country such as Merrill Lynch and Morgan Stanley. Regional securities firms are those conducting securities business in a specific region of the country (e.g. Dain Bosworth in the Midwest and Pacific Northwest). Non-brokerage research firms do not operate on the sell-side (e.g. Abraham & Sons, Bhirud Associates).

Each institution presents alternative research environments and principal/agent relationships. National and regional brokerage firms, which advise both investors on stocks to buy/sell and underwrite corporate bonds/stocks, may feel pressure to inflate recommendations in an effort to align themselves with the corporation and its management in the hope of receiving underwriting contracts. Another agency problem arises because of the pressure trading operations place on analysts. It is easier to market securities with a higher rating because every investor can respond to a buy recommendation whereas only individuals currently holding a stock can respond to sell recommendations. This assumes most individual investors do not sell

short, a risky strategy largely employed by hedge funds. As a result, analysts feel pressured to give higher recommendations in order to generate more commissions.

The agency issue involving the role of brokerage firms in both underwriting and recommending securities is more critical. Lin and McNichols (1993,1997) and Michaely and Womack (1997) found that the brokerage firms that have underwriting relationships with corporations do issue more favorable analyses. This finding cannot be explained by the desire to generate more commissions on trades. Moreover, if generating more commission revenue were the sole motivation then the size of the corporation would explain the variation in the recommendations, but not the research environment (national vs. regional brokerage firms) (Carleton, 1998). The intuition behind this assertion is that the stock of larger corporations is traded more heavily on average. The fact that Carleton found that the research environment to be the dominant explanatory variable in an ordered-logistic analysis where the size of the corporation was also included supports the conclusion that it is the conflict of interest with investment banking not trading that is driving the inflated research reports.

Carleton also looked at whether the tendency to inflate recommendations may be offset by the brokerage firm's concern for the value of their reputation capital, which is partly dependent upon delivering an unbiased investment research product. If national brokerage firms have relatively more ‘reputational’ capital at stake, we may find their recommendations to be less biased than the recommendations of the regional brokerage firms (Carleton, 1998). Non-brokerage firms, which operate on the buy side, do not feel the same pressure as the brokerage firms to inflate recommendations. An analyst at regional firm asserts that the regional firms had to “try harder” to get the corporate finance business (Carleton, 1998). A study by Carter, Dark,

and Singh concluded that in fact national brokerage firms have significantly greater 'reputational' capital (Carleton, 1998).

Potential Solution to Bilateral Principal-Agent Problem

Theoretically, two principals should be able to negotiate a contract that would benefit both principals. Mutual cooperation could work. When the principals act collectively, we can use the bilateral agency framework that treats the two principals as a single entity (Bernheim & Whinston, 1986). For example, the managers and investors in a publicly traded firm can be treated as a principal agent problem. This is true even if investors disagree about the direction the firm should take because institutional procedures guarantee a collective decision concerning management compensation (Bernheim & Whinston, 1986). Likewise, since investors can take their trading business elsewhere they can have an effect on the profits of an investment bank.

However, cooperation between principals is often unlikely or in some cases impossible. If investors do not read stock research, it would have no impact on stock prices and, therefore, provide no benefit to the companies being analyzed. Investors need stock research because the cost of an individual investor gathering extensive and comprehensive research on a wide range of firms is daunting, if not impossible, without the help of professional analysts. A good stock analyst can provide information to thousands, possibly millions, of investors. Investment banks and investors should be able to reach an agreement that would benefit both parties.

A possible solution is for investment banks to charge fees for premium quality research. Sophisticated investors need the best information available and are willing to pay for excellent stock research. For those investors not willing to pay for research they can either receive none or get only basic company research. Compensating investment banks for the stock research investors will provide them with an incentive to produce the best possible research. If the quality

of research produced by an investment bank drop in a repeated game, investors will switch banks and use another firm. Under this system investment banks would receive compensation not only on stock trading commissions but also for research. Reports that do not generate trading revenues will nonetheless generate income.

Another positive change would be to make ratings more comprehensive for analysts. Under current rules, analysts are allowed to change their company forecast before the opening bell rings on the day after earnings are announced. In effect, analysts are allowed to change their prediction for the record after knowing the actual results! Analysts therefore are almost never wrong on paper. If analysts are not allowed to change their earnings forecasts for the current quarter during a four-day period surrounding the earnings announcement, investors will have far more accurate information of analyst performance. Web sites on the Internet could then provide a much more accurate report of the performance of stock analysts. If a stock analyst performs poorly on a consistent basis, demonstrating a pattern of overly optimistic ratings, then investors will cease to trust that stock analyst. Companies would no longer want such an analyst because his or her overly optimistic reports would soon lack credibility and not help its stock value. In this way greater monitoring of analysts could potentially cure the principal-agent problem.

There are several reasons why the market has not answered the need for more accurate information. One reason is that the demand for such a service was not there. Most investors did not even bother to look at the biased track records of stock analysts. Another problem is how to measure accuracy. If an analyst predicts earnings per share for the quarter of 45 cents but in actuality it was 44 cents would we count the prediction as wrong? If it is a simple binary (the analyst was right or wrong) it is hard to define what is considered a correct forecast (unless it was exactly right). A better measure might be the standard deviation of the percent difference

between the analyst forecast and the actual result. Even this method presents problems. For example, an analyst might follow the herd on many stocks but be very wrong on a select few (which the investment bank markets) which would bias their predictions to be more accurate than they actually are.

VIII. Wall Street Scandal

The Glass-Steagall Act was passed in 1933 during the Great Depression. The nation's banking system was in chaos. Over 11,0000 banks had failed or had to merge, reducing the number by 40%. Many bankers and brokers were guilty of disreputable and dishonest dealings and gross abuses of the investors' trust. The purpose of Glass-Steagall was to limit banks to conservative commercial lending and to prohibit riskier undertakings. To accomplish this policy, Congress prohibited banks from having interlocking directorships or close officer or employee relationships with a firm "principally engaged" in securities underwriting and distribution (Wells, 1999).

Over the next sixty plus years many of the provisions of Glass-Steagall were gradually eroded. However, the provision separating commercial banking and investment banking remained intact until Citigroup brought this era to an end when it merged with Travelers. This merger was boldly announced while Glass-Steagall was still in effect and the intense lobbying that followed forced Congress to allow it. Glass-Steagall's death warrant was sealed when the Fed allowed the new Citigroup five years to shed its illegal aspects. Congress passed the Gramm-Leach-Bliley Act (a.k.a. the Financial Services Modernization Act) in 1999.

According to the Congressional Research Service ("CSR"), the Gramm-Leach-Bliley Act was intended to "modernize the delivery of financial services to customers by changing the regulatory structure of financial service providers and rationalizing some of the ways in which they do business" (Wells, 1999). Central to the Act are those provisions that repealed portions of the Glass-Steagall Act and the Bank Holding Company Act of 1956 so as to permit affiliations among banks, securities firms, and insurance companies. Congress knew this was not the end of the issue, and it delegated the task of developing new regulations. CRS noted that success

hinged on how the regulators would write the regulations and how financial service providers and users of financial services would respond to the new opportunities. “As experience with the Act evolves, it is likely that some fine-tuning of its provisions may result” (Wells, 1999). Based upon recent scandals, “fine tuning” may be an understatement.

This sweeping change in the law obviated the need for Citigroup to change its business practices after its merger. This fundamental shift in banking policy occurred with surprisingly little study or public comment. Many years of separation of investment and commercial banking came to an abrupt end. As shown by the recent scandals on Wall Street, the inherent conflicts of interest within a Citigroup or any large financial institution will tempt greedy brokers and investment bankers to put company profits first and fidelity to investors second.

The groundbreaking $1.4 billion settlement announced by New York Attorney General Eliot Spitzer and SEC Chairman William Donaldson marked the culmination of an intense investigation that brought together three national regulatory bodies and a dozen state securities authorities (Smith & Craig, 2003b). The settlement centered on civil charges that several Wall Street firms routinely issued overly optimistic stock research to investors in order to curry favor with corporate clients and win their lucrative investment-banking business. The pact also settled charges that at least two big firms, Citigroup Inc.’s Citigroup Global Markets unit, formerly Salomon Smith Barney, and Credit Suisse Group’s Credit Suisse First Boston, improperly doled out coveted shares in initial public offerings (IPO’s) to corporate executives in a bid to win investment banking business from their companies (Smith & Craig, 2003b).

The penalties imposed included lifetime bans from the securities business for two former star analysts, Jack Grubman of Salomon and Henry Blodget of Merrill Lynch & Co., who were charged with issuing fraudulent research reports and agreed to pay penalties of $15 million and

$4 million, respectively. Both the firms and the individuals consented to the charges without admitting or denying wrongdoing and Jack Grubman was permanently banned from the securities industry. But the regulators vowed to pursue cases against analysts and their supervisors as far up the chain of command as possible (Smith & Craig, 2003b).

The highly publicized scandal involving Jack Grubman and Citigroup Chairman Sanford Weill sheds light on how conflicts of interest can seriously undermine the integrity of the financial system and damage investors confidence. The Citigroup saga began in the fall of 1999 when Jack Grubman abruptly changed his once long-held negative view on AT&T to a decidedly upbeat one. The reason for his 180 degree change is the key element in the scandal. His actions came under intense scrutiny from investigators in the office of Eliot Spitzer, the New York Attorney General, and NASD. Their investigations focused on whether research practices at the Salomon Smith Barney unit of Citigroup were corrupted by the firm's investment banking relationships, or desired relationships, with major corporations (Morgenson & McGeehan, 2002a).

In an email message to a friend, Jack Grubman boasted that his boss, Citigroup Chairman Sanford Weill, helped to secure spots for his twin daughters at the exclusive 92nd Street Y pre-school after he began recommending that investors buy AT&T stock. The email message was among records Citigroup turned over in the investigations. Central to the investigations is Mr. Grubman's upgrade of AT&T in November 1999. Soon afterward, Salomon reaped lucrative fees from an offering of shares in AT&T's wireless subsidiary that was spun off to the public in April 2000 (Morgenson & McGeehan, 2002b). Grubman's daughters were subsequently admitted to the 92nd Street Y.

Mr. Weill publicly acknowledged that he had urged Mr. Grubman in 1999 to “take a fresh look” at AT&T. In a statement, Mr. Weill claimed that his request of Mr. Grubman was not meant to be viewed as pressure on the analyst to upgrade AT&T, a company which Mr. Grubman rated a tepid “hold” at the time. Mr. Weill‘s explanation lacks the ring of truth. Indeed, Mr. Grubman did raise his rating on AT&T to “buy” after taking his “fresh look.” Investigators do not believe it was a mere coincidence that Salomon won a coveted role selling shares in AT&T’s wireless division to investors just a few months after Mr. Grubman announced his buy rating (Morgenson & McGeehan, 2002b).

While this example shows how brazenly Grubman and Weill manipulated the deregulated system, it was their involvement in the WorldCom fiasco that caused investors to suffer huge losses. Dick Thornburgh, a former U.S. Attorney General, was WorldCom’s bankruptcy-court examiner. In his 118-page report, 23 pages dealt exclusively with WorldCom’s relationships with Grubman and Salomon, which was WorldCom’s primary investment bank. Among the corporate-governance breakdowns cited in Dick Thornburgh's report were Salomon’s allocations of stock in lucrative initial public offerings to WorldCom directors. In addition to writing extraordinarily bullish reports on WorldCom's stock, Mr. Grubman also participated in board meetings as a financial adviser to the company, a role clearly at odds with his position as an independent securities analyst (Weil, 2003). These matters were intertwined with fraudulent accounting issues. WorldCom executives were motivated to cook the books in order to meet the financial targets of Wall Street analysts, Mr. Thornburgh's investigative team concluded (Weil, 2003).

Jack Grubman became the cheerleader for WorldCom, praising it as a telecommunication industry leader in the new Internet age. Investors bought WorldCom shares, pushing its stock

price higher. WorldCom used the currency of its high-priced shares to acquire more companies, including the major long-distance carrier MCI (Lohr, 2003). All the while Salomon reaped millions in investment banking fees on each deal until, after a failed transaction, WorldCom's levitation act unraveled, and the company eventually had to admit it had vastly overstated its profits (Lohr, 2003). Investors lost billions in WorldCom when it went bankrupt. Grubman and Weill's greed was not a victimless crime. Life savings were lost and retirement funds evaporated. Large and small investors alike were fleeced.

Mr. Weill's claimed ignorance of Solomon's inflated WorldCom stock ratings is now hard to believe after incriminating evidence was uncovered by New York Attorney General Eliot Spitzer. In February 2001, John Hoffman, then-global chief of stock research at Salomon Smith Barney, prepared a set of handwritten notes for a meeting with the firm's senior stock managers in Armonk, New York. The practice of publishing positive stock research to win investment-banking business, the notes indicated, was creating a credibility problem at the securities firm that was a unit of Citigroup Inc. With no "sells" and just one "underperform" rating out of 1,179 stocks assessed as of Jan. 29, 2001, Mr. Hoffman wrote that concern among the firm's brokers and their clients "is growing" (Smith & Craig, 2003a).

Perhaps knowing his audience, Mr. Hoffman did not focus on the firm's integrity or the trust investors had in Citigroup but rather the impact these conflicts could have on client retention. The system broke down because the financial incentives to provide tainted research far outweighed the negative repercussions. Mr. Hoffman noted, however, that the research was so out of line that it was risking losing clients. Mr. Hoffman's notes, which were headlined "Rising issue of research integrity -- Basic inherent conflict between investment banking, equities and retail," said the firm's ratings are the "worst," and "ridiculous on face" (Smith & Craig, 2003a).

For Eliot Spitzer, the New York State Attorney General who led a series of regulatory probes of Wall Street conflicts, Mr. Hoffman's two pages of notes stood out among the thousands of documents in his investigation. Mr. Spitzer concluded that Salomon executives "fully grasped and understood the way research was being manipulated" to help the firm win investment-banking business -- and did nothing about it (Smith & Craig, 2003). That attitude, Mr. Spitzer said, was one reason Salomon Smith Barney agreed to pay $400 million in penalties. That is twice as much as any other firm participating in the $1.4 billion settlement, and the largest-ever civil settlement between the government and a Wall Street firm (Smith & Craig, 2003). More recently, on May 10, 2004 Citigroup announced that it had agreed to pay $2.65 billion to settle class-action suits brought by investors who bought WorldCom. Citigroup also announced it would set aside an additional $6.7 billion for potential claims relating to the firm's involvement in the Enron scandal.

Citigroup was not alone. The conservative and highly reputable Morgan Stanley firm[6] was also found to have engaged in unsavory business practices. The Securities and Exchange Commission charged that Morgan Stanley awarded hot initial public offerings to important investing clients who signaled plans to buy additional shares at higher prices (Smith, 2003b). The SEC is examining whether tying the IPO allocations to subsequent after-market orders, a practice known as "laddering," artificially stimulated additional demand for newly issued shares during the stock-market bubble. If so, that could have contributed to the huge first-day price gains that inflated the losses suffered by small investors when the stocks eventually declined.

[6] Morgan Stanley had $450 billion in assets under management as of May 31, 2002. In 2000, investment banking generated more than $4.8 billion in revenues, or approximately 24% of Morgan Stanley's net revenues (Atty Gen. 3-4)

Impeding the investigation of Morgan Stanley was the fact that much of the evidence has been destroyed. Chief Executive Philip Purcell told shareholders at the firm's annual meeting that Morgan Stanley "overwrote" many computer tapes containing its 1999 emails. It was the fullest public explanation the firm has yet provided of its failure to comply with industry rules requiring the retention of email (Smith, 2003b). Mr. Purcell said the 1999 emails overwritten weren't relevant to a multi-agency investigation of research conducted by regulators led by New York's Attorney General Eliot Spitzer (Smith, 2003b). While we cannot assume that Morgan Stanley purposely destroyed evidence this revelation is certainly troubling.

Like Citigroup, Morgan Stanley also had conflict of interests in its research department. Morgan Stanley paid its analysts based in part on the amount of investment-banking business they brought in (Atty Gen. Stipulations, p.3). Morgan Stanley was also accused, along with other firms, of failing to ensure that investors were informed that it had paid other firms to provide research coverage of companies that were Morgan's investment-banking clients (Smith, Craig & Solomon, 2003).

> "Morgan Stanley analysts also played an important role in assessing potential investment banking transactions, in particular IPOs. Morgan Stanley's stated objective was to take public as lead underwriter the leading companies in their respective industry sectors and to have its research analysts serve as gatekeepers to the IPO process by investigating whether companies were appropriate IPO candidates. Research analysts who endorsed an IPO candidate typically participated in the competition to obtain the investment banking business and, if Morgan Stanley was selected as lead underwriter, helped market the IPO to institutional investors, explained the IPO to the firm's institutional and retail sales forces, and then issued research on the company." (Atty Gen. 5)

The conflicts of interest between Morgan's research and investment-banking divisions are demonstrated in performance reviews of analysts including Mary Meeker, once known as "Queen of the Net" (Smith, Craig & Solomon, 2003). In Ms. Meeker's 2000 annual review, her boss, Dennis Shea, described the analyst as being "highly involved" in investment banking. "You

continue to drive our Internet business on the primary side, and are very involved in the M&A [mergers and acquisitions] assignments as they come up and as you can be brought over the wall on them . . . " he wrote (Smith, Craig & Solomon, 2003). Moreover, Meeker admitted that it was her job to gain investment banking business[7] – which is troubling since her job was supposed to involve objectively researching companies. In her 1999 self-evaluation, Ms. Meeker said: "Bottom line, my highest and best use is to help MSDW [Morgan Stanley Dean Witter] win the best Internet IPO mandates (and to ensure that we have the appropriate analysts and bankers to serve the companies well) and then to let them work their way through our powerful research and distribution system" (Smith, Craig & Solomon, 2003).

Morgan Stanley's brazen attitude continued even after the settlement. The firm announced it was "pleased that there were no allegations of fraud or violations of federal securities law" against the firm or its people, and no findings that its analysts "reported anything other than their honestly-held beliefs" (Smith, Craig & Solomon, 2003). Chairman Philip Purcell told a conference of institutional investors that he didn't see anything in the settlement that would concern the retail investor about Morgan Stanley. When asked about the payments for research, Mr. Purcell said his firm simply paid these other firms and had no involvement in the research.

These comments from Mr. Purcell are disturbing especially since they came just one day after Morgan Stanley agreed to pay $125 million to settle charges that it misled investors with

[7] From 1995 to March 2002, Morgan Stanley publicly stated that it had a four-category rating system: Strong Buy; Outperform; Neutral; and Underperform. 'Underperform' was defined as follows: "Given the current price, these securities are not expected to perform as well as other stocks in the universe covered by the analyst. *** Incredibly, no more than three of the 1033 stocks covered over the course of 1999 were given an Underperform rating; no more than five of the 1058 stocks covered over the course of 2000 received that rating; and no more than six of the 1030 stocks covered over the course of 2001 were rated Underperform" (Atty Gen. 22-23).

tainted research (Solomon, 2003). SEC Chairman William Donaldson lashed out at the Morgan Stanley Chairman for these comments which seemed to down play SEC charges that the securities firm had misled investors with stock research (Solomon, 2003). In a strongly worded and well-publicized letter to Mr. Purcell, Mr. Donaldson signaled that regulators would not tolerate a business-as-usual attitude about the research scandal. Mr. Donaldson said statements by Philip Purcell "reflect a disturbing and misguided perspective" on Morgan's alleged misconduct (Solomon, 2003). Mr. Donaldson wrote to Mr. Purcell to state: "your reported comments evidence a troubling lack of contrition and lead me to wonder about Morgan Stanley's commitment to compliance with the letter and spirit of the law" (Solomon, 2003). He also cautioned Mr. Purcell to not deny the SEC's allegations, saying that it would be seen as a breach of the settlement.

Not only did Morgan Stanley show a lack of remorse so soon after the $125 million settlement, it actually tried to use it for competitive advantage by implying that the actions of its competitors were worse. Morgan Stanley's behavior before and after the scandal does not reflect well on the integrity of this Wall Street giant. While the settlement imposed new rules outlined below, Chairman Purcell still doesn't believe there was ever a real problem. While firms may not engage in the same behavior again, human ingenuity and greed know no bounds. Morgan Stanley, Citigroup, and other large firms will likely find ways around the new rules and ignore conflicts of interests as long as the financial rewards outweigh the potential costs.

Regulators have tried to remove or at least diminish the potential conflicts. Bowing to political pressure from Congress, federal regulators, together with the National Association of Securities Dealers, the New York Stock Exchange and state regulators led by New York's Eliot Spitzer, extracted a promise by the firms not to seek insurance repayment or tax deductions for

$487.5 million of the settlement payments (Smith, Craig, & Solomon, 2003). In Morgan Stanley's recent settlement agreement, it specifically agreed not to seek insurance reimbursements for its $125 million dollar penalty (Atty Gen. 25-26). This was an important concession to force the brokerage houses to actually feel financial pain. Regulators concluded that Wall Street firms would not fully appreciate the consequences of their actions if they were allowed to seek insurance reimbursement for the settlement penalties. Otherwise the insurance companies would be hurt more than the offending investment banks (Smith, Craig, & Solomon, 2003). In addition, purchasing insurance coverage for deceptive practices raises serious public policy concerns.

Perhaps the most important legacy of this settlement is the new set of regulations imposed on Wall Street firms. The main points of the settlement include: a clear separation of stock research from investment banking; provide "independent" research to investors at no cost; better disclosure of stock rankings; a ban on IPO "spinning"; the $1.4 billion payout; and penalties which are not tax deductible or insurable (Atty Gen. 26-27).

Free research is not necessarily a constructive change. While the research reports will be independent they will not necessarily contain the best information available. Banks would not update their reports often and would likely only give the newest information to their best customers. Investment banks must have a financial incentive to offer good and up-to-date research. This is why I believe that charging for research (or offering it to retain current customers) is the best method. The other elements in the settlement are certainly positive steps forward.

The agreement established new rules that force brokerage companies to make structural changes in the way they handle research. Analysts, for instance, are no longer allowed to

accompany investment bankers during sales pitches to clients. Securities firms must now have separate reporting and supervisory structures for their research and banking operations. Analysts' compensation must be tied to the quality and accuracy of their research, rather than how much investment-banking fees they help generate (Smith, Craig & Solomon, 2003).

Separating analysts' compensation from investment banking fees is a critically important new rule. Morgan Stanley and Citigroup certainly were not alone in this practice. At Goldman Sachs Group Inc. regulators found that analysts were also paid in part based on their participation in banking-related activities. Analysts were allegedly required to prepare business plans that discussed, in part, what steps the analysts planned to take to aid banking efforts. In one email, former Goldman analyst Craig Kloner, when asked by the firm what his three most important goals were for 2000, wrote: "1. Get more investment banking revenue. 2. Get more investment banking revenue. 3. Get more investment banking revenue" (Smith, Craig & Solomon, 2003).

Firms created an incentive problem for their analysts. The firms clearly had a strong incentive to use research to gain investment-banking fees. Firms then extended this conflict of interest to their analysts by tying their compensation to how much investment banking revenue they could generate. While many analysts bowed to pressure from their bosses, perhaps they would not have caved in if they didn't have such a strong financial motive to give biased research. In principle, by basing analyst compensation only on the quality of their work, regulators removed a significant incentive for fraudulent ratings.

Now stock research must carry the equivalent of a "buyer beware" notice on the first page of their research reports. The notice will advise the public that the bank producing the report does investment-banking business with the company being analyzed. Regulators believe this should positively affect the objectivity of the firms' research. In fact, they may have quite

the opposite effect. Indeed these statements will likely have the same effect that warnings in a company's SEC fillings have – none. Firms will place so many warning and disclaimers to shield themselves from litigation that individual investors will be unable to tell when research is colored by conflicts of interest. Rather than ensuring impartial research, these warnings could help create a smoke screen for firms to continue their past behaviors by giving them an air of legitimacy because they now warn customers.

Many in Congress believe that a self-regulatory system isn't enough to monitor banks and enforce the new rules created in the settlement (Solomon & Smith, 2003). Senator Paul Sarbanes D-MD expressed his disgust, remarking: "how is it possible that the regulators could have missed for so long the supervisory problems at all 10 of the nation's top investment firms?" (Solomon & Smith, 2003) Senator Sarbanes raises a good point. If such widespread abuses went unnoticed while the Wall Street firms were acting so brazenly, how will regulators know if they begin engaging in the same behavior again? Unless individuals are held criminally and civilly responsible for their actions there will be little deterrence. If bankers went to jail, others would be discouraged from cheating. If lawsuits or fines wiped out their individual fortunes, there would be a strong deterrent against deceiving investors.

New York Attorney General Eliot Spitzer turned the tables on Congress by laying the blame for many of the current problems not only with Wall Street regulators but also with Congress itself (Solomon & Smith, 2003). When a senator cited regulations that were supposed to block conflicts between firms' investment banking and research departments, Spitzer responded that self-regulation failed. "It was a complete abject failure. And you had to be on the 'Dark Side of the Moon' not to see it" (Solomon & Smith, 2003). Spitzer added that Congress helped create the problem when it ignored pleas from former SEC chairman Arthur Levitt. Mr.

Levitt “was ignored. He got pushback. He was outgunned” by Wall Street lobbyists, Spitzer told the senators. “You should have listened years ago when folks came up here and said there was a problem.” (Solomon & Smith, 2003) Considering Spitzer’s extensive investigation of the Wall Street firms his comments that regulations were not adequate should carry significant weight.

Another concern is that the amount of the settlement was not enough. Senator Shelby remarked that the fines seemed “relatively small” compared with what the firms made in investment-banking fees. The $1.4 billion settlement, which covered years of abuse, pales in comparison to the $21 billion pretax profits of 2000. Firms will not change their behavior if they merely pay such settlements as a cost of doing business. While firms may act ethically tomorrow, a few years down the line and under different (or even the same) management, their behaviors may again become corrupted by the competition for new business. As long as there is a financial incentive to produce misleading research, some firms will likely do it.

IX. Event Study Analysis

When measuring the effect of an economic event on the value of a firm, economists use an event study analysis. Event study analyses have been used in the field of law and economics to measure the impact of a change in the regulatory environment on the value of a firm. Event study analyses have also been used in legal-liability cases to assess damages (Campbell, 1997). Event studies examine firms by analyzing financial market data.

The first step in an event study is to define the event of interest and identify the time period when the security prices of the firms involved in this event will be examined. This is known as the event window. In its simplest form, one would use an event window of one day (the day the event took place) and look at the pricing data for that day. In order to capture the price effects of announcements that occur after the stock market closes on the announcement day it is prudent to expand the window to two days including the following day. A prior event may also be of interest. For example, investors may anticipate a regulatory ruling based on public comments made by government officials or experts. As such, the market may acquire information prior to the actual announcement. This possibility can be investigated by also examining the pre-event returns – thus expanding the window prior to the event. Define events that are news looking at how probabilities of something being true changed over a short period.

Next, select the criteria for the inclusion of a given firm in the study. Criteria may include public listing on a stock exchange or inclusion in a specific industry. This paper looks at investment banks that are publicly traded companies. Summarize characteristics of the data sample (e.g. firm market capitalization, position in the industry, and distribution of events through time) and note any potential biases that may have been introduced through the sample selection.

The next step is to examine the normal and abnormal returns. To determine an event's impact a measure of the abnormal return must be found. For example, the government may announce that it has fined Morgan Stanley $50 million. On the same day, stellar news for an economic indicator is released. Morgan Stanley's stock price will likely fall less than it would have otherwise. Thus, it is crucial to separate the effects. The abnormal return is the actual ex post return on the security over the event window minus the normal expected return of the firm over the event window. The normal return is defined as the return that would be expected if the event did not take place. There are two common normal performance models used, the constant-mean-return model and the market model. This research paper uses the market model.

After finding the abnormal returns, you must estimate the parameters of the model using a subset of the data known as the estimation window. The most common choice is to use the period prior to the event window for the estimation window. For example, in an event study using daily data and the market model, the market-model parameters could be estimated over the 120 days prior to the event (Campbell, 1997). Generally, the event period itself is not included in the estimation period.

The final step before running the regression is to design the testing framework for the abnormal returns. Important considerations are defining the null hypothesis and determining the techniques for aggregating the abnormal returns of individual firms.

Methodology

1. Defining the Events

I found dates of interest in online databases for newspaper articles that appeared the *New York Times* and *Wall Street Journal*. Topics of interest were articles relating to investment banking industry, New York Attorney General Eliot Spitzer, and the Securities Exchange

Commission. I selected events based on whether it represented significant news relating to the investment banking industry. The event should also be fresh news and different from expectations. For example, Congressional recommendations were not considered events as they were discussed openly for months. Moreover, when an announcement was made it was anticipated by the market. Therefore, such news would not be viable to measure and separate from other events in the study.

After applying this set of criteria, there were nine events of significance from the period February 2002 through May 2003. As each event is unique and the market reaction was different for each, there are not uniform event window lengths. The standard window length was three days: the day of the event and the day before and after. Window lengths were then adjusted to match the release of news. If the market expected the announcement, more days prior to the event were used. If news trickled out, or there were multiple events in a short period of time, the event window was lengthened accordingly. A list and description of the events used in this study are in the section labeled “Events”.

2. Selection Criteria

This study separated banks into two categories. The first category is investment banks. The industry league tables from 2000 were used to identify the largest investment banks for mergers and acquisitions, debt offerings, and initial public offerings. Conglomerates such as Citigroup that have significant investment banking business were included in this category. Companies included: Bear Stearns Companies (BSC), Citigroup (C), Deutsche Bank (DB), Goldman Sachs (GS), Jefferies (JEF), J.P. Morgan Chase & Co. (JPM), Lehman Brothers Holdings (LEH), Legg Mason Inc. (LM), Merrill Lynch & Co. (MER), and Morgan Stanley (MWD).

The second category consists of other banks used as a control group. These banks do not have significant investment banking business (if any at all). They are the largest commercial and retail banks by market capitalization including A.B.N. AMRO Holdings (ABN), A.G. Edwards (AGE), Banc of America (BAC), Bank of New York (BK), FleetBoston Financial (FBF), HSBC Holdings PLC (HBC), ING Group NV (ING), MBNA (KRB), Bank One Corp (ONE), Raymond James (RJF), SunTrust Banks (STI), Wachovia Corp (WB).

3. Normal and Abnormal Returns

I retrieved the daily closing prices from January 3, 2000 through January 22, 2004 for each of the companies studied from Yahoo Finance. I adjusted the data for stock splits and for dividends paid.

I then calculated the normal daily returns for each company.

$$R_i = (P_i - P_{i-1})/ P_{i-1}$$

The normal daily return for R_{mt} was calculated the same as for individual companies using the daily closing prices for the S&P 500.

Next, I employed the market model to estimate the parameters α and β for each stock. The market model relates the return of any given security to the return of the market portfolio. The model's linear specification follows from the joint normality of asset returns (Campbell, 1997). For any security i,

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$
$$E[\varepsilon_{it}] = 0$$
$$Var[\varepsilon_{it}] = \sigma_{it}^2$$

where R_{it} and R_{mt} are period-t returns on security i and the market portfolio. ε_{it} is the zero mean disturbance term. α_i, β_i, and σ_{it}^2 are the parameters of the market model.

Using statistical modeling software and the data for R_i and R_{mt} I ran an OLS regression calculated estimates for values of the parameters for each company.

The term ε_{it} is the set of residuals obtained from the OLS regression. ε_{it} is the abnormal returns for the company i.

4. Estimation Procedure

The parameters were estimated for the nine events. Each event has a coefficient and corresponding dummy variable. Each dummy variable takes the value [1/(length of event period)] during the event period. Each dummy variable equals 0 outside its event period. Using this method get the cumulative return over the event period as the value of the coefficient for the dummy variable. I used the market model to find the value and significance of the coefficient for each dummy variable.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_1 D_1 + \gamma_2 D_2 + \ldots + \gamma_9 D_9 + \varepsilon_{it}$$

where α_i and β_i are the values calculated for each company using the OLS regression when calculating the abnormal returns.

5. Testing Procedure

I calculated the parameters of the event study for individual companies and for market portfolios. The parameters for individual companies were estimated using the above-mentioned methods.

The null hypothesis is that new regulations and agreements concerning conflicts of interest between research and investment banking will not harm brokerage investment banks. If there is statistical significance for a dummy variable coefficient and a negative value, we can reject the null hypothesis and conclude that the new regulations and agreements did harm brokerage investment banks.

Industry Portfolios

To find an industry effect I created industry portfolios, weighted by the relative market capitalization of the firms, and estimated the parameters for the two portfolios. I used the stock price at the close of the market on January 3, 2000 to calculate the relative market capitalizations for the firms in each of two categories: investment banks and commercial banks. I then used the normal returns for each company within each category to calculate a weighted average normal return. Using the weighted average normal return, I then followed the same procedure as for individual companies. I calculated the abnormal returns for the market portfolios and the coefficients for dummy variables using the estimation procedure detailed above.

There are important statistical reasons for using portfolio returns instead of analyzing the company returns individually. The problem with analyzing companies individually is that the regulatory impact affects all the firms at the same time. Evidence shows that the returns to NYSE common stocks are contemporaneously correlated, and that this is probably true for other assets (Schwert, 1981). This is especially true for companies in the same industry. Probability statements based on the analysis of several individual asset returns for the same period are not independent (Schwert, 1981). There is no simple way to combine the single-asset tests into a joint probability statement about the entire set of assets. Calculating the portfolio return, however, directly incorporates the cross-sectional dependence of its components, facilitating joint test of significance (Schwert, 1981).

Another advantage of using portfolios rather than analyzing firms individually is the reduction in noise. If we assume that the error term has a mean of zero, combining more stocks into a market portfolio should lower the impact of the error term on the normal and abnormal

returns. This reduction in noise should help separate the real abnormal effect from the stock prices, giving a more accurate estimate of the effect of the event.

Impact of Corporate Finance as a Percent of Total Revenue

I also studied the effect of corporate finance as a percent of overall revenue on the abnormal returns of investment banks. We should expect that the impact of regulations regarding investment banking would have a larger impact on firms where corporate finance is a large percentage of their overall business. Conversely, investment banks whose corporate finance revenues are not as significant in relation to other business sections should be expected to have a smaller abnormal return.

Using the 2000 10-K for each of the investment banks I calculated corporate finance revenue as a percent of overall revenue was calculated. Next, the abnormal returns calculated earlier were pooled when analyzing the companies individually using the following model:

$$r_{it} = \alpha_i + \gamma_1 * D_1 + \gamma_1 * D_1 * \%IB_i + \ldots + \gamma_9 * D_9 + \gamma_9 * D_9 * \%IB_i$$

where r_{it} is the abnormal return for company i in period t.
α_i equals 1 for firm i and 0 for all other firms.
D_1 equals [1/(length of event period)] during the event period 1
% IB_i equals the percentage of corporate finance revenue of total revenue for firm i
γ is the parameter estimates for the events

Efficient Markets Theory

The theoretical basis for the efficacy of event study analysis is the efficient markets theory. Event studies postulate that we can determine the value of the company based on stock price of firms. If stock prices were not an accurate representation of the value of a firm an event study would be a meaningless test to run. Event studies assume that the market is right as determined by the efficient markets hypothesis. Three forms of market efficiency are generally accepted by economists. Weak-form market efficiency states that prices reflect the information

contained in the record of past prices. In a semi-strong efficient market prices reflect not just past prices but all other published information, such as information gleaned from reading the financial press. Finally, strong-form efficiency theorizes that prices reflect all the information that can be acquired through painstaking analysis of a company and the economy (Brealey & Myers, 2003).

The efficient-markets/rational-expectations hypothesis proposes that security prices reflect all available information (Schwert, 1981). There is some evidence to support the strong form market efficiency hypothesis. Tests have examined the recommendations of professional security analysts and have looked for mutual funds or pension funds that could predictably outperform the market (Brealey & Myers, 2003). Some researchers found a slight persistent out performance, but many researchers have concluded that the professionally managed funds fail to recoup the costs of management (Brealey & Myers, 2003). This does not necessarily imply strong-form efficiency. Rather, the costs of accurately valuing a firm outweigh the potential benefits of recognizing an incorrectly valued company. We can conclude that the market meets the conditions for semi-strong efficiency with relative certainty.

If professionals cannot make consistent excess returns, stock prices should be an accurate representation of value because managers are unable to make significant profits by finding undervalued companies. In an efficient market you can trust prices, for they include all available information about the value of each security. Moreover, a company's stock price can provide important information about a firm's prospects. If the collective wisdom of market believes that the future is bleak for a company, its stock price will reflect that belief. The important implication is that changes in stock price occur as new information becomes available. By looking at abnormal returns for companies following new information, an event study can successfully determine the impact of news on the value of the firm.

Potential Weaknesses of Event Studies

Announcements such as a merger or an earnings announcement are a single identifiable event and therefore produce a single and short event window (Lamdin, 2001). For regulatory changes, there is a less precise event window. Regulatory changes are proposed, debated, and ultimately resolved when the change was enacted or defeated. The event window would encompass this entire time frame (Lamdin, 2001). This event study does not take that approach but rather looks at the regulatory change related to market expectations. As noted by Binder (1985), it is necessary to isolate events in their inception that are considered to contain major new information.

The misplacing of an event is also possible. Market participants are generally better informed than business reporters. Regulatory changes are often incorporated into stock prices before a *Wall Street Journal* reporter writes about them. Market analysts might also conclude that news is important, but reporters may not initially share that view (Lamdin, 2001). This would cause the event period to be extended longer than it should be. Neither or these are problems in this event study because the investment banking industry was closely watched during this time period and both the *New York Times* and *Wall Street Journal* (and most other newspapers) reported on the events as they transpired.

The typical approach of event studies is to focus on contemporaneous market reaction to news (Lamdin, 2001). The change in stock price, and therefore shareholder wealth, does concurrently measure the market reaction to news of the regulatory change. It is only after time that the true impact of the regulations is known. Consequently, it takes time for the true rather than expected effects of the regulation to have an impact on stock prices. As Lamdin notes, “with the passage of time, the impact of a regulatory change will be difficult to sort out from other

influences on the firm and the industry. An event study may reveal an expected impact that ultimately turns out to have been incorrect." This is a potentially a major problem for this event study or any event study looking at regulatory changes. As financial markets are so complex and highly integrated, it may be impossible for the markets to know the true impact of a small and technical regulatory change in all but extreme examples.

There is evidence that investors do not always immediately realize and properly assess the impact of news. Economists studied the earnings announcement to determine if news is immediately incorporated. They found that the ten percent of stocks with the best news outperformed those with the worst news by more than four percent over the two months following the earnings announcement (Bernard and Thomas, 1989). This suggests that investors under react to earnings announcements and become aware of the full significance only offer further information arrives (Brealey and Myers, 2003). It is easy to imagine that if investors cannot understand the implications of an earnings announcement that they might not fully understand the implications of complex regulatory changes.

A weakness of this event study and event studies in general is the possibility that the market can be wrong. This event study necessarily relies on market data to determine the expectations of future profitability based upon predicted changes in the future behavior of the firm. However, it is also possible that the future behavior of a firm will not change but the price of continuing such highly profitable behavior increases due to future expected fines. If this later example were the case, this produce an unreliable result and would incorrectly conclude that firms had changed their behavior.

X. The Events

Event 1: February 5, 2002 (-1,+1)

On February 5, 2002 news hit that securities regulators were going to introduce new rules on February 7, 2002 for Wall Street firms aimed at eliminating the conflicts of interest between investment banking and stock research. According to a *New York Times* story, the new rules for analysts were expected to provide investors with more information about how analysts are paid, limit the extent to which analysts can trade shares of companies they follow and prevent research departments from coming under the control of a firm's investment banking group. Research departments would no longer be able to promise favorable reports to companies whose securities they are selling to investors, and analysts would be prevented from issuing research reports on new companies for 40 days after their shares are brought public. Analysts previously had to wait 25 days to issue their first research reports.

Under the rules, a brokerage firm's compliance department would be charged with ensuring that the firm's research activities are kept separate from the investment banking group. This would prevent bankers from enlisting analysts to write positive reports on companies whose securities the firm is selling to the public. The rules would also require that research reports disclose when an analyst had received compensation from investment banking revenue generated at the firm. Analysts would not be banned from owning shares in the companies they follow. There would be limits on trading, including a ban on an analyst's trading against his or her recommendations, and there would be periods surrounding a rating change when analysts cannot trade for themselves. If an analyst's firm owns 1 percent or more of a company's shares, that holding must be prominently disclosed in a report.

This date does not provide us with a bright line because these rules were discussed in congressional panels and floated by government officials. Many of these proposals were anticipated prior to the announcement. However, this date is important in that it showed a willingness of Congress to authorize more active regulation of the banking industry. Banks enjoyed a honeymoon with the federal government following the Financial Services Modernization Act of 1999. Consequently, we should expect a negative impact on brokerage investment banks directly, especially those involved in the Enron scandal (such as J.P. Morgan).

Event 2: April 25, 2002 (-1,+1)

The Securities and Exchange Commission, the chief regulator of financial markets, announced that it had begun a formal investigation into Wall Street stock analysts and their potential conflicts of interest. One day after meeting with Eliot L. Spitzer, the New York's attorney general, Harvey L. Pitt, the S.E.C. chairman, said the commission would join forces with Mr. Spitzer and other state and federal securities regulators in a "formal inquiry." In the year prior, regulators at the commission and the National Association of Securities Dealers had been looking into analysts' practices. Turning the effort into a formal investigation gave the SEC the power to compel testimony and to issue subpoenas to investment banks for any relevant documents.

Mr. Pitt's announcement signaled that other firms on Wall Street will not be left out and that the regulators will seek to propose solutions that will affect all securities firms. People with knowledge of the negotiations said Mr. Pitt called on Mr. Spitzer to search for some global solution that does not single out Merrill, and gave no indication that the commission would launch its own formal investigation into the matter. The commission's enforcement staff, the investigatory arm of the SEC, did want to launch a probe based on Mr. Spitzer's findings. But the

enforcement division had been ordered by Mr. Pitt to allow another department, the division of market regulation, to take the lead.

"This is a significant step," said Lewis D. Lowenfels, an authority on securities law at Tolins & Lowenfels in New York. "A federal agency is exercising its jurisdiction to take control of an investigation that has national implications from a policy standpoint." (McGeehan, 2002) Under these circumstances we should expect a negative impact on the brokerage investment banks generally.

Event 3: May 6, 2002 (-1,+1)

The Securities and Exchange Commission approved new ethics rules for stock analysts as its chairman faced growing calls to step down for being insensitive to his own conflicts of interest and for undermining public confidence in the markets. With minor modifications, the commission unanimously approved the analyst rules recently proposed by the New York Stock Exchange and the National Association of Securities Dealers. The rules were applauded by some of Wall Street's largest firms. The industry's main trade group, the Securities Industry Association, called them tough and necessary for maintaining trust, but said they would be onerous for smaller firms.

Some Democratic Congressional leaders, institutional investors, and consumer groups complained that the rules were both tardy and tepid and were intended by industry cheerleaders to head off more stringent proposals for a ban on allowing analysts to work on merger and underwriting business for clients of their investment banks. Senator Paul S. Sarbanes, the powerful chairman of the Senate Banking Committee, circulated a draft of comprehensive legislation responding to the Enron collapse that would impose significant new regulatory requirements on accountants and corporate executives and would go further than the S.E.C. in

curtailing analyst conflicts of interest by protecting analysts from retaliation for making unfavorable stock recommendations.

The rules passed were not as detrimental to investment banks as feared, a fact that might be expected to have a positive effect on the returns. However, the news that the rules were criticized and that Congress might push for stronger rules and regulations could have a negative effect on brokerage investment banks.

Event 4: September 10, 2002 (-1,+1)

The *Wall Street Journal* reported that the removal on Sunday of Michael Carpenter as head of Citigroup's investment-banking unit would have little practical impact on the broadest probe of Salomon Smith Barney being handled by Eliot Spitzer, the New York attorney general. Mr. Spitzer's office was reported to have rebuffed attempts from Citigroup's legal team to launch serious settlement negotiations to end the wide-ranging investigation into Salomon's research and IPO-allocation practices.

Mr. Spitzer's investigators made it clear to senior Citigroup legal officials that they would not begin to discuss any potential settlement, which could include a large fine and changes to the firm's business practices, without first concluding their inquiry. A negative effect could be expected because as the market did not previously known how zealous Mr. Spitzer’s investigation would be.

Event 5: October 3, 2002 (-2,+4)

The nation's top securities regulators and the New York’s attorney general announced they were working together to conclude their investigations into anti-investor conduct at brokerage firms. As part of a concurrent campaign to change the practices of the firms, two of

the regulators said they would require brokerage firms to disclose more about conflicts that exist within their research operations.

In a related move, NASD and the New York Stock Exchange proposed rules that would force Wall Street firms to improve their management of conflicts and disclosure of it in their operations. One such rule would further separate analyst compensation from investment banking influence by prohibiting a firm from considering research analysts' contributions to its investment banking business. Another would require that a firm's customers be notified when research coverage on a company is terminated. In recent years, many analysts quietly dropped coverage on companies after their shares crashed, shutting off information to investors who still held the shares. The rules would also prohibit analysts from issuing research reports on companies if their firm helped sell that company's stock to the public when restrictions on trading those shares by corporate insiders are about to or have recently expired.

A strong negative return could be expected for the brokerage banks, as investors would fear there would be a serious negative consequence for investment banks.

Event 6: December 20, 2002 (-2,+3)

New York Times reported that the nation's biggest brokerage firms agreed to pay almost $1 billion in fines to settle investigations into whether they issued misleading stock recommendations and handed out hot new shares to curry favor with corporate clients. The firms have also agreed to sweeping changes in the way research is done on Wall Street and the way new stocks are distributed, moving away from the practices they used during the stock boom of the 1990's. As part of the expected settlement, the firms reportedly would pay an additional $500 million over five years to buy stock research from independent analysts and distribute it to

investors. The agreement was not final, but regulators were rushing to prepare an announcement to put an encouraging cap on a year fraught with corporate scandal.

The *Wall Street Journal* reported that settlement that could cost Wall Street as much as $1.5 billion. There was uncertainty as the final details of the historic agreement were still being negotiated the night before. It was generally believed that the agreement would force brokerage companies to make structural changes in the way they handle research -- preventing, for instance, analysts from attending investment-banking pitches with bankers. Later on December 20 it was announced that the initial settlement amount would be $1 billion.

A significant impact on investment banks would not be expected because the deal was anticipated and was not as detrimental as some feared.

Event 7: March 13, 2003 (-3,+1)

Reports that state and federal prosecutors impaneled separate grand juries to hear testimony from a number of Credit Suisse First Boston bankers in pursuit of possible criminal charges against Frank P. Quattrone, the company's fallen banking star, become public. Lawyers involved in the case said testimony suggested that the investigations into whether Mr. Quattrone obstructed justice were ending. Within weeks, they expect a decision on whether the recent round of testimony merits an indictment.

A small negative effect could be expected. This action showed that prosecutors would go after individuals as well as banks.

Event 8: April 29, 2003 (-4,+1)

The *Wall Street Journal* prominently announces: “In a pact that could change the face of Wall Street, 10 of the nation's largest securities firms agreed to pay a record $1.4 billion to settle

government charges involving abuse of investors during the stock-market bubble of the late 1990s."

The agreement set new rules that force brokerage companies to make structural changes in the way they handle research. Analysts, for instance, are no longer allowed to accompany investment bankers during sales pitches to clients. The pact also required securities firms to have separate reporting and supervisory structures for their research and banking operations, and to tie analysts' compensation to the quality and accuracy of their research, rather than how much investment-banking fees they help generate. Moreover, stock research is required to carry the equivalent of a "buyer beware" notice. Securities firms, regulators said, must include on the first page of research reports a note making clear that the reports are produced by firms that do investment-banking business with the companies they cover. This, the firms must acknowledge, may affect the objectivity of the firms' research. More information on the settlement is available in the Settlement section.

This was the groundbreaking settlement. A negative impact on the returns of the brokerage firms should be expected. However, many aspects were anticipated so there probably would not be a large effect.

Event 9: May 7, 2003 (-1,+5)

Reports are published on May 7, 2003 that the Senate Banking Committee will be questioning the regulators about whether they acted quickly or aggressively enough against conflicts that ultimately led to providing misleading stock research to investors. Panel Chairman Richard Shelby (R., Ala.) wants to know why the SEC did not move faster against Wall Street for writing overly rosy research reports to curry favor with investment-banking clients.

Other critics of the pact questioned whether regulators should have exacted greater penalties, considering the total price tag is just a fraction of the industry's peak pretax profits of $21 billion in the bubble year of 2000, and questioned whether some of the settlement payments should be tax-deductible or covered by insurance. A negative impact could be expected because ongoing investigations and regulations would be detrimental to the brokerage investment banks.

On May 9, 2003 the *Wall Street Journal* reported that regulators were next going after the investment bankers. As regulators looked further up the Wall Street food chain to assess culpability for misconduct alleged in the $1.4 billion stock-research settlement, they were weighing the actions of investment bankers, who allegedly pressured analysts at their firms to keep positive ratings on stocks that they wanted to downgrade.

A small negative impact could be expected because anything that would make bankers less aggressive could result in lost business.

XI. Results

Table 1

	Investment Banks	Commercial Banks
D1		
Estimate	-0.04785**	-0.034093**
Std Error	0.02232	0.017187
D2		
Estimate	-0.041731**	0.0046056
Std Error	0.018215	0.014026
D3		
Estimate	-0.01516	0.0012126
Std Error	0.018215	0.014026
D4		
Estimate	-0.028588	0.0030351
Std Error	0.018215	0.014026
D5		
Estimate	-0.070581**	-0.052858**
Std Error	0.028844	0.022212
D6		
Estimate	-0.00518	-0.020699
Std Error	0.025786	0.019856
D7		
Estimate	-0.020407	-0.001448
Std Error	0.028844	0.022212
D8		
Estimate	-0.019023	0.0108438
Std Error	0.02232	0.017187
D9		
Estimate	-0.02547	-0.00838
Std Error	0.025786	0.019856

** Denotes significance at 10% level, ** at 5% level, *** at 1% level*

This is a two-tailed test run using the market model
D1-D9 are the dummy variables for the nine unique events run in the regression
Estimates represent cumulative abnormal returns during the event window

Table 2

	BSC	C	DB	GS	JEF	JPM	LEH	LM	MER	MWD
D1										
Estimate	0.0108825	-0.028842	-0.044761	-0.015551	0.0154594	-0.088959***	-0.029674	0.0353894	-0.069378**	-0.058829
Std Error	0.033067	0.027518	0.038381	0.034998	0.036879	0.034312	0.03953	0.033121	0.034922	0.038503
D2										
Estimate	-0.042537	-0.02051	-0.02296	-0.045104	-0.024033	-0.032263	-0.065255**	-0.020832	-0.091139***	-0.090913***
Std Error	0.026985	0.022457	0.031322	0.028561	0.030096	0.028001	0.03226	0.027029	0.0285	0.031422
D3										
Estimate	-0.017183	-0.020973	-0.000304	-0.01969	-0.024502	0.002362	0.0154276	0.0144128	-0.028965	-0.029877
Std Error	0.026985	0.022457	0.031322	0.028561	0.030096	0.028001	0.03226	0.027029	0.0285	0.031422
D4										
Estimate	-0.021586	-0.041733*	0.0200148	-0.019642	0.0008894	-0.038416	-0.045092	-0.023376	-0.00435	-0.029497
Std Error	0.026985	0.022457	0.031322	0.028561	0.030096	0.028001	0.03226	0.027029	0.0285	0.031422
D5										
Estimate	-0.04649	-0.056952	-0.129291***	-0.057647	-0.094671**	-0.068525	-0.089533*	-0.050016	-0.096425**	-0.062983
Std Error	0.042732	0.035562	0.0496	0.045228	0.047659	0.044342	0.051085	0.042802	0.045131	0.049758
D6										
Estimate	-0.002816	0.0191921	-0.051971	-0.050082	0.0072509	-0.002915	-0.01134	0.0133689	-0.014363	-0.008253
Std Error	0.038202	0.031791	0.044341	0.040433	0.042606	0.03964	0.045669	0.038264	0.040345	0.044482
D7										
Estimate	-0.004488	0.0062191	-0.041322	-0.011394	-0.011709	-0.057927	0.0283366	-0.008065	-0.013207	-0.041436
Std Error	0.042732	0.035562	0.0496	0.045228	0.047659	0.044342	0.051085	0.042802	0.045131	0.049758
D8										
Estimate	-0.02323	-0.013527	-0.011951	-0.022496	-0.019308	0.0080405	-0.036012	-0.01952	-0.030933	-0.064201*
Std Error	0.033067	0.027518	0.038381	0.034998	0.036879	0.034312	0.03953	0.033121	0.034922	0.038503
D9										
Estimate	-0.000054	-0.033591	-0.041439	-0.040856	-0.012969	-0.011797	0.0014588	0.0092371	-0.011189	-0.017989
Std Error	0.038202	0.031791	0.044341	0.040433	0.042606	0.03964	0.045669	0.038264	0.040345	0.044482

** Denotes significance at 10% level, ** at 5% level, *** at 1% level*

This is a two-tailed test run using the market model
D1-D9 are the dummy variables for the nine unique events run in the regression
Each firm was run in a separate regression
Estimates represent cumulative abnormal returns during the event window

Table 3

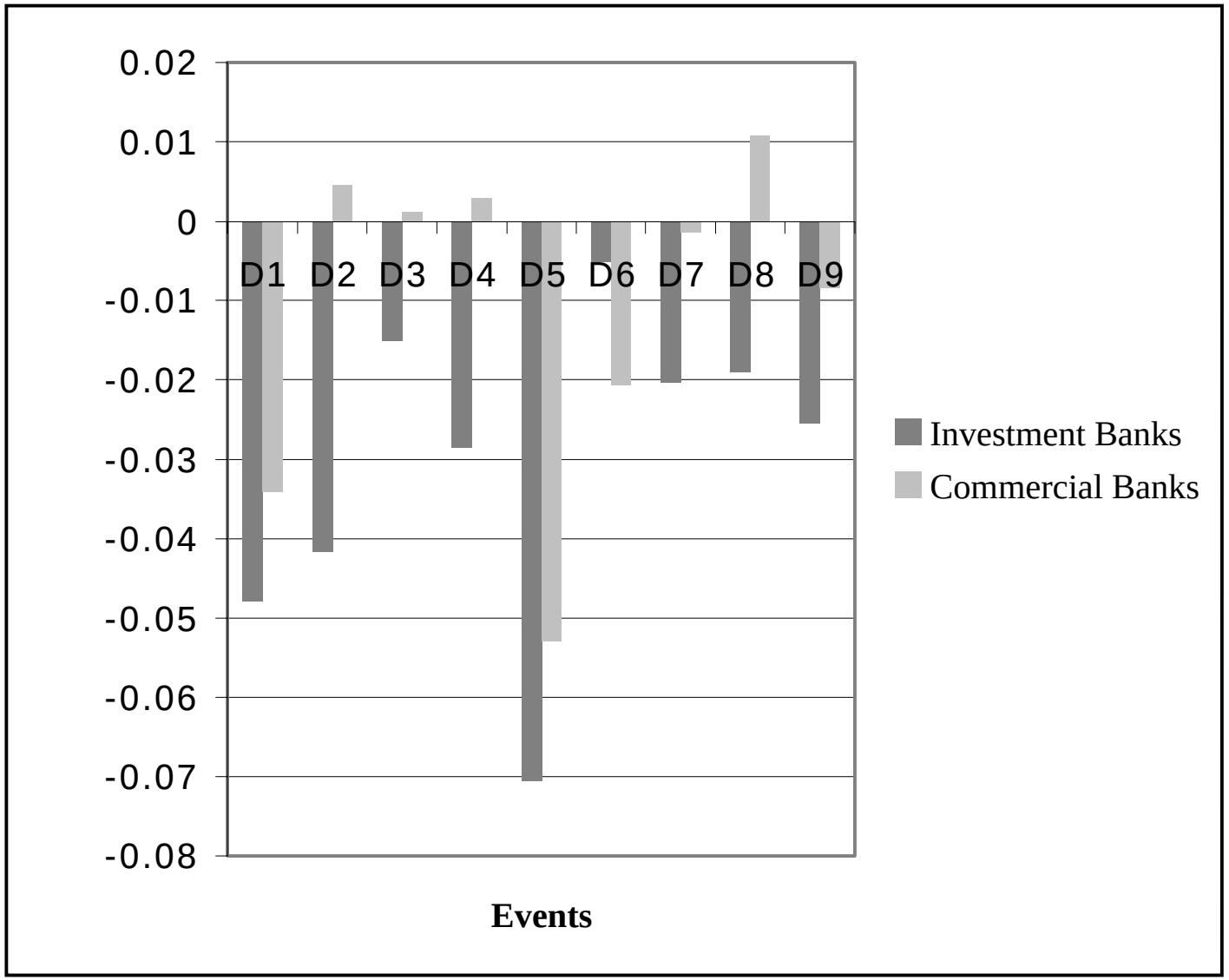
Percent Corporate Finance as Function for Abnormal Returns

	Mean	**% IB**
D1		
Estimate	-0.00303	-0.11743
Std Error	0.02209	0.075506
D2		
Estimate	-0.056796***	0.035637
Std Error	0.018027	0.61619
D3		
Estimate	-0.016998	0.03051
Std Error	0.018027	0.61619
D4		
Estimate	-0.032292*	0.03891
Std Error	0.018027	0.61619
D5		
Estimate	-0.05057*	-0.09071
Std Error	0.028547	0.09758
D6		
Estimate	0.0127332	-0.10012
Std Error	0.02552	0.08723
D7		
Estimate	0.00644	-0.09001
Std Error	0.028547	0.09758
D8		
Estimate	-0.03636*	0.05075
Std Error	0.02209	0.075506
D9		
Estimate	-0.004288	-0.048157
Std Error	0.02552	0.08723

** Denotes significance at 10% level, ** at 5% level, *** at 1% level*

Graph 1

Abnormal Event Impact



Analysis of Portfolios

Using the data obtained from the above detailed regressions I was able to determine the effect the events had on the valuation on the investment banks. Some events produced statistically significant negative abnormal returns for investment banks but negligible returns for commercial banks, suggesting that investment banks suffered more harm. Other events did not generate clear negative abnormal returns probably because news of these events was already incorporated into the stock price and the markets did not anticipate further adverse effects on the profits of investment banks.

Event 1:

Securities regulators announced they were going to introduce new rules aimed at eliminating conflicts of interest between investment banking and stock research. I did not find a significant difference between the impacts this event had on commercial versus investment banks. Table 1 shows that commercial banks had a negative 3.41 percent cumulative abnormal return while brokerage investment banks had a negative 4.79 percent cumulative abnormal return. The estimate for both investment banks and commercial banks was statistically significant at the 5% level.

The market and regulators both knew that there were conflicts of interest between investment banking and stock research. However, at this point the full extent of these conflicts was not yet known. The announcement that regulators were going to introduce new rules hurt both investment banks and commercial banks alike. At this point in time it was not yet clear how the capital markets were going to be affected by the investigation. The loss of firm value for commercial banks reflected the markets' fear that this was the beginning of a stricter regulatory environment that could decrease commercial bank profits as well.

The likely reason I did not find a larger difference in the cumulative abnormal returns is that the market did not fully know how profitable these conflicts of interest had been. If the market knew that investment banks skewed research to win lucrative IPO deals and retain long-standing corporate finance clients, there would have been a larger negative return. Moreover, these conflicts were not ethical before the new rules, so merely passing new rules without harsh penalties would necessarily alter the behavior of investment banks. The banks were still operating in a regulatory black hole; they could do almost anything they wanted as long as it did not blatantly violate federal securities laws.

Another possibility is that the market knew how valuable the conflicts were but didn't believe the new rules would prevent them. Even if the banks strictly adhered to the new rules they might not have effectively prevented the conflicts of interest because the proposed rules were very weak. The central focus of the new rules was that firms had to disclose how analysts were compensated. They also had to disclose that firms had investment banking relations with the firm. The announcement that "research departments would no longer be able to promise favorable reports to companies who securities they are selling to investors" would have little practical effect. Investment bankers, during the IPO pitch, could tell the firm how they believe the firm's prospects are great and that their own research analyst agrees. Without promising anything to the potential client, they could still signal that the report certainly would not be negative.

Event 2:

The announcement of the formal S.E.C. investigation had a significant negative impact on the investment banks. During the event period, investment banks had a negative 4.17 percent abnormal return while commercial banks had a positive 0.46 percent abnormal return in response

to this event. This indicates that the market believed that this investigation would likely be limited to investment banks and not spillover to commercial banks as well. Since the scope of the investigation was very focused on conflicts of interests between investment banking and stock research, commercial banks had little to fear because they were not engaged in these businesses. The possibility that greater regulation could spillover in the commercial bank realm was already factored into the stock price from the first event.

This event occurred very early in the investigation process when little information was known about the seriousness of the investigation. Moreover, top securities regulators, such as Securities and Exchange Commissioner Harvey Pitt, had warned of the conflicts of interest between investment banking and stock research. Despite Mr. Pitt's warnings to Congress of such conflicts, there was very little political support to do anything and the issue faded quickly with little public interest.

Even at this early stage investors still believed that investment banks would be harmed. Scrutiny from securities regulators is never good. Once a formal investigation was started the market realized that there was a greater possibility of regulators taking action against the investment banks. Had the market known the full extent of the unethical actions of the investment banks there would have been a larger negative abnormal return for the investment banks.

Event 3:

The S.E.C. announcement of new stock analyst rules did not produce a large abnormal return on the value of investment banks. Investment banks earned a negative 1.52 percent abnormal return during the event period while commercial banks earned a positive 0.12 percent abnormal return. The rules unanimously passed were only slightly modifications from earlier

proposals. The estimates had low statistical significance for both investment banks and commercial banks, indicating that there was not any discernable impact on the valuation of investment banks.

One reason why there was a small impact on investment banks is because the event did not represent a significant change from prior knowledge. The market was previously aware of the proposed rules. Thus the impact on investment banks was smaller than it might have otherwise been. Moreover, many believed that these rules were weak and would have little impact. The rules were widely criticized by institutional investors who hold a large percentage of publicly owned stock in America. They believed that the rules benefited the investment banks and were the direct result of Wall Street lobbyists. A perception that the rules were weak and would not significantly harm investment banks helps explain why there was only a small negative effect.

Moreover, since there was not a clear effective date for the new rules it was hard to predict whether there would have a significant impact on the valuation of investment banks. Many Congressional hearings were conducted and much information released prior to the announcement. It is likely that if there was a negative impact for investment banks it was absorbed in stock price changes outside of the event period.

Event 4:

Event 4 is the announcement that the removal of a high-ranking Citigroup official would not end Eliot Spitzer's investigation into Citigroup and other investment banks. For this event I found a negative 2.86 percent cumulative abnormal return for investment banks while commercial banks had a positive 0.3 percent cumulative abnormal return.

This event is important because the market was previously unsure whether there would be significant consequences for investment banks. Previously there was a general feeling of invulnerability on Wall Street. With republicans controlling the White House and Congress, there was no federal impetus to crack down on Wall Street with tight regulations. Typically investigations of businesses ended with a monetary fine and no admission of wrongdoing by the firm. This past practice put a quiet end to the investigation and protected the firm from the civil litigation that would certainly ensue following any admission of guilt.

However, New York State Attorney General Eliot Spitzer was determined to reign in the investment banks. It was becoming clearer that there was easy way out for the firms. Citigroup's inability to successfully end the investigation worried the market that regulators were out for blood. The negative return for investment banks represents both the increased possibility of a harmful investigation and the negative impact disclosure would produce. If the investigation found that investment banks acted illegally, these firms could potentially face billions of dollars in civil suits.

Event 5:

Event 5 is the announcement that the New York Attorney General's office and federal securities regulators were working together in their stock research investigations. This announcement had the largest negative impact on the value of investment banks of the events studied. Investment banks suffered a negative 7.06 percent cumulative abnormal return during the event period. This return was statistically significant at the 5% level.

Investors began to realize that far-reaching regulatory changes were inevitable. With all the negative publicity surrounding the conflicts of interest on Wall Street, it would be political suicide for regulators not to force changes at the investment banks. Investment banks had

previously hoped that federal regulators would supercede Eliot Spitzer's investigation, but no more. Mr. Spitzer was seen as a fierce advocate for the average investor with little concern about protecting the large investment banks from embarrassment. Bankers hoped that Congress would eventually pre-empt state regulators, thereby preventing state investigations of banks that were regulated by numerous federal agencies. It was unwelcome news for investment banks when federal agencies joined forces with Eliot Spitzer.

Moreover, the NASD rules would have negative impact on the firms' non-corporate finance divisions. The proposed rules would require investment banks to notify its customers when research coverage on a company is terminated. Many research analysts had hyped dot com stocks during the stock market bubble and then failed to change their recommendations. For instance, Morgan Stanley retained buy ratings on many companies that saw their market value drop by over 77 percent. Previously banks just quietly dropped coverage. This shut off the flow of information to their clients who held the shares and needed investment advice whether the analyst believe the stock would regain value or drop even further. Forcing banks to announce dropped coverage could result in more customers moving their portfolios to other banks that continue to offer coverage on the firms in their portfolio.

Commercial banks also had a large negative return during the event period of negative 5.29 percent. This return was also statistically significant at the 5% level. Perhaps this is an indication that the market was worried that regulators at all levels would start having a stronger control over the banking industry as a whole because of the scandal. The fear was that there would be regulatory spillover into other aspects of banking. While the Financial Services Modernization Act was a boon for banks, these events could have potentially put tighter restrictions on the banks. Moreover, the negative returns also experienced by commercial banks

were attributable in part to the blurring of the lines that had historically separated commercial banks from investment banking activity. An example of such blurring is that two banks classified as commercial banks - Wachovia and Bank of America – each have small investment banking divisions.

Event 6:

This event is the informal, preliminary settlement agreement. There were conflicting reports as to the size of the settlement with the *New York Times* reporting $1 billion while the *Wall Street Journal* published a $1.4 billion figure. Investment banks also agreed to sweeping changes in the way research is done on Wall Street. Surprisingly, investment banks only had a negative 0.52 percent cumulative abnormal return during the event period.

One plausible reason why the impact of the announcement was so small is that the market had already incorporated the impact of the regulatory changes into the stock price. There were previous indications of a huge settlement, upwards of one billion dollars. Furthermore, while the settlement was a large dollar figure, it was spread out among many investment banks and would not have a significant impact on any investment bank (which typically earn over a billion dollars per year).

Additionally, the fact that the firms were able to negotiate a settlement and to conclude the investigation probably gave comfort to investors. The uncertainty and distractions of such a high profile investigation appeared to have been successfully ended. The fact that no individual bankers would be held criminally responsible also reassured markets. If bankers were criminally prosecuted, the best talent could be removed or scared away from the banking industry. Moreover, bankers might turn down profitable, but risky, undertakings fearing possible criminal liability.

An unexpected result is that commercial banks actually saw a larger negative cumulative abnormal return than the investment banks – negative 2.07 percent. However, this may not be inconsistent with my predictions if the news concerning the investment banks was already incorporated in the stock price – a very likely scenario. The wide-ranging nature could have led investors to worry that potential unrelated malfeasance by commercial banks would be uncovered by regulators.

Event 7:

Event 7 is the announcement that state and federal prosecutors formed grand juries to hear charges against Frank Quattrone. As expected, there was a negative abnormal return for investment banks, negative 2.04 percent. Investors may have feared that prosecuting a banker would hurt investment banks generally. Investment banking is an aggressive industry. If investment bankers fear that they could be criminally prosecuted they may pass on riskier business transactions that are highly profitable. When investment bankers are more cautious, the profits of their firms will likely decrease as will the valuation of their firms. The negative return was not statistically significant so we cannot be sure that there was an impact on the valuation of investment banks.

Prosecuting Frank Quattrone also had an important symbolic effect. Frank Quattrone was the king of Wall Street while at Morgan Stanley and later CSFB. He made hundreds of millions of dollars a year at the end of the 1990s. He was involved in many of the hot IPOs. Quattrone had an iron grip over CSFB's research analysts. He was actively involved in IPO spinning, giving CEOs of corporate finance clients stock in hottest IPOs. In the process he was able to generate well in excess of a billion dollars for his firms during a short time period. Quattrone represented the criminal wrongdoing of the investment banks more than anyone else.

Event 8:

This event is the announcement that regulators and investment banks reached a final settlement. Investment banks had a negative 1.90 percent cumulative abnormal return during the event period. This estimate was not statistically significant at the 10% level. Commercial banks experienced a positive 1.08 percent cumulative abnormal return during the event period. This result also was not statistically significant.

The small overall impact of the announcement is not surprising because many aspects of the deal were anticipated from earlier announcements. The finalized settlement was very similar to that announced in Event 6. The groundbreaking settlement did have a negative impact on the firms but this news was already incorporated into the stock price at the time of the announcement.

Event 9:

News hit that regulators were questioning whether the agreement was far reaching enough to end the stock research conflict of interest problems. I found a negative 2.55 percent cumulative abnormal return for investment banks during the event period. This was expected since investors feared that continued investigations into investment bank behavior would be detrimental for the firms. Uncertainty as to whether regulators would enact tougher regulations that would further restrict investment bank practices should, and did, have a negative impact on the valuation of the firm.

Analysis of Individual Companies

By looking at the firm level I tried to discover if certain investment banks were harmed by the events more than others. This should provide insight into specific firm attributes. After running the regression separately for each of the several investment banks, I did discover very

different impacts on some firms for certain events. Not one investment bank consistently suffered the largest negative cumulative abnormal returns. The varying impacts on the investment banks were likely caused by a combination of unique events surrounding particular firms and what investors learned about a specific bank's improper conduct.

Event 1:

As expected, firms with involvement in the Enron scandal had the largest negative returns. Event 1 was in direct response to the Enron scandal. Thus, investors may have believed that the firms involved would be hurt by new rules and investigations more than the other firms in the industry. J.P. Morgan was most prominently involved in the Enron scandal and it did show the largest negative cumulative abnormal return, negative 8.9 percent.

Event 2:

Morgan Stanley and Merrill Lynch saw the largest negative cumulative abnormal returns, negative 9.1 percent each. This suggests investors believed that the S.E.C. involvement and subsequent changes would significantly harm the future profits of these two firms more than the other investment banks. Bear Stearns had a negative 4.25 percent abnormal return during the same period. Perhaps one reason for this differential is the higher profile of Morgan Stanley and Merrill Lynch analysts. Both firms had analysts, such as Mary Meeker at Morgan Stanley, who were influential and overly optimistic concerning the high-tech industry. Secondly, these firms were targets of the investigation and would likely be forced to change their business methods and pay substantial fines. Concerns that new business might go to other firms not directly targeted by the investigation might also have depressed the returns of the targeted firms.

Event 4:

Citigroup, the focus of Mr. Spitzer's investigation, experienced the largest negative abnormal return at negative 4.17 percent. Being a high profile target of an aggressive public official such as Mr. Spitzer can has significant repercussions in the market. Surprisingly Merrill Lynch did not have as large an abnormal return as the other investment banks. The market may have believed that Merrill Lynch would directly benefit from Spitzer's special focus on Citigroup, a close competitor of Merrill for many corporate finance deals.

Event 5:

Deutsche Bank sustained a large cumulative abnormal effect of negative 12.93 percent. The only foreign investment bank studied, Deutsche Bank's involvement in the scandal was now public. Moreover, foreign banks are always more careful than domestic banks fearing a public backlash. It is one thing for American firms to harm investors but if a German bank defrauded the American public, it might never recover investor or client confidence. Investors may have feared that if Deutsche Bank was found to be engaging in fraudulent activities it would face tougher penalties than a U.S. firm.

Event 8:

Morgan Stanley experienced a cumulative abnormal return of negative 6.42 percent, far more than other banks. A possible reason is that the extent of wrongdoing at Morgan Stanley was previously unknown and new information was now available concerning its business practices. While Morgan Stanley's reputation for integrity took many decades to build, the startling news of its unethical business practices quickly and significantly damaged its standing amongst investors.

Analysis of Corporate Finance as Percent of Revenue

The regression to determine if the percentage of total revenue generated by corporate finance had an impact on abnormal returns produced mixed results. Five out of the nine events had a negative coefficient for the interaction variable. For five of the events, the higher the percentage of corporate finance of the overall business of the firm, the higher the negative abnormal returns for such firms. However, this correlation did not hold true for four of the events, where those firms with more corporate finance experienced less impact.

The two most significant events, defined by the largest abnormal returns, both had negative coefficients for the interaction variable. Event 1's interaction variable had a large predicted coefficient, -0.117, suggesting that a 10% increase in percentage points of corporate finance creates an additional negative abnormal return of 1.17%. The same is true for event 5 which had a coefficient of –0.0907, demonstrating an additional 0.91% abnormal return for every percentage increase of 10% in corporate finance.

A possible reason for the mixed results on this aspect of the study is the small sample size. Only nine investment banks were included in the sample. Nine investment banks, all of which have different business strengths and weaknesses, may not be representative enough of the larger investment banking industry to accurately gauge the impact of the importance of corporate finance as a function of abnormal returns. Moreover, the extent of the stock research conflicts was different for each firm. This implies that all firms were not affected equally, all other things being equal. Finally, there are many other reasons independent of corporate finance as a percentage of total firm revenue that had an impact of the abnormal returns for the nine firms studied.

XII. Conclusion

The investment banking industry is competitive and profitable. There are no significant barriers to entry. Within each investment banking tier, many banks are consistently competing for the same highly profitable deals. Despite the widely followed 7% contract in IPOs, studies have found no evidence of collusion between competing firms. The 7% contract is the efficient contract that emerged in a competitive market place. A great deal of is required for a successful IPO. The 7% contract seems to be what is necessary to attract top investment bankers to perform the time consuming work of an IPO.

In a single round game, investment banks have less incentive to do a superior job even for their investment banking clients. The exhaustive due diligence required to produce an accurate valuation is costly. Investment banks receive the majority of their compensation only if the deal is completed. Thus, it may be in the short-term financial interest of an investment bank to complete the deal even at the detriment of its own client. However in a repeated game investment banks engaging in such behavior would quickly earn a poor reputation. A model developed by Chemmanur and Fulghieri found that reputation is indeed crucial for investment banks. Banks with the best reputations win the biggest deals and earn the highest fees. As such, we cannot expect a highly respected firm such as Goldman Sachs to always act with the best interests of its client in mind in a single transaction.

The conflicts of interest between corporate finance and stock research stemmed from a principal-agent problem. Investment banks do not make money directly from stock research. Revenue from stock research is primarily earned through the trading commissions generated by analyst reports. To generate trading volume analysts issued more optimistic reports than they would have been if there were no biases.

The most significant conflict of interest problem was the interplay between the investment banking and research divisions. Investment bankers generate large fees that far surpass commissions earned on trades. Investment bankers feared that a client company might retaliate against their firm if its stock analyst released a pessimistic report on the company's stock. The risk of losing a profitable client far outweighed any possible benefit of producing unbiased research. Consequently, investment bankers also pressured their firms' stock analysts to produce optimistic reports for companies who were not yet clients. In this case, investment bankers hoped that the company would show its appreciation by becoming a client in the future.

A stock analyst risks his or her reputation with biased research. Reputation is critically important for analysts and their firms and they must be careful not to damage their credibility. Analysts would not have agreed to color their research if they did not receive substantial financial incentives to do so. Stock analysts' compensation was tied directly to the investment banking business they helped their firms to win. This is a perversion of the natural instincts of a stock analyst and directly led to the problems uncovered by Eliot Spitzer.

After conducting these event studies, it appears that the reputations and values of investment banks were indeed harmed by the investigations, negative headlines and subsequent regulatory reforms. Some firms may find new and creative ways of rewarding analysts who help generate huge investment banking fees. However, the market concluded that the new and stiffer regulations would have a negative impact on the valuation of the investment banks. We can logically conclude that the market believed that investment banks would change their behavior, which in turn would negatively impact the firm's profits. This perception best explains the negative abnormal returns found.

Analyzing a company should be done as objectively as possible. However, ultimately it is a very subjective process. It depends heavily on what an analyst *believes* will happen in the future. Two very intelligent people may disagree on whether selling ice over the Internet is a good idea. It is hard to prove whether an analyst sincerely believes selling ice over the Internet is a good idea or if he is trying to win investment banking business for his or her firm. As long as there is no internal email or other paper trail stating that a company is a poor investment in contradiction with its high rating, it will be hard to end these abuses.

Preventing conflicts of interest through additional regulations might also help the industry. Before the news of the scandals landed on the front pages of newspapers, investment banks were engaged in a race toward the bottom. Bank A knew that Bank B would do anything to win the next big merger or acquisition (M&A) deal or initial public offering (IPO). To remain competitive, Bank A needed to 'cheat' just to stay competitive. As such everyone was 'cheating' and, amongst the larger investment banks that vie for the same business, did not offer a competitive advantage. However if all firms are forced to play by the same rules, any bank can compete without 'cheating.' The success of a firm would be based upon the quality of its service of its services and fee structure, and not on its willingness to 'cheat.'

There is always the risk of over regulating the banking industry. While there must be rules and regulations to prevent egregious examples of fraud, investment banking firms must be allowed to play their critical role in capital markets and globalization. They provide America with a great competitive advantage over other nations. It is crucially important for the economic prosperity of the United States to find an optimal regulatory system for the banking industry. The right balance is one which protects the investor while still allowing the banks the necessary freedom to raise capital, assist emerging companies to go public, reorganize struggling

companies before their stock prices plummet and promote greater productivity and innovation by mergers and acquisitions.

It is doubtful the settlement and new regulations will completely prevent future conflicts of interest and biased research. As long as research does not generate significant revenue and the process remains opaque, the future objectivity of research is very hard to predict. However, it is likely that investment banks will continue to change their behavior to protect their firms' reputations and valuations. In the current climate of corporate scandals and mistrust by the public investment banks must be weary of further scandals. The investing public felt betrayed and government regulators have responded vigorously as evidenced by the parade of former top executives now facing criminal trials. Further scandals by Wall Street firms could very well cause Congress to take a much tougher stand against the Wall Street firms and impose restrictive regulations on the firms that will significantly harm their businesses. Even more worrisome for investment banks is their potential civil liability. In conclusion, I believe that the evidence shows that the events surrounding the settlement did change the behavior of the Wall Street firms. As always, when the bottom line (i.e. the stock value of publicly traded investment banks) suffers, structural changes are made to alter the detrimental behavior.

XIII. References

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