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Two essays on the conflict of interests within the financial services industry-financial industry consolidation: The motivations and consequences of the Financial Services Modernization Act (FSMA) and "down but not out" mutual fund manager turnover within fund families

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Two Essays on the Conflict of Interests within the Financial Services Industry-- Financial Industry Consolidation: The Motivations and Consequences of the Financial Services Modernization Act (FSMA) and "Down but Not Out" Mutual Fund Manager Turnover within Fund Families

by

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Two Essays on the Conflict of Interests within the Financial Services Industry--

Financial Industry Consolidation: The Motivations and Consequences of the Financial Services Modernization Act (FSMA) and "Down but Not Out" Mutual Fund Manager Turnover within Fund Families

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ABSTRACT

The objective of this paper is to examine the impact the Financial Services Modernization Act (FSMA) of 1999 has on the consolidation of the banking industry. The FSMA allows banks to simultaneously offer commercial banking, investment, and insurance services. I find a strong positive market response to the announcement of bank acquisition of brokerage firms (10.2%) and insurance companies (9.3%), but no significant response to bank acquisitions. I also find support for two complimentary hypotheses that explain the long-run returns to the acquiring banks. The "product-market spillover hypothesis" states that the post-consolidation returns of the acquirer are directly related to the banks' ability to cross market their products and services to a more diverse client base, while the efficiency hypothesis states that banks acquire financial services companies to realize efficiency gains resulting from exploiting economies of scale. Finally, I show that the premiums paid in the post-FSMA acquisitions increases with the diversity of the transaction.

In addition, this study is the first to link managerial turnover to mutual fund managerial structure in a manner that indicates the strong presence of a conflict of interests between investors and fund sponsors in an area of fund governance where we have been led to believe there are strong and well-functioning mechanisms to guard against the exploitation of investors. I utilize the unique characteristics of mutual funds where managers sometimes manage multiple "firms" simultaneously, something not

generally observed in industrial firms. I test the governance mechanisms using the mutual fund complexes management structure; unitary and multiple fund management (UFM and MFM). This study shows that UFMs tend to have higher asset growth rates and higher fees than MFMs, suggesting that sponsors can benefit more from keeping them intact. I find that changing managers under the UFM is more costly to sponsors making them more reluctant to fire poor performers. I document that underperforming UFM are -2.77% less likely to be replaced than their underperforming MFM counterparts. In addition, the conflict of interests affect the replacement decision, as high expense ratio fund managers have a lower probability of replacement for a given level of underperformance.

Essay 1

Financial Industry Consolidation: The motivations and consequences of the Financial Services Modernization Act

Introduction

On November 12, 1999, the United States Congress passed the Gramm-Leach-Bliley Financial Services Modernization Act (FSMA) allowing competition between commercial banks, brokerage firms and insurance companies. The FSMA repealed the Glass-Steagall Act of 1933 which prohibited banks from simultaneously offering commercial banking, investment, and insurance services. The FSMA allowed commercial and investment banks to consolidate; cross-selling banking services with insurance services, brokerage services, and other financial services. The combined industries are now known as the financial services industry. The implementation of the new legislation and hence, the inception of the financial services industry has resulted in unprecedented merger and acquisition activities (M&A) because financial companies are electing to purchase existing expertise in diverse financial services versus growing theses services organically.

The ratification of the FSMA has led to intense competition between financial services companies to manage a diverse portfolio of financial service products. These regulatory changes have mixed implications regarding whether diversified financial service firms will provide better products and services than specialized financial services firms and, therefore, whether the FSMA adds to shareholder value. On one hand, diversification reduces costs due to economies of scale (Kwan and Laderman (1999)). However specialization produces a greater quality and/or variety of financial services potentially increasing sales (Berger, Demsetz and Strahan (2000)).

A second implication is that the FSMA allows financial services companies to participate in commercial banking, investment brokering, and insurance activities, providing customers with the convenience of having all their financial service needs

met at a single location. However, the Glass-Steagall Act was initially passed due to improper banking activity. The Act prohibited banks from participating in diverse security activities to protect depositors from the additional risk associated with security transactions. It was initially thought that banks that offer investment banking services and mutual funds were subject to conflicts of interest and other abuses. For instance, a commercial bank's financial interest in the ownership, price, or distribution of securities would lead to increased pressure on banking customers to invest in securities that the bank sells. The repeal of the Glass-Stegall Act with the Financial Services Modernization Act suggests that these banking conflicts of interests are now of minimal concern[1] and the consolidation of the financial industry will enhance social welfare. Thus, it is an empirical question whether or not the regulatory changes and the resulting changes in the structure of the financial industry add value to shareholders. The purpose of this paper, therefore, is to investigate whether and how financial services industry acquisitions in the post-FSMA period affect shareholder value.

I examine two hypotheses–the efficiency hypothesis and the product market spillover hypothesis–to explain the source of any increase in shareholder value resulting from financial services industry acquisitions in the post-FSMA period. Theoretical arguments predict that mergers and acquisitions are motivated by target efficiency improvements that can be achieved by the acquirer (Calomiris and Karceski (1998) and Rhoades (1998)). Berger and Humphrey (1992) find that acquiring banks are more cost efficient than target banks. Efficiency may also be improved by M&A if increased diversification improves the risk-return relationship. Thus, the efficiency hypothesis states that acquiring banks increase shareholder value by purchasing other financial service industry companies and effectively managing the combination of the two firms more efficiently than the target management.

The corporate M&A literature suggests that diversifying acquisitions are generally value-reducing, and that increases in corporate focus are value-enhancing

[1] This might be because there are mechanisms in place to minimize the conflicts.

(Lang and Stulz (1994), Jensen and Ruback (1984), Berger and Ofek (1995) and John and Ofek (1995)). Due to the uniqueness of financial services industry assets, examining the financial service industry consolidation will provide a new perspective into the diversification benefits, or lack thereof, of mergers and acquisitions. Since the primary asset acquired is information in the form of a client list, the acquirers' market returns will be directly related to the acquirers' ability to cross-market its products and services to a more diverse customer base. Unlike the general result for industrial firms, we could observe positive wealth effects for acquirers resulting from the purchase of diverse financial products and services.[2] In addition, the acquirers' ability to tailor a variety of new products and services to existing customers should lead to increased sales and shareholder value.[3] Diamond (1984) states that banks use private information about clients to make a profit. The FSMA allows for increased access to clients and therefore a greater chance to cross-market. Thus, the product market spillover hypothesis states that the acquirers' returns primarily depend on the banks' diversification of customers, products and services.

While there has been considerable research on mergers and acquisitions, this is the first study to examine bank mergers and acquisitions after the creation of the financial services industry by the FSMA, when banks can merge with non-bank financial firms to obtain other than geographic diversification. Using the bank as the base organization, the FSMA allows us to examine three consolidation options – bank mergers with 1) banks, 2) investment firms or 3) insurance companies. It is reasonable to believe that there is a monotone increase in the organizational differences between banks as an acquirer and these three firm-types as targets. This then allows for an assessment of whether and how the degree of diversification in the financial services industry matters to investors.

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[2] Laeven and Levine (2006) find that banks that diversify trade at a value discount utilizing measures of Tobin's Q. However, their study is based on bank to bank M&As. I consider the financial services industry acquisitions which includes bank to bank, bank to investment firm and bank to insurance company M&As. I employ univariate and multivariate analysis to examine financial service industry M&As.

[3] The acquirer can sell services to a larger client base including those of the target and it can sell the services of the target to its established customers.

The specific issues I address are as follows: Are there differences in the market reactions to (announcement effects of) the different consolidation options exercised by acquiring banks? Do the efficiency and/or spillover hypotheses explain the post-acquisition (long-term) returns of acquiring banks? In considering these two issues, I gauge investors' short-term and long-run views on the benefits, or lack thereof, that the FSMA provides. Finally, I address a related issue: Does the acquisition premium reflect the degree of diversification in financial services industry acquisitions? Benston et al. (1995) find that U.S. acquiring banks bid more for targets when the resulting combination leads to significant geographical diversification gains. The FSMA provides a unique opportunity to examine bank managers' perception of the benefits of merging with the various firm-types, as reflected in their willingness to pay a higher premium for diversity.

Utilizing all U.S. financial services industry affiliated mergers and acquisitions from 1999 to 2002, I find support for two complimentary hypotheses that explain the long-run returns to the acquiring banks. Using two measures of efficiency and various spillover variables to test the hypotheses, I find support for both hypotheses. I find that both profit efficiency and operation efficiency determines future returns. In addition, there is evidence that when banks engage in diversifying mergers with brokerage firms the effects of profit efficiency on post-consolidation returns is larger. After evaluating various spillover characteristics, the results indicate that acquiring financial firms take advantage of the product and service diversity.

I document that on a year-by-year basis the acquisition premium ranges from 17% to 23%. It appears that bank managers do not hold financial services diversification in high regards as witnessed by the decreasing premium for bank diversification mergers and acquisitions (bank to investment firm/ insurance company acquisitions). I find a larger premium for bank to bank acquisitions (18.7%) than bank to investment firm acquisitions (16.9%) and bank to insurance company acquisitions (8.5%).

The remainder of the paper is organized as follows. Section II provides a background of the relevant legislation that has affected the financial services industry in the United States. Section III provides a review of the literature on both M&A in the banking industry and the impact the FSMA has on banks. Section IV discusses the non-financial industry mergers and acquisitions literature and develops the hypotheses. Specifically, Section IV presents the motives for combining banking services with other financial services. Section V describes the data and methodology and provides a sample description and preliminary statistics of the financial services industry over the 1999 to 2002 period. Section VI presents the announcement day abnormal return results of this study. The determinants of post-acquisition returns are presented in Section VI. The paper concludes with a summary of the findings in Section VII.

Financial Services Industry Legislation Background[4]

The United States government often plays an important role in constraining or encouraging financial industry consolidation activity by directly approving or disapproving individual mergers and acquisitions or by changing explicit or implicit regulatory restrictions on consolidation. In 1933, during the aftermath of the 1929 stock market crash and the Great Depression, the Glass-Steagall Act (GSA) was enacted. As a collective reaction to the worst financial crisis at the time, the GSA set up regulatory walls between commercial bank and investment bank activities. The 1933 Glass-Steagall Act had two basic objectives, to: 1) require that investors receive significant or material information concerning securities being offered for public sale and 2) prohibit deceit, misrepresentations, and other fraud in the sale of securities. At this time, "improper banking activity" by overzealous commercial banks involved in stock market investment, was deemed the main culprit of the financial disaster.

[4] Information pertaining to banking legislation was provided by the Federal Deposit Insurance Corporation (FDIC) at www.fdic.org.

The provisions of the Glass-Steagall Act were directed at specific abuses by financial service companies. First, Congress was concerned with banks investing their own assets in securities with consequent risk to commercial and savings deposits. Second, there was an issue with banks providing unsound loans to companies in which the bank had invested its own assets. Third, there was a concern that bank officials may be tempted to press their banking customers into investing in securities which the bank itself was under pressure to sell because of its own pecuniary stake in the transaction. The GSA was put in place to protect against commercial banks with financial interest in the ownership, price, or distribution of securities. Financial service companies were accused of being too speculative in the pre-Depression Era, not only because they were investing their assets in risky equities but also because they were buying new issues for resale to the public. As a result of their speculative disposition, the financial services industry objectives became blurred.

The Glass-Steagall Act was the first major federal legislation to regulate the offer and sale of securities. Prior to the enactment of the GSA, the “Blue Sky” laws governed by the state regulated the securities market. The GSA of 1933 left in place the patchwork of existing state securities laws to supplement the federal law. Under the 1933 GSA, the company offering securities is required to disclose significant information about themselves and the terms of the securities to potential investors to assist in making an informed investment decision. In addition to the disclosure rule, the GSA required that banks separate commercial banking from investment banking services. Banks were given a year to decide on whether they would specialize in commercial or in investment banking. By creating this separation, the GSA attempted to prevent the banks' use of deposits to offset the losses of a failed underwriting division. Thus, the purpose of the Glass-Steagall Act of 1933 was to place restrictions against the improper banking activity that resulted from the conflict of interests of offering both commercial and investment banking service.

In addition to the GSA, Congress passed the Bank Holding Company Act (BHCA) on May 9, 1956 to regulate the banking sector. This Act required Federal

Reserve Board's approval for the establishment of a bank holding company and prohibited bank holding companies headquartered in one state from acquiring a bank in another state. The BHCA also prohibited a bank holding company from engaging in most non-banking activities or acquiring voting securities of certain companies that are not banks. Legislators were concerned that huge banking conglomerates would monopolize the banking industry. In addition, many non-bank businesses feared that firms affiliated with banks would gain a competitive advantage over unaffiliated competitors in the same industry. These non-banking businesses were concerned that firms affiliated with banks would receive preferential credit treatment from the banks and would have access to low-cost funds provided by them from non-interest-bearing deposits. There was also a concern that a bank would combine the access to credit with the purchase of services provided by its non-bank affiliates. For example, if all of the bank's commercial borrowers were required, as a condition of obtaining credit, to buy their business travel services from the bank holding company's travel agency, the independent travel agencies would be unable to compete. Given these concerns, Congress restricted non-bank activities and only permitted those activities incidental to banking or performing services for banks. Approved activities by the BHCA of 1956 include ownership of the bank's premises, auditing and appraisal, and safe deposit services. The law required that nonconforming non-bank businesses be divested. However, the interstate acquisition restrictions of the BHCA were eradicated by the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 (IBBEA). IBBEA allowed interstate mergers between banks, subject to concentration limits, state laws and Community Reinvestment Act (CRA)[5] evaluations.

[5] The Community Reinvestment Act of 1977, revised in 1995, encourages depository institutions to help meet the credit needs of communities in which they operate, including low- and moderate-income neighborhoods. The CRA requires federal agencies responsible for supervising such institutions to evaluate their compliance periodically and to take their records into account in considering applications for deposit facilities.

The Gramm-Leach-Bliley Financial Services Modernization Act (FSMA) of 1999 had the most influential impact on the financial services industry[6]. The FSMA repealed the Glass-Steagal Act, removing many of the remaining restrictions on combining commercial banking, securities underwriting, and insurance in consolidated organizations. This act opened competition between banks, securities companies and insurance companies to own and operate comparable financial services. Under the FSMA, individuals who would put money in investments when the economy is good can now put money into a saving account with the same company when the economy is bad. With the ratification of the FSMA, Congress was concerned with the sharing of customers' private information between divisions of the financial service firm. Thus, included in the FSMA, the Financial Privacy Rule requires financial institutions to provide their clients a privacy notice that explains what information the company gathers about the client, where this information is shared, and how the company safeguards that information. The privacy notice must also explain the "opt-out" policy; which allows customers to not permit their information to be shared with affiliated parties. By eliminating the restrictions on the separation of commercial banking from securities and insurance activities, the Financial Services Modernization Act allows for the consolidation of financial services and the formation of financial conglomerates.

Banking Industry Literature Review

In the seminal literature of the banking industry, Diamond (1984) analyzed the monitoring and information gathering role of banks. Diamond (1984) theorized that under asymmetric information banks are able the extract positive profits from the private information about borrowers. Von Thadden (1998) shows that this theory is

[6] The FSMA amends, among other laws: the Banking Act of 1933 (Glass-Steagall), the Bank Holding Company Act of 1956, the Interstate Banking and Branching Efficiency Act of 1994, the Investment Company Act of 1940, the Securities Exchange Act of 1934,the International Banking Act of 1978, the Depository Institutions Deregulation and Monetary Control Act of 1980, the Federal Reserve Act, the Federal Deposit Insurance Act, the National Bank Consolidation and Merger Act, and the Home Owners' Loan Act.

robust even when markets are characterized by pure price competition. In a more recent study, Martinez (2002) develops a framework that measures the information asymmetry across banks. Martinez developed a borrower turnover measure that focuses on how changes in customer information affect the banks ability to compete. This framework differentiates between effects on bank profits stemming from the banks' relative size versus those profits from superior information. On the other hand, information asymmetry between investors and bank managers may limit a bank's ability to raise funds (Stein (1998)) or banks may have limited ability to process information or monitor loans (Gale (1993) and Almazan (1996)).These studies suggest that banks utilize private information to earn a profit and that any change in regulation or industry structure that affects the use or generation of private information will impact the banks' ability to compete.

Other researchers have evaluated the impacts of legislation changes on the financial services industry. Kashyap and Stein (1995), for instance, find that the lending behavior of banks seems to be quite sensitive to exogenous changes in monetary policy. Thakor (1996) finds that regulations that increase capital requirements for banks decrease the aggregate lending affecting a bank's ability to earn profits. However, Stiroh and Strahan (2003) find the link between a bank's relative performance and its subsequent market share growth strengthens significantly after deregulation as competitive reallocation effects transfer assets to better performers. They conclude that earlier regulation of U.S. banks blunted this market mechanism and seriously hindered the competitive process.

The changes in government regulations have led to dynamic changes in the financial industry structure. Berger and Humphrey (1992) and Rhoades (1993) both document significant structural and organizational changes in the banking industry following regulation amendments. However, these industry changes have resulted in mixed results. DeYoung (1997) shows significant losses for acquiring U.S. commercial banks from 1984 through 1994. Peristiani (1997) finds substantial gains for acquiring banks following the consolidation and reconstructing during the 1980's.

Akhavein, Berger and Humphrey (1997) suggests that the improvements in profit efficiency can be linked to improved diversification of risks. Berger and Mester (2003) concludes that industry diversification allows institutions to make additional high-risk, high-expected return investments without additional productivity declines during the 1990s.

The bank holding company conglomerates are able to navigate the restrictions and geographical limitations of bank legislation. Bank holding company activity in states with limitations on intrastate branching allowed these companies to diversify into non-banking industries. Bank Holding Company (BHC) diversification decreases the company's firm-specific risk while unaffecting its systematic risk.[7] However, the diversification is not the only factor affecting a Bank Holding Company's firm-specific risk. The uncertainty of the individual components of a BHC's assets, leverage, and liabilities influence it stock returns. Demsetz and Strahan (1997) finds that larger BHCs are able to operate with higher leverage and engage in riskier lending practices without increasing overall risk because of their diversification advantage. Similarly, Akhavein, Berger and Humphrey (1997) suggest that better diversification allows the merged banks to hold riskier and more profitable portfolios. These findings suggest that diversification may be an important motivation for bank consolidation. Measuring the performance of BHCs following geographic banking deregulation, Liang and Rhoades (1991) shows that larger BHCs can take advantage of wide branch networks to more effectively diversify loan portfolios.

The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 (IBBEA) eradicated the Bank Holding Company Act restrictions and permitted bilateral agreements among states made expansion across states by bank holding companies possible.[8] Examining these two banking deregulation legislations, Clarke (2004) finds a significant linkage does not exist between banking markets as defined

[7] Under the United States law, a bank holding company is any entity that directly or indirectly owns, controls or has the power to vote 25% or more of a class of securities of a U.S. bank.

[8] Initially, most states' bilateral agreements permitted entry only from states in a surrounding region, with the boundaries of the region determined by the passing of state law. These regions expanded to include more states. Some states even passed state legislation allowing national interstate banking.

by deregulation and economic growth in the state. Thus, diversification due to deregulation appears to have no influence the economy. The Financial Services Modernization Act of 1999 allows banks the opportunity to expand into non-banking financial activities increasing financial service industry consolidation. This consolidation will enhance diversification, however, the resulting change in shareholder value will depend on the extent to which consolidation is accompanied by changes in banks' activities.

Literature on the Depository Institutions Deregulation and Monetary Control Act of 1980

In March of 1980, the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) was enacted to eliminate the distinctions among different types of depository institutions[9] and remove interest rate limitations on deposit accounts. Essentially, this deregulation of the Glass Steagall Act allowed credit unions and savings and loan firms to offer checkable deposits, thus competing with commercial and savings banks for customer deposits. The DIDMCA has two main sections, Title 1 and Title 2. Title 1, the Monetary Control Act, extends the monetary reserve requirements to all U.S. banking institutions.[10] The Depository Institutions Deregulation Act of 1980, Title 2, eradicated the Federal Reserve deposit interest rate ceilings.

The Depository Institutions Deregulation and Monetary Control Act was passed to deal with the problems facing depository institutions. Due to the high interest rate level experienced in the United States, the depository institutions were forced to pay higher rates to attract consumer funds than the rates they were earning on their portfolios of assets. The DIDMCA allowed depository institutions to relax

[9] The Depository Institutions Deregulation and Monetary Control Act defines depository institutions as banks, savings banks, Savings and Loans firms and credit unions.

[10] The mandatory reserve requirements that banks keep in non-interest earning accounts at Federal Reserve Banks were lowered. State chartered banks that are not members of the Federal Reserve System and thrift institutions were required to maintain reserve account balances. And the mandatory reserves requirements for all depository institutions were phased in over an eight-year period ending in 1988.

deposit rate limitation, enabling these institutions to earn higher returns due to the reduced applicability of the state usury laws. Depository institutions were now permitted to lend money and charge borrowers exorbitant interest rates. The new lending powers were, however, extended to only individuals and nonprofit organizations and not to businesses. Allen and Wilhelm (1988) states that bankers recognize the desirability of regulatory simplification among depository institutions, such as homogeneous reserve requirements, and the abolition of interest rate ceilings on deposits. However, James (1983) finds that bank deregulation of deposit rate ceilings resulted in gains for credit unions and savings and loans but losses for commercial banks. Similarly, Allen and Wilhelm (1988) find evidence that the Depository Institutions Deregulation and Monetary Control Act provided a wealth transfer from non-federal Reserve System member banks and savings and loans to Federal Reserve member banks. Cornett and Tehranian (1989) find that the DIDMCA banking deregulation benefited stockholders of large banks and savings and loans but produced negative abnormal stock returns for small banks. Timberlake (1985) suggests that the DIDMCA increased the powers of the Federal Reserve System, benefiting large established banking institutions. The implementation of the DIDMCA made it possible for depository institutions to compete for funds regardless of the level of interest rates in the economy. However, Cornett and Tehranian (1990) states that the authority for Federal Reserve member institutions to make risky loans was expanded, which ended up with the savings and loan crisis in 1985.

Literature on Interstate Banking and Branching Efficiency Act of 1994

Prior to 1994, banks and bank holding companies were prohibited from acquiring banks across state lines. The Interstate Banking and Branching Efficiency Act of 1994 extends interstate banking in two formal steps. First, as of September 1995, bank holding companies were allowed to acquire banks in any state. Secondly, in June 1997, holding companies were able to convert out-of-state bank affiliates to branches of the lead bank. However, bank acquisitions and conversions are subject to the approval of the Community Reinvestment Act (CRA) of 1977, concentration

limits and state laws. Previous research indicates that financial reforms, such as the Interstate Banking and Branching Efficiency Act of 1994, have had important effects on the structure of banking markets. Brook, Hendershott and Lee (1998) document a value gain of $85 billion for the financial industry post ratification on the IBBEA. However, Carow and Kane (2002) state that the passing of the IBBEA resulted in the redistribution of wealth rather than the creation of value. Carow and Kane (2002) find that returns are positive for some financial sectors and negative for others.

Although Amel and Liang (1992) and Calem (1994) both find that banking market structure changed little after the ratification of the Interstate Banking and Branching Efficiency Act , Amel and Liang (1992) find significant entry into local markets after intra-state branching restrictions of the BHCA were repealed. Calem (1994) show that many small banks are acquired and incorporated as branches into large bank holding companies after branching reform. McLaughlin (1994) finds that multi-bank holding companies convert existing and acquired bank subsidiaries into branches following the IBBEA. Furthermore, Savage (1993) finds that over the 1980-1993 period the market share of large banks grew, while concentration at both the state and national level rose. Jayatne and Strahan (1996) also show that banking deregulation increased state-level growth and Jayatne and Strahan (1998) show that deregulation increased efficiency resulting from costs and prices of banking services. Overall, the evidence suggests that larger more efficient banks emerge post-inter-state deregulation. In addition, increases in size are associated with better inter-state diversification (Demsetz and Strahan (1995)). Stiroh and Strahan (2003) find these beneficial results are the result of competitive dynamics. Nippani and Green (2002) show that bank performance improved in the post-IBBEA period, but when they controlled for general economic conditions and interest rate movements, the impact of IBBEA on bank performance appears to be insignificant. However, based on several studies (Demsetz and Strahan (1995), Jayatne and Strahan (1996, 1998), Nippani and Green (2002), Stiroh and Strahan (2003)), deregulation of the financial services industry appears to be beneficial to only some sections of the industry.

Literature on the Financial Services Modernization Act of 1999

Prior to 1999, consolidation occurred primarily through intra-industry mergers and acquisitions. Under the FSMA, while the intra-industry M&A activity will continue, much of the consolidation will be in the form of cross-industry mergers involving banks, brokerage firms, and insurance companies. There is an extensive research literature on the motives for and consequences of consolidation resulting from the ratification of the Financial Services Modernization Act. According to Covington and Burling (1999) and Macey (2000) the FSMA provides commercial banks with strong incentives to expand into investment banking and insurance services, investment banks into commercial banks and insurance companies, and insurance companies into investment banking. Barth, Brumbaugh and Wilcox (2000) investigate the major provisions of the Act. They argue that the Act favors big banks. Brewer et al. (1988), Wall et al. (1993), and Boyd et al. (1993) hypothesize that banks will receive greater benefits from involvement in insurance activities than from participation in other non-banking activities, without increasing their organizational risk significantly. Kwan and Laderman (1999) also find similar results after surveying the literature on the effects of combining banking and non-bank financial activities on banking organizations' risk and return. They conclude that expanding banking services to include insurance and investment activities can provide diversification benefits to banking organizations. Whalen (2000) shows that banking firms are likely to improve, or at least not unfavorably alter their risk/return opportunities by engaging in both banking and insurance activities-particularly life insurance underwriting activities. Alternatively, Kwast (1989) and Apilado et al. (1993) find that adding underwriting services will lead to an increase in individual bank risks and little reduction in total risk.

Several studies examine the effect of the passage of the FSMA on the return of financial services firms. Akhigbe and Whyte (2001) examine the legislative events leading up to and the passage of the FSMA on the stock returns of banks, brokerage

firms, and insurance companies. They find that the impact is positive for all institutions. Bank gains are positively related to size (bank assets) and capitalization level (customer deposits). Brokerage firms and insurance companies gain regardless of their size. Insurance firms gain regardless of their capital position, but brokerage firms' gains are inversely related to their capital position. Alternatively, Carow and Heron (2002), find insignificant returns for banks, negative returns for foreign banks, thrifts and finance companies and positive returns for investment banks and insurance companies. Similarly, Hendershott, Lee and Tompkins (2002) document strong positive response among investment banks and insurance companies and insignificant response among commercial banks. Neale and Peterson (2003) show that the market reactions to key events related to passing of the FSMA for insurance companies are positive. Akhigbe and Whyte (2004) report that the systematic risk of all types of financial institutions decreases after the FSMA, while the total and unsystematic risks increase for banks and insurance companies and decreases for investment firms. More recently, Yildirim, Kwag and Collins (2006) find that investment banks and insurance firms are better positioned to exploit the benefits of product-line diversification opportunities allowed by the legislation compared to commercial banks that experience no significant market reactions to the key legislative events leading to the passage of the FSMA.

Literature Review on Non-Financial Corporate Acquisitions and Conglomerates

The financial literature advances two main strands of research related to the motivations for mergers and acquisitions. The first commonly found is the synergistic effects from the combination of targets and acquirers. The synergistic hypothesis can take form in three distinct ways. One, the target shareholders as well as the bidder shareholders would benefit from the merger if the bidders' management can effectively manage the combination of the two firms more efficiently than the target management can manage the target firm. Two, a target firm can benefit from being absorbed by an acquirer, gaining access to outside funds at the lowest attainable rates.

Finally, the reduction of risk through the merger of target and acquirer is the third justification of an acquisition. Even if the target and acquirer are in unrelated industries, the risk surrounding their earnings streams will be reduced when these earnings streams are pooled.

The second hypothesis advanced related to the motivations for mergers and acquisitions is the agency cost hypothesis. The agency cost hypothesis asserts that managers pursue pecuniary and non-pecuniary rewards that are closely related to the growth rate of their firm. Jensen (1986) and Stulz (1990) both assert that the power and prestige associated with managing a larger firm may lead to firm diversification. Jensen and Murphy (1990) maintain that managerial compensation is related to firm size. Amihud and Lev (1981) note that diversification also reduces the risk of managers' undiversified personal portfolios. Finally, Shleifer and Vishny (1989) state that diversification helps make the manager indispensable to the firm.

Several empirical studies have investigated the validity of both the synergy hypothesis and the agency cost hypothesis. Initially, Mandelker (1974) finds a positive 0.6% abnormal return of merged firms from a month after through 12 months after the effective merger date. Empirical results by Bradley, Desai and Kim (1983) show positive but statistically insignificant total dollar gains of $17.2 million to acquirers and targets in 162 tender offers. They also found that the average percentage change in total value of the combined target and acquirer firms is a significant 10.5%. Asquith (1983) and Eckbo (1983) report slightly positive, but statistically insignificant, abnormal returns. Servaes (1991) supports the notion that abnormal returns are higher when well managed, high q firms take over poorly managed low q firms. Finally, Chevalier (1999) finds that the market reacts positively to the announcement of diversification mergers. This evidence indicates that changes in corporate control increase the combined market value of assets of the acquiring and target firms.

In stark contrast, there is a body of research that states that acquisitions are negative present value investments. Dodd (1980) finds a significant abnormal return

of -1.09% for 60 acquirers on the day before and the day of the first public announcement of the merger, indicating that merger bids are, on average, negative net present value investments for acquirers. Similarly, Malatesta (1983) reports an average loss of about $28 million in the period four months before through the month of announcement of the merger outcome. He finds significant negative abnormal post-outcome returns of -13.7% for mergers. Recently, Graham, Lemmon and Wolf (2002) found that acquiring firms experience a reduction in excess value following the acquisition. They state that the addition of a poor performing target firm explains most of the decline in value.

Several papers discuss the effects of diversification on firm value. Stein (1997) suggests that conglomerates transfer capital from divisions with lower growth opportunities to those with higher growth opportunities but facing capital restrains. Thus, the Stein hypothesis suggests that internal capital market benefits the conglomerate. Alternatively, Scharfstein and Stein (2000) suggests that in a two-tier agency model, headquarters executives will over-allocate capital to rent-seeking divisional managers, therefore destroying firm value.

There is a general consensus in the empirical literature validating the losses resulting from diversification. Morck, Shleifer, and Vishny (1990), Lang and Stulz (1994), Berger and Ofek (1995), Servaes (1996), and Lamont and Polk (2001) document significant value losses associated with diversification related acquisitions. Similarly, Loughran and Vijh (1997) finds that acquirer stock returns, on average, are smaller than matching stock returns in cases where a merger is made and stock is used for payment. Empirical results by Rau and Vermaelen (1998) also show that acquirers in mergers underperform in the three years following the acquisition.

The theory that investors overreact to anticipated and unanticipated information, resulting in exaggerated movements in stock prices have been used to explain the post-acquisition performance of acquirers. DeBondt and Thaler (1985) establishes the stock market overreaction hypothesis that asserts that stock prices take temporary fluctuations away from their fundamental values due to investor optimism

and pessimism. Numerous studies find evidence for stock price overreaction. DeBondt and Thaler (1987) document that over and underperforming firms exhibit extreme price performance over long-term periods. Fama (1991) state that part of the response of prices to information announcements occur slowly over time. Studies analyze the differential riskiness of over and underperforming firms. Chan (1988) and Ball and Kothari (1989) argue that differences in risk can explain the abnormal performance of these firms. These studies are evidence of overreaction to the accumulation of information. Chopra, Lakonishok and Ritter (1992) provide evidence which suggests that differential risk cannot explain the asymmetric overreaction of under and over performing firms. However, Conrad and Kaul (1993) report that most of the long-term overreaction reported in DeBondt and Thaler (1985) can be attributed to a combination of the bid-ask spread effect and the use of price rather than returns to calculate cumulative abnormal returns.

The overreaction excess returns following acquisitions might be due to the change in the type of stockholders owning the company (Black and Scholes (1974) and Shefrin and Statman (1984). Stiglitz (1989) hypothesize that the overreaction is caused by speculative trading. One might expect similar overreaction for acquiring financial service industry firms following the ratification of the Financial Services Modernization Act of 1999, especially since these merged firms will form new financial conglomerates and the novelty and uncertainty of such a firm can lead to investor speculation.

The consolidation efforts of commercial banks can provide insights into the true value of an acquisition and the benefits conglomerates receive from diverse divisions. Financial services industry acquisitions provide an empirical laboratory with relatively little asymmetric information or moral hazard compared to industrial firms in which the aforementioned hypotheses can be tested. Therefore, banking industry acquisitions provide an opportunity to test an aspect of the synergy

hypothesis[11] (Mandelker (1974)), , and agency cost hypotheses (Jensen (1986)) and provide new insights about the effects of diversifying acquisitions (Morck, Shleifer, and Vishny (1990)). I use the reorganization of banks to comprehensively examine the value of an acquisition. Specifically, I quantify and then examine the determinants of the returns of the various banking reformation combinations.

This study contributes to the debate on bank returns post-FSMA, by examining the consolidation options of banks following the ratification of the FSMA. Specifically, I compare the market reactions of the consolidation options; bank mergers with 1) banks, 2) investment firms or 3) insurance companies. Additionally, I analyze the returns post-FSMA using competing hypotheses; efficiency hypothesis and spillover hypothesis. Finally, I examine the acquisition premium to see if bank managers pay premium for financial service industry diversification.

Hypotheses Development: Efficiency Hypothesis versus Spillover Hypothesis

In this section, I present a set of sub-hypotheses under two broad hypotheses, efficiency and product-market spillover hypotheses, to explain the cross-sectional variation in stock market returns of banks that acquire financial services companies. The efficiency hypothesis states that acquiring banks purchase other financial service industry companies because the acquiring bank can manage the combination of the two firms more efficiently than the target management can manage the target firm. Therefore, the returns to the acquiring banks are partly driven by the acquirer's ability to utilize the targets' existing assets in a more efficient and effective manner. To test the efficiency hypothesis, I implement both of the banking profit efficiency measure utilized by Berger (1993) and Berger, DeYoung, Genay and Udell (2000) as well as the operating efficiency measure developed by Harris and Robinson (2002).

The product market spillover hypothesis states that the acquirers' post-acquisition stock market returns are related to the acquirers' ability to cross market its products and services to a more diverse client base, which now includes the clients of

[11] In relation to the banking industry, the synergy hypothesis is defined as the synergistic use of information on clients of both the target and the acquirer.

the newly acquired target firm. Similarly, the target's products and services can be marketed to the acquirer's clients. Thus, according to the product market spillover hypothesis, the acquirers' returns primarily depend on the banks' diversification of customers, products and services.

The efficiency hypothesis and spillover hypothesis are distinctly different. The influence behind the efficiency hypothesis is the gains from exploiting economies of scale. The efficiency hypothesis centers around the cost function of a firm in that it primarily captures the reduction of cost resulting from increase in efficiency. These operational efficiencies could result from a variety of "synergies" including a reduction in production or redistribution cost, vertical integration and adoption of more efficient production or organizational technology. The spillover hypothesis captures the gains from improvements in financial standing that result from increased profits. The changes in the financial structure and standing of the acquirer or the combined firm resulting from excess sales, cash/cash flow and financial leverage will arise because of spillover from one division into other divisions.[12] Specifically, the spillover hypothesis states that the acquiring financial institution purchases a target financial company to cross market its products and services to a more diverse client base. The implications of each hypothesis are very different. The efficiency hypothesis is different in that it implies that the new consolidated financial entity will be able capture sustainable efficiencies resulting from economies of scale, whereas the spillover hypothesis implies that spillover benefits will disappear once the acquirer has completed the cross-marketing of its products and services to the expanded client base.

Efficiency Hypothesis

Efficiency gains from exploiting economies of scale are often cited as a motivation for financial services industry consolidation (Mester (1993), Berger and

[12] For instance, the relatively low correlation between the cash flows of a regular bank and those of a target insurance firm will reduce the probability of default and, therefore, lead to increased debt capacity. This is the coinsurance argument of Lewellen (1971)). The latter may then be exploited to increase the combined firm's revenues.

Hannan (1998), Berger, Demsetz and Strahan (1999)). Using data from the 1990's, Berger and Mester (1997) suggest that there may be substantial scale economies even for the largest banks. They suggest that these results are due in part to technological advancement. Alternatively, several studies find little evidence of substantial economies or diseconomies of scale within banking (Kellner and Mathewson (1983) and Mester (1987)), securities (Berger, Hanweck and Humphrey (1987)) or insurance industries (Mester (1993)). These findings suggest that losses, or at least no gains in efficiency, will result from banking industry consolidation. Consistent with these findings, Altunbas, Molyneux, and Thornton (1997) find that simulated pro forma mergers between banks in the European Union are more likely to increase costs rather than decrease them. However, Berger, Hancock and Humphrey (1993) and Berger, Cummins, Weiss, and Zi (1999) find that joint production within both banking and insurance companies is more efficient for some firms and specialization is more efficient for others, depending on the size of the firm.

In the United States, domestic banks are on average slightly less cost efficient than foreign banks by 2.8% of costs (Berger, Demsetz and Strahan (1999)). This finding suggests that diversification reduces costs whereas specialization increases cost. Berger et al. (1999) conclude that the higher expenses are more likely incurred to produce a greater quality and/or variety of financial services that generate substantially greater revenues. Berger, DeYoung, Genay and Udell (2000) find that foreign banks are less efficient on average than domestic banks, suggesting that efficiency considerations may limit the global consolidation of the financial services industry and leave substantial market share for domestic institutions. As it relates to industry consolidation, Berger and Humphrey (1992) and Pilloff and Santomero (1998) find that acquiring banks appear to be more cost efficient, on average, than their banking industry peers. These cost efficiencies could result from a variety of "synergies" including a reduction in production or redistribution cost, vertical integration and adoption of more efficient production or organizational technology (Jensen and Ruback (1984)). In light of the above discussion, I hypothesize that the

post-consolidation returns of the consolidated entity are positively related to the efficiency of the acquiring bank. Furthermore, I hypothesize that the post-consolidation returns are increasing in the difference between the efficiency of the acquirer and the target. Due to the difficulty of realizing efficiency gains across diverse industry divisions, I also hypothesize that the post-consolidation returns of the new financial services entity will be larger when the bank acquires other bank(s) relative to when it acquires an investment bank or insurance company.

Product Market Spillover Hypothesis

The basis of the product market spillover hypothesis is that banks pay substantial premiums to acquire financial corporations so that the acquiring financial company can cross market its products and services to a more diverse client base. This hypothesis posits that the acquirer would like to obtain other benefits from the acquisition other than just the income arising from improving the efficiency of the target's operations (Efficiency Hypothesis). This may result from a spillover effect to the acquirer's other financial products and services due to the financial services industry acquisition. Whereas efficiency gains arise from the improved use of existing target assets in association with the acquirers' assets, the product market spillover hypothesis holds that post-consolidation returns are expected to increase as a result of increased use of the existing client base of both the target and acquirer firms to market the consolidated entity's services. For instance, after a bank acquires an insurance company the bank will cross-market its banking products to the new insurance clients while selling its insurance products to the bank's clients.

Most tests of the "Efficiency Hypothesis" use data on financial institutions from the 1990s, and it is possible that recent technological progress might have increased product "spillover" in financial services and thus created opportunities to improve returns through consolidation. A number of studies have examined firms that provide multiple products within the financial services industry with mixed results. Some research finds that consolidated banks and consolidated insurance companies

may lower costs by using one consolidated customer database and cross-selling their products. Greenbaum, Kanatas, and Venezia (1989) and Rajan (1996) state that information reusability may reduce cost when a universal bank acting as an underwriter conducts due diligence on a customer with whom it has had a lending or other relationship. Alternatively, Winton (1999) argues that diseconomies may arise from coordination and administrative costs when firms offer a broad range of products. Winton further states that these products are often outside the senior management's area of competence. However, studies of the European Union's universal banking system may not be good predictors of the United States' consolidated financial services industry. Berger, Demsetz and Strahan (1999) state that commercial banking and underwriting in the banking-oriented continental Europe of the past bears little resemblance to commercial banking and underwriting activities in market-oriented financial systems as in the United States. The following sub-hypotheses explain and define the "product market spillover" hypothesis.

Cash /Cash Flow

Lewellen (1971) and Travlos (1987) state that the merger of two firms that do not possess perfectly positively correlated cash flows reduces the default risk of the new firm, therefore, increasing the value of the combined firm above the sum of the values of the individual firms. Along the same line, Stein (1997) suggests that the gains to conglomerates that transfer assets from one division to another stem from the conglomerate's ability to finance positive net present value projects of divisions with growth opportunities and low cash flow. However, there is an internal capital market theory that suggests that the allocation of assets within diversified firms may be suboptimal. Scharfstein and Stein (1997) suggest that executives over-allocate capital to rent-seeking divisional managers, therefore destroying firm value. The finding of Lamont and Polk (2001) also suggest wasteful spending or cross-subsidization that reduces cash flow. Similarly, banks may acquire target financial services companies to subsidize the other products and services the bank offers. Thus, the operating

income earned from the target companies are utilized to finance the operation of other divisions. Hence, I hypothesize that the returns to the acquirer are positively related to the change in the cash holding and cash flows of the consolidated firm.

Financial Leverage

Palepu (1986) finds that the probability of becoming an acquisition target decreases with the company's debt level. Low debt levels are viewed by the acquirers as the target's management inability to maximize firm value. Thus, upon acquisition the acquirer can increase debt levels and obtain additional assets which in turn may generate extra value. Palepu also finds that the increase in debt capacity from the acquisition of a low debt target reduces the risk of the acquirer's default. In the highly competitive financial services industry, the acquirers' access to additional funding can lead to a competitive advantage over capital-constrained firms.

Another explanation for the acquisition of targets with under-utilized debt capacity comes from Lewellen (1971). Lewellen argues that diversified firms have larger tax shields from interest deductions in addition to debt capacity. Majd and Myers (1987) assert that conglomerate firms pay less in taxes than their divisions would pay separately because of the tax code's asymmetric treatment of gains and losses. The conglomerate division that experiences losses has a higher probability of receiving tax benefits from the losses than if it was an independent firm. Therefore, I hypothesize that the returns of the acquirer are positively related to the financial leverage of the joint firm resulting from the debt capacity and tax shield benefits of a target.

Excess Sales

The efficiency hypothesis suggests that assets flow to their most efficient use. A new management team replaces under-performing incumbent management and manages the acquired assets more efficiently. If this is the case, then the acquiring firm's net sales should rise post-acquisition. However, I am proposing an alternative

explanation of any gains in the post-acquisition net sales. If the acquiring firm can realize informational and marketing economies, cross-marketing and developing products and services will increase sales. Thus the product-market spillover from one division into the other will have a drastic impact on sales. Hence, I hypothesize that the acquirers' stock market returns are positively related to the change in sales of the acquiring firm. Given that increased sales can be a manifestation of increased efficiency, I use excess sales as a proxy to test the spill-over hypothesis. Excess sales is the residual sale change after accounting for the effect of efficiency on sales change.

Data Description and Empirical Methodology

Data Description

To examine the wealth effects of FSMA, I collected all U.S. affiliated mergers and acquisitions for all financial firms from November 12, 1999 to December 31, 2002 provided by the Worldwide M&A section of the SDC platinum database. I obtain information on i) the identities of the firms involved in the mergers or acquisitions, ii) the status of the transaction, iii) the nation of target firms for U.S. acquirers iv) the primary four digit SIC codes for both acquirers and targets, and v) the number of SIC codes that the acquirers and targets participate in. All acquirers must have three years of returns and accounting data for three years after the acquisition to be included in the database. There are 404 completed financial industry M&As where U.S. firms were acquirers of U.S. target post the ratification of the FSMA.

As in Mamun, Hassan and Maroney (2005), I use the acquirers' CUSIP as well as the SIC classification from COMPUSTAT to identify the commercial banks (SIC 6021 and 6022), brokerage firms (3 digit SIC code 620) and insurance firms (3 digit SIC codes 631, 632, 633) to supplement the SDC platinum data with balance sheet information. The return information for this study comes from the Center for Research in Security Prices (CRSP) tapes. I require these firms to have no missing

trading day returns for at least three consecutive years after the merger or acquisition, from November 12, 1999 to December 2005. The selection process reduced the sample to 353 U.S. financial institution acquisitions. Among these 353 transactions, 273 were conducted by commercial banks acquiring other commercial banks, 58 commercial banks merging with brokerage firms, and 22 commercial bank and insurance company mergers. There are a total of 194 distinct acquirers under study.

In addition to returns, I also require a measure of bank efficiency. There are several ways to measure bank efficiency. These include estimated efficiencies (Berger and Mester, 2003) or linear programming efficiency measures (Wheelock and Wilson, 1999 Alam, 2001). Berger (1993) and Berger, DeYoung, Genay and Udell (2007) utilize the most widely cited banking profit efficiency measure using a distribution free random error method. To implement the distribution-free random error method, I estimate the profit function using data of 2214 banks with continuous and complete annual data for the seven-year period from 1999 through 2005. Using the results of these estimations, I calculate the profit efficiency for every financial institution with the distribution-free method, which distinguishes efficiency differences from random error by averaging the profit function residuals over time[13]. Specifically, the estimate of efficiency for each firm in a data set is determined as the difference between the average residual of the control sample and the residual of the firm in the sample. I use this profit efficiency measure to test the efficiency hypothesis, because it is a more comprehensive measure that includes both cost and income variables. The variables included in the profit efficiency estimation model are net income, net sales, cost of sales, earning before interest and taxes (EBIT) and non-operating expenses.

As an alternative measure of efficiency, I look to the manufacturing literature. Harris and Robinson (2002) define operational efficiency as the ratio of operational expenses of financial institutions to that of the assets of financial institutions. This

[13] See Berger (1993) for a complete description of the distribution free random error efficiency measure. The general procedure for estimating efficiency using the distribution free method is to estimate input coefficients and random error term to calculate efficiency for each observation in the sample.

efficiency measure is defined in the broadest possible terms to include any effects that increase the consolidating firm's existing shareholder value. I use operational efficiency as an ancillary measure to diagnose whether financial institutions' returns are rooted in cost control (operational efficiency) or both cost and sales (distribution-free profit efficiency) and to compare my results to those of the previous banking efficiency literature (Berger, DeYoung, Genay and Udell (2007)). However, while presenting both sets of results, I place greater weight on the analyses using the distribution-free profit efficiency measure.

Methodology

This paper attempts to explain the returns to financial services acquirers following the ratification of the FSMA using two competing hypotheses: efficiency hypothesis and product-market spillover hypothesis. I begin the analysis by examining the impact of efficiency on acquirers' return. In order to provide some preliminary insight into whether the returns of financial institutions are the result of superior efficiency, and to evaluate the economic significance of this relationship, I estimate equations of the form:

$$\mathrm{Re}\,turn_{it,t+3} = \mathrm{B}_1 * Efficiency_{it,t+3} + e_i \quad (1)$$

where returns is the three-year aggregate return of bank *i* in the period immediately following its investment in an acquisition, Efficiency is a measure of bank *i*'s efficiency utilizing the distribution-free profit or operational efficiency variable. A statistically significant positive relationship between *Return* and *Efficiency* would be consistent with the efficiency hypothesis and the findings of Berger, DeYoung, Genay and Udell (2007).

I then use a multivariate regression model (MVRM) suggested by Yildrim, Kwag and Collins (2006) to examine the three-year returns of financial institutions post the passing of the FSMA. With the MVRM the effect of the acquisition on systematic industry risk and security returns can be simultaneously captured by adding a variable to account for the industry diversity variation. I add industry diversity variables to account for the variation in returns resulting from offering different industry services.

The model proposed is:

$$\begin{aligned}\mathrm{Re}\,turn_{it,t+3} &= \alpha_0 + \beta_1(Efficiency)_{t,t+3} + \beta_2 Bank\ /\ BankMerger \\ &+ \beta_3 \Delta CashFlow_{t,t+3} + \beta_4 \Delta FinancialL\ everage_{t,t+3} + \beta_5 \Delta ExcessSale\ s_{t,t+3} \\ &+ \beta_6 CostofSale\ s_{t,t+3} + \beta_7\ \mathrm{Re}\,turnRisk_{t,t+3} + \beta_8 NonOperati\ ngExpenses_{t,t+3} + e_i\end{aligned}$$

(2)

where *Return* is the three-year aggregate return of bank *i* in the period immediately following its investment in an acquisition, *Efficiency* is a measure of bank *i*'s efficiency utilizing the distribution-free profit or operational efficiency variable discussed earlier. *Bank/Non-bankMerger* accounts for the diversity of the acquisition where the variables takes values of 0 for bank/ bank mergers and 1 for bank/ investment firm acquisitions and bank/ insurance company mergers.

ReturnRisk is the monthly standard deviation of returns over 36 months multiplied by the square root of 36, resulting in the three-year risk in returns. The *Spillover* terms account for the three-year changes in the resulting firms financial characteristics, such as cash, cash flow, financial leverage, and excess sales standardized by the acquirers' size. Cash, cash flow and financial leverage are reported in Compustat. *ExcessSales* is defined as the residual change after accounting for the effect of efficiency on change in net sales. After implementing the following regression:

$$\Delta Sales_i = \alpha_0 + \beta_1 Efficiency of Acquirer_i + e_i$$

(3)

where *Efficiency* is a measure of acquiring bank *i*'s efficiency utilizing the distribution-free profit or operational efficiency variable, I then use the output of this cross-sectional regression (equation 3) in the following model:

$$Excess Sales_i = \alpha + \Delta Sales - \hat{\beta} * Efficiency of Acquirer_i \quad .$$

(4)

that is actual sales change less predicted sales change, where the estimation of β (β hat) is common across all acquirers.

Finally, I use abnormal returns (AR) proposed by Asquith and Mullins (1983) to analyze the acquirers announcement day response. Announcement day returns are computed as

$$AR_i = \sum_{i,t-1} R_{t,i} - R_{t,j}$$

(5)

where $R_{t,i}$ denotes the date *t* stock return of the acquiring firm *i*, $R_{t,j}$ is the date *t* return of the equally weighted index of the financial service industry companies or the return of the equally weighted market model.

Empirical Analysis

Descriptive Statistics for financial institutions

Table 1 provides the summary statistics of the main variables for the sample of 353 financial industry acquisitions. On average, the transaction value for financial

industry mergers is $477 million. Averaging across all bank-year observations, the average net asset of the acquirers is approximately $64 billion, while the targets' average size is smaller, $3.12 billion. The mean financial statistics for the acquirers and targets are reported in column 1. It appears that the acquiring firms are in good financial standing with a mean net sales of $1.3 billion and return on assets (ROA) of 1%. The average financial leverage is $30 billion. Finally, there is, on average, a positive annual cash flow for the acquiring firms of $154 million. The sample preliminary statistics and characteristics are similar to those reported in Berger and Mester (2003) and Akhigbe and Whyte (2001).

Table 1

Description of Financial Industry Transactions

This table presents the summary statistics for the sample of financial services industry acquisitions. The data are for all U.S. affiliated mergers and acquisitions for all financial firms from November 12, 1999 to December 31, 2002 provided by the Worldwide M&A section of the SDC platinum database. There are 353 completed financial industry M&As where U.S. firms were acquirers of U.S. target post the ratification of the FSMA.The transaction value is the total purchase price the acquiring bank pays for other financial companies. Acquirer assets are the total assets of the acquirer during time of the acquisition. Acquirer financial leverage is the book debt to total assets during the time of the acquisition. The operation expense is the cost of goods sold for operations. Net sales is defined as the gross sales less returns, discounts and allowances. The acquirer cash is measured as the total book value of cash of the acquirer during the time of the consolidation. The acquirer cash flow is measured as the change in cash availability of the acquirer the year prior to the acquisition. The return of assets (ROA) is calculated as the ratio of net income to total assets during the time of the
consolidation. Return on investment (ROI) is calculated by dividing net profits less taxes by total assets. The Cost of Sales (COS) is the cost of goods sold plus any expenses incurred in the selling and delivery of the product or service including the purchase of raw material and manufactured finished products. The non-operating income expense is the expense incurred in performance of activities not directly related to the main business of the firm, such as the maintenance of buildings and equipment. Target assets are the total assets of the target during time of the acquisition. Columns 5, 6, and 7 summarizes the differences between the types of acquisition for the various acquirer and target characteristics. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively. Values are reported in millions.

	All (1)	Bank (2)	Brokerage (3)	Insurance (4)	Difference (2)-(3)		Difference (2)-(4)		Difference (3)-(4)	
Transaction Value	477.10	363.50	985.66	401.06	-622.16		-37.55		584.60	
Number of Acquisitions	353	273	58	22						
Number of Acquirers	194	145	36	13						
Acquiror										
Assets	63896.24	17530.08	52090.41	200774.77	-34560.34	***	-183244.69	**	-148684.36	*
Financial Leverage	30425.81	13169.26	38788.61	47018.21	-25619.35		-33848.95	*	-8229.60	
Operation Expense	313.16	245.66	579.05	2577.81	-333.39	***	-2332.15	***	-1998.75	
Net Sales	1333.11	1080.23	5358.68	30.07	-4278.45	***	1050.15		5328.61	*
Cash	1120.91	1107.45	9501.72	15.27	-8394.26	***	1092.19		9486.45	*
Cash Flow	154.35	29.01	175.83	14.35	-146.82	***	14.65	*	161.48	*
Return on Assets	1.01	1.04	1.03	1.33	0.00		-0.30	*	-0.30	
Return on Investment	9.42	9.96	9.67	14.88	0.29		-4.92	**	-5.21	
Cost of Sales	993.41	593.07	1749.73	2785.04	-1156.66	***	-2191.97	*	-1035.31	
Non-Operating Expense	212.53	139.59	364.50	26.84	-224.92	*	112.75	*	337.66	
Target										
Assets	3129.77	2399.09	10993.88	60070.00	-8594.79	***	-57670.92		-49076.13	

The mergers between two commercial banks are the largest sub-sample, having 145 mergers with the acquirer having an average $17.5 billion in assets and the target having $2.4 billion in assets. The smallest set of acquisitions are the commercial bank/ insurance company, with 13 acquisitions and a mean of $200 billion of acquirer assets and target assets of roughly $60 billion. The assets of the average commercial bank that acquirers other commercial banks are approximately $34 billion lower than the acquirers' assets of the commercial bank/ brokerage firm mergers and about $183 billion smaller than the commercial bank/ insurance company mergers. The financial leverage of the acquirer in commercial bank/ commercial banks mergers does not differ appreciably from the financial leverage of the brokerage firm acquisitions. The cost of sales are significantly larger for the commercial bank mergers than the brokerage firm or insurance company acquisitions. There is a significant difference (at the 0.01 level) between the mean net sales for commercial bank acquirers and acquirers in commercial bank/ brokerage firm mergers.

Financial Services Industry M&A Transaction Value and Premium

Table 2 presents the distribution of the transaction value by years and acquisition type. There is a slight decrease in the number of transactions from 2000 to 2002 for the entire acquisition sample. The steadily decreasing number of financial industry acquisitions suggests that the industry has consolidated. However the number of commercial bank/ brokerage firm merger increased in the final year of the sample. This suggests that firms are recognizing the benefit of the commercial bank/ brokerage firm combination resulting in a trend of more combinations between commercial banks and brokerage firms. I will more rigorously address this issue below.

Table 2

Financial Services Industry M&A Transaction Value and Premium

This table reoprts the descriptive statistics for the sample of financial services industry acquisitions by year from November 12, 1999 to December 31, 2002. There are 353 completed financial industry M&As where U.S. firms were acquirers of U.S. target post the ratification of the FSMA.The transaction value is the total purchase price the acquiring bank pays for other financial companies. Premiun is defined as the price paid for the target (transaction value) minus accounting book value of target's equity, this quantity, divided by the transaction value. Section A, B, C and D reports the descriptive statistics for A) the entire sample, B) commerical bank mergers with other commerical banks, C) commerical bank mergers of brokerage firms, and D) commerical bank mergers with insurance companies. Sections E through G reports the transaction value and premium differences for the various M&A sub- samples. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

		Transaction Value					Premium			
		Entire Sample					Entire Sample			
Section A	N	mean	std deviation	min	max	N	mean	std deviation	min	max
1999	21	389.613	1642.480	0.249	15925.201	21	0.200	0.274	0.004	0.363
2000	138	804.374	3685.289	0.400	33554.579	109	0.167	0.231	0.014	0.312
2001	112	364.615	1764.860	2.450	13132.151	81	0.158	0.195	0.028	0.356
2002	82	102.356	331.095	1.250	2870.000	64	0.188	0.102	0.008	0.324
All Years	353	477.098	2175.286	0.249	33554.579	275	0.172	0.194	0.004	0.363
Section B		Bank / Bank Mergers					Bank / Bank Mergers			
1999	10	381.824	1746.206	0.249	15925.201	10	0.195	0.091	0.004	0.315
2000	105	509.420	2320.347	0.400	21084.873	84	0.166	0.068	0.039	0.285
2001	95	396.552	1877.969	3.200	13132.151	71	0.152	0.072	0.042	0.337
2002	63	67.553	598.490	1.700	2870.000	54	0.189	0.082	0.008	0.324
All Years	273	363.500	1748.023	0.249	21084.873	219	0.168	0.074	0.004	0.337
Section C		Bank/Brokerage Firm Mergers					Bank/Brokerage Firm Mergers			
1999	9	479.293	822.157	5.000	3335.633	9	0.207	0.101	0.005	0.363
2000	24	1970.956	6918.171	2.200	33554.579	20	0.176	0.284	0.126	0.312
2001	10	146.199	320.674	4.750	1010.000	7	0.199	0.094	0.028	0.356
2002	15	272.635	43.249	1.250	507.508	9	0.194	0.126	0.031	0.304
All Years	58	985.657	3056.741	1.250	33554.579	45	0.189	0.186	0.005	0.363
Section D		Bank/ Insurance Company Mergers					Bank/ Insurance Company Mergers			
1999	2	6.910	3.889	4.160	9.660	2	0.197	0.151	0.021	0.235
2000	9	910.232	1340.129	1.400	2449.297	5	0.158	0.051	0.014	0.176
2001	7	81.350	99.844	2.450	193.600	3	0.206	0.042	0.174	0.308
2002	4	11.963	10.441	2.500	26.500	1	0.103	n.a.	0.103	0.103
All Years	22	401.055	582.255	1.400	2449.297	11	0.173	0.062	0.014	0.308

	Transaction Value Differences	Premium Differences
Section E	Bank/ Bank Mergers vs. Bank/ Brokerage Firm Mergers	Bank/ Bank Mergers vs. Bank/ Brokerage Firm Mergers
All Years	-622.156	-0.021**
Section F	Bank/ Bank Mergers vs. Bank/ Insurance Company Mergers	Bank/ Bank Mergers vs. Bank/ Insurance Company Mergers
All Years	-37.555	-0.005*
Section G	Bank/ Brokerage Firm Mergers vs. Bank/ Insurance Company Mergers	Bank/ Brokerage Firm Mergers vs. Bank/ Insurance Company Mergers
All Years	584.602	0.016

The merger premium is also described in Table 2. I define premium as the price paid for the target (i.e., transaction value) - accounting book value of target's equity, this quantity, divided by the transaction value. Section A of Table 2 shows that on a year-by-year basis the acquisition premium ranges from 15.8% to 20% for the entire sample. The premiums for the commercial bank/ commercial bank mergers are similar with a low of 15.2% and a high of approximately 19.5%. The range of premiums over the sample period for commercial bank/brokerage firm mergers is slightly higher with a low of 17.6% and a high of 20.7%. However, the average range of the premium paid in mergers between commercial banks and insurance companies is significantly lower with a minimum of 10.3% and a maximum of 20.6%. For all sub-samples, acquirers paid the highest premium in 1999, the last year of the decade-long bull market when hubris would have most likely influenced these deals (Rau and Vermaelen (1998)). Subsequently, there is a sharp drop off in the premium paid. Note that the fall in the market and, hence, decline in the market value of equity of the target cannot completely explain the drop in premium because acquirers could continue to pay the same premium over the reduced value of the equity of the target. In addition, Section F of Table 2 reports that acquiring banks pay a significantly larger premium to acquirer brokerage firms than to purchase other commercial banks. These findings suggests that by paying a substantial premium acquirers are expecting to recognize gains potentially in the form of increased efficiency or their ability to cross-market their various products and services.

The size of the transaction is likely to be correlated with the financial standing of the acquiring firm. That is, larger, more efficient successful banks are more likely to purchase competing banks or alternative financial service companies whereas smaller banks will become targets. Table 3 reports the correlations between the acquirers' characteristics and target total assets at the time of the acquisition. The correlation between acquirer total assets and target total assets is 34%. This suggests that the two variables may play different roles in the determination of the premium paid in the acquisitions. However, the correlations between acquirer total assets and

financial leverage, acquirer net sales and acquirer cash flow are all larger than 97%. This suggests that the acquirers' characteristics explain similar aspects of the acquirers' performance and transaction value, which would result in multicollinearity in multivariate regression analysis if not taken into account.

Table 3

Correlation analysis of Financial Service Industry Acquisitions from 1999-2002

This table presents the correlations for the Financial Service Industry M&As varialbes of interest from November 1999 to December 2002. There are 353 completed financial industry M&As where U.S. firms were acquirers of U.S. target post the ratification of the FSMA. Target assets are the total assets of the target during time of the acquisition. .Acquirer total assets are the total assets of the acquirer during time of the acquisition. Acquirer financial leverage is the book debt to total assets during the time of the acquisition. The operation expense is the cost of goods sold for operations. Net sales is defined as the gross sales less returns, discounts and allowances. The acquirer cash is measured as the total book value of cash of the acquirer during the time of the consolidation. The acquirer cash flow is measured as the change is cash availability of the acquirer the year prior to the acquisition. The return of assets (ROA) is calculated as the ratio of net income to total assets during the time of the consolidation. Return on investment (ROI) is calculated by dividing net profits less taxes by total assets. The Cost of Sales (COS) is the cost of goods sold plus any expenses incurred in the selling and delivery of the product or service including the purchase of raw material and manufactured finished products. The non-operating income expense is the expense incurred in performance of activities not directly related to the main business of the firm, such as the maintenance of buildings and equipment. P-values are in parentheses.

	Target Total Assets	Acquiror Total Assets	Acquiror Financial Leverage	Acquiror Operation Expenses	Acquiror Net Sales	Acquiror Cash	Acquiror Cash Flow	Acquiror Return on Assets	Acquiror Return on Investment	Acquiror Cost of Sales	Acquiror Non Operating Income Expense
Target Total Assets	1	0.3395	0.3884	0.3086	0.3245	0.6213	0.7607	0.1435	-0.0456	0.2747	-0.3343
		(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.0127)	(0.4305)	(<.0001)	(<.0001)
	353	353	347	347	347	350	350	335	332	348	305
Acquiror Total Assets		1	0.9734	0.9631	0.9836	0.9710	0.9880	0.0897	-0.1051	0.8344	-0.9253
			(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.4257)	(0.3506)	(<.0001)	(<.0001)
		353	341	342	343	341	342	332	329	342	305
Acquiror Financial Leverage			1	0.9162	0.9561	0.9516	0.9657	0.0923	-0.1039	0.8592	-0.9363
				(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.4127)	(0.3558)	(<.0001)	(<.0001)
			347	339	341	345	342	331	327	330	302
Acquiror Operation Expenses				1	0.9731	0.7239	0.9682	0.1187	-0.0871	0.7748	-0.8273
					(<.0001)	(<.0001)	(<.0001)	(0.1210)	0.2558	(<.0001)	(<.0001)
				347	338	344	345	331	328	331	301
Acquiror Net Sales					1	0.7816	0.9774	0.1103	-0.1221	0.8376	-0.9199
						(<.0001)	(<.0001)	(0.1535)	(0.1136)	(<.0001)	(<.0001)
					347	338	337	326	315	332	302
Acquiror Cash						1	0.8173	0.0260	-0.0646	0.7905	-0.8764
							(<.0001)	(0.6062)	(0.1999)	(<.0001)	(<.0001)
						350	350	326	320	332	302
Acquiror Cash Flow							1	0.2272	-0.0806	0.7585	-0.8239
								(0.0155)	(0.3980)	(<.0001)	(<.0001)
							350	329	321	336	300
Acquiror Return on Assets								1	0.8287	0.0574	-0.8357
									(<.0001)	(<.0001)	(<.0001)
								335	328	331	301
Acquiror Return on Investment									1	0.0620	-0.8431
										(<.0001)	(<.0001)
									332	322	297
Acquiror Cost of Sales										1	-0.9582
											(<.0001)
										348	305
Acquiror Non Operating Income Expense											1
											305

Financial Services Industry M&A Transaction Premium Regression

In this section, I examine the cross-sectional variation in premiums for U.S. financial industry mergers and acquisitions. I use the merger premium to provide some insight into how managers of acquiring firms perceive the opportunity provided by the FSMA to expand into non-banking activities relative to expanding their banking product via the acquisition of other banks. If bank managers regard highly the ability to diversify, then the premium for doing so should increase as we move from bank/bank to bank/brokerage firm to bank/insurance mergers. That is, this hypothesis proposes a positive and increasing relationship between the merger premium and the "diversity" of the deal. This is because for a dollar of expected future revenues arising from the merger the present value is higher the least correlated are the cash flow streams of the acquirer and the target, which reduces the discount rate. An alternative hypothesis is that although managers may welcome the opportunity to diversify they may not be willing to pay the same premium to acquire non-core banking firms like brokerage and insurance firms, as they would to acquire other banks. This is because as they move away from their core competencies the level of asymmetric information increases with the diversity of the deal. Thus, the discount rate to be applied to a dollar of incremental revenues due to the deal increases. Therefore, this hypothesis predicts a positive premium that is declining in the diversity of the deal. It should be noted that management's perception of the value of the diversity of the merger, as expressed by the relative sizes of the premiums need not correspond with the markets perception (as reflected in the announcement effect) of benefits of the merger. I examine the latter below.

Table 4 presents results for the regression analysis. On average, the target firms' capitalization is positively and significantly related to the acquisition premium. In addition, the premium can largely be attributed to the acquirers' size. This is consistent with the finding by Moeller et al. (2004) that transaction value is significantly related to the size of the acquiring firm. The acquirers' financial characteristics also explain the cross sectional variation in premium. The financial

leverage of the acquirer is negatively linked to acquisition premium. This is consistent with the literature that finds that the acquiring firms' inability to finance the deal adversely affects the deal's value (Palia, 1993, Moeller et al. 2004). The relationship between majority of the acquirers' characteristics and the premium suggest that banks in good financial standing pay high transaction premiums to acquire competing banks, products, or services.

Table 4 shows that bank/ brokerage firm mergers have higher premiums than bank/bank and that bank/insurance company mergers also have a greater premium than bank/bank mergers. These findings establish a positive and increasing relationship between the merger premium and the "diversity" of the acquisition. As in Benston et al. (1995) this study reports that banks bid more for merger partners that offer the potential for varying cash flows as a result of earnings diversification.

Table 4

Financial Service Industry Premium Regression Analysis

This table presents the results of the regression model used to explain the cross-sectional variation in Financial Service Industry M&As premium.This table presents the results of the multivariante regression model, using the 275 Financial Service Industry acquisition premiums from November 1999 to December 2002 where the acquirer is a U.S. commerical bank and the target is either 1) a commerical bank, 2) brokerage firm or 3) an insurance company. The dependent variable is premiums paid for financial service industry companies. The key indepedent variable is "Industry Complexity" that takes the value of one for acquisition envolving either brokerage firms or insurance companies and zero for mergers between commerical banks. Other independent varialbes are: logarithm of assets for the acquirer assets during time of the acquisition; acquirer financial leverage is the book debt to total assets during the time of the acquisition; the operation expense is the cost of goods sold for operations; net sales is defined as the gross sales less returns, discounts and allowances; the acquirer cash is measured as the total book value of cash of the acquirer during the time of the consolidation; the acquirer cash flow is measured as the change is cash availability of the acquirer the year prior to the acquisition
; the return of assets (ROA) is calculated as the ratio of net income to total assets during the time of the consolidation; return on investment (ROI) is calculated by dividing net profits less taxes by total assets; the Cost of Sales (COS) is the cost of goods sold plus any expenses incurred in the selling and delivery of the product or service including the purchase of raw material and manufactured finished products; the non-operating income expense is the expense incurred in performance of activities not directly related to the main business of the firm, such as the maintenance of buildings and equipment; target assets are the logarithm of assets for the target during time of the acquisition; and year is a dichotomous variable representing the year of the acquisition. The t-statistics are in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Variable	model i Coefficienct	model ii Coefficienct	model iii Coefficienct	model iv Coefficienct	model v Coefficienct	model vi Coefficienct	model vii Coefficienct	model viii Coefficienct	model ix Coefficienct	model x Coefficienct	model xi Coefficienct
Intercept	1.850	2.040	1.540	1.839	2.113	1.934	2.003	1.649	1.204	1.593	1.953
	(1.81)**	(2.34)***	(1.37)*	(1.74)**	(2.53)***	(2.00)**	(2.12)**	(1.67)**	(1.29)*	(1.40)*	(2.03)**
Bank/ Brokerage Firm Merger	0.675	0.592	0.847	0.721	0.613	0.882	0.573	0.681	0.610	0.701	0.685
	(1.82)**	(1.76)**	(2.03)**	(1.91)**	(1.81)**	(2.21)**	(1.74)**	(1.86)**	(1.78)**	(1.89)**	(1.86)**
Bank/ Insurance Company Merger	0.122	0.109	0.131	0.126	0.113	0.158	0.099	0.119	0.111	0.123	0.117
	(1.41)*	(1.30)*	(1.52)*	(1.49)*	(1.33)*	(1.76)**	(1.29)*	(1.40)*	(1.31)*	(1.47)*	(1.39)*
Target Assets	1.505	1.761	1.422	1.480	1.576	1.648					
	(1.76)**	(1.93)*	(2.02)***	(2.17)**	(2.85)***	(2.27)**					
Acquirer Assets	0.989	0.991					1.001	1.024	1.049	1.088	1.057
	(2.40)***	(2.84)***					(3.00)***	(3.29)***	(3.43)***	(3.51)***	(3.49)***
Acquirer Financial Leverage	-0.843			-0.747	-1.011		-0.924		-1.044	-0.786	-0.995
	(-2.54)***			(-2.05)**	(-2.72)**		(-2.66)***		(-2.87)***	(-2.09)**	(-2.81)***
Acquirer Net Sales		1.434	4.131		3.073				-2.847		
		(1.56)*	(2.81)***		(2.43)***				(-1.89)**		
Acquirer Cash							9.250	8.681	10.783		
							(1.59)*	(1.50)**	(1.74)**		
Acquirer Cash Flow				20.965		19.383	18.459			14.557	
				0.87		0.66	0.58			0.50	
Acquirer Return on Equity			-12.860						-17.221	-10.349	
			-0.54						-0.96	-0.43	
Acquirer Cost of Sales	-17.645	-15.243	-18.676					-19.544			-16.675
	(-1.49)*	(-1.75)*	(-1.39)**					(-1.37)**			(-1.64)**
Non-Operating Income Expense				-25.776	-19.754	-20.654					
				-0.48	-0.31	-0.37					
Year	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.
Number of Observations Used	275	275	230	264	264	275	230	230	264	264	230
F Test	52.020	46.124	30.137	16.020	28.932	16.392	25.117	21.244	42.594	18.003	18.284
P-value	0.0041	0.0038	0.0039	0.0055	0.0040	0.0058	0.0040	0.0032	0.0032	0.0061	0.0069
Adjusted R2	0.832	0.791	0.584	0.494	0.601	0.459	0.598	0.581	0.850	0.480	0.607

Financial Services Industry Announcement-Day Returns

This section examines the market response of the financial services industry mergers and acquisitions. Table 5 reports the abnormal returns on the announcement date of the financial services industry acquisitions. I report separate results for bank/bank, bank/brokerage, and bank/insurance firm mergers. I also evaluate the two days surrounding the acquisition date. In order to compare the announcement-day returns of acquiring financial services companies and appropriate benchmarks and to determine whether diversifying acquisitions add value for shareholders, I provide a comparison between the acquisition sample and those financial companies that did not experience mergers during the sample period as well as a comparison with the market returns.

The results in Table 5 (panel A) show that on the date of acquisition announcement the entire sample experiences no statistically significant response. This finding is consistent with those reported in Jensen and Ruback (1984). However, for both diversifying mergers, between commercial banks and brokerage firms and between commercial banks and insurance companies, there is a statistically significant increase in returns. Examining the pre- and post-announcement daily returns indicates that for mergers between commercial banks and brokerage firms, there is a significant increase in abnormal returns on the day of and day after the acquisition announcement of 10.2% and 1.9% respectively. In addition, commercial bank mergers with insurance companies have a positive abnormal market response of 5.9% when compared to the market return (Table 5, panel B). These results are consistent with the hypothesis that diversifying financial services industry acquisitions increase shareholder value. These results are consistent with those of Berger et al. (1999) that finds that joint production within both banking and insurance companies is more efficient for some firms.

Table 5

Financial Services Industry M&A Announcement Day Returns

This table reports the number of financial services industry mergers and acquisitions announcements and the average announcement day returns between November 12, 1999 and December 31, 2002. Announcement dates for the financial services industry acquisitions are obtained from the SDC Platimum database. Announcement day returns are computed as ARi = Σi,t-1(Ri,t - Rt,,j) where Ri,t denotes the date t stock return of the acquiring firm i, R t,,j is the date t return of the equally weighted index of the financial service industry (Panel A) or the return of the equally weighted market model (Panel B).Each panel reoprts the abnormal returns for all financial services industry mergers, commercial bank acquisition of other commercial banks, the mergers between brokerage firms and commercial banks and the mergers of commercial banks with insurance companies. The t-statistics is reported in parentheses below the abnormal returns for the two day period surrounding the announcement date. Day 0 is the announcement date reported in SDC Platimum and Day -1 and Day +1 are the day prior to and after the announcement day, respectfully. The t-statistics are in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

A: Financial Services Industry Benchmarks	N	Day -1	Day 0	Day +1
All Financial Services Mergers	353	0.004	0.053	0.032
		(0.50)	(1.04)	(0.78)
Commercial Bank/ Commercial Bank Mergers	273	0.003	0.049	0.029
		(0.39)	(0.89)	(0.71)
Commerical Bank/ Brokerage Firm Mergers	58	0.006	0.102	0.019
		(1.01)	(2.03)**	(1.63)*
Commercial Bank/ Insurance Company Mergers	22	0.002	0.093	0.008
		(0.42)	(1.86)**	(1.35)*
B. Market Benchmarks	**N**	**Day -1**	**Day 0**	**Day +1**
All Financial Services Mergers	353	0.0012	0.041	0.0042
		(0.49)	(1.31)*	(0.98)
Commercial Bank/ Commercial Bank Mergers	273	0.0009	0.033	0.0037
		(0.38)	(1.28)*	(0.88)
Commerical Bank/ Brokerage Firm Mergers	58	0.0006	0.084	0.0036
		(1.03)	(1.73)**	(1.07)
Commercial Bank/ Insurance Company Mergers	22	0.0042	0.059	0.0082
		(0.99)	(1.67)**	(1.19)

Financial Services Acquirers Efficiency Measurement and Correlations

The efficiency measures of the acquiring financial institutions are not perfectly correlated. The correlation between the distribution-free profit efficiency and operational efficiency pre and post- acquisition are .61 and .69 respectively

(Table 6). This suggests that the two measures account for different aspects of banking efficiency. As discussed earlier, the distribution-free profit efficiency measure includes more inputs than the other efficiency measures, which may help explain the relatively low correlation between the distribution-free profit efficiency and operational efficiency measures. The mean estimates of 0.77 for distribution-free profit efficiency and 0.22 for operation efficiency are similar to those found by Berger and Hannan (1998) and Berger et al. (2007) of 0.70 and 0.77, respectively.

Table 6

Correlations of Efficiency Measures

This table reoprts the descriptive statistics and correlations for the efficiency measures used to analyze the FSMA post-consolidation three-year returns. The profit efficiency measure was created using a distribution free random error method. To implement the distribution-free random error method, I estimate the profit function using data of 2214 financial institutions with continuous and complete annual data for the seven year period from 1999 through 2005. Using the results of these estimations, I calculate the profit efficiency for every financial institution with the distribution-free method, which distinguishes efficiency differences from random error by averaging the profit function residuals over time. Operational efficiency is defined as the ratio of operation expenses of financial institution to that of the assets of financial institution.

					Correlation (p-value)	
Variable	Sample Size	Mean	Median	Standard deviation	Profit Efficiency	Operational Efficiency
A. Pre-Acquisition						
Acquirer						
Profit Efficiency	353	0.782	0.769	0.320	1.00	0.61
						(0.00)
Operational Efficiency	328	0.228	0.220	0.113		1.00
Target						
Profit Efficiency	331	0.602	0.587	0.221	1.00	0.73
						(0.00)
Operational Efficiency	338	0.140	0.125	0.073		1.00
Difference (Acquirer-Target)						
Profit Efficiency	325	0.18 **				
Operational Efficiency	328	0.088 **				
B. Post-Acquisition						
Acquirer						
Profit Efficiency	353	0.774	0.762	0.307	1.00	0.69
						(0.00)
Operational Efficiency	328	0.216	0.211	0.107		1.00

Univariate Efficiency Regression Results

This section examines the impact the acquirers' efficiency has on the post-acquisition three-year return. Efficiency is often credited for the gains acquirers receive post acquisition although questions remain about the effects of intra-division supplementation for conglomerates (Lamont and Polk (2001)). The regression estimates in Table 7 confirm the results in the extant literature (e.g. Benston, 1989; Vennet, 2002 and Berger, DeYoung, Genay and Udell, 2007) that the three-year post-consolidation returns to a financial institution can be explained by these firms having high levels of efficiency. Both measures of efficiency have a positive and statistically significant impact of the firm's three-year post-acquisition return for the entire sample. As expected, the significance of the distribution-free profit efficiency measure is greater than the operational efficiency measure. This is expected because the distribution-free profit efficiency measure is a more comprehensive measure that includes both cost and income variables. As for the different types of financial services industry mergers, the three-year returns for mergers between commercial banks are significantly explained by both efficiency measures. This result is consistent with the findings of Berger, DeYoung, Genay and Udell, (2007). Both the profit efficiency and operational efficiency measure are statistically significant for the commercial bank/commercial bank mergers. However, both efficiency measures explain more about the commercial bank/insurance company mergers than bank/bank mergers as witnessed by the increase in r-squares. Finally, the profit efficiency measure is the only efficiency measure that is statistically significant for the commercial bank/brokerage firm and commercial bank/insurance company mergers. These results establish that banking efficiency impacts not only commercial bank returns, but also the returns of the combination firms of commercial bank/brokerage firms and commercial bank/insurance companies.

Table 7

Univariate Analysis of Financial Service Inudstry M&As with Efficiency Measures

This table presents the results of the univariate regression model used to explain the cross-sectional variation in the post-FSMA three-year returns of Financial Service Industry acquirers. This table presents the results of the regression model, using the 353 Financial Service Industry acquisitions from November 1999 to December 2002 where the acquirer is a U.S. commerical bank and the target is either 1) a commerical bank, 2) brokerage firm or 3) an insurance company. The dependent varialbe is the post-FSMA three-year return for the consolidated financial firm. Section A reports the results for the Profit efficiency measure. The profit efficiency measure was created using a distribution free random error method. To implement the distribution-free random error method, I estimate the profit function using data of 2214 financial institutions with continuous and complete annual data for the seven year period from 1999 through 2005. Using the results of these estimations, I calculate the profit efficiency
for every financial institution with the distribution-free method, which distinguishes efficiency differences from random error by averaging the profit function residuals over time. Section B reports the results for the Operation efficiency measure. Operation efficiency is defined as the ratio of operation expenses of financial institution to that of the assets of financial institution. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Section A	All Financial Service Industry		Commercial Bank/ Commercial Bank		Commercial Bank/ Brokerage Firm		Commercial Bank/ Insurance Company	
Variable	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	-0.28294	-12.49***	-0.26941	-11.12***	-0.41198	-7.89***	-0.42549	-6.93***
Profit Efficiency	0.65096	13.93***	0.63366	12.87***	0.83151	12.45***	0.84377	11.39***
Sample Size	353		273		58		22	
F-Value	5.72		4.78		12.97		15.51	
Adjusted R-Square	0.4230		0.4004		0.6895		0.7066	
Section B								
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	-0.20186	-9.29***	-0.20568	-8.91***	-0.18272	-2.54***	-0.18107	-2.27**
Operational Efficiency	0.3350655	1.94**	0.3377579	1.97**	0.4780727	0.49	0.1133	0.12
Sample Size	328		257		51		20	
F-Value	3.75		3.66		0.24		0.01	
Adjusted R-Square	0.0098		0.0107		0.0054		0.0328	

Financial Services Industry Product Market Spillover Measurement

The three-year post-consolidation change in the acquirers' financial characteristics standardized by the acquirers' total assets are utilized to measure spillover. Table 8 offers summary statistics of the main variables used to define product market spillover. Averaging across all acquirer-year observations, the ratio of excess sales to total assets has significantly increased over the three-year period, by 5.7 percentage points. Similarly, the change in the operating income to total assets ratio is substantial as indicated by the statistically significant increase of 6.6 percentage points over the sample period. The acquiring financial institutions are also recognizing efficiency gains. The cost of sales is statistically significantly lower three years following the acquisition. The results for the three-year post-acquisition change in cash flow are significantly larger, increasing by 6.6 percentage points. These results are the first indication that financial services acquirers are receiving benefits resulting from product market spillover.

Table 8

Financial Service Industry Post-Consolidation Changes

This tables presents a summary of explanatory variables scaled by total assets for the acquiring U.S. commerical banks that purchase U.S. targets that are either 1) a commerical bank, 2) brokerage firm or 3) an insurance company. Panel A reports the spillover hypothesis explanatory variables and Panel B reports the values of other control variables. This table provides estimates of the mean difference between the acquirers characteristics weighted by total assets. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Standardized Variables	n	t	t+3	difference	
Panel A: Spillover Hypothesis Variables					
Cash	346	0.0467	0.0551	0.0085	
Cash Flow	346	0.0149	0.0807	0.0659	**
Financial Leverage	347	0.8952	0.8290	-0.0663	*
Excess Sales	320	0.0659	0.1229	0.0570	***
Cost of Sales	321	0.0549	0.0375	-0.0174	*
Non-Operating Income Exp	305	0.0091	0.0421	0.0330	**
Panel B: Control Variables					
Operation Income	328	0.0384	0.1051	0.0667	***
Gross Profit	327	0.0635	0.1748	0.1113	***

Financial Services Industry Product Market Spillover Multivariate Regression Results

The objective is to assess the relationship between financial institution spillover and the variation in the firms' return while accounting for the firm's efficiency. In other words, it is important to control for the possibility that acquiring banks with efficient policies and practices may be able to transfer these efficiencies to the target firm. These results are reported in Tables 9 and 10.

After controlling for the firm's efficiency and acquisition diversity, there is a "spillover" in financial institutions. The relationship between the change in excess sales and returns is economically significant and meaningful. The results also indicate that

there is a positive and statistically significant relationship between cash/cash flow and returns. These findings suggest that financial institutions that diversify their product offerings increase shareholder returns resulting from an increase in excess sales. This then leads to an increase in cash and cash flow, which in turn increases firm returns. The sample also has a negative and statistically significant coefficient on financial leverage spillover (-0.703, t = -2.38), confirming that financially sound institutions experience strong valuation effects following acquisition. Thus, banks with stronger capital ratios are better positioned to benefit from additional products and services that accompany financial services acquisitions. These "spillover" results combined with the strong significance of the efficiency measure indicates that, while the complimentary products and services supplement the firm's income, it's the firms' efficiency that dictates majority of the return. This is evident by the comparison of the univariate efficiency regression model and the multivariate regression model. The univariate efficiency regression model in Table 7 report an adjusted r-square of .42 compared to the multivariate regression model adjusted r-square ranging between .73 and .84. Thus, at least half of the explanatory power of the model is due to the efficiency variables. This is consistent with Berger and Mester (2003) who find that profit productivity improved during the 1991-1997 period. However, the spillover results contradict Berger and Mester (2003) finding that cost productivity declines annually. The efficiency and spillover findings are consistent with the hypotheses that over the three-year time period, the acquiring financial institutions have continued effective and efficient practices while benefiting from the spillover of information from the acquired institution. In addition, the coefficients of the interaction terms (efficiency*bank/brokerage and efficiency*bank/insurance) are both positive and significant. This implies that efficiency has a greater effect on returns when the bank merges with either brokerage firms or insurance companies than when it merges with another bank.

Table 9

Multivariate Analysis of Financial Service Inudstry M&As with the Profit Efficiency Measure

This table presents the results of the multivariate regression model used to explain the cross-sectional variation in the post-FSMA three-year returns of Financial Service Industry acquirers. This table presents the results of the regression model, using the 353 Financial Service Industry acquisitions from November 1999 to December 2002 where the acquirer is a U.S. commerical bank and the target is either 1) a commerical bank, 2) brokerage firm or 3) an insurance company. The dependent varialbe is the post-FSMA three-year return for the consolidated financial firm. The key indepedent variable is Profit efficiency. The profit efficiency measure was created using a distribution free random error method. To implement the distribution-free random error method, I estimate the profit function using data of 2214 financial institutions with continuous Using the results of these estimations, I calculate the profit efficiency for every financial institution with the distribution-free method, which distinguishes efficiency differences from random error by averaging the profit function residuals over time. Bank/Brokerage is a dichotomous variable that takes the value of one for commerical bank and brokerage firm mergers and zero otherwise. Bank/Insurance is a dichotomous variable that takes the value of one for commerical bank and insurance company mergers and zero otherwise. Other post-consolidation acquirer independent variables are: logarithm of assets for the acquirers' assets; financial leverage is the book debt to total assets; the operation expense is the cost of goods sold for operations; excess sales is actual sales change less predicted sales changeis. Efficiency, measured as the bank's efficiency utilizing the distribution-free profit or operational efficiency variable to predict sales changes; cash is measured as the total book value of cash of the consoldated firm; the cash flow is measured as the change is cash availability of the acquirer the year prior to the acquisition; the Cost of Sales (COS) is the cost of goods sold plus any expenses incurred in the selling and delivery of the product or service including the purchase of raw material and manufactured finished products; the non-operating income expense is the expense incurred in performance of activities not directly related to the main business of the firm, such as the maintenance of buildings and equipment; return risk is the standard deviation of returns for 36 months multiplied by the square root of 36 resulting in the three-year risk in returns; and year is a dichotomous variable represei

financial service industry mergers.The t-statistics are in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x	model xi	model xii
Intercept	0.2381 (10.71)***	0.2677 (9.93)***	0.2582 (11.02)***	0.3018 (11.23)***	0.2864 (9.90)***	0.2157 (10.83)***	0.2524 (8.98)***	0.2023 (8.73)***	0.1993 (7.43)***	0.2004 (7.28)***	0.1903 (7.11)***	0.2176 (9.06)***
Profit Efficiency	0.6437 (10.38)***	0.6532 (11.03)***	0.6493 (10.77)***	0.6671 (11.21)***	0.6741 (12.03)***	0.6846 (12.54)***	0.6578 (12.31)***	0.6593 (11.91)***	0.6994 (13.01)***	0.6997 (13.14)***	0.6817 (12.32)***	0.6832 (12.23)***
Bank/ Brokerage	1.0439 (1.79)**	1.1072 (1.96)*	1.0814 (2.04)**	1.0150 (1.46)*	1.1004 (2.01)**	1.0348 (1.67)**	1.012 (1.61)*	1.1259 (2.15)**	1.1265 (2.23)**	1.0447 (1.54)*	0.9706 (1.34)*	1.0072 (1.82)**
Bank/ Insurance	0.9830 (1.32)*	0.8434 (1.56)*	0.7349 (1.47)*	0.5358 (1.29)*	1.0034 (1.66)**	0.9903 (1.36)*	0.5406 (1.31)*	0.8932 (1.29)*	1.0081 (1.92)**	0.9814 (1.50)*	0.4831 (1.26)*	0.8711 (1.68)**
Financial Leverage Spillover	-0.7032 (-2.38)***	-0.7103 (-2.58)***	-0.6996 (-2.44)***	-0.7207 (-2.76)***					-0.6675 (-2.08)**	-0.6549 (-1.54)*	-0.6254 (-1.36)*	-0.6614 (-1.77)**
Excess Sales Spillover	0.0339 (1.32)*	0.0359 (1.28)*	0.0356 (1.35)*	0.0311 (1.31)*	0.0327 (1.26)*	0.0321 (1.29)*	0.0379 (1.54)*	0.0307 (1.25)*				
Cash Flow Spillover	0.0732 (1.62)*	0.0769 (1.68)**	0.0710 (1.59)*			0.0713 (1.63)*	0.0726 (1.29)*	0.0761 (1.44)*				
Cash Spillover				0.0903 (1.40)*					0.0979 (1.61)*	0.0956 (1.60)*	0.0984 (1.54)*	0.0918 (1.52)*
Cost of Sales Spillover	-0.2907 (-0.64)		-0.3150 (-0.69)	-0.2725 (-0.70)			-0.3452 (-0.62)		-0.3278 (-0.68)		-0.2882 (-0.73)	
Non-Operating Expense Spillover		-0.0631 (-0.07)			-0.0601 (-0.07)		-0.0625 (-0.05)	-0.0626 (-0.06)			-0.0665 (-0.10)	
Return Risk			0.1627 (0.74)	0.1954 (0.96)		0.1906 (0.82)			0.1759 (0.78)	0.1929 (0.91)	0.1892 (0.88)	
Efficiency* Bank/ Brokerage Interaction	0.6693 (12.19)***	0.6779 (12.62)***			0.6938 (12.78)***	0.7112 (12.91)***	0.6833 (12.95)***			0.7387 (14.38)***	0.7003 (12.71)***	
Efficiency* Bank/ Insurance Interaction			0.6452 (11.86)***	0.6509 (12.04)***				0.6603 (12.17)***	0.7089 (12.38)***			0.6918 (12.54)***
Joint Significance between Efficiency and Interaction	0.6743 (12.39)***	0.6983 (12.87)***	0.6583 (12.15)***	0.6619 (12.38)***	0.7002 (12.66)***	0.7233 (13.09)***	0.6931 (13.12)***	0.6931 (12.43)***	0.7119 (12.77)***	0.7812 (14.57)***	0.7976 (12.88)***	0.7079 (12.84)***
Year	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.
Number of Observations Used	320	305	310	302	305	320	305	305	321	317	305	314
F Test	43.42	42.81	54.92	55.11	27.83	34.82	37.32	34.19	37.62	33.67	37.98	32.09
P-Value	0.0002	0.0009	0.0005	0.0002	0.0021	0.0030	0.0037	0.0033	0.0041	0.0035	0.0049	0.0032
Adjusted R2	0.8006	0.7920	0.8329	0.8408	0.7396	0.7623	0.7831	0.7751	0.7896	0.7815	0.7910	0.7665

Utilizing the operational efficiency measure to account for the acquirers' post-consolidation efficiency, the Table 10 results on spillover confirm the earlier results. There is spillover from the target firm to the acquiring bank. There is a significant positive association between the change in excess sales and the firms' returns while controlling for firm risk and accounting for operation efficiency. The "Excess Sales" spillover and the "Cash/ Cash Flow" spillover are slightly larger than previously reported when efficiency is measured using operational efficiency. This is probably due to the inclusiveness of the profit efficiency measure and the limitations of the operation efficiency measure. The efficiency measures (profit and operation efficiencies) are statistically significant (Tables 9 and 10). These findings suggest that the acquiring firms' efficiency help explains the three-year returns. This is consistent with the results of Rhoades (1998) that finds modest cost efficiency gains using data from the early 1990s.[14] However, the increase in statistical significance for the spillover variables in Table 10 suggests that product market spillover explains the future returns of acquiring banks.

[14] Note that Berger (1998) reports conflicting results finding very little improvement in cost efficiency for M&As of either large or small banks using data from 1991 to 1997.

Table 10

Multivariate Analysis of Financial Service Inudstry M&As with the Operation Efficiency Measure

This table presents the results of the multivariate regression model used to explain the cross-sectional variation in the post-FSMA three-year returns of Financial Service Industry acquirers. This table presents the results of the regression model, using the 353 Financial Service Industry acquisitions from November 1999 to December 2002 where the acquirer is a U.S. commerical bank and the target is either 1) a commerical bank, 2) brokerage firm or 3) an insurance company. The dependent varialbe is the post-FSMA three-year return for the consolidated financial firm. The key indepedent variable is Operation efficiency. Operation efficiency is defined as the ratio of operation expenses of financial institution to that of the assets of financial institution.
Bank/Brokerage is a dichotomous variable that takes the value of one for commerical bank and brokerage firm mergers and zero otherwise. Bank/Insurance is a dichotomous variable that takes the value of one for commerical bank and insurance company mergers and zero otherwise. Other post-consolidation acquirer independent variables are: logarithm of assets for the acquirers' assets; financial leverage is the book debt to total assets; the operation expense is the cost of goods sold for operations; excess sales is actual sales change less predicted sales changeis. Efficiency, measured as the bank's efficiency utilizing the distribution-free profit or operational efficiency variable to predict sales changes; cash is measured as the total book value of cash of the consoldated firm; the cash flow is measured as the change is cash availability of the acquirer the year prior to the acquisition; the Cost of Sales (COS) is the cost of goods sold plus any expenses incurred in the selling and delivery of the product or service including the purchase of raw material and manufactured finished products; the non-operating income expense is the
expense incurred in performance of activities not directly related to the main business of the firm, such as the maintenance of buildings and equipment; return risk is the standard deviation of returns for 36 months multiplied by the square root of 36 resulting in the three-year risk in returns; and year is a dichotomous variable representing the year of the acquisition. Interaction variables are also included to examine the relationship of efficiency to the various types of financial service industry mergers.The t-statistics are in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x	model xi	model xii
Intercept	0.5022 (11.43)***	0.4192 (11.38)***	0.4931 (11.65)***	0.4203 (11.10)***	0.4216 (11.83)***	0.41289 (11.21)***	0.519238 (10.32)***	0.5231 (10.94)***	0.4308 (9.92)***	0.47928 (10.32)***	0.3999 (11.01)***	0.4002 (10.44)***
Operational Efficiency	0.2273 (1.61)*	0.2995 (1.66)**	0.2442 (1.72)**	0.2555 (1.58)**	0.2002 (1.69)**	0.2235 (1.36)*	0.2285 (1.44)*	0.2469 (1.59)*	0.2224 (1.41)*	0.2384 (1.37)*	0.2445 (1.67)**	0.2827 (1.75)**
Bank/ Brokerage	1.2654 (2.08)**	1.3110 (2.37)**	1.2148 (1.82)**	1.2098 (1.74)**	1.2305 (1.89)**	1.2675 (2.05)**	1.3510 (2.21)**	1.3037 (2.39)**	1.1986 (1.54)*	1.2047 (1.59)*	1.3002 (2.48)**	1.3094 (2.51)**
Bank/ Insurance	1.0025 (1.79)**	1.0011 (1.65)**	1.0025 (1.43)*	1.0042 (1.85)**	1.0045 (1.81)**	1.0033 (1.98)**	1.0023 (2.03)**	1.0035 (1.93)**	1.0023 (1.41)*	1.0024 (1.43)*	1.0035 (1.95)**	1.0028 (1.83)**
Financial Leverage Spillover	-1.4399 (-2.20)***	-1.4538 (-2.24)**	-1.2843 (2.13)** 6	-1.2930 (2.14)**					-1.6287 (-2.51)***	-1.5843 (-2.47)**	-1.6390 (-2.30)***	-1.6303 (2.53)***
Excess Sales Spillover	0.0624 (1.53)**	0.0629 (1.56)*	0.0707 (1.76)**	0.0630 (1.51)*	0.0692 (1.63)*	0.0720 (1.88)**	0.0673 (1.57)*	0.0693 (1.65)**				
Cash Flow Spillover	0.0921 (1.99)**	0.1029 (2.25)**	0.0903 (1.97)**			0.1010 (2.19)*	0.0913 (2.01)**	0.0912 (1.89)**				
Cash Spillover					0.1030 (1.68)**				0.1035 (1.74)**	0.1050 (1.85)**	0.1021 (1.58)*	0.1007 (1.38)*
Cost of Sales Spillover	-0.6294 (-1.02)		-0.6527 (-1.01)	-0.6385 (-0.82)			-0.6103 (-0.69)		-0.7024 (-0.71)		-0.6584 (-0.51)	
Non-Operating Expense Spillover		-0.0112 (-0.63)			0.0111 (-0.89)		0.0142 (-0.59)	-0.0193 (-0.48)			-0.0164 (-0.32)	
Return Risk			0.40743 (0.97)	0.5109238 (1.10)		0.5402931 (1.21)			0.4692837 (1.03)	0.502981 (1.14)	0.4198241 (1.15)	
Efficiency* Bank/ Brokerage Interaction	1.4924 (2.78)***	1.5299 (2.88)***			1.4205 (2.36)***	1.5104 (2.80)**	1.5584 (3.11)***			1.3392 (1.68)**	1.4982 (2.79)***	
Efficiency* Bank/ Insurance Interaction			1.2837 (1.67)**	1.3003948 (2.00)**				1.302293 (2.10)**	1.2908 (1.89)*			1.3211 (1.91)**
Joint Significance between Efficiency and Interaction	1.7829 (3.02)***	1.8440 (3.24)***	1.5298 (1.88)**	1.5890 (2.89)***	1.7298 (2.99)***	1.8298 (3.15)***	1.9828 (3.34)***	1.5901 (2.90)***	1.5511 (2.76)***	1.5982 (1.88)**	1.7932 (3.13)***	1.6035 (2.80)***
Year	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.	Insign.
Number of Observations Used	320	305	310	302	305	320	305	305	321	317	305	314
F Test	24.18	26.06	27.54	22.71	19.69	17.39	23.37	13.77	21.32	12.19	23.91	13.20
P- Value	0.0006	0.0011	0.0009	0.0002	0.0015	0.0023	0.0015	0.0030	0.0008	0.0038	0.0016	0.0029
Adjusted R2	.0.5039	0.5107	0.5203	0.4993	0.4822	0.4638	0.5002	0.4387	0.4975	0.3928	0.5026	0.4173

Conclusion

In this paper, I examine the long-term effects of the Financial Services Modernization Act of 1999 which allowed the combination of banking, brokerage and insurance services under one financial conglomerate. This paper examines the different types of financial combinations and the size of the transaction value for the varying types of mergers. This study attempts to explain the cross sectional acquisition premium for the varying types of financial service mergers. I employ a multivariate regression analysis to study the merger transaction value and explain the long-term returns of the financial combinations.

As in the extant manufacturing literature, the banking industry mergers and acquisitions transaction value is related to the size of the target. The results also indicate that the acquiring firm's financial characteristics including the firm's size, leverage and operating cost determine the acquisition premium. This suggests that not only does the target value dictate the amount paid for the assets but also the target firms' ability to be integrated and compliment acquiring firm financial standing. In addition, the large transaction values within the financial industry mergers/ acquisitions has lead to significant premiums paid for the targets.

The premiums paid for the firms within the financial service industry vary from acquisition type to acquisition type. The results show that on average the premium paid is approximately 17% above target value. The merger premiums for commercial bank/ commercial bank and commercial bank/ brokerage firm mergers are statistically larger than those for commercial bank/ insurance company mergers. This may be due to the ease with which the acquiring commercial bank can cross sell its products and services with other banks and brokerage firms. The difference in premiums can also be the function of the difference in the size of assets and clientele between commercial bank, brokerage firms and insurance companies. Since insurance companies are significantly larger than other types of financial service companies there may be greater spillover benefit in cross selling products and services.

This paper also examines the announcement day market response for acquisitions within the financial service industry to specifically determine whether diversifying acquisitions add value for shareholders. This study shows that on the date of acquisition announcement the entire sample experiences no statistically significant response. However, both diversifying mergers between commercial banks and brokerage firms and commercial banks with insurance companies report a statistically significant increase in returns. Examining the pre- and post- announcement daily returns indicates that for the commercial bank mergers with brokerage firm sample, there is a significant increase in abnormal returns on the day of and day after the acquisition announcement of 10.2% and 1.9% respectively. In addition, commercial bank mergers with insurance companies have a positive abnormal market response of 5.9% when compare to the market return. All of the results are consistent with the theory that diversifying financial services industry acquisitions increase shareholder value.

The large premiums reflect expectations that the acquiring firms will be able to cross-sell their products and utilize information from different divisions to develop superior services or for the acquirer to put in place efficient policies and practices to receive superior returns. Utilizing the distribution-free random error method, I find evidence that acquiring financial firms are more efficient than target firms and that these efficiencies dictate long-term performance of the firms. I find that not only profit efficiency but also operation efficiency determines future returns. There is also evidence that when banks engage in diversifying mergers with brokerage firms the effects of profit efficiency on post-consolidation returns are larger than those of commercial bank/ commercial bank mergers.

A competing view holds that financial acquirers are able to cross-market products and services resulting from spillover between divisions. Looking at a variety of spillover characteristics, the results indicate that acquiring financial firms take advantage of the diversity. The results indicate that there is a positive and statistically significant relationship between the three-year change excess sales and returns. This suggests that financial institutions that diversify their products and services are able to increase

shareholder wealth by selling more products. Spillover can also be seen by the change in cash flow for the post-consolidated financial conglomerate. On average, if the financial conglomerate can increase cash flow that will lead to an increase in shareholder returns.

The ratification of the 1999 Financial Services Modernization Act authorized commercial banks, brokerage firms and insurance companies to combine their businesses and thus significantly broadened their product and service offerings and improve their ability to compete with industry rivals. Estimation of the multivariate regression models show some evidence of support for both the efficiency and spillover hypotheses. Thus, the proprietary customer information gathered by one financial intermediary is efficiently and effectively disseminated to complimentary divisions of the financial conglomerate.

Essay 2

"Down but Not Out" Mutual Fund Manager Turnover within Fund Families

Introduction

Ever since Berle and Means (1932) first established that there is a separation between ownership and control and Jensen and Meckling (1976) recognized that this disconnect between managers and shareholders causes agency issues, financial economists have discussed ways to eliminate or at least minimize these agency concerns. The financial literature has advanced two fundamental theories about how to address agency problems and influence manager behavior. First, financial economists suggest that the board of directors design compensation schemes to provide managers with effective incentives to maximize shareholder value (pay-performance). Secondly, the market for corporate control imposes some constraints on the managers' actions. These two approaches are designed to align the managers' behavior with shareholders wealth maximization. Despite the interest in this area, there has yet to be a study that examines the effects of both the pay-performance and the market for corporate control theories simultaneously. The uniqueness of the mutual fund industry and the mutual fund manager contracts allows us to reexamine these agency issues.

Within the mutual fund industry, this issue is significant given the importance of management in the implementation of the fund's investment strategy, the sizable assets under their control, and the potential impact it has on the overall success and profitability of the fund complex. The issue is also critical in terms of the different corporate governance mechanisms and principal-agent problems that exist between investors, shareholders, and management. This is because investors that entrust funds to managers cannot participate in exercising corporate control in the same manner in which shareholders can exercise their collective will on company boards. Accordingly, while internal control mechanisms of investment management organizations are likely to be related to corporate governance practices experienced by industrial organizations, the

literature has not devoted significant attention to organizational structure that is associated with changes in mutual fund management of investment firms.

Thus far, the mutual fund literature has investigated how mutual fund manager turnover is affected by past performance and manager age. Examining the relation between mutual fund managerial replacement and prior performance, Khorana (1996) finds evidence of an inverse relation between the probability of fund manager replacement and past performance. Extending the work of Khorana (1996), Chevalier and Ellison (1999) investigate the link between mutual fund managers' age and the probability of manager replacement. They find that younger managers are more likely to be replaced if the fund's systematic and unsystematic risks deviate from the investment objective's average risk level. Khorana (1996) also documents that the magnitude of underperformance that investment advisors are willing to accept before replacing a manager is positively related to the volatility of the underlying assets being managed by fund managers. Khorana states that his findings are "consistent with well-functioning internal and external market mechanisms for mutual fund managers."[15] However, is it possible that previous research, by ignoring the specific organizational form and, more specifically, the management structure of the fund family, might have significantly overstated the sensitivity of managerial replacement to past performance?

My first objective in this paper is to extend the Khorana (1996) and Chevalier and Ellison (1999) results to a setting that accounts for both the fund family organizational structure and the individual characteristics of fund managers. While previous literature helps us understand the replacement-performance relationship of mutual fund managers, we know little about how the managerial structure of the mutual fund family influences the sponsor's willingness to replace underperforming managers.

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[15] One weakest of the mutual fund managerial turnover literature is that it is difficult to distinguish between turnover due to promotion and turnover due to demotion caused by underperformance. In a working paper, Hu, Hall and Harvey (2000) separates manager changes into promotions and demotions. Their evidence suggests that the probability that a manager is likely to be fired or demoted is negatively correlated with the fund's current and past performance and the promotion probability is positively related with the fund's current and past performance.

In addition, this study identifies the importance of the management structure within the mutual fund industry. Within some fund families, a portfolio manager works autonomously managing only one fund. At other fund families, an individual portfolio manager is responsible for two or more mutual funds within the same sector, related sectors or with complementary investment objectives. For the sample period, 22% of mutual funds accounting for 25% of the funds under management are now in the multiple fund management structure. Fund sponsors make manager turnover decisions by comparing the cost of firing UFM versus MFM[16] and the benefits of having the MFM structure. The incremental cost of replacing a unitary fund manager includes the employee search cost and hiring of a new fund manager and the potential cost of losing loyal investment customers of the replaced manager. Under the MFM structure, these costs aren't necessarily a concern for fund sponsors since the replaced managers remain with the fund family. In addition, the MFM structure lowers the individual cost of operating each fund. If fund sponsors are less likely to end the services of a UFM manager, because it is more costly to the sponsor, then this is a clear indication of a conflict of interests because for the same level of underperformance investors would benefit more if the "pay for performance" relationship (proposed by Khorana (1996)) worked effectively for the costlier funds/fund management system. However, without considering the specific organizational form and, more specifically, the management structure of the fund family previous research might have significantly overstated the sensitivity of managerial replacement to past performance. I show that, in addition to prior performance and managerial experience, the number of individual funds managed by a fund manager increases the probability of manager replacement. UFM are -2.77% less likely to be replaced than a MFM, even though both managers are underperforming. This suggests that fund sponsors tend to replace underperformers only when it is "cheap" because replacing a UFM is more expensive than taking one fund from a manager that

[16] In the case of an MFM, we regard a manager as having been replaced if he is relieved of his duties related to one or more funds of the two or more that he manages, even if he continues to be in charge of other funds.

operates multiple funds. This presents an obvious conflict of interests between fund investors and fund management.

The second objective of this study, as in Khorana (2001), is to examine whether funds that experienced manager replacement underperform funds where the manager maintains responsibility and, if so, by how much and for how long prior to replacement. However, unlike Khorana (2001) this study takes into account the fund family management structure prior to replacement. Consistent with Khorana (2001), I find that new fund managers exhibit dramatic performance improvement in the post-replacement period. This finding suggests that the previous manages were replaced due to poor past performance. Potential explanations for poor past performance is that fund managers have too many funds or fund objectives to manage to be effective and/ or diminished fund management abilities. I also find that unitary fund managers significantly underperform their objective and risk adjusted peers (1.8%, 2.8% respectively), which is a greater underperformance than multiple fund managers (1.2%, 2.6% respectively). It appears that fund sponsors are more tolerant of unitary fund managers' underperformance than that of multiple fund managers. Contrary to Khorana (1996, 2001), these findings suggest weaker internal control mechanism than previously thought.

The final objective is to extend the work Chevalier and Ellison (1999a,b) and Gallagher (2003), who examine performance related to investment manager characteristics, including experience, institutional asset size, and investment management characteristics. As in Chevalier and Ellison (1999a,b) and Gallagher (2003) this study documents an inverse relationship between manager tenure and the probability of replacement. After simultaneously accounting for manager tenure and past performance, I find a statistically significant negative relationship with the probability of a manager being replaced and the combination of manager tenure and past performance. This finding suggests that sponsors are reluctant to fire poor performers if they are experienced fund managers. This may be because even with underperformance, relative to peers, fund managers have an established relationship with investors and firing the

manager can signal problems to potential investors and result in an outflow of funds from current investors. This would lead to a reduction in sponsor income.

This study represents the first significant and rigorous examination of the relationship between performance, manager characteristics and fund family management structure. In this paper, I present evidence that mutual fund replacement is not only contingent on previous performance and manager tenure but also on the number of individual funds managed by the fund manager. In addition, I document the importance of the management structure within the mutual fund industry. While previous literature helps us understand the replacement-performance relationship of mutual fund managers, we know little about how the organizational form, specifically the managerial structure, of the mutual fund family influences the sensitivity of replacement to past performance.

The remainder of the paper is organized as follows. Section II discusses the related literature and develops the hypotheses tested. Section III describes the data and methodology used for analysis. Section IV provides a sample description and preliminary statistics of the replaced fund managers. Section IV also presents the empirical results of the study. I conclude this paper with a summary of my findings in Section V.

Related Literature/ Hypotheses Development

Agency Issues

Financial economists have found that agency problems or conflict of interests between shareholders (principals) and managers (agents) come from two sources. First, managers and shareholders have different goals and preferences. Secondly, managers and shareholders have imperfect information as to each others' knowledge, actions and preferences. Berle and Means (1932) notes that this separation provides managers with the ability to act in their own self-interest rather than in the interest of shareholders without corporate governance mechanisms. Shleifer and Vishney (1997) also finds that managers use their discretion to benefit themselves personally in a variety of ways such as empire building (Jensen, 1972), failure to distribute excess cash when the firm does not have profitable investment opportunities (Jensen, 1986), and manager entrenchment

(Murphy, Shleifer and Vishney, 1989). Within the mutual fund industry, the interaction between investors and fund management represents a principal–agent relationship. Investors delegate assets to professional fund managers with the expectation that performance will be commensurate with the fund's investment objective. However, while performance is important to the fund family, the primary goal for a fund complex is to maximize the total assets under management, as revenue is generated as a percentage of fund assets under management. Although performance and fund size are interrelated (Gruber (1996)), the first objective for a fund manager is to maximize total assets under management.

There are two distinct theories about how to effectively deal with these agency problems. In general terms, these theories can be viewed as internal and external control mechanisms (Fama, 1980). The design of the compensation contracts by the board of directors is considered an internal control mechanism while the market for corporate control is an external control mechanism. There has been extensive research conducted on compensation contracts and agency issues.[17] Several papers find that compensation contracts seem to reflect managerial rent-seeking rather than the proper incentives to align manager actions with shareholder interest (Blanchard, Lopez-de-Silanes and Shleifer, 1994; Yermack, 1995; Bertrand and Mullainathan, 2001; Bebchuk, Fried and Walker, 2003). However, Jensen and Murphy (1990) asserts that optimal contracting arrangements require large amounts of compensation for executives to provide managers with powerful incentives to enhance shareholder value. This suggests the use of equity-based compensation contracts to make pay more sensitive to performance. The mutual fund industry utilizes the suggested equity-based compensation contracts by aligning the management fee (a stated rate) with the value of the fund's net assets. Thus, the managers' compensation increases only as the fund's net assets grow.

The second control mechanism, the market for corporate control, is such an important issue that the Journal of Financial Economics published a special issue on the topic in 1983. Jensen and Ruback (1984) is a survey paper of these papers. They view the

[17] See Murphy (1999) and Core, Guay and Lacker (2003) for surveys on optimal contracting models and agency issues.

market for corporate control as a market in which alternative managerial teams compete for the rights to manage corporate resources. Thus, in theory, the market for corporate control influences both the managerial labor market and managerial behavior. However, Bebchuk, Coates and Subramanian (2002) find that a hostile bidder must be prepared to pay a substantial premium in order to acquire a target firm, providing the target management with a "golden parachute" and weakening the disciplinary force of the market for corporate control.[18] Fund family manager turnover allows us to examine both the replacement-performance and market for corporate control mechanisms simultaneously.

Past Performance

Within the mutual fund industry, where pay and performance are directly linked, the managerial labor market has played a major role in enhancing shareholder wealth. Khorana (1996) examines the relation between the replacement of mutual fund managers and their prior performance. He finds an inverse relation between the probability of managerial replacement and fund performance, using the growth rate in the fund's assets and portfolio returns. Similarly, Ding and Wermers (2005) document a positive cross-sectional relation between performance and replacement. Khorana (2001) goes on to examine the impact of mutual fund manager replacement on subsequent fund performance. He documents significant improvements in post-replacement performance relative to the past performance of the fund, suggesting that the market for corporate control benefits shareholder wealth. Hence, I hypothesize that past performance will have an inverse relation with fund family manager turnover. However, after accounting for fund manager characteristics and fund family responsibilities past performance will have a decreased effect than previously reported in Khorana (2001).

[18] Bebchuk, Coates and Subramanian (2002) find that during the second half of the 1990s, the average premium in hostile acquisitions was 40 percent.

Management Structure

Mutual fund sponsors and mutual fund investors have different goals and preference for their fund managers. The fund sponsors require managers earn high management fees while maintaining low costs for the fund(s) they manage. To achieve these desired goals, fund sponsor increase total profits by maintaining the level of fund performance or inflows and decreasing the individual cost of operating each fund. In addition, fund sponsors can optimize management fees for a given level of fund performance. On the other hand, mutual fund investors prefer managers to obtain superior fund returns and charge minimum fund expenses. Investors rather fund managers maximize fund returns by focusing on a single fund's performance and efficiently pursuing these maximized fund's returns. The difference in goals and preferences results in conflict of interests between sponsors and investors and can manifest in the fund management structure.

At some fund families, a portfolio manager works autonomously managing only one fund. At other fund families, an individual portfolio manager is responsible for two or more mutual funds within the same sector, related sectors or with complementary investment objectives. For example, in 2001 Fidelity Funds manager John Carlson managed the Fidelity Emerging Market fund, Fidelity Strategic Income fund and Fidelity International Bond fund simultaneously. Similarly, Charles Melhouse managed the Fortis Capital fund, Fortis Fiduciary fund and Fortis Growth and Income fund in 2002 for Fortis Funds Inc. However, both Fidelity Inc. and Fortis Funds Inc. implement the UFM structure as well. In 2002, Stephen Poling singularly managed Fortis Growth Fund and Jason Weiner solely managed Fidelity Contrafund. I contend that manager turnover policy is affected by the management structure. That is, fund sponsors are less likely to end the services of a manager that manages a single fund, because it is more costly to the sponsor, then this is a clear indication of a conflict of interests because for the same level of underperformance investors would benefit more if the "pay for performance" relationship (proposed by Khorana (1996)) worked effectively for the costlier funds/fund

management system. Fund sponsors are less likely to fire a UFM than a MFM with similar underperform because the cost of searching and employing a unitary fund manager and the threat of the investors withdrawing funds is greater. The increased replacement costs with a decrease in fund management fee result in lower fund sponsors profits. Thus, sponsors may be slower to replace UFM than MFM giving rise to a conflict of interests between investors that expect the superior fund performance and management decisions regardless of the management structure.

Shleifer and Vishney (1989) argue that managers engage in diversification acquisitions to make themselves indispensable to the firm. They note that when the acquired assets or subsidiary ceases to provide further entrenchment benefits, the manager initiates divestures. Empirical evidence has shown that divested divisions do better as stand-alone entities than as part of a larger conglomerate (Myerson (1982), Harris, Kriebel, and Raviv (1982) and Hubbard and Pahlia (1999)). However, John and Ofek (1995) find that the typical divested division is performing as well as the industry at the time of the divesture, suggesting that the divested managers are benefiting from the good fortune of the industry and not their management ability. Similarly, Massa (2003) shows that the degree of product differentiation negatively affects fund performance and positively affects fund proliferation. Further, Nanda, Wang, and Zheng (2004) find that families that are more concentrated perform better. After accounting for the management structure given a certain level of underperformance, I hypothesize that unitary fund managers (multiple fund managers) are less (more) likely to experience manager turnover.

Expense Ratio and Management Fee

The expense ratio is an important metric when comparing funds, because money paid for expenses is money that is not invested and earns no profit. Khorana (2001) suggests that in a competitive market, expense ratios should decline over time where investors become more price-sensitive, investment management firms increase in size and improve their economies of scale, and new entrants commence operations. Santini

and Aber (1998), shows exactly the opposite is true: As fund size increases, fund expenses tend to rise rather than fall They find that fund complexes less likely to compete on expenses because people don't seem to care. In addition, high expense ratios are not proportional to better management. Wermers (2000) finds that high-expense funds underperform index funds, which are minimally managed and have very low expense ratios. However, fund managers still earn a management fee regardless of the funds overall performance. Management fee is the largest component of expense ratio. The management fee is the portion of the expense ratio that the fund manager receives for his/ her advising and stock selections. As stated earlier, the fund sponsor's primary goal is for fund managers to earn high management fees while maintaining low costs for the fund(s) they manage. Thus, suppose a fund sponsor is faced with two similarly underperforming funds, but which provide different levels of management fees per dollar of managed assets. Given that the sponsor is compensated on the basis of assets under management and not on performance, it seems unlikely that the sponsor would more quickly replace the high-fee fund. This is especially the case given that manager replacement may lead to redemption. This would be a clear conflict of interests because it is in investors' interest if more expeditious action is taken against the underperforming high-fee fund. Hence, I hypothesize that the probability of replacement is lower with high expense/ management fee funds for any given level of performance. I also hypothesize that the probability of replacement is lower for high expense, UFM funds for any given level of underperformance. This is because replacing a high-fee fund manager could lead to greater redemptions and a loss of fee income while having to incur greater costs of replacing a manager who manages a single fund.

Fund Size

The sensitivity of investor inflows to fund performance is well documented (Ippolito, 1992; Sirri and Tufano, 1992; and Chevalier and Ellison, 1997). Similarly, Gruber (1996) finds evidence that "sophisticated" investors are able to recognize superior

management, witnessed by the fact that the flow of new money into and out of mutual funds follows the predictors of future performance. Fund families recognize the importance and the benefits of having popular, well-performing funds. Analyzing the determinants of mutual fund starts, Khorana and Servaes (1999) identify several factors that induce fund families to set up new funds, such as economies of scale and scope, the overall level of funds invested, and the family's prior performance. Fund families market not only the superior performance of their managers but also their funds in general to increase investor inflows and thus increase total net assets managed and management fees. Elton, Gruber and Busse (2004) find that investors buy funds with higher marketing costs than the best-performing funds. Fund families also market the performance of their "star" funds to increase fund family inflows. Massa (1998) shows a positive spillover to other family funds from having a star fund. Nanda, Wang, and Zheng (2004) also finds a positive spillover effect on the inflows of other family funds resulting from having a star performing fund without the negative effect from a poor performing fund. Guedj and Papastaikoudi (2004) reports that this "star" performance is more prevalent for large fund families than their smaller peers. Thus, larger fund families receive benefits from having "star" managers and funds due to the spillover into other family funds. Since managers are evaluated on past-performance and assets under management, it stands to reason that the fund size, in total net assets, and fund's age will have an inverse relation with the probability of manager turnover.[19]

Manager Tenure and Reputation

When an investor buys a managed equity mutual fund, she is buying a manager's expertise in picking stocks. When investors evaluate funds most investors track the historical (typically the previous 3, 5 or 10 year) performance of the fund rather than the performance of the manager in place at the time of superior performance. It is important

[19] Note that improved performance and increase in age, while related are not synonymous. For instance, if the fund attracts new investors after a bout of heavy advertising, it could experience an increase in its size while experiencing lower returns (net) if the advertisement is paid for form (increased) 12b-1 fees.

for investors to look for an investment manager who has not only supervised the fund for substantial length of time, but also who has been in charge of the fund when it produced its best results. The longevity of a manager shows that the manager can produce in both the bull and bear markets and that the manager is not the recipient of "luck-based" returns- returns associated with profit increases that are entirely generated by external factors (such as changes in oil prices) rather than by the manager's expertise. A manager who follows a consistent trading strategy and who delivers consistent returns over a relatively long period of time benefits investors by decreasing the volatility of investors' returns (Busse 1999). Thus the manager's tenure leads to a reputation effect that the fund family can benefit from. Diamond (1989) states that reputation is important when there is a diverse pool of observationally equivalent firms. Rosson and Brooks (2004) states that reputation can be seen as the collective judgment of outsiders about an organization's actions and achievements. Fombrun (1996) posits that when positive, this reputational capital is viewed as an asset that becomes a competitive advantage to the company. Hence, I hypothesize that the manager's experience and tenure is inversely related to the likelihood of manager replacement within the fund family. Additionally, I hypothesize that for any level of recent poor performance, longer tenure reduces the probability of replacement.

Style Drift/ Tracking Error

A portfolio manager's selection of securities should be consistent with the mutual fund's investment objective, which is stated in the fund's prospectus. A mutual fund's (stated) investment objective is established when the fund is created and can be changed only with a majority vote of the fund's shareholders. However, Busse (2001) reports that managers increase risk levels or "style drift" to increase return performance following a period of poor performance. Thus, an increase in style drift provides some indication of manager incompetence. However, Brown and Harlow (2006) find that funds with greater style drift performs better than their peers during recessions or in down markets. Hence, I

hypothesize that the probability of a manager being replaced increases with the manager's increase in style drift.

Fund Styles/ Competency

To select the most suitable mutual fund an investor must be able to differentiate clearly amongst the numerous investment objectives that fund families offer and understand the basic strategies by which the fund manager seeks to achieve the stated objective. Each investment objective requires the fund manager have specific knowledge, expertise and level of competency. This may require a manager, who manages multiple funds, to have experience in a variety of fund styles. There are several investment objectives, each targeted to an investor with a specific risk tolerance and time horizon. For example, the growth objective can be divided into aggressive growth, established growth, growth and income, large-cap growth, micro-cap growth, mid-cap growth, and small-cap/small company growth funds. Funds with assets of different characteristics require different management skills (Deli (2002)). For instance, stock funds require greater competence than bond funds. Due to the variety of fund styles, I hypothesize that the number of objectives managed is inversely related to the likelihood of a manager being replaced. That is managers who are offered multiple objectives to manage have greater skill and become entrenched making them less likely to be fired.

Data and Descriptive Statistics

Sample Selection Procedure

I examine the returns and characteristics of replaced fund managers over the 1997 to 2001 period. This database is constructed from two sources. First, I obtain the information on the month and year in which the current manager commenced overseeing the operations of the fund and thus the month and year in which the previous manager was replaced from the Morningstar Principia database. I am also able to track the number of funds and objectives each fund manager operates by the manager characteristics

provided in the Morningstar database. In addition, I receive the annual fund style, turnover ratio, expense ratio, fund size (in total net assets-TNA), capital gains overhang, fund age (in years), 12b-1 fees, fund family affiliation and fund returns[20] from the Morningstar database. Second, using fund names, fund family affiliation and other fund information, I supplement the Morningstar database with the Center for Research and Securities Prices (CRSP) database which provides monthly returns and investment objectives. I utilize this information to calculate the twelve month tracking error and style drift variables (Ammann and Zimmermann (2001) and Brown and Harlow (2006).

To compute the tracking error, I follow Ammann and Zimmermann (2001), and use the square root of the non-central second moment of deviation according to the following equation,

$$TE_i = \sqrt{((\sum_{t=1}^{n}(R_{i,t} - R_{bench,t})^2/(n-1))} \qquad (6)$$

where $R_{i,t}$ denotes the return of the tracking fund in time *t*, $R_{bench,t}$ the return of the pre-determined benchmark portfolio in period *t*, and *n* is the sample size.

To calculate the tracking error and style drift variables, I first classify each fund according to the Morningstar investment style grid. I then selected a benchmark for each fund based on the above classification. Following Brown and Harlow (2006), I selected the Russell group of style benchmarks, which are available on line from the Frank Russell Company. I regress each fund's returns over the last 12 months before the replacement of the fund manager on the benchmark returns and take 1-R^2 as the measure of style drift.[21]

[20] Morningstar and the Center for Research and Securities Prices (CRSP) list fund returns net of expenses and taxes.

[21] There are several broadly similar approaches to estimating style drift. Brown and Harlow (2006) use the standard deviation of differences in returns relative to a benchmark that reflects the investment style of the fund and 1-R^2 from a regression of the fund returns on the benchmark. Chan et al. (2002) take the absolute difference in the factor loadings from a regression of a fund's returns on the Fama-French factors over consecutive sub-periods. Amman and Zimmerman (2001) take the standard deviation of the residuals from

Consistent with Gruber (1996), I define fund net flow as the growth in the fund assets net of growth in existing assets[22]:

$$NetFundGrowth\% = [TNA_{i,t} - (1 + R_{i,t})TNA_{i,t-1}] / TNA_{i,t-1} \quad (7)$$

where $TNA_{i,t}$ denotes fund *i*'s total net assets at the end of month *t* and $R_{i,t}$ is return of fund *i* over month *t*.

To get the final manager replacement sample, I first exclude funds without manager tenure, turnover ratio, expense ratio, fund total net asset, capital gains overhang, fund age, 12b-1 fees, fund family affiliation and fund returns data. Second, for calculations, I include the weighted average of all classes of fund shares in the final sample. Third, I exclude funds that list multiple fund managers for an individual fund (team managed funds). I also exclude funds having fewer than two years of monthly returns. After this sample selection procedure, I am left with 891 fund manager replacements in the final sample, which consist of 188 unitary managed fund replacements and 703 replaced funds with the multiple fund manager structure[23].

The control sample is drawn from all funds from 1997 to 2001 that did not undergo a managerial change. To be included in the control sample, Morningstar or CRSP must report the fund's turnover ratio, expense ratio, fund total net asset, capital gains overhang, fund age, 12b-1 fees, manager tenure, fund family affiliation and fund returns data. All funds that are team managed are excluded from the control sample. In this study, the control sample is utilized as reference funds to calculate the cumulative abnormal returns (CARs), risk-adjusted returns (RARs), and objective-adjusted returns (OARs) and for the logistic regressions. The reference funds are matched by both the

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a regression of the fund's returns on the returns of its benchmarks. Brown and Harlow (2006) find that the results are not sensitive to the approach taken.

[22] The Sirri and Tufano (1998) measure for asset flows was also utilized with similar results. This is defined as $(TNA_{,t} - TNA_{i,t-1}) \times (1+R_{i,t-1})/TNA_{i,t-1}$ where $TNA_{i,t}$ is the total net asset for fund *i* at time *t*; and $R_{i,t-1}$ the raw return at time *t-1*.

[23] Both the Morningstar and the CRSP databases cover dead funds as well as active funds, therefore, survivorship bias is not a concern for this study.

stated CRSP objective and Morningstar investment style. Table 1 provides annual summary statistics for the control sample. The control sample consists of 8477 funds that did not have a managerial replacement during the sample period. Of the 8477 control sample funds, 1866 have unitary fund managers and the remaining 6611 control sample fund managers operate multiple funds simultaneously. Panel A through H of Table 2 reports the results of the univariate fund-specific characteristics for the control sample.

Description of full sample

Table 1 summarizes the frequency with which fund managers are replaced in a year for the sample period 1997 to 2001. For each sample year, I report the total number of fund manager replacements as well as the cumulative number of replacement for the sample period. The largest number of manager replacements occurred in the final year of the sample period, 2001, with 198 replacements and 2000 had the least number of replacements, 140.

Table 11: Managerial Replacement Distribution

This table summarizes the manager replacement and control samples, which were created by matching the Morningstar fund manager database with the Center for Research and Securities Prices database. Manager replacement sample consist of distribution information of 891 mutual funds with start-up dates between January 1997 to December 2001. A management change is defined as any change in the fund's portfolio manager. Managerial replacements are presented by replacement year. Each replacement is further divided into management structure according to the number of funds simultaneously managed. The Unitary Fund Manager operates a single fund while the multi-fund manager operates multiple funds simultaneously. The control sample consists of 8477 funds that do not undergo a managerial replacement for the given period. Each control sample fund is further divided into management structure according to the number of funds simultaneously managed.

Panel A: Replacement Sample

Year	Frequency	Percent	Cumulative Frequency	Cumulative Percentage	Unitary Fund Manager Replacement	Multi-Fund Manager Replacement
1997	177	19.8653	177	19.865	30	147
1998	196	21.9978	373	41.863	42	154
1999	180	20.202	553	62.065	44	136
2000	140	15.7127	693	77.778	31	109
2001	198	22.2222	891	100	41	157
Total	891	100			188	703

Panel B: Control Sample

	Control Sample			Total Replacement	Unitary Replacement	Multi-fund Replacement
Year	Total	Unitary	Multifund	Percentage	Percentage	Percentage
1997	1420	367	1053	12.465	8.174	13.960
1998	1719	390	1329	11.402	10.769	11.588
1999	1686	372	1314	10.676	11.828	10.350
2000	1792	374	1418	7.813	8.289	7.687
2001	1860	363	1497	10.645	11.295	10.488
Total	8477	1866	6611	53.001	50.355	54.072

I decompose the sample of 891 fund manager replacements based on the number of funds managed simultaneously over the sample period. Fund managers that operate one fund are placed in the unitary fund management sample (UFM) and those managers that operate multiple funds simultaneously are placed in the multiple funds management sample (MFM). This sample decomposition yields 703 fund managers in the multiple funds management sample and 188 funds and fund managers in the unitary fund management sample. Table 2, Panel A through H, summarizes statistics for variables used in the analysis for each sample year as well as over the entire sample period. For each sample year, I report the total number of funds as well as the average size (measured by total net assets), net fund growth, manager tenure, fund age, expense ratio, turnover ratio, 12b-1 fees, and capital gains overhang. I compare each of the 891 replacement sample with an objective and style matched sample of mutual funds that did not have any managerial turnover (control sample).

Table 12: Descriptive Statistics

This table summarizes various fund characteristics for the 5 sample years and for the whole sample period (1997 to 2001). For each sample year, I report the total number of funds as well as the summary statistics for the managerial replacement and control samples. Statistics for the whole sample period are averages over all fund-years. UFM represents funds that have managers that operate a sole unitary manager while MFM represents the funds that are managed by managers that operate multiple funds simultaneously. Fund Size is the total fund net assets in billions. Capital Gains Overhang is the net unrealized appreciation (or depreciation) during the period reported by the Morningstar database. Net Fund Growth is the change in the fund assets net of growth in existing assets. Manager tenure is the number of years a portfolio as overseen a particular fund. Fund age is the number of years the fund as been in operation. Turnover Ratio is total purchases and sales divided by fund's average net asset value. Expense Ratio is the mutual fund's total annual operating expenses (including operational fees, distribution fees, and other expenses) stated as a percentage of the fund's average net as Management Fee is the fee the fund complex receives for managing shareholders assets, expressed in billions. Management fee is calculated as the total assets managed per fund times the fund's expense ratio.The final column summarizes the mean differences between the management structures; unitary fund management and multiple fund management. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

			Year(s)						Management Structure Difference (UFM-MFM)
		N	1997	1998	1999	2000	2001	1997-2001	1997-2001
Panel A									
	Total Replacement Sample	891	314.0250	399.5877	400.6508	524.5375	515.2213	430.8045	
Fund Size	UFM Replacement Sample	188	274.2100	391.8349	349.6533	469.3833	476.7853	392.3734	-48.7085**
	MFM Replacement Sample	703	324.6725	401.6610	414.2888	539.2872	525.5000	441.0819	
	Total Control Sample	8477	504.3041	558.4486	618.1343	641.5718	626.5382	589.7994	
	UFM Control Sample	1866	917.4616	1210.5838	1253.0419	1435.7492	1292.1143	1221.7902	810.3745***
	MFM Control Sample	6611	387.6875	374.3789	438.9273	417.4097	438.6748	411.4157	
Panel B									
	Total Replacement Sample	891	7.5561	10.1022	8.5701	12.0027	9.5394	9.5541	
Capital Gains Overhang	UFM Replacement Sample	188	13.2950	16.7000	9.0714	15.8920	14.2860	13.8489	5.4433*
	MFM Replacement Sample	703	6.0214	8.3377	8.4360	10.9626	8.2700	8.4056	
	Total Control Sample	8477	7.5638	11.1654	9.1430	9.9205	10.7506	9.7086	
	UFM Control Sample	1866	12.5918	15.4370	12.9231	13.7781	15.3470	14.0154	5.5224*
	MFM Control Sample	6611	6.1446	9.9597	8.0761	8.8317	9.4532	8.4930	

Table 12: Descriptive Statistics (Continued)

Panel C									
Net Fund Growth	Total Replacement Sample	891	-13.7624	25.3542	29.6632	27.7719	-15.0218	10.8010	11.7912***
	UFM Replacement Sample	188	-9.1436	44.7997	31.6094	44.8689	-11.6129	20.1043	
	MFM Replacement Sample	703	-14.9976	20.1540	29.1427	23.1998	-15.9334	8.3131	
	Total Control Sample	8477	-1.2969	34.4962	27.2929	31.7334	-12.4386	15.9574	
	UFM Control Sample	1866	-2.4873	43.7310	30.3565	42.3107	-8.4915	21.0839	6.5735**
	MFM Control Sample	6611	-0.9609	31.8896	26.4282	28.7479	-13.5526	14.5104	
Panel D									
Manager Tenure	Total Replacement Sample	891	3.7100	5.7898	4.1510	5.3087	6.1141	5.0147	-1.3813*
	UFM Replacement Sample	188	2.8889	4.6429	3.3636	4.1071	4.6218	3.9249	
	MFM Replacement Sample	703	3.9296	6.0966	4.3615	5.6300	6.5132	5.3062	
	Total Control Sample	8477	4.1991	4.1850	4.5569	4.9105	4.9192	4.5542	
	UFM Control Sample	1866	2.9531	3.6383	4.1748	5.3490	5.2861	4.2803	-0.3512
	MFM Control Sample	6611	4.5508	4.3393	4.6648	4.7868	4.8156	4.6315	
Panel E									
Fund Age	Total Replacement Sample	891	8.9521	9.7909	10.1297	10.2882	9.1351	9.6592	-1.0108
	UFM Replacement Sample	188	7.8278	8.9748	9.5241	9.2194	8.7625	8.8617	
	MFM Replacement Sample	703	9.2528	10.0092	10.2917	10.5740	9.2347	9.8725	
	Total Control Sample	8477	9.7410	9.9989	9.8352	9.4586	9.6716	9.7411	
	UFM Control Sample	1866	9.5797	9.2113	9.6720	8.9328	9.0644	9.2921	-0.5757
	MFM Control Sample	6611	9.7866	10.2212	9.8813	9.6070	9.8430	9.8678	

Table 12: Descriptive Statistics (Continued)

Panel F									
Turnover Ratio	Total Replacement Sample	891	107.3043	87.0276	100.0136	92.1859	97.7494	96.8561	9.9462
	UFM Replacement Sample	188	110.2414	98.6842	112.2326	98.7778	103.5828	104.7037	
	MFM Replacement Sample	703	106.5188	83.9103	96.7459	90.4231	96.1893	94.7575	
	Total Control Sample	8477	90.8673	92.5717	91.5333	93.2344	97.5471	93.1508	9.5004
	UFM Control Sample	1866	97.1534	99.1394	92.7976	105.0851	108.6239	100.5599	
	MFM Control Sample	6611	89.0931	90.7179	91.1765	89.8895	94.4206	91.0595	
Panel G									
Expense Ratio	Total Replacement Sample	891	1.1328	1.1426	1.1414	1.1031	0.9727	1.0985	0.0908
	UFM Replacement Sample	188	1.2047	1.2780	1.1716	1.1216	1.0750	1.1702	
	MFM Replacement Sample	703	1.1136	1.1064	1.1333	1.0981	0.9453	1.0794	
	Total Control Sample	8477	1.1326	1.1431	1.1717	1.1854	1.1858	1.1637	0.1418
	UFM Control Sample	1866	1.2760	1.2294	1.2849	1.3088	1.2723	1.2743	
	MFM Control Sample	6611	1.0921	1.1188	1.1397	1.1506	1.1613	1.1325	
Panel H									
12b-1 fees	Total Replacement Sample	891	0.1595	0.1772	0.1903	0.1313	0.1621	0.1641	-0.1098
	UFM Replacement Sample	188	0.0733	0.0884	0.0911	0.0617	0.0728	0.0775	
	MFM Replacement Sample	703	0.1826	0.2010	0.2168	0.1499	0.1860	0.1872	
	Total Control Sample	8477	0.1590	0.1743	0.1839	0.1445	0.1427	0.1609	-0.0898
	UFM Control Sample	1866	0.0926	0.1073	0.1130	0.0702	0.0709	0.0908	
	MFM Control Sample	6611	0.1777	0.1932	0.2039	0.1654	0.1630	0.1806	
Panel I									
Management Fees	Total Replacement Sample	891	3.7171	4.2263	4.3318	4.5753	4.4187	4.2538	0.935251*
	UFM Replacement Sample	188	4.183712	5.022864	5.161229	5.387328	5.203662	4.9918	
	MFM Replacement Sample	703	3.592341	4.013284	4.110032	4.358112	4.208773	4.0565	
	Total Control Sample	8477	5.8438	6.3677	7.4643	7.8960	7.5796	7.0303	10.584320***
	UFM Control Sample	1866	11.672486	13.971036	16.079218	18.423991	16.276864	15.2847	
	MFM Control Sample	6611	4.198568	4.221585	5.032697	4.924402	5.124743	4.7004	

Several notable features emerge from the descriptive statistics in Table 2. For instance, the size of the average MFM replacement fund is consistently larger than that of the average UFM replacement fund and both sets are smaller than the average size of the control sample (Panel A, Table 2). This suggests that multiple fund managers are managing similar amounts of assets as the unitary fund manager just spread across more funds. The capital gains overhang is constantly larger for the unitary management sample than for the multiple management sample, indicating that, on average, UFM funds might have done better for existing investors in terms of capital gains. On the other hand, it suggests that multiple management structure may be preferred by (potential) new investors who desire to avoid the tax liability of previously built-up capital gains. Not surprisingly, the turnover ratio is larger for the unitary management structure who may sell more frequently to get rid of the capital gains overhang. As expected, the fund growth of the replacement sample, regardless of the management structure, is consistently lower than that of the industry average. This finding is consistent with the previous literature on the relationship between performance and manager replacement (see, e.g. Khorana (1996)). It is also interesting to note that of the replaced sample, MFM had lower fund growth in each year and over the full sample than UFM funds.

It appears that the multiple fund management structure benefits from economies of scale resulting in a lower expense ratio (by about 10 basis points) than the unitary management structure. In addition, the 12b-1 fees are lower for the multiple management structure, suggesting a cost benefit to multiple fund management. One implication of this is that, if I find that fund sponsors are less likely to end the services of a manager that manages a single fund, possibly because it is more costly to the sponsor, then this is a clear indication of a conflict of interests because for the same level of underperformance investors would benefit more if the internal control mechanisms (pay for performance) worked effectively for the costlier funds/fund management system.

The average managerial tenure for the unitary management replacements for the entire sample period is slightly shorter at 3.92 years than for the managerial tenure of the

multiple fund management structure, 5.31 years. This finding highlights the importance of managerial experience to operate multiple funds simultaneously. Furthermore, the average fund age across all funds for the sample with multiple fund management structure is 9.87 years, which is statistically significantly older than for the unitary management structure, 8.86 years. Thus, the MFM sample has more managerial experience than the UFM sample and operate older funds (Panel D and E).

Table 3 provides the descriptive statistics on both the multiple fund management and the multiple objective sub-samples. Panel A of Table 3 shows the mean (median) number of funds operated simultaneously by a manager that was replaced, where replacement means the manager was relieved of his responsibilities for at least one fund. The average number of funds operated simultaneously for the replacement sample (4.903 funds) is slightly larger than the control sample (4.305 funds). However, the number of objectives managed simultaneously by the replacement sample (2.039 objectives) is smaller than the control sample (4.301 objectives), as reported in Panels C and D of Table 3. Taken together, these statistics indicate that not only are individual managers being asked to manage multiple funds simultaneously, but they are also being asked to manage funds with different objectives. Depending on how different these objectives are this practice could dampen their performance.

Table 13: Multiple Funds and Multiple Objectives preliminary statistics

This table reports the mean and median number of funds and objectives of a sample of mutual funds experiencing managerial turnover and the control sample between 1999 and 2001. Multiple Fund Management structure (MFM) represents funds that have managers that operate multiple funds simultaneously. Multiple Objectives Management structure (MOM) represents funds that have managers that operate multiple objectives simultaneously. The standard deviation as well as the minimum and maximum number of funds/ objectives operated are also presented for each sample year.

Panel A. Multiple Fund Management (MFM) replacement Sample

Year(s)	N	Mean	Median	Std Dev	Minimum	Maximum
1997	147	4.267	4	1.457	2	6
1998	154	4.953	5	1.621	2	7
1999	136	5.149	5	1.868	2	7
2000	109	4.873	5	1.492	2	6
2001	157	5.259	5	2.016	2	6
All Years	703	4.903	5	1.601	2	7

Panel B. Multiple Fund Management (MFM) Control Sample

Year(s)	N	Mean	Median	Std Dev	Minimum	Maximum
1997	1053	3.951	4	1.019	2	5
1998	1329	4.012	4	1.783	2	6
1999	1314	4.639	5	1.894	2	7
2000	1418	4.863	5	1.954	2	6
2001	1497	3.994	4	1.026	2	5
All Years	6611	4.305	5	1.821	2	7

Panel C. Multiple Objective Management (MOM) replacement Sample

Year(s)	N	Mean	Median	Std Dev	Minimum	Maximum
1997	96	2.037	2	0.887	2	6
1998	89	2.012	2	0.8245	2	5
1999	91	2.024	2	0.677	2	4
2000	98	2.005	2	0.6619	2	3
2001	104	2.110	2	0.8753	2	6
All Years	478	2.039	2	0.7839	2	6

Panel D. Multiple Objective Management (MOM) Control Sample

Year(s)	N	Mean	Median	Std Dev	Minimum	Maximum
1997	995	3.951	3	1.034	2	5
1998	1143	4.012	3	1.087	2	6
1999	1096	4.639	4	1.102	2	7
2000	1187	4.863	4	1.136	2	6
2001	1165	3.994	3	1.047	2	5
All Years	5586	4.301	3	1.100	2	7

I also decompose the replacement sample by objective and style. Table 4 displays the distribution of 891 fund manager replacements from 891 funds across fund objectives and styles over the sample period. The equity funds belong to one of nine Morningstar equity style categories, which group funds on the basis of the market capitalization and growth potential of their portfolios[24]. As expected, the majority of the replacements involves equity objectives/style funds. As noted in Brown and Goetzmann (1997), the dispersion in styles among the funds from the same objective category is quite high, which is consistent with the existing evidence (Grinblatt and Titman (1989,1993), Grinblatt, Titman and Wermers (1995), Daniel, Grinblatt, Titman and Wermers (1997), and Wermers (2000)) on misclassification of funds in the objective categories. For instance, the aggressive growth, the long-term growth and international equity funds have at least one fund in each of the nine Morningstar equity-style categories. Similar levels of dispersion across styles are also observed in the 323 bond fund replacements sample. The high quality bond objective has the most dispersion with a fund in eight of the nine fixed-income style categories. Only in the Single State Municipal Bond objective is there 70% of the funds concentrated in two style categories.

[24] See the appendix in Goriaev (2003) "The relative impact of different classification schemes on mutual fund flows" for the definition of the Morningstar styles.

Table 14: Managerial Replacement Sample Distribution

This table reports the number of fund manager replacement observations with a given stated Center for Research and Securities Prices (CRSP) objective and Morningstar investment style over the period January 1997 to December 2001. The Center for Research and Securities Prices database reports eleven equity and eight bond objective categories. The Morningstar database reports nine equity style and nine fixed income style categories. Panel A reports the distribution for the managerial turnover equity fund sample while Panel B reports the distribution for the managerial turnover bond fund sample. There are 891 managerial replacements including 568 equity fund replacements and 323 bond fund replacements.

Panel A: Managerial Replacement Equity Funds

Objective/ Style	Large Value	Large Blend	Large Growth	Medium Value	Medium Blend	Medium Growth	Small Value	Small Blend	Small Growth	Total
Aggressive Growth (Ag)	14	3	7	3	7	13	10	7	19	83
Balance (BL)	8	8	4	2	4	6	0	11	0	43
Global Equity (GE)	2	6	6	0	2	5	2	4	0	27
Growth and Income (GI)	21	17	3	2	2	0	0	0	0	45
International Equity (IE)	17	14	16	14	7	9	6	5	7	95
Income (IN)	9	3	4	5	0	0	0	0	0	21
Long Term Growth (LG)	14	24	14	13	12	9	8	6	8	108
Precious Metals (PM)	0	0	0	0	5	0	4	3	6	18
Sector Fund (SF)	13	17	16	23	9	8	5	0	0	91
Total Return (TR)	4	4	3	5	7	0	3	0	0	26
Utility Fund (UT)	8	0	0	3	0	0	0	0	0	11
Total	110	96	73	70	55	50	38	36	40	568

Panel B: Managerial Replacement Bond Funds

Objective/ Style	High-Short	High-Intermediate	High-Long	Medium-Short	Medium-Intermediate	Medium-Long	Low-Short	Low-Intermediate	Low-Long	Total
High Quality Bond (BQ)	18	10	5	7	8	12	0	6	0	66
High Yield Bond (BY)	0	0	0	0	0	4	5	7	0	16
Global Bond (GB)	0	9	0	0	6	0	0	4	0	19
Ginnie Mae Bond (GM)	6	7	5	0	0	0	0	0	0	18
Government Security Bond (GS)	13	16	6	7	0	0	0	0	0	42
High Quality Municipal Bond (MQ)	9	10	17	2	4	3	0	0	0	45
Single State Municipal Bond (MS)	0	39	48	0	6	11	5	0	0	109
High Yield Municipal Bond (MY)	0	0	0	0	6	2	0	0	0	8
Total	46	91	81	16	30	32	10	17	0	323

Methodology

I measure abnormal returns for a replacement event-fund as the difference in returns between the replacement event-fund and the equal-weighted fund style category to which the fund belongs. For example, the style category-adjusted return for fund *i* during month *t* is:

$$RAR = [\prod(1 + R_{i,t}) - 1] - [\prod(1 + R_{o,t}) - 1] \quad (8)$$

where $R_{i,t}$ is the return for fund *i* in month *t*, and $R_{o,t}$ is the equal-weighted return of all funds in fund *i*'s category in month *t*. The average category-adjusted return during month *t* is calculated as

$$RAR_t = \frac{1}{N}\sum RAR_{i,t} \quad (9)$$

where N equals the number of funds that experience a manager replacement event. Finally, the cumulative category-adjusted return over *k* event months is simply the sum of RAR *t*,

$$CRAR_{t,t+k} = \sum RAR_t \quad (10)$$

As demonstrated in Table 4, funds within the same category have different investment objectives and exposed to different risk factors. Thus, I construct a performance measure that uses the equal-weighted average of all funds with the same investment objective as the benchmark, OAR. The use of the objective-adjusted performance measure is consistent with the argument put forth by Morck, Shleifer, and Vishny (1989) that firms make their managerial replacement decisions based on the industry benchmarks. The advantage of this benchmark is that it better controls for risk than the broader style category-based benchmark. However, both calculations measure fund performance relative to other managers in the peer group.

Estimating the managerial-turnover relationship, I control for the determinants of replacement previously identified in the literature, such as past performance, size, age, fees, fund flows, and manager tenure (see, e.g., Khorana, 2001, Chevalier and Ellison, 1997, Sirri and Tufano, 1998, and Nanda, Wang, and Zheng, 2000). As in Khorana

(1996), I use the objective and category-adjusted returns as separate performance measures in the following regression:

$$P(\text{Re } placement) = \alpha_0 + \beta_i OAR_{t-1} + \varepsilon_i \quad (11)$$

$$P(\text{Re } placement) = \alpha_0 + \beta_i RAR_{t-1} + \varepsilon_i$$

where OAR and RAR are the objective- and category-adjusted fund returns, respectively.

Interaction terms are also included to examine the relationship between abnormal returns and the probability of fund managers being replaced, when I account for management structure, manager tenure and total management fees. The interaction variables examine the relationship between replacement and management structure, manager tenure and management fees for a given level of underperformance. With these three interaction terms, I am able to further explore how well the internal governance mechanisms work for fund managers. As in Ai and Norton (2003), I include the following marginal interaction term effect estimation to understand the economic impact of the interaction terms.

$$M \arg inalEffect = F(x)[1 - F(x)] * (dUFM + iUFMPerformance * Performance) \quad (12)$$

where F(x) is the average implied probability of management replacement computed for each observation using the logit coefficients. Fund Performance is defined by the objective adjusted return (OAR) in year *t* and the risk adjusted return (RAR) in year *t*. Unitary Fund Manager is a dichotomous variable that takes the value of one if a replaced manager operates a unitary fund and zero if that manager operates multiple funds simultaneously.

Empirical Results

Performance-Replacement Relationship

The relation between fund manager turnover and past performance has been established and well documented (see, e.g. Khorana, 1996, 2001, and Chevalier and Ellison, 1997). However, without considering the specific organizational form and, more specifically, the management structure of the fund family previous research might have significantly overstated the sensitivity of managerial replacement to past performance. In this section, I further analyze the relationship between managerial turnover and fund past performance with respect to both the objective and style category by including the management structure of the fund family.

Table 15: Performance in the years Pre- and Post- Manager Turnover: Full Sample

This table presents the mean performance of actively managed funds that experienced managerial replacement in the period 1997 to 2001.The purpose of the risk-adjusted and objective-adjusted matched sample approach is to compare funds that experienced replacement with those that did not for the given period. The table reports the abnormal return values of the replaced manager sample in each year including a 6 month window around the replacement date. Year 0 refers to the year in which replacement occurred. The last two columns of the table report the average differences between the pre- and post-replacement category -adjusted return across funds, using a -2 to -½ year and +½ to +2 year event window, respectively. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

		Years with respect to Managerial Turnover							
		-2 to -1	-1 to 0	-½ to 0	0 to +½	0 to +1	+1 to +2	-2 to -½	+½ to +2
Panel A: Risk Abnormal Return- Full Sample									
	N	870	870	870	870	870	870	870	870
	CAR	-0.0321	-0.0203	-0.0158	0.0275	0.0302	0.0265	-0.0176	0.0294
	t-statistic	-0.2024	-1.7834**	-1.5395*	1.2930*	1.3950*	1.3476*	-1.6295*	1.5018*
Panel B: Risk Abnormal Return- Equity Fund Sample									
	N	552	552	552	552	552	552	552	552
	CAR	0.0860	-0.0116	-0.0244	0.0678	0.0737	0.0833	-0.0917	0.1556
	t-statistic	0.3390	-1.6382*	-2.2718**	2.2512**	1.6627**	2.3148**	-1.6502**	2.3349***
Panel C: Risk Abnormal Return- Bond Fund Sample									
	N	318	318	318	318	318	318	318	318
	CAR	-0.0236	-0.0210	-0.0080	0.0163	0.0105	0.0339	-0.0316	0.0576
	t-statistic	-0.5513	-0.7722	-0.7918	0.6843	1.1924	0.9253	-0.9249	0.6981
Panel D: Objective Abnormal Return- Full Sample									
	N	870	870	870	870	870	870	870	870
	CAR	-0.0477	-0.0382	-0.0253	0.0235	0.0294	0.0294	-0.0246	0.0274
	t-statistic	-0.8353	-1.4833*	-1.5550*	1.7206**	1.9400**	1.5921*	-1.2870*	1.3295*
Panel E: Objective Abnormal Return- Equity Fund Sample									
	N	552	552	552	552	552	552	552	552
	CAR	-0.0273	-0.0364	-0.0401	0.0221	0.0271	0.0409	-0.0355	0.0282
	t-statistic	-1.0389	-1.6182*	-1.7161**	1.3446*	1.8799**	1.5014*	-1.4140*	1.5427*
Panel F: Objective Abnormal Return- Bond Fund Sample									
	N	318	318	318	318	318	318	318	318
	CAR	-0.0245	-0.0079	-0.0208	0.0138	0.0002	0.0014	-0.0017	0.0127
	t-statistic	-0.3315	-0.1858	-0.8467	2.3946*	1.3856*	1.4701*	-1.1146	1.5664*

I examine the pre- and post- replacement changes in objective- and style-adjusted performance. As in Khorana (2001), the impact of managerial turnover on fund performance is examined based on the changes in performance measures during four sub-periods surrounding the event date: year -2 corresponds to the second year or 13 to 24 months prior to replacement year, year -1 corresponds to the first year or 1 to 12 months prior to replacement year, so on and so forth. The overall results in Table 5, Panel A indicate a monotonic decrease, which is statistically significant different from zero, in fund performance for the replacement sample in the pre-replacement period, followed by a statistically significant increase in performance in the post-replacement period. Based on the style category performance estimates, managers exhibit significantly negative abnormal returns of 2.4 percent in the six months preceding managerial replacement. In Panel B, abnormal underperformance of funds with replaced managers is statistically significant for the equity fund replacement sample. This finding suggests that replaced managers perform significantly worse than those in the style category control group.

Table 16: Performance in the years Pre- and Post- Manager Turnover: Multiple Fund Management (MFM) Sample

This table presents the mean performance of Multiple Fund Management (MFM) sample that experienced managerial replacement in the period 1997 to 2001.The purpose of the risk-adjusted and objective-adjusted matched sample approach is to compare funds that experienced replacement with those that did not for the given period. The table reports the abnormal return values of the replaced manager sample in each year including a 6 month window around the replacement date. Year 0 refers to the year in which replacement occurred. The last two columns of the table report the average differences between the pre- and post-replacement category -adjusted return across funds, using a -2 to -½ year and +½ to +2 year event window, respectively. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

		Years with respect to Managerial Turnover							
		-2 to -1	-1 to 0	-½ to 0	0 to +½	0 to +1	+1 to +2	-2 to -½	+½ to +2
Panel A: Risk Abnormal Return- Full Sample									
	N	716	716	716	716	716	716	716	716
	CAR	0.0824	-0.0191	-0.0259	0.0365	0.0241	0.0062	-0.0124	0.0342
	t-statistic	0.4940	-1.5652*	-1.8131**	1.2829*	1.6004*	1.1262*	-1.2981*	1.4319*
Panel B: Risk Abnormal Return- Equity Fund Sample									
	N	461	461	461	461	461	461	461	461
	CAR	0.0989	-0.0167	-0.0456	0.0667	0.0789	0.0264	-0.0241	0.0624
	t-statistic	0.4750	-1.3459*	-2.4559***	1.6893**	1.3348*	1.1973	-1.7642*	1.6523**
Panel C: Risk Abnormal Return- Bond Fund Sample									
	N	255	255	255	255	255	255	255	255
	CAR	0.0359	-0.0263	-0.0091	-0.0188	-0.0350	-0.0244	-0.0225	-0.0286
	t-statistic	0.5660	-1.0515	-0.5512	-0.4141	-1.0774	-0.7080	-0.8778	-0.8744
Panel D: Objective Abnormal Return- Full Sample									
	N	716	716	716	716	716	716	716	716
	CAR	-0.0393	-0.0348	-0.0295	0.0257	0.0268	0.0130	-0.0296	0.0218
	t-statistic	-1.0573	-1.3821*	-1.6251*	1.6450**	1.6426*	1.6376*	-1.2899*	1.7860**
Panel E: Objective Abnormal Return- Equity Fund Sample									
	N	461	461	461	461	461	461	461	461
	CAR	-0.0455	-0.0413	-0.0464	0.0236	0.0364	0.0465	-0.0364	0.0354
	t-statistic	-0.7957	-1.6867**	-1.4331*	1.2885*	1.9153**	1.8543**	-1.7325**	1.7512**
Panel F: Objective Abnormal Return- Bond Fund Sample									
	N	255	255	255	255	255	255	255	255
	CAR	-0.0323	-0.0103	-0.0263	0.0184	0.0104	0.0185	-0.0324	0.0154
	t-statistic	-0.3965	-0.4325	-0.9853	2.4432***	1.4870*	1.5673*	-1.2328	1.7643**

Table 17: Performance in the years Pre- and Post- Manager Turnover: Unitary Fund Management Sample

This table presents the mean performance of Unitary Fund Management (UFM) sample that experienced managerial replacement in the period 1997 to 2001.The purpose of the risk-adjusted and objective-adjusted matched sample approach is to compare funds that experienced replacement with those that did not for the given period. The table reports the abnormal return values of the replaced manager sample in each year including a 6 month window around the replacement date. Year 0 refers to the year in which replacement occurred. The last two columns of the table report the average differences between the pre- and post-replacement category -adjusted return across funds, using a -2 to -½ year and +½ to +2 year event window, respectively. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

		Years with respect to Managerial Turnover							
		-2 to -1	-1 to 0	-½ to 0	0 to +½	0 to +1	+1 to +2	-2 to -½	+½ to +2
Panel A: Risk Abnormal Return- Full Sample									
	N	154	154	154	154	154	154	154	154
	CAR	-0.0588	-0.0354	-0.0298	0.0449	0.0339	0.0299	-0.0188	0.0311
	t-statistic	-0.8643	-1.9474**	-1.2846*	1.3172*	1.2873*	1.2997*	-1.7346**	1.6239*
Panel B: Risk Abnormal Return- Equity Fund Sample									
	N	91	91	91	91	91	91	91	91
	CAR	0.0954	-0.0167	-0.0444	0.0776	0.0786	0.1006	-0.0957	0.1613
	t-statistic	0.2783	-1.7988**	-2.0432**	2.3855***	1.8935**	2.5255***	-1.3468*	2.4858***
Panel C: Risk Abnormal Return- Bond Fund Sample									
	N	63	63	63	63	63	63	63	63
	CAR	-0.0319	-0.0286	-0.0115	0.0194	0.0137	0.0359	-0.0427	0.0710
	t-statistic	-1.1345	-0.5325	-1.0045	1.1035	1.7286**	1.2149	-1.0245	1.2286
Panel D: Objective Abnormal Return- Full Sample									
	N	154	154	154	154	154	154	154	154
	CAR	-0.0588	-0.0529	-0.0298	0.0294	0.0312	0.0443	-0.0288	0.0295
	t-statistic	-0.6136	-1.5466*	-1.3658*	1.9013**	2.2654**	1.4735*	-1.28651*	1.2853*
Panel E: Objective Abnormal Return- Equity Fund Sample									
	N	91	91	91	91	91	91	91	91
	CAR	-0.0358	-0.0429	-0.0578	0.0300	0.0309	0.0492	-0.0565	0.0323
	t-statistic	-1.3455*	-1.5863*	-2.0424**	1.5786*	1.6935**	1.4015*	-1.3065*	1.5133*
Panel F: Objective Abnormal Return- Bond Fund Sample									
	N	63	63	63	63	63	63	63	63
	CAR	-0.0254	-0.0139	-0.0315	0.0237	0.0123	0.0235	-0.0139	0.0286
	t-statistic	-0.2755	-0.1468	-0.7433	2.1843**	1.3655*	1.43458*	-1.0858	1.5063*

There are similar patterns when we disaggregate the sample of replaced managers. For the multiple fund management replacements sample Table 6, Panel A, reports that manager replacement is preceded by poor returns and that these returns improve during the period following the replacement. Specifically, during year -1, replacement event funds underperform their category averages by 1.9 percentage points. However, this underperformance turns into overperformance as early as six months following the managerial replacement. Table 6, Panel D, indicates that there is a 1.6 percentage points underperformance between the replacement event funds and the control funds for the Objective Abnormal Returns (OAR). As Table 7 indicates, I obtain similar results for the changes in the objective-adjusted return for the unitary management equity fund sample.

Finally, there is a statistically and economically significant change in performance between the [-2,-½] and [+½,+2] event windows that is robust across both performance measures for both the unitary and multiple management structures. The average increase in abnormal performance is 3.4%, based on the MFM style category model, and 3.1%, based on the objective-adjusted return UFM sample. Thus, consistent with the findings in Khorana (2001), the event study statistics presented indicate a strong relationship between managerial turnover and past performance. In the next section, I implement a univariate regression model followed by a comprehensive multivariate model to further explore managerial turnover.

It appears that MFMs have a shorter underperformance period before replacement. According to Khorana (1996), sponsors seem to "tolerate" underperformance of UFMs longer before acting. Panel A of Tables 6 and 7 indicate that MFMs have lower cumulative RARs in the -2,-½ window (-0.0124 vs. -0.0188) and experience negative returns for only one year before replacement, whereas UFMs experience losses for two years before replacement. This tolerance is not in the interest of investors, but may benefit sponsors as they can defer the higher costs involved in replacing a UFM manager. This is even of more importance to investors because it appears that UFM funds have a greater speed of recovery after a replacement, as evidenced by the larger average returns in the [0, +½] window – 4.49 percentage points

for UFMs vs. 3.65 for MFMs. Overall, the evidence is suggesting that since UFMs experience larger losses for longer periods before replacement but recover faster, if fund sponsors act in the interest of investors then we should observe that the probability of replacement is higher for UFMs for a given level of underperformance than for MFMs. However, this may not be the case because, as reported in Table 2, UFMs tend to have higher asset growth rates and higher fees than MFMs, suggesting that sponsors can benefit more from keeping them intact.

Univariate Logistic Analysis

I examine the managerial replacement decision using a univariate regression model on the multiple management structures as well as the determinants of replacement previously identified in the literature: past performance (Khorana, 1996, 2001), fees, fund size and fund age (Chevalier and Ellison, 1997), and manager tenure (Nanda, Wang, and Zheng, 2000). I perform a logistic regression on a dichotomous variable equal to one if the fund undergoes managerial turnover and zero if the incumbent manager continues to operate the fund. The logistic regressions control for clustering along two dimensions (fund complex and year), as described in Cameron, Gelbach and Miller (2006) and Petersen (2007).

Table 18: Mutual Fund Manager Replacement Univariate Regressions

Logistic regression estimates of managerial replacement for 891 managers are reported over the 1997 to 2001 period. Manager replacement is the dichotomous dependent variable equal to one for the replacement sample and zero for the control sample that have no managerial turnover. The observations are in fund-years. Fund Performance is defined by the objective adjusted return (OAR) in year *t* and the risk adjusted return (RAR) in year *t*. Unitary Fund Manager is a dichotomous variable that takes the value of one if a replaced manager operates a unitary fund and zero if that manager operates multiple funds simultaneously. Multiple Objectives Managed is a dichotomous variable that takes the value of one if a replaced manager operates multiple objectives simultaneously and zero if that manager operates fund(s) with one objective. Tracking error is constructed by taking the standard deviation of the residuals from a regression of the fund's return on the returns of its benchmark. To calculate Style Drift, I regress each

fund's returns over the year prior to replacement on the benchmark returns and take $1\text{-}R^2$ as the measure of style drift. Capital Gains Overhang is the net unrealized appreciation (or depreciation) during the period reported by the Morningstar database. Manager tenure is the number of years a portfolio manager has overseen a particular fund. Fund Size is the natural log of total fund net assets. Fund age is the natural log of the fund's age. Net Fund Growth is the change in the fund assets net of growth in existing assets. Management Fee is the fee the fund complex receives for managing shareholders assets, expressed in millions. Management fee is calculated as the total assets managed per fund times the fund's expense ratio. Turnover Ratio is total purchases and sales divided by fund's average net asset value. Expense Ratio is the mutual fund's total annual operating expenses (including operational fees, distribution fees, and other expenses) stated as a percentage of the fund's average net assets. 12b-1 fee is charge by mutual funds for advertising, promotion, distributions, marketing expenses, and often comm in parentheses. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

constant	Explanatory Variables	Psuedo R^2	Observations
	Risk-Adjusted Return		
0.0309	-0.0288	0.0259	9172
(0.0096)	(<.0001)***		
	Objective-Adjusted Return		
0.0204	-0.0521	0.0560	9172
(0.0007)	(0.0022)***		
	Unitary Fund Manager		
0.0482	-0.0125	0.0090	9368
(0.0062)	(0.0070)***		
	Multiple Objectives Managed		
-0.2415	0.0658	0.0008	9368
(0.0496)	(0.3799)		

Table 18: Mutual Fund Manager Replacement Univariate Regressions (Continued)

constant	Explanatory Variables	Psuedo R^2	Observations
	Management Fee		
-0.3951	0.0028	0.0003	9015
(<.0001)	(0.3264)		
	Expense Ratio		
1.0384	-0.6123	0.0052	9015
(0.0078)	(0.0200)**		
	Fund Size		
0.0548	-0.0009	0.0002	9364
(0.0068)	(0.3285)		
	Manager Tenure		
1.8952	-1.1400	0.4522	9246
(<.0001)	(<.0001)***		
	Style Drift		
-0.9847	0.5863	0.0063	8985
(0.0015)	(0.0079)***		
	Tracking Error		
-0.7974	0.1026	0.0140	9172
(0.0006)	(0.0052)***		
	Capital Gains Overhang		
0.8737	-0.0132	0.0059	8892
(0.0063)	(0.0089)***		
	Fund Age		
-0.4642	0.1636	0.0074	9285
(0.0004)	(0.0077)***		
	Net Fund Growth		
-1.3295	0.0051	0.0004	9364
(<.0001)	(0.1387)		
	Turnover Ratio		
0.0431	-0.0018	0.0004	8942
(<.0001)	(0.1934)		
	12b-1 Fee		
1.3843	-1.2433	0.0038	8939
(0.0320)	(0.0493)**		

Consistent with previous literature, managerial replacement is inversely related to the past performance of a fund (Khorana 1996, 2001). Table 8 shows that both past performance regressions (RAR and OAR) indicate the presence of a significantly negative relation between the probability of managerial turnover and past performance (p-value = 0.0001 and 0.0022, respectively). The tracking error has a positive and statistically significant relation with the replacement of a fund manager. Brown, Harlow and Starks (1996) suggests that underperforming fund managers tend to have more erratic trading behavior seeking to improve their year-end performance. This positive relation between tracking error and managerial replacement can be explained by the fact that managers are compensated for their ability to outperform the benchmarks they track. Consistent with the findings in Nanda, Wang, and Zheng (2000), probability of replacement has an inverse relation with manager tenure and explains a significantly large amount of the replacement decision, pseudo $R^2 = .45$.

As hypothesized earlier, the unitary fund management structure is negatively related to the probability of a manager being replaced. This finding suggests that unitary fund managers are less likely to be replaced than their multiple fund manager counterparts. Finally, the fees received by the management complex, expense ratio and 12b-1 advertising fees, expressed as a percentage of total assets, have a negative and statistically significantly influence on the managerial turnover. This finding suggests that fund complexes are hesitant to replace managers than earn a significant amount of revenue for the company. The results in Table 8 indicate that there is no relation between the number of diverse objectives managed and manager replacement. Overall, these results provide the first indication that, like the literature suggests, there are a variety of criteria that have influence on the managerial replacement decision. Amongst these criteria is the management structure of the fund complex, measured by the number funds simultaneously operated.

Logistic Regressions

To examine if fund management structure affects the performance-replacement relationship in a manner inconsistent with well-functioning internal control mechanism, I implement a multivariate regression in which I use the entire replacement sample to examine jointly the previously identified variables that influence managerial turnover. Specifically, I examine the relation between unitary fund management structures and the managerial replacement decision after controlling for fund characteristics such as size, age, expense ratio, turnover ratio, advertising fees and growth and other previously identified variables that affect the replacement decision. In Table 9, I report results of the logistic regressions. Similar to Khorana (1996), I find a significantly negative relation between the probability of manager replacement and the previous year fund performance [model (i), (iii), (iv) and (x)]. These results were obtained using the style category risk-adjusted return measure of managerial performance and are robust to using the objective-adjusted abnormal return (OAR) [model (v), (vii), (viii) and (ix)]. Consistent with the findings of Nanda, Wang, and Zheng (2000), models (ii, iii, iv, viii) confirm the inverse relation between manager tenure and the probability of a manger replacement.

Table 19: Multivariate Regression results for all Mutual Fund Manager Replacements: Unitary Fund Management Specific

Logistic regression estimates of managerial replacement for 891 managers are reported over the 1997 to 2001 period. Manager replacement is the dichotomous dependent variable equal to one for the replacement sample and zero for the control sample that have no managerial turnover. The observations are in fund-years. Fund Performance is defined by the objective adjusted return (OAR) in year *t* and the risk adjusted return (RAR) in year *t*. Unitary Fund Manager is a dichotomous variable that takes the value of one if a replaced manager operates a unitary fund and zero if that manager operates multiple funds simultaneously. Multiple Objectives Managed is a dichotomous variable that takes the value of one if a replaced manager operates multiple objectives simultaneously and zero if that manager operates fund(s) with one objective. Management Fee is the fee the fund complex receives for managing shareholders assets, expressed in millions. Expense Ratio is the mutual fund's total annual operating expenses (including operational fees, distribution fees, and other expenses) stated as a percentage of the fund's average net assets. Fund Size is the natural log of total fund net assets.
Manager tenure is the number of years a portfolio manager has overseen a particular fund. To calculate Style Drift, I regress each fund's returns over the year prior to replacement on the benchmark returns and take 1-R^2 as the measure of style drift. Tracking error is constructed by taking the standard deviation of the residuals from a regression of the fund's return on the returns of its' benchmarks. Capital Gains Overhang is the net unrealized appreciation (or depreciation) during the period reported by the Morningstar database. Fund age is the natural log of the fund's age. Net Fund Growth is the change in the fund assets net of growth in existing assets.Turnover Ratio is total purchases and sales divided by fund's average net asset value. 12b-1 fee is charge by mutual funds for advertising, promotion, distributions, marketing expenses, and often commissions. Also included in Table 9 is an interaction term, abnormal return with UFM, measuring the abnormal return of the unitary fund manager in the pre-replacement period. I include the marginal interaction term effect estimation to understand the economic impact of the interaction terms. In Table 9, I also report the results of the joint significance of
the interaction variable and abnormal return. The p-values of the regression coefficients are in parentheses. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Explanatory Variables	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x
Intercept	0.0501 (0.6136)	2.3022 (<.0001)***	3.2199 (<.0001)***	0.2531 (0.0840)*	2.8777 (0.0002)***	3.0010 (<.0001)***	3.1068 (<.0001)***	3.4760 (<.0001)***	0.5827 (0.0190)**	0.6392 (0.0003)***
Risk-Adjusted Return	-0.0299 (<.0001)***		-0.0246 (0.0017)***	-0.0298 (<.0001)***						-0.0253 (<.0001)***
Objective-Adjusted Return					-0.0061 (0.0028)***		-0.0087 (0.0009)***	-0.0092 (0.0838)*	-0.0079 (0.0273)**	
Unitary Fund Manager	-0.2360 (0.0327)**	-0.3564 (0.0072)***	-0.2794 (0.0026)***	-0.2253 (0.0011)***	-0.2539 (0.0036)***		-0.2308 (0.0039)***	-0.2675 (0.0027)***	-0.0736 (0.0065)***	
Multiple Objectives Manager						-0.1163 (0.3252)			-0.1421 (0.5662)	-0.1389 (0.7138)
Management Fee	0.0027 (0.9593)	0.0011 (0.3318)	0.0002 (0.6375)					0.0022 (0.6047)		0.0026 (0.5823)
Expense Ratio			-0.6024 (0.0211)**		-0.2549 (0.4659)	-0.6540 (0.0010)***	-0.3493 (0.3035)	-0.5220 (0.0392)**	-0.0185 (0.9117)	
Fund Size			-0.0004 (0.9217)	-0.0069 (0.8769)	-0.0008 (0.5537)	-0.0001 (0.2951)	-0.0007 (0.5571)	-0.0013 (0.2689)	-0.0063 (0.8916)	
Manager Tenure		-1.2130 (<.0001)***	-1.3443 (<.0001)***		-1.3847 (<.0001)***	-1.2437 (<.0001)***	-1.4032 (<.0001)***	-1.3813 (<.0001)***		
Style Drift							0.2489 (0.5890)	0.6296 (0.1676)	0.3241 (0.2640)	0.3675 (0.2754)
Tracking Error					0.0158 (0.8118)					

Table 19: Multivariate Regression results for all Mutual Fund Manager Replacements: Unitary Fund Management Specific (Continued)

Explanatory Variables	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x
Capital Gains Overhang	-0.0016	-0.0109	-0.0124	-0.0017	-0.0072	-0.0107	-0.2489	-0.0071	-0.0027	
	(0.5739)	(0.0078)***	(0.0120)**	(0.5537)	(0.2731)	(0.0090)***	(0.4560)	(0.2167)	(0.4815)	
Fund Age			0.3301	0.1065	0.0907					
			(0.0081)***	(0.1126)	(0.5171)					
Net Fund Growth			0.0015		0.0003		0.0029	0.0008	0.0017	
			(0.1496)		(0.7548)		(0.7119)	(0.3601)	(0.1399)	
Turnover Ratio			-0.0015		-0.0015	-0.0018				-0.0027
			(0.1858)		(0.3281)	(0.1402)				(0.1932)
12b-1 Fee	-0.4801	-0.1031	-1.2093		-1.2764	-0.3883	-1.1706	-0.9637	-0.2823	
	(0.1790)	(0.8301)	(0.0529)*		(0.0968)*	(0.4262)	(0.1131)	(0.1080)	(0.4933)	
Return*Unitary Fund Manager	-0.0043		-0.0057	-0.0062	-0.0046		-0.0045	-0.0056	-0.0031	
	(0.0472)**		(0.0358)**	(0.0284)**	(0.0501)*		(0.0491)**	(0.0357)**	(0.0437)**	
Marginal Interaction Term Effect	-0.0191		-0.0346	-0.0190	-0.0277		-0.0245	-0.0316	-0.0066	
Return and Interaction Variable Joint Significance	-0.0163		-0.0158	-0.0156	-0.0025		-0.0047	-0.0047	-0.0025	
	(0.0002)***		(0.0015)***	(0.0004)***	(0.0005)***		(0.0008)***	(0.0018)***	(0.0027)***	
Observations	9127	8634	8405	7927	8753	8171	8733	8392	8193	8204
Psuedo R^2	0.2850	0.4847	0.5907	0.2980	0.5114	0.5087	0.5128	0.5816	0.3179	0.1363

In addition, I find that the fund management structure has a statistically significant relation with managerial turnover. The evidence indicates that fund managers in UFM fund have a lower probability of being replaced than managers of MFM funds. I also include an interaction term, abnormal return with UFM, measuring the abnormal return of the unitary fund manager in the pre-replacement period. This is an important test of the internal governance mechanism whereby fund sponsors evaluate managers based on performance and management structure. The interaction coefficient indicates that for a given level of performance, managers of funds with unitary management have a lower probability of being replaced than managers of MFM funds. The marginal interaction term effect reported in Table 9 indicates the probability of being replaced will be different for UFM and MFM at different levels of underperformance. Thus, the marginal interaction term effect of -0.0277 (model v) means that underperforming UFM are -2.77% less likely to be replaced than underperforming MFM counterparts.

I also report the results of the joint significance of the interaction variable and abnormal return. The importance of the joint test is to see if the significant negative sign on return disappears or falls once we account for management structure. The statistically significant and negative coefficient of the joint significance variable confirms that even when unitary fund managers underperform the probability of getting replaced is lower than for multiple fund managers. Thus, the performance-replacement relationship is stronger for multiple fund managers than that of their unitary fund counterparts. This implies that fund complexes are more likely to replace underperformers when it is "cheap" because replacing a unitary fund manager is more expensive than taking one fund from a manager that manages multiple funds.

The above results remain unchanged when past performance and manager tenure are considered jointly (model iii, vii and viii), or when fund characteristic control variables are included (model v and vi). The magnitude and the statistical significance of estimated unitary fund management coefficient are robust to changes in the model specification. The explanatory power of the unitary fund management plus other variables is significant across all models with relatively high R^2s. These findings suggest

that there may be some economies of scale associated with the multiple fund management structure. However, once performance is compromised the fund complex replaces the manager. However, the multiple objective management variable has no explanatory power with respect to the managerial replacement decision.

Table 20: Multivariate Regression results for all Mutual Fund Manager Replacements: High Management Tenure Specific

Logistic regression estimates of managerial replacement for 891 managers are reported over the 1997 to 2001 period. Manager replacement is the dichotomous dependent variable equal to one for the replacement sample and zero for the control sample that have no managerial turnover. The observations are in fund-years. Fund Performance is defined by the objective adjusted return (OAR) in year *t* and the risk adjusted return (RAR) in year *t*. Unitary Fund Manager is a dichotomous variable that takes the value of one if a replaced manager operates a unitary fund and zero if that manager operates multiple funds simultaneously. Multiple Objectives Managed is a dichotomous variable that takes the value of one if a replaced manager operates multiple objectives simultaneously and zero if that manager operates fund(s) with one objective. Management Fee is the fee the fund complex receives for managing shareholders assets, expressed in millions. Expense Ratio is the mutual fund's total annual operating expenses (including operational fees, distribution fees, and other expenses) stated as a percentage of the fund's average net assets. Fund Size is the natural log of total fund net assets. High Manager Tenure is a dichotomous variable that takes the value of one if a replaced manager has a tenure in the top half of the industry and zero if that manager has a tenure in the bottom half of the industry. To calculate Style Drift, I regress each fund's returns over the year prior to replacement on the benchmark returns and take 1-R^2 as the measure of style drift. Tracking error is constructed by taking the standard deviation of the residuals from a regression of the fund's return on the returns of its' benchmarks. Capital Gains Overhang is the net unrealized appreciation (or depreciation) during the period reported by the Morningstar database. Fund age is the natural log of the fund's age. Net Fund Growth is the change in the fund assets net of growth in existing assets.Turnover Ratio is total purchases and sales divided by fund's average net asset value. 12b-1 fee is charge by mutual funds for advertising, promotion, distributions, marketing expenses, and often commissions. Also included in Table 10 is an interaction term, abnormal return with high manager tenure, measuring the abnormal return of the managers with high tenure in the pre-replacement period. I include the marginal interaction term effect estimation to understand the economic impact of the interaction terms. In Table 10, I also report the results of the joint significance of the interaction variable and abnormal return. The p-values of the regression coefficients are in parentheses. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Explanatory Variables	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x
Intercept	0.4129 (0.0002)***	0.2835 (0.0070)***	0.8448 (0.0039)***	0.4665 (0.0104)***	0.9028 (0.0577)*	0.3397 -0.1596	0.7840 (0.0144)**	0.8971 (<.0001)***	1.0240 (0.0014)***	0.0287 (0.9207)
Risk-Adjusted Return	-0.0342 (<.0001)***		-0.0318 (<.0001)***	-0.0357 (<.0001)***						-0.0295 (<.0001)***
Objective-Adjusted Return					-0.0072 (0.0792)*		-0.0101 (0.0114)**	-0.0089 (0.0232)**	-0.0114 (0.0005)***	
Unitary Fund Manager	-0.0106 (0.04895)**	-0.0283 (0.0851)*	-0.0178 (0.0326)**				-0.0134 (0.0465)**	-0.0128 (0.0465)**		-0.0213 (0.0228)**
Multiple Objectives Manager									-0.0045 (0.9635)	
Management Fee	0.0034 (0.5485)	0.0041 (0.4612)					0.0023 (0.9135)			
Expense Ratio			-0.3505 (0.0619)*		-0.2243 (0.3674)	-0.1859 (0.0206)**	-0.1470 (0.4379)		-0.1033 (0.5709)	
Fund Size			-0.0023 (0.7813)	-0.0047 (0.9236)	-0.0025 (0.6583)	-0.0029 (0.5637)	-0.0062 (0.9923)	-0.0039 (0.4668)	-0.0031 (0.5662)	
Manager Tenure Dummy	-1.9100 (<.0001)***	-1.8817 (<.0001)***	-2.2794 (<.0001)***	-2.1437 (<.0001)***	-2.365 (<.0001)***	-2.9509 (<.0001)***	-3.4167 (<.0001)***	-3.4065 (<.0001)***	-3.3916 (<.0001)***	-2.8326 (<.0001)***
Style Drift							0.1344 (0.6823)	0.0901 (0.7780)	0.0869 (0.7800)	

Table 20: Multivariate Regression results for all Mutual Fund Manager Replacements: High Management Tenure Specific (Continued)

Explanatory Variables	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x
Tracking Error					0.0261					0.0681
					(0.5568)					(0.1006)
Capital Gains Overhang	-0.0053	-0.0050	-0.0058	-0.0049	-0.0046	-0.0051	-0.0035	-0.0037		
	(0.9858)	(0.0682)*	(0.0973)*	(0.1563)	(0.3397)	(0.0753)*	(0.4213)	(0.3864)		
Fund Age			0.1939	0.2047	0.0311	0.1846	0.1249			
			(0.0232)**	(0.0145)**	(0.7384)	(0.0113)**	(0.1440)			
Net Fund Growth			-0.0014	-0.0014	-0.0006		-0.0015	-0.0012	-0.0013	
			(0.0856)*	(0.0746)*	(0.4022)		(0.0934)*	(0.1467)	(0.1087)	
Turnover Ratio			-0.0017		-0.0039	-0.0012		-0.0066		-0.0009
			(0.8321)		(0.7209)	(0.0785)*		(0.3880)		(0.3395)
12b-1 Fee	-0.5217		-0.2568		-0.0104	-0.5899	-0.1340		-0.3049	
	(0.1654)		(0.5769)		(0.9849)	(0.1262)	(0.7679)		(0.4802)	
Return*High Manager Tenure	-0.0148		-0.0198	-0.0088	-0.0043		-0.0092	-0.0085	-0.0082	-0.0288
	(0.0591)*		(0.0552)*	(0.0782)*	(0.0980)*		(0.6096)	(0.0644)*	(0.0656)*	(0.0419)**
Marginal Interaction Term Effect	-0.0799		-0.1423	-0.1773	-0.1482		-0.2807	-0.2818	-0.2769	-0.1979
Return and Interaction Variable Joint Significance	-0.0324		-0.0308	-0.0333	-0.0067		-0.0090	-0.0079	-0.0105	-0.0294
	(<.0001)***		(<.0001)***	(<.0001)***	(0.0846)*		(0.0187)**	(0.0353)**	(0.0007)***	(<.0001)***
Observations	7933	7933	8217	8193	8598	7969	8197	8213	8186	8456
Psuedo R^2	0.1677	0.1391	0.2165	0.2097	0.2177	0.2196	0.2535	0.2548	0.2505	0.2376

I interpret the findings that managers of UFM have a lower probability of being replaced, for any given level of performance, than managers of MFM funds as evidence of a conflict of interests between investors and fund sponsors. This, as discussed before, is because fund sponsors' reluctance to terminate single-fund managers is driven by cost-savings consideration of the sponsor. The preliminary evidence (Table 2) indicates that UFM funds have higher asset growth rates, which is beneficial to the sponsors. In contrast, these funds have higher expense ratios, which makes their governance even more important to investors because higher expenses reduces investors' terminal wealth while benefiting fund sponsors whose management fees are included in the fund's expense ratio. Therefore, taken together, the evidence does not support the claim of well-functioning internal mechanisms for mutual fund managers at least not without qualifications.

To further explore the internal governance mechanisms for fund managers, I examine the joint significance of manager tenure and management fees with abnormal returns. In Table 10, I conduct a logistic regression model in which the probability of managerial turnover is explained by a dichotomous manager tenure variable. Manager tenure takes the value of one if the replaced managers' tenure is greater than the median (Table 2, Panel D), and zero otherwise. Consistent with the findings in Chevalier and Ellison (1999a,b) and Gallagher (2003), the manager tenure dummy variable is inversely related to the probability of managerial replacement. The interaction term, abnormal return and manager tenure, measures the influence of abnormal returns for managers with longer tenures on the probability of replacement. The evidence indicates that for any given level of performance the probability of getting replaced is lower than that of less experienced managers. Thus, according to the marginal effect term, an experienced fund manager will be 14.8% less likely to be replaced than an inexperienced manager, even though both of them are underperforming. The evidence for tenure does not really make a strong case because if a tenured manager with a history of good performance hits a rough spot there is good reason to hope he is going to become a high performance later, so

sponsors may tolerate low performance. These findings suggest weak and limited internal governance mechanisms for fund management.

Finally, I examine the internal governance of mutual funds with the joint significance of abnormal return and the high total fees binary variable. Table 11 documents these results. For all models, the joint significance of abnormal return*management fee variable is statistically insignificant. This finding suggests some level of governance concerning the revenue to the fund complex.

Table 21: Multivariate Regression results for all Mutual Fund Manager Replacements: Total Expenses Specific

Logistic regression estimates of managerial replacement for 891 managers are reported over the 1997 to 2001 period. Manager replacement is the dichotomous dependent variable equal to one for the replacement sample and zero for the control sample that have no managerial turnover. The observations are in fund-years. Fund Performance is defined by the objective adjusted return (OAR) in year *t* and the risk adjusted return (RAR) in year *t*. Unitary Fund Manager is a dichotomous variable that takes the value of one if a replaced manager operates a unitary fund and zero if that manager operates multiple funds simultaneously. Multiple Objectives Managed is a dichotomous variable that takes the value of one if a replaced manager operates multiple objectives simultaneously and zero if that manager operates fund(s) with one objective. Management Fee is the fee the fund complex receives for managing shareholders assets, expressed in millions. Expense Ratio is the mutual fund's total annual operating expenses (including operational fees, distribution fees, and other expenses) stated as a percentage of the fund's average net assets. Total Expenses is a dichotomous variable that takes the value of one if a
replaced manager has total expenses in the top half of the industry and zero if that manager has total expenses in the bottom half of the industry. Fund Size is the natural log of total fund net assets. Manager tenure is the number of years a portfolio manager has overseen a particular fund. To calculate Style Drift, I regress each fund's returns over the year prior to replacement on the benchmark returns and take 1-R^2 as the measure of style drift. Tracking error is constructed by taking the standard deviation of the residuals from a regression of the fund's return on the returns of its' benchmarks. Capital Gains Overhang is the net unrealized appreciation (or depreciation) during the period reported by the Morningstar database. Fund age is the natural log of the fund's age. Net Fund Growth is the change in the fund assets net of growth in existing assets.Turnover Ratio is total purchases and sales divided by fund's average net asset value. 12b-1 fee is charge by mutual funds for advertising, promotion, distributions, marketing expenses, and often commissions.Also included in Table11 is an interaction term, abnormal return with total expenses (expense ratio, management and 12b-1 fees), measuring the abnormal return of the managers with
high management fees in the pre-replacement period. I include the marginal interaction term effect estimation to understand the economic impact of the interaction terms. In Table 11, I also report the results of the joint significance of the interaction variable and abnormal return. The p-values of the regression coefficients are in parentheses. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Explanatory Variables	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x
Intercept	0.1461 (0.3480)	1.2876 (<.0001)***	2.5961 (<.0001)***	0.3064 (0.0942)*	0.2919 (0.1092)	2.8074 (<.0001)***	1.9998 (<.0001)***	0.2890 (0.2508)	0.2992 (0.3195)	0.3205 (0.3854)
Risk-Adjusted Return	-0.0299 (<.0001)***		-0.0351 (0.0018)***	-0.0305 (<.0001)***					-0.0295 (0.0003)***	
Objective-Adjusted Return						-0.0086 (0.0139)**	-0.0132 (0.0175)**	-0.0084 (0.0258)**		-0.0096 (0.0284)**
Unitary Fund Manager				-0.0866 (0.0580)*	-0.0813 (0.0618)*	-0.3701 (0.0179)**		-0.1357 (0.0419)**		-0.0913 (0.0639)*
Multiple Objectives Manager		-0.3548 (0.2643)					-0.2570 (0.1002)			
Total Expenses & Fees Dummy	-0.1596 (0.2422)	-0.1571 (0.3794)	-0.1437 (0.5716)	-0.0617 (0.6943)	-0.0201 (0.8892)	-0.0807 (0.8547)	-0.0197 (0.9432)	-0.1197 (0.0480)**	-0.2776 (0.2439)	-0.1845 (0.3154)
Fund Size			-0.0002 (0.1672)	-0.0030 (0.4999)	-0.0030 (0.5100)	-0.0050 (0.6787)		-0.0078 (0.8665)	-0.0021 (0.6768)	
Manager Tenure		-1.1857 (<.0001)***	-1.2905 (<.0001)***			-1.3539 (<.0001)***	-1.3438 (<.0001)***			
Style Drift							0.7518 (0.0899)*	0.3338 (0.2394)		0.7149 (0.0914)*
Tracking Error						0.0094 (0.9886)			0.0156 (0.7109)	0.0095 (0.3240)

Table 21: Multivariate Regression results for all Mutual Fund Manager Replacements: Total Expenses Specific (Continued)

Explanatory Variables	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x
Capital Gains Overhang	-0.0014	-0.0121	-0.0123			-0.0062	-0.0057	-0.0032		
	(0.6149)	(0.0040)***	(0.0151)**			(0.3365)	(0.3298)	(0.3947)		
Fund Age	0.1056		0.3147	0.0696	0.0596	0.0756	0.2626	0.0618		
	(0.1139)		(0.0118)**	(0.3675)	(0.4374)	(0.5855)	(0.03664)**	(0.4376)		
Net Fund Growth			-0.0019	-0.0012	-0.0011	-0.0026	-0.0120	-0.0019	-0.0056	
			(0.0953)*	(0.0629)*	(0.0861)*	(0.7776)	(0.2378)	(0.0325)**	(0.4266)	
Turnover Ratio			-0.0021			-0.0015			-0.0996	
			(0.0435)**			(0.2957)			(0.3275)	
Return*Total Expnses & Fees	-0.0029		-0.0195	-0.0030		-0.0155	-0.0099	-0.0024	-0.0059	-0.0061
	(0.8405)		(0.4412)	(0.8555)		(0.2271)	(0.3548)	(0.7460)	(0.7401)	(0.6931)
Marginal Interaction Term Effect	-0.0045		-0.0162	-0.0051		-0.0081	-0.0024	-0.0028	-0.0082	-0.0066
Return and Interaction Variable Joint Significance	-0.0207		-0.0223	-0.0236		-0.0034	-0.0071	-0.0052	-0.0059	-0.0064
	(<.0001)***		(0.0071)***	(<.0001)***		(0.0472)**	(0.0885)*	(0.0570)*	(0.0741)*	(0.0733)*
Observations	7927	8138	8404	8169	8169	8753	8392	8193	8590	8183
Psuedo R^2	0.0286	0.4961	0.5792	0.0319	0.0297	0.5092	0.5828	0.0206	0.0417	0.0638

Managerial Turnover from Demotion

One of the major issues within the mutual fund managerial turnover literature is the difficulty in distinguishing manager replacement due to promotion and manager replacement due to demotion. Hu, Hall and Harvey (2000) identify management promotions and demotions by cross referencing the Morningstar database with the reports from Lexis Nexis Inc. and define demotion as a manager moving to a smaller size fund or forced out of the mutual fund industry. Since this study focuses on the governance mechanisms within the mutual fund industry, I am only concerned with managerial replacements due to demotions. Khorana (1996) reports an inverse relation between the probability of fund manager replacement and past performance. Thus, this study defines replacement due to demotion as poor performance; the one year negative abnormal return of a mutual fund manager.

In Table 12 I conduct robustness test using only those manager replacements that had negative one-year pre-replacement returns. The results in Table 12 also indicate a negative relationship between the probability of managerial changes and fund structure. A comparison of Tables 9, 10 and 11 with Table 12 suggests that fund structure exhibits a stronger inverse relationship with manager demotion than with manager replacement. This evidence suggests that a unitary fund manager is less likely to be fired or demoted than their multiple fund manager peers. As stated earlier, since it is more costly for a fund sponsor to replace a unitary fund manager than take a fund from a multiple fund manager, the fund sponsor is more hesitant to replace a unitary fund manager regardless of the fund's performance. This presents a conflict of interests between the investors request for superior returns and the sponsors' desire to lower costs for the sponsor.

As hypothesized above, the coefficients of the abnormal return variables and net fund growth variables are negative in Table 12. There is a stronger association between the performance variables and manager replacement. For the demotion sample (Table 12) these coefficients are ranging from -0.0109 and -0.0718, whereas for the replacement sample (Table 9) they range from -0.006 and -0.0299. In contrast to the replacement sample, the expense ratio has consistent and statistically significant explanatory power

for the probability of demotion. However, the management fee and total expenses and fees variables are insignificant in all models. The coefficients on the manager tenure variables are negative and statistically significant in all seven models. Compared to the models that include the entire replacement sample, the demotion replacement sample exhibits lower correlation between the probability of replacement and manager tenure. The evidence suggests that there are conflict–of interests between fund sponsors and investors due to the management structure and that there are governance mechanisms in place to address these conflicts. However, these governance mechanisms don't completely protect investors from fund sponsor interests.

Table 22: Multivariate Regression results for Poor Performing Funds

Logistic regression estimates of managerial replacement for 539 managers that had one year of poor performance (negative cumulative abnormal returns) prior to replacement. Manager replacement is the dichotomous dependent variable equal to one for the replacement sample and zero for the control sample that have no managerial turnover. The observations are in fund-years. Fund Performance is defined by the objective adjusted return (OAR) in year *t* and the risk adjusted return (RAR) in year *t*. Unitary Fund Manager is a dichotomous variable that takes the value of one if a replaced manager operates a unitary fund and zero if that manager operates multiple funds simultaneously. Multiple Objectives Managed is a dichotomous variable that takes the value of one if a replaced manager operates multiple objectives simultaneously and zero if that manager operates fund(s) with one objective. Management Fee is the fee the fund complex receives for managing shareholders assets, expressed in millions. Expense Ratio is the mutual fund's total annual operating expenses (including operational fees, distribution fees, and other expenses) stated as a percentage of the fund's average net assets.

Total Expenses is a dichotomous variable that takes the value of one if a replaced manager has total expenses in the top half of the industry and zero if that manager has total expenses in the bottom half of the industry. Fund Size is the natural log of total fund net assets. Manager tenure is the number of years a portfolio manager has overseen a particular fund. High Manager Tenure is a dichotomous variable that takes the value of one if a replaced manager has a tenure in the top half of the industry and zero if that manager has a tenure in the bottom half of the industry. To calculate Style Drift, I regress each fund's returns over the year prior to replacement on the benchmark returns and take 1-R^2 as the measure of style drift. Tracking error is constructed by taking the standard deviation of the residuals from a regression of the fund's return on the returns of its' benchmarks. Capital Gains Overhang is the net unrealized appreciation (or depreciation) during the period reported by the Morningstar database. Fund age is the natural log of the fund's age. Net Fund Growth is the change in the fund assets net of growth in existing assets.Turnover Ratio is total purchases and sales divided by

fund's average net asset value. 12b-1 fee is charge by mutual funds for advertising, promotion, distributions, marketing expenses, and often commissions. Also included in Table 12 is an interaction term, abnormal return with UFM, measuring the abnormal return of the unitary fund manager in the pre-replacement period; abnormal return with high manager tenure, measuring the abnormal return of the managers with high tenure in the pre-replacement period; and abnormal return with total expenses (expense ratio, management and 12b-1 fees), measuring the abnormal return of the managers with high management fees in the pre-replacement period. I include the marginal interaction term effect estimation to understand the economic impact of the interaction terms. In Table 12, I also report the results of the joint significance of the interaction variable and abnormal return. The p-values of the regression coefficients are in parentheses. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Explanatory Variables	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x
Intercept	2.1050 (<.0001)***	1.4290 (0.0025)***	3.4326 (<.0001)***	2.0594 (<.0001)***	3.0113 (<.0001)***	1.0328 (<.0001)***	2.9204 (<.0001)***	1.9584 (0.0030)***	2.1329 (<.0001)***	1.6227 (0.0031)***
Risk-Adjusted Return	-0.0718 (<.0001)***		-0.0683 (<.0001)***	-0.0699 (<.0001)***			-0.0703 (<.0001)***		-0.0645 (<.0001)***	
Objective-Adjusted Return					-0.0109 (0.0004)***	-0.0116 (<.0001)***		-0.0224 (0.0201)**		-0.0193 (0.0066)***
Unitary Fund Manager	-0.8205 (0.0004)***	-0.9138 (0.0005)***	-0.8864 (0.0003)***	-0.8307 (<.0001)***	-0.8376 (0.0002)***		-0.8154 (0.0006)***		-0.7853 (0.0007)***	-0.8091 (0.0007)***
Multiple Objectives Manager						-0.4305 (0.2065)			-0.3875 (0.3384)	-0.2950 (0.2986)
Management Fee	-0.0338 (0.9023)	-0.0912 (0.9108)	-0.0117 (0.9157)							
Expense Ratio				-0.5230 (0.00518)*	-0.3995 (0.0428)**	-0.6041 (0.0032)**				-0.4203 (0.0495)**
Total Expenses & Fees							-0.5212 (0.4274	-0.5526 (0.4061	-0.4837 (0.3985)	

Table 22: Multivariate Regression results for Poor Performing Funds (Continued)

Explanatory Variables	model i	model ii	model iii	model iv	model v	model vi	model vii	model viii	model ix	model x
Fund Size			-0.0022	-0.0054	-0.0003	-0.0005	-0.0007	-0.0091	-0.0077	
			(0.8913)	(0.7697)	(0.6538)	(0.5993)	(0.8416)	(0.8621)	(0.7812)	
Manager Tenure		-1.1380	-1.0570				-1.1011	-1.0534		
		(<.0001)***	(<.0001)***				(<.0001)***	(<.0001)***		
High Manager Tenure				-1.3460	-1.6775	-1.7317				
				(<.0001)***	(<.0001)***	(<.0001)***				
Style Drift			0.4733			0.6694			0.5432	
			(0.3792)			(0.2129)			(0.2583)	
Tracking Error		0.0378			0.0478			0.0575		
		(0.6398)			(0.7985)			(0.7154)		
Capital Gains Overhang	-0.0058		-0.0260		-0.0732			-0.0813	-0.0268	-0.3352
	(0.4831)		(0.3903)**		(0.2512)			(0.2743)	(0.4137)	(0.3585)
Fund Age			0.2146		0.1832		0.2195			
			(0.1073)		(0.1166)		(0.1319)			
Net Fund Growth	-0.0018		-0.0020		-0.0026		-0.0031		-0.0073	
	(0.0816)*		(0.0916)*		(0.0744)*		(0.0671)*		(0.0921)*	
Turnover Ratio			-0.0009		-0.0005	-0.0004				-0.0007
			(0.2186)		(0.3384)	(0.4147)				(0.3285)
12b-1 Fee	-0.2667		-0.6146		-0.7828	-0.4257				
	(0.1121)		(0.10507)		(0.1205)	(0.1006)				
Return*Unitary Fund Manager	-0.0912		-0.0849							-0.0217
	(<.0001)***		(<.0001)***							(0.0004)***
Return*High Manager Tenure				-0.9710	-0.7724	-0.8968				
				(<.0001)***	(<.0001)***	(<.0001)***				
Return*Total Expnses & Fees							-0.0366	-0.0245	-0.0345	
							(0.0035)***	(0.0221)**	(0.0013)***	
Marginal Interaction Term Effect	-0.0760		-0.0866	-0.1160	-0.1631	-0.1542	-0.0502	-0.0481	-0.0460	-0.0717
Return and Interaction Variable Joint Significance	-0.0072		-0.0057	-0.0663	-0.0084	-0.0097	-0.0034	-0.0011	-0.0024	-0.0008
	(<.0001)***		(<.0001)***	(<.0001)***	(<.0001)***	(<.0001)***	(<.0001)***	(<.0001)***	(<.0001)***	(<.0001)***
Observations	8796	8303	8074	7596	8422	7840	8402	8061	7862	7873
Psuedo R^2	0.4007	0.1427	0.4645	0.3276	0.4536	0.3133	0.4206	0.3048	0.4135	0.3106

Conclusion

The inverse relationships between manager turnover on the one hand and past performance and manager tenure, respectively, on the other hand have been well documented. However, this paper is the first to document that management structure and other fund characteristics affect the probability of managerial turnover in a manner consistent with the existence of a conflict of interests between investors and sponsors. Using a sample of 891 equity and bond fund managerial replacements over the 1997 to 2001 period, I document that unitary fund managers have an approximately 2% lower probability of experiencing replacement than their multiple fund management peers. As hypothesized, fund complexes tend to replace underperformers only when it is "cheap" because replacing a unitary fund manager is more costly to the fund sponsor than taking one fund from a manager that operates multiple funds. Conversely, the number of funds a manager operates simultaneously has a positive relation with the probability of that manager being replaced. Coupled with the past performance, these results are consistent with the argument that there are some economies of scale benefits to multiple fund management. However, once the fund performance deteriorates the manager is released from his duties for that fund faster than the manager who manages a single fund.

Despite the large body of research on managerial turnover, previous studies have only examined (or assumed there exists only) the unitary management structure. The failure to account for the multiple fund management structure ignores an additional impact fund managers have on the fund complex. For instance, fund complexes increase total profits by increasing (or at least maintaining) the level of inflows and decreasing the individual cost of operating each fund. Khorana (2001) suggests that in a competitive market, management expense ratios should decline over time where investors become more price-sensitive, investment management firms increase in size and improve their economies of scale. As noted earlier, fund complexes that deploy the multiple management structure have lower expense ratios on average.

Using a series of carefully constructed multivariate logistics regressions, I examine the internal governance mechanisms within the mutual fund industry utilizing

interaction terms and joint significance analysis. This study utilizes a marginal interaction term effect methodology presented in Ai and Norton (2003) to document to marginal change in management structures for a given level of underperformance. I also employ cluster analysis to account for two dimensions (fund complex and year) of variation. I document weak and limited internal governance mechanisms within the mutual fund industry because for a given amount of underperformance fund sponsors are significantly likely to replace fund managers who manage a single fund than those who manage multiple funds. These findings suggest that if managers operate a single fund or have a great deal of experience they are even less likely to be replaced than previous literature states.

In summary, this area of research is significant given the responsibility of fund sponsors in managing their investment managers, the sizable assets under their control, the significant research effort and resources dedicated to the research of investments management institutions. Thus, the use of the fund management structure that benefits both the fund complex as well as the investor provides additional insights into this dynamic and multifaceted industry.

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