

Analyst Career Concerns and Mergers in the Financial Industry

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ABSTRACT

We investigate how financial analyst career outcomes are affected by mergers in the financial industry from 1994 to 2004. The U.S. financial industry went through significant consolidation during our sample period which potentially has large impact on analyst career concerns. We find that 24% of the financial analysts tracked by IBES and 49% of Institutional Investor ranked All-Star analysts are affected by mergers during our sample period. Over 63% of the analysts involved in the mergers leave the combined firm within one year. Factors that drive merger-related analyst turnovers are more complicated than for regular turnovers. In particular, merger-related turnover has a U-shaped relation with forecast accuracy, i.e. both good and bad performers are more likely to depart following a merger. This contrasts with the linear relation between regular analyst turnover and forecast accuracy documented in prior studies. We also find that various merger-related variables, such as the comparative strength of the merger entities at the corporate level (i.e., acquirer versus target status) and at the research department level, overlap in industry coverage, potential culture clashes and merger turmoil are important in predicting turnover. Finally, even though investment banking motives drive the majority of our sample mergers, forecast optimism is not an important determinant of analyst career outcomes during mergers. We do find that firms stronger in investment banking are less likely to lose star analysts after a merger. Our findings have implications for both the literature on analyst career concerns and studies of how mergers impact the labor force.

1. Introduction

Starting in the early 1990's a wave of mergers and acquisitions swept through the U.S. financial industry. Between 1994 and 2003, over 3500 merger deals were completed among U.S. commercial banks, and in 1998 alone 14% of the U.S. commercial bank assets changed hands (Pilloff, 2004). The merger activities go far beyond commercial banks, however.¹ Close to 40% of the deals in the financial industry involve non-banks such as securities firms or insurance companies (Berger, Demsetz, and Strahan, 1999). Another noted feature of this merger wave is the size of the mergers. Some 'mega-mergers' are among the largest in *any* industry during this period. For example, the mergers between Citicorp and Travelers Group in 1998 and between Chase Manhattan and J.P. Morgan in 2000 resulted in the two largest banking institutions in the U.S. The wave of mergers also has an important international element to it with foreign banks such as UBS and Deutsche Bank being active players.

The wave of consolidation in the financial industry potentially has large impact on financial analysts' careers. Given analysts' growing prominence in the financial markets (e.g. Krigman, Shaw and Womack, 2001; Cliff and Denis, 2004), their career concerns is a subject of great interest to the financial press, regulators and researchers alike. We find that 24% of the financial analysts tracked by IBES and 49% of the Institutional Investor Magazine ranked All-Star analysts are affected by the financial industry mergers during our sample period. However, to date little attention has been paid by researchers to how analysts' careers are affected by the mergers. Prior research either treats merger-related analyst job turnovers the same as other turnovers or removes them from the sample. For example, Hong and Kubik (2003) offer the following discussion.

¹ For brevity, we use the term 'merger' to include both mergers and acquisitions.

“Our measures of job separations do not take into account the possibility that analysts may have switched houses because of mergers. It is not obvious how to deal with separations due to mergers. Presumably, mergers in which the acquiring house gets to decide on which analysts from the target house to retain are informative and should be considered in our analysis. In any case, we have redone all of our analysis by defining job separations as only those in which the house from which an analyst leaves at year t is also in existence at year $t+1$. All of our results are similar to those presented below when we remove the subsample of job separations caused by mergers.”

Our study thus fills a void in the literature on financial analyst career concerns through analyzing the potentially distinct aspects of merger-related analyst turnovers.

Our research also ties to the literature on how mergers affect the labor force. Prior evidence on merger-related turnover is restricted to *top management* (e.g. Walsh, 1988; Martin and McConnell, 1991). While top executives are an interesting and important group of employees to study, they do not represent the broader workforce and their turnover mechanism likely differs from that of other employees during a merger. The existing analysis on merger effects for the *wider workforce* is confined to studying the change in *overall* employment pre- and post-merger without linking individual employee attributes to their career outcomes (e.g. Jarrell, Brickley, and Netter, 1988; Gokhale, Groshen, and Neumark, 1995; Martin, Girma, Thompson and Wright; 2002). These studies find inconclusive evidence regarding the change in overall employment because the merged firm may expand employment by adding new workers while at the same time losing existing workers. Our study, through specific identification of individual analysts and tying their attributes to career outcomes following mergers, expands the current literature and adds to our understanding of the turnover mechanism for employees outside the top executive suite.

We construct our merger sample by searching the SDC database for deals involving firms in the financial industry from 1994 to 2004. Our searches include international mergers so long

as the target is a U.S. domestic firm. Mergers where the acquirer and the target (or at minimum the target firm) have financial analysts tracked by the IBES database are kept in the sample. Our final sample has 76 mergers from 1994 to 2004. Our sample firm can be a commercial bank, an investment bank, a brokerage firm, an insurance company, or a financial conglomerate, provided it employs financial analysts.² The focus of our study is the impact of a merger on one particular functional area within a firm, i.e., its equity research department.

We begin our investigation by focusing on the *causes* of the mergers. This is an important first step for understanding the potential *effects* of the mergers on financial analysts. Much of the consolidation in our sample is spurred by improvements in information technology and the deregulation in the U.S. financial industry (Group of Ten, 2001; Berger, Demsetz, and Strahan, 1999). Advances in technology over the past two decades have dramatically cut the costs of communication and information processing, and enabled firms to offer a wide range of products to customers across diverse geographic areas. The financial industry also went through major deregulation in the 1990's. Barriers to interstate banking were largely removed. More significantly, the restrictions from the Glass-Steagall Act that had separated the commercial banking and investment banking industries since 1933 were gradually relaxed; and the Act was eventually repealed during this period. The ensuing entrance of commercial banks into the lucrative securities underwriting business brings fundamental changes to the competitive landscape in the entire financial industry. Given the backdrop against which the consolidation wave took place, we anticipate that most of our sample mergers result from forces exogenous to a firm's research department.³ We collect press releases for each sample merger and code the

² As we report later, though our initial SDC searches include independent research firms (SIC code 6282), none are in our final sample due to lack of name matches with IBES.

³ Since none of our final sample firms are independent research firms, they all have functions other than providing research and investment advice (see footnote 2).

merger synergies mentioned. Consistent with our conjecture, investment banking is the primary motive behind most of our sample mergers; and research is of much lower importance.

We next turn to our predictions on the likelihood of analyst turnover and how it relates to individual analyst characteristics, characteristics of his/her employer, as well as various features of the merger transaction. We measure turnover in two different ways: an analyst leaving the combined firm after a merger or leaving the profession as defined by the IBES universe of analysts. Regarding the determinants of turnovers, the analyst-specific variables include forecast accuracy and star status by Institutional Investor rankings. At the brokerage house and merger transaction level, we study the impact of the comparative strength of the merger entities at the corporate level (i.e., acquirer versus target status) and at the research department level, overlap in industry coverage, potential culture clashes (between commercial banks and investment banks or between domestic and foreign firms) and merger turmoil (a series of mergers within a short period of time).

We find that over 63% of the analysts involved in the mergers leave the combined firm and 35% leave the profession within one year after the merger.⁴ Our analysis suggests that merger-related analyst turnovers are indeed very different from regular turnovers and the factors that drive merger-related analyst turnovers are more complicated. In particular, merger-related turnover has a U-shaped relation with forecast accuracy, i.e. both good and bad performers are more likely to depart following a merger. This contrasts with prior evidence that *regular analyst turnovers* are primarily driven by poor forecasting performance (e.g. Mikhail, Walther, and Willis, 1999; Hong and Kubik, 2003), and supports our conjecture that during mergers good

⁴ Note that analysts leaving the profession are a subset of those leaving the combined firm. A comparison with 'regular' analyst turnover rate is complicated by the fact that our merger-related turnover measure *excludes* analyst movements *across* the brokers involved in the same merger transaction; while under 'normal' circumstances any change in brokerage house is considered a turnover.

performers, probably with better external career opportunities, are more likely to leave in face of heightened career uncertainties and changes in work environment.

We further find that various brokerage house and merger characteristics influence analyst turnover. Specifically, the comparative strength of the merger entities at both the *corporate level* (i.e., acquirer status) and the *research department level* (in terms of the number of analysts employed) are associated with reduced analyst turnover. On the other hand, overlap in industry coverage, potential culture clashes, and merger turmoil are related to higher turnover. These results are consistent with our expectations.

Finally, even though investment banking motives drive the majority of our sample mergers, forecast optimism is not an important determinant of analyst career outcome. We do find that firms stronger in investment banking are less likely to lose star analysts after a merger.

Our research makes several contributions. First, we fill a void in the literature on analyst career concerns by documenting that merger-related analyst turnovers are driven by factors that are different and more complicated than for regular analyst turnovers.

Second, we add to the general literature on job turnover and how it relates to performance. Prior studies on top management turnovers (e.g. Warner and Watts, 1988, on corporate executives; and Khorana, 1996, on mutual fund managers) and financial analyst turnovers are consistent in finding a negative relation between turnover and performance. We, on the other hand, document a distinct U-shaped relation between turnover and performance for financial analysts during mergers, i.e. top performing analysts depart just as frequently as poor performers. This is consistent with heightened career uncertainty and potential change in work environment during mergers prompting top performers, who probably have better outside opportunities, to leave.

The above evidence also speaks to the literature on how mergers impact the labor force. Existing studies on top executive turnovers following mergers have tied target CEO turnover to poor target performance and support the disciplinary role of corporate takeovers (e.g., Martin and McConnell, 1991). Our evidence suggests that mergers may also have the unintended consequence of driving away top talents when it comes to the broader workforce. To the best of our knowledge, ours is the first study to tie merger-related turnover outside the top management team to individual employee attributes, such as job performance. Although we acknowledge that the scope of our study is limited to financial analysts, the evidence suggests that turnover mechanisms during mergers are different for top management than for other employees.

Finally, while there has been research on the recent financial industry consolidation, most analysis focuses on the causes and effects of mergers between commercial banks (e.g. Pilloff, 2004). Recognizing this limitation, Berger, Demsetz, and Strahan (1999) call for research on mergers involving non-bank financial institutions. We take a step in that direction by studying analyst career outcomes in mergers involving different types of financial firms. Although our analysis focuses on a very specific aspect of the merger wave, we add richness to the existing understanding of this important chapter for the financial industry.

The rest of the paper is organized as follows. Section 2 describes our data and sample construction procedures. Section 3 presents our analysis on the causes of mergers. We analyze the determinants of analyst turnover in Section 4. Conclusions are in Section 5.

2. Data and sample construction

2.1. Sample selection

Our sample selection procedure consists of two major steps. In the first step, we identify a sample of mergers satisfying our requirements in the SDC database. The second step involves

manually matching the sample firms with IBES brokerage names. We describe each step in detail below. The sampling procedures are summarized in Table 1 Panel A.

[Insert Table 1 here]

We search the SDC database for completed merger deals in the financial industry from 1994 to 2004. Our searches include international mergers so long as the target is a U.S. domestic firm. The acquirer primary two-digit SIC codes include 60 (commercial banks), 62 (securities firms), and 63 (insurance companies). Because we later manually match the merger sample with IBES brokerage names, in order to keep the matching process manageable we restrict the target primary SIC codes to 6211 (investment banks and brokerage firms) and 6282 (independent research firms). These are firms likely to employ sell-side financial analysts. We further require that the target is 100% owned by the acquirer after each merger. We collect from SDC 314 mergers with the target primary SIC code as 6211 and 143 mergers with the target primary SIC code as 6282.

In the second step we match the target and the acquirer names per SDC with IBES brokerage names. We describe the matching procedures in detail in Section 2.2. All observations for independent research firms (target SIC of 6282) are lost at this stage because none of them have name matches with IBES. As a result, even though all firms in our final sample have research function by virtue of employing financial analysts prior to the merger, none of them can be characterized as ‘pure plays’ in research. Our matched SDC and IBES sample has 60 merger deals.

We supplement our sample with a list of 81 investment bank mergers from 1997 to 2002 documented in Corwin and Schultz (2005) and a list of 26 principal bank mergers from 1988 to 2002 provided in Ljungqvist, Marston and Wilhelm (2006). Bank mergers are not the focus of

these studies, but they are helpful in determining the post-merger corporate name changes (Corwin and Schultz, 2005) and in connecting related mergers in the form of ‘merger trees’ (Ljungqvist, Marston and Wilhelm, 2006). We add 16 deals to our sample from these two papers. Most of these deals are related to our sample mergers generated from SDC but with the target primary SIC code outside of 6211 (investment banks or brokerage firms).⁵ Our final sample comprises 76 merger transactions.

Panel A further reports that the number of brokerage firms in our sample is 106 (77 unique brokers, representing 10% of the IBES broker population during our sample period). The impact of the mergers reaches a substantial fraction of the financial analysts. The number of unique analysts in our sample accounts for 24% of the IBES analyst population and is close to half of the Institutional Investor ranked analysts. The fact that our sample mergers affect 24% of the analysts but only 10% of the brokerage houses is consistent with our later finding that our sample mergers tend to involve large brokers. Panel B of Table 1 provides the distribution of the 76 merger transactions over time. There is a concentration of the deals during the five-year period 1997-2001 (64 transactions or 84% of the sample).

In addition to our primary data sources of SDC and IBES, we also gather from Institutional Investor Magazine the names of their All-America Research Team analysts from 1994 to 2004 and refer to these analysts as star analysts. We use the Carter-Manaster rankings available on Jay Ritter’s website (at <http://bear.cba.ufl.edu/ritter/ipodata.htm>) to measure the importance of a firm’s investment banking business.

⁵ One example is the following two related acquisitions. The first is the 1997 acquisition by Bankers Trust, a commercial bank with no financial analysts, of Alex Brown, a top ranked underwriter with a research department. The second is the 1999 acquisition by Deutsche Bank of Bankers Trust, which now carries the previously Alex Brown research group. Our SDC search identifies the first deal as part of our sample. The second deal, however, is not picked up by our SDC searches. This is because the target in the second deal, Bankers Trust, even with the previously Alex Brown research department, is still primarily a commercial bank and has a two-digit SIC code of 60. We add the second deal to our final sample because Bankers Trust employs financial analysts prior to its acquisition by Deutsche Bank.

2.2. Matching the sample of mergers with IBES brokerage names

Our study is the first to systematically match the IBES database with a sample of corporate mergers. The matching process is complicated due to several factors. First, many mergers come in clusters and involve complex changes in corporate names. More importantly, IBES routinely changes the name of a brokerage firm in its Brokerage ID File to reflect the most recent corporate name after a merger. This practice makes tracking the name history of brokerage firms that have been involved in mergers difficult. However, IBES often leaves traces of a broker's original name in a data field that was rarely used in prior studies. We combine the information from IBES with various other sources, e.g. academic studies (Corwin and Schultz, 2005 and Ljungqvist, Marston and Wilhelm, 2006), newspaper articles and information on company websites to construct 'merger trees' at the corporate level, and more importantly, at the research department level with IBES brokerage codes.

Figure 1 illustrates our matching procedure with a series of six transactions related to First Union Corp. This is one of the more complex examples in our sample. We use it to highlight some of the issues we encounter when matching SDC with IBES. Later in Section 4.2 we also refer back to this example in discussing our research methodology regarding merger clusters. Part A of Figure 1 chronicles these transactions by their effective dates and provides the target and acquirer names reported in SDC. A visual presentation of these transactions in the form of a 'merger tree' is in Part B. Our goal is to determine the IBES brokerage codes involved in each merger; thus in Part C we present the relevant information from the IBES Brokerage ID File: broker code (BACODE), broker name (BANAME), and the data field BAID. To assist our inference, for each broker code we also obtain information on the number of years and the last year it appears in IBES, as well as the number of analysts and number of earnings forecasts for

U.S. firms averaged over the years and for the last year the broker code appears in IBES. For commercial banks or insurance companies without financial analysts (for example, First Union before its purchase of Wheat First Butcher Singer in 1998 in deal #2 and Wachovia before its acquisition of Interstate/Johnson Lane in 1999 in deal #3), we assign them a pseudo-broker code of 99999.

[Insert Figure 1 here]

Everen Capital Corp. (acquirer in deal #1 and target in deal #4) is assigned IBES broker code 829 (BANAME: 'Everen Securities, Inc.'). The target in deal #1, Principal Financial Securities is assigned IBES broker code 495 (BANAME: 'Principal Financial Securities'). The target in deal #5, First Albany, is assigned IBES broker code 104 (BANAME: 'First Albany Corp').⁶

It is important to note that there are no IBES broker codes for Wheat First Butcher Singer (target in deal #2) and Interstate/Johnson Lane (target in deal #3). Rather, we find two separate broker codes under the same IBES BANAME of 'WACHOVIA SECURITIES.' The information contained in the previously rarely used data field, BAID, suggests that code number 147 (BAID 'JOHNSON') is likely Interstate/Johnson Lane, and that code number 282 (BAID 'WHEAT') is likely Wheat First Butcher Signer. This reflects the IBES practice of changing broker names to the most recent corporate name, since Wachovia is the eventual surviving name after the series of mergers.⁷ It is worth pointing out that while First Union has the same

⁶ We also consider the following information in the code assignments. IBES broker code 495, assigned to Principal Financial Securities, disappears from IBES in 1998, the same year Principal Financial was bought by Everen (deal #1). The code assigned to Everen, 829, disappears from IBES in 1999 when Everen itself was bought by First Union (deal #3). Note that the code for First Albany, 104, survives until the end of the IBES tape in 2006, suggesting the First Albany research department remains a separate group after its acquisition by First Union in 2000 (deal #5).

⁷ We assign IBES broker code 147 (BAID 'JOHNSON') to Interstate/Johnson Lane in deal #3 and assign IBES broker code 282 (BAID 'WHEAT') to Wheat First Butcher Signer in deal #2, while taking the following into consideration. Code 147 (BAID 'JOHNSON') and code 282 (BAID 'WHEAT'), even with their 'WACHOVIA

corporate name in all the mergers per SDC, its broker code changes for the purpose of our analysis. Before its acquisition of Wheat First Butcher Singer, it was a commercial bank with code 99999. After the acquisition, it is assigned the WHEAT broker code of 282 because it now carries the previous WHEAT research department.

3. Causes for mergers

In order to study the *effects* of mergers on financial analysts, we first seek to understand the *causes* for the mergers. Several factors are important in driving the merger wave in the financial industry during our sample period. They include 1) improvements in information technology; 2) globalization, which itself is a byproduct of advances in technology; and 3) deregulation (e.g. Berger, Demsetz, and Strahan, 1999; Group of Ten, 2001). Of particular importance is deregulation which relaxed both the geographic divide across different states for commercial banks, and the restrictions between commercial banking and investment banking. The interstate banking law passed in the mid-1990's eliminated much of the barrier to interstate banking, prompting mergers among banks in different regions. More significant for our study, the restrictions from the Glass-Steagall Act that had separated the commercial banking and investment banking since 1933 were relaxed.⁸ Many mergers in our sample result from commercial banks entering into investment banking, which in turn creates competitive pressure for even more consolidation in the financial industry. For instance, the Dallas-based securities firm Rauscher in announcing its 1997 merger with another brokerage Dain Bosworth makes the following observation:

SECURITIES' broker names, existed for 18 and 25 years respectively, thus going back to times when Wachovia was a commercial bank without any research analysts. Further, code 147 (JOHNSON) disappears from IBES in 2001, the same year when Wachovia (after its acquisition of Interstate/Johnson Lane in 1999) merged with First Union.

⁸ The Glass-Steagall Act of 1933 prohibited commercial banks from engaging in public offering of securities other than federal and state debt issuances. Beginning in the late 1980's, commercial banks were gradually allowed to engage in underwriting activities through the so-called Section 20 subsidiaries (Bhargava and Fraser, 1999). The Glass-Steagall Act was officially repealed in 1999.

“Consolidation has swept through the securities industry recently, especially since the megamerger in February of Morgan Stanley and Dean Witter Reynolds Inc. At least nine major securities firms have been purchased or combined since then. The catalyst for much of this activity was a move in December by the Federal Reserve Board to allow commercial banks to acquire investment banks.”

Given the backdrop against which the merger wave took place during our sample period, we anticipate that most of our sample mergers are caused by forces exogenous to a firm’s research department.⁹ We collect press releases for each of our 76 sample mergers and code the merger synergies mentioned.¹⁰ The results are presented in Table 2.

[Insert Table 2 here]

The synergies are often phrased in terms of the target firm’s strength in a particular service area. We classify them into investment banking (underwriting; mergers and acquisitions advice), brokerage (securities trading as dealer or broker), asset management, and research.¹¹ Among these four areas, investment banking is the most important, mentioned in 62% of the merger announcements. In 26% of the announcements, it is the *only* area of the target firm’s strength discussed. Consistent with our conjecture, research is the least important among the four areas, mentioned in 26% of the merger announcements. More significantly, in not a single case is research the *only* rationale offered.

Table 2 also reveals the following information from the merger announcements. Nine mergers (12% of the sample) reflect consolidation among commercial banks. The most important rationale for these mergers is often to get larger in size in order to compete. We keep commercial bank mergers in our sample provided the target firm has a research department.

⁹ As we report in Section 2, none of our final sample firms are ‘pure’ research firms. In other words, they all have functions other than providing research and investment advice.

¹⁰ We search Factiva for the merger announcements. Sometimes the press releases are also available on company websites.

¹¹ Table 2 also reports the ‘other’ category, which includes target service strength in corporate finance, insurance, or syndication.

Twenty merger announcements (26% of the sample) mention a geographic fit between the two parties and 22 of our sample mergers (29% of the sample) involve a non-U.S. firm, highlighting the global aspect of the financial industry consolidation.

4. Mergers and analyst career outcomes

4.1. Hypothesis development

Our main predictions focus on the likelihood of analyst turnover and how it relates to individual analyst characteristics, the characteristics of his/her employer, as well as the various features of the merger transaction. We measure turnover in two different ways: an analyst leaving the combined firm after a merger or leaving the profession as defined by the IBES universe of analysts. Regarding the determinants of turnover, the analyst-specific variables include forecast accuracy and star status by Institutional Investor rankings. At the brokerage house and merger transaction level, we study the impact of the comparative strength of the merger entities at the corporate level (i.e., acquirer versus target status) and at the research department level, overlap in industry coverage, potential culture clashes and merger turmoil.

Analyst characteristics

Forecast accuracy

Two lines of literature have bearings on our predictions regarding forecast accuracy. The literature on financial analyst job turnover, starting from Mikhail, Walther, and Willis (1999) followed by Leone and Wu (2002) and Hong and Kubik (2003) among others, documents that less accurate analysts are more likely to suffer bad career outcomes.¹² These studies do not provide evidence on how accuracy is related to turnover during merger transactions. The

¹² Prior studies also classify analyst turnover in terms of ‘moving up’ or ‘moving down’ the brokerage hierarchy (e.g. Hong and Kubik, 2000; Leone and Wu, 2002). Notwithstanding, Mikhail, Walther, and Willis (1999) show that turnovers in general are negative career outcomes. We do not separately analyze the ‘move up’ and ‘move down’ categories in this study because of the potential merger-induced mechanical changes in broker size and status.

merger-related turnover literature, on the other hand, focuses on top executives. The evidence there is consistent with a disciplinary role of corporate takeovers on top management. For example, Martin and McConnell (1991) find high turnover rates for top executives at underperforming target firms. A simple extension of the existing evidence suggests that *merger-related analyst turnovers* likely also reflect poor performance.

However, there are reasons to believe that *merger-related analyst turnovers* have unique features.¹³ They are different from merger-related *top management turnovers* because the performance of the top management is likely endogenous to the merger event, whereas it may not hold true for other employees. Relative to the *regular analyst turnover* scenario, merger breeds substantial uncertainty for employees regarding their future career prospects and creates potential changes in work environment. Analysts who do not want to tolerate the uncertainty or changes and have better external career opportunities may have greater inclinations to leave. This suggests that good performers may experience higher turnover during mergers. We expect *merger-related analyst turnovers* to be affected by forecast accuracy; however, the relation is likely to be more complicated than for regular analyst turnovers. The following states our Hypothesis 1.¹⁴

H1: Ceteris paribus, merger-related analyst turnovers are related to analyst forecast accuracy.

Star status

The Institutional Investor Magazine provides annual rankings of sell-side financial analysts as part of the All-America Research Team. Ranked analysts (commonly referred to as star analysts) provide more accurate earnings forecasts and their forecasts are more influential on

¹³ We note the dearth of evidence on the relation between employee performance and merger-related turnover for the wider workforce outside of the top management team. Existing studies on the impact of merger on the broader labor force tend to focus on issues such as the change in employment levels and wage levels pre- and post- merger (e.g. see Jarrell, Brickley and Netter, 1988, for a survey).

¹⁴ All hypotheses are stated in alternative form.

security prices (e.g. Stickel, 1992; Leone and Wu, 2002). During the 1990's bull market, analysts, especially the stars, play prominent roles in securities underwriting. For instance, Cliff and Denis (2004) attribute part of the IPO underpricing during this period to compensation for star analysts' research coverage. Krigman, Shaw, and Womack (2001) document SEO firms switching away from their IPO underwriters in order to obtain more research coverage by star analysts. Given the critical role star analysts play in investment banking during our sample period and our earlier finding that investment banking is the primary motive for most of our sample mergers, we expect the merged firm to work extra hard in order to retain the stars. This likely creates a negative relation between turnover and star status.¹⁵

H2: Ceteris paribus, merger-related analyst turnovers are negatively related to analyst star status.

Brokerage House and Merger characteristics

Strength at the corporate level: Acquirer versus target

Mergers and acquisitions reflect competitions for corporate control. The dominant party controls the resources at the merged entity and to a large extent, dictates the terms of employment for the combined workforce. Existing evidence on top management turnover is consistent with the target firm losing executive autonomy. For example, Hadlock, Houston, Ryngaert (1999) report high target top executives turnover rates for a sample of bank mergers. Walsh (1988) finds that target top executives experience turnover rates several times higher than that of the acquirer top executives. The dominance by the acquirer likely affects top executives and the average employees alike. The acquirer employees possibly face less career uncertainty

¹⁵ Allegations of biased research by financial analysts led to a \$1.4 billion settlement in 2003 between the regulators, including the SEC and the New York Attorney General Elliot Spitzer, and ten top investment banks. The aim of the settlement is to create a clear separation between analyst research and investment banking activities. The settlement postdates the vast majority of our sample mergers.

due to their existing ties with the top management in the post merger entity; we therefore predict lower turnover for employees at the acquirer than those at the target.

H3: Ceteris paribus, merger-related analyst turnovers are negatively related to the acquirer status.

Strength at the research department level: Size of the research group

We conjecture that during a merger the career outcome of an employee is determined by the strength of his/her existing employer at various levels of the organization relative to the other merger entity. The corporate level strength (measured by acquirer status) is expected to be important (H3). However, when it comes to keeping existing analysts, we expect the strength of an analyst's own research department to make a difference as well. The integration of the merged entities likely occurs by functional areas. If efficiency improvement is one of the goals of a merger (Jensen and Ruback, 1983; Berger, Demsetz, and Strahan, 1999), we expect a functional area (e.g. the research department within a firm) that is stronger than its counterpart in the other merger entity to have greater influence in shaping that particular functional area in the combined firm, regardless of its affiliation with the acquirer or target. We thus predict the strength of the research department to be of incremental importance in retaining analysts following a merger.

H4: Ceteris paribus, merger-related analyst turnovers are negatively related to the strength of the research department.

Industry overlap

One of the value-maximizing motives for mergers is efficiency improvement. Healy, Palepu, and Ruback (1992) document that post-merger performance gains are associated with large industry overlap between the acquirer and target. It is conceivable that eliminating

redundant workforce between the acquirer and target improves efficiency.¹⁶ We measure the potential redundancy of financial analysts during a merger by their overlap in industry coverage with other analysts in the same transaction or a cluster of closely related transactions (a formal definition of a merger cluster is in Section 4.2). We expect turnover to increase with the industry overlap measure.

H5: Ceteris paribus, merger-related analyst turnovers are positively related to the overlap in industry coverage.

Culture clashes

Mergers often involve integrating entities with diverged corporate cultures. Weber and Camerer (2003) suggest that ‘culture’ is thought of as ‘a general shared social understanding, resulting in commonly held assumptions and views of the world among organizational members.’ They also suggest that culture is ‘shared understanding’ through ‘shared experience’, thus can be ‘path dependent’ and ‘idiosyncratic.’ They use an experimental approach to illustrate the difficulty of integrating different corporate cultures and the likely role of ‘culture clashes’ in merger failures.

There has been no large sample empirical evidence, to our knowledge, that links job turnover with culture clashes in mergers, although anecdotes abound. Our sample is a particularly fertile ground to study the potential effects of culture clashes on job turnover because a large number of the mergers are between commercial banks and investment banks, which are

¹⁶ Anecdotal evidence is also consistent with this practice. One such example in our sample is the acquisitions by Royal Bank of Canada of two securities firms in 2001, Dains Rauscher and Tucker Anthony Sutro. Soon after the second acquisition, all research analysts and investment bankers at Tucker were let go because Dain Rauscher already has a research staff and investment banking division. The motives behind RBC’s acquisition of Tucker Anthony Sutro according to the merger announcement, are Tucker’s strength in retail brokerage and wealth management.

said to possess vastly different corporate cultures.¹⁷ We classify any transaction or a cluster of closely related transactions involving a commercial bank or insurance company as that with potential culture clashes and expect it to raise job turnover for financial analysts.

H6: Ceteris paribus, merger-related analyst turnovers are positively related to ‘culture clashes.’

Another dimension of some of our sample mergers that possibly creates culture clashes is the involvement of non-U.S. firms. We call these ‘international’ mergers and expect them to increase analyst turnover as well.

H7: Ceteris paribus, merger-related analyst turnovers are positively related to ‘international’ mergers.

Merger turmoil

Our earlier discussions of the six transactions involving First Union Corp. (Figure 1) highlight the clustered nature of some of the mergers. When an entities is involved in multiple transactions within a short period of time (a formal definition of a merger cluster is in Section 4.2), employees can face heightened uncertainties regarding their careers. We refer to these situations as those with ‘turmoil’ and expect them to increase analyst turnover.

H8: Ceteris paribus, merger-related analyst turnovers are positively related to merger ‘turmoil.’

4.2. Methodology

4.2.1. Merger clusters

Our primary research goal is to investigate the relation between analyst turnover and the various determinants hypothesized in the previous section. We measure the dependent variable, analyst career outcome, *one year after* the merger and the independent variables *one year prior*

¹⁷ For example, the announcement of our sample merger between KeyCorp (a commercial bank) and McDonald & Company Investments Inc. (a securities firm) includes the following discussion of the two firms by a former McDonald partner “*But they’re not at all close culturally. An investment bank and a commercial bank are completely different entities. I wish them luck, but I think it’s going to be very difficult.*”

to the merger. This straightforward setup in timeline becomes more complicated when we connect related mergers. A case in point is the example in Figure 1, where First Union is involved in a quick succession of several mergers within a matter of four years. Although as we point out earlier this is one of the more complex cases in our sample, it illustrates the challenges posed by ‘merger clusters.’ This clustered nature of our sample is a natural reflection of the merger wave and the tremendous transformation in the financial industry during this period.

Since many of our independent variables measure the ‘interactions’ among the merger entities, for example, overlap in industry coverage, culture clashes, and merger turmoil, we classify closely related mergers into a single ‘merger cluster’ in order to mitigate potential measurement errors in these explanatory variables. We define a ‘*merger cluster*’ as a single merger transaction (‘*single-deal cluster*’) unless one of the following two situations applies (‘*multi-deal cluster*’): 1) an acquirer in a previous transaction becomes a target within the current or next calendar year, or 2) an acquirer buys two or more targets within the same calendar year. An example of situation 1) comes from Figure 1, where Everen Capital bought Principal Financial Securities in 1998 and then itself was acquired by First Union in 1999. We believe the career outcomes of analysts involved in the first deal (both those at Everen and at Principal) are likely affected by the second deal, thus their interactions with First Union is important and should be taken into consideration. We therefore classify both Everen Capital and Principal Financial Securities as targets and First Union as the acquirer in this merger cluster. An example of situation 2) above is one that we discussed earlier in Section 4.1, the acquisitions by Royal Bank of Canada of two securities firms in 2001, Dains Rauscher and Tucker Anthony Sutro. Although these are two separate transactions per SDC, given their proximity in time, ‘interactions’ likely exist between the two target firms as well as with the common acquirer.

Admittedly, our classification scheme has an arbitrary component in it. For instance, conceivably one could argue that if an acquirer bought two targets, one in each of two adjacent years, the first deal likely also ‘interacts’ with the second deal (note that applying this definition to Figure 1 transactions would lead to all transactions except for deal #3 being lumped into one big cluster). Our classification scheme thus reflects our efforts to strike a balance between two concerns. On the one hand, we would like to more precisely measure our explanatory variables by placing highly related deals together. On the other hand, we try to avoid diminishing our sample size by forming very large clusters. Applying our definition of merger clusters reduces our sample of 76 merger transactions into 59 clusters.

4.2.2 Regression models

We estimate logistic regressions of analyst career outcomes with several different models. The dependent variable is *Leave_Combined* in models (1) to (3) and *Leave_Profession* in model (4). Model (1) assumes a linear relation between turnover and forecast accuracy. In order to fully capture the influence of forecast accuracy on merger-related turnovers we vary the model specification regarding forecast accuracy in models (2) to (4) (details below).

$$Prob [Leave_Combined = 1] = \text{Logit} (a_0 + a_{11} Accu_Score + a_2 All_Star + a_3 Acquirer + a_4 Research + a_5 Overlap + a_6 Culture_Clash + a_7 International + a_8 Turmoil + a_9 Underwriting + a_{10} Expr) \quad (1)$$

$$Prob [Leave_Combined = 1] = \text{Logit} (a_0 + a_{11} Accu_Score + a_{12} Accu_Score_2 + a_2 All_Star + a_3 Acquirer + a_4 Research + a_5 Overlap + a_6 Culture_Clash + a_7 International + a_8 Turmoil + a_9 Underwriting + a_{10} Expr) \quad (2)$$

$$Prob [Leave_Combined = 1] = \text{Logit} (a_0 + a_{11} Top_Accu + a_{12} Bottom_Accu + a_2 All_Star + a_3 Acquirer + a_4 Research + a_5 Overlap + a_6 Culture_Clash + a_7 International + a_8 Turmoil + a_9 Underwriting + a_{10} Expr) \quad (3)$$

$$Prob [Leave_Profession = 1] = \text{Logit} (a_0 + a_{11} Top_Accu + a_{12} Bottom_Accu + a_2 All_Star + a_3 Acquirer + a_4 Research + a_5 Overlap + a_6 Culture_Clash + a_7 International + a_8 Turmoil + a_9 Underwriting + a_{10} Expr) \quad (4)$$

The regressions are run at the analyst level. The dependent variable is an indicator of an analyst leaving the combined firm (or the profession) *one year after* the completion of the last transaction in a merger cluster. All independent variables are measured *one year before* the completion of the first transaction in a merger cluster. (Analyst and time subscripts are suppressed). We also include year dummy variables in all regressions and cluster the standard errors by our merger clusters. We briefly describe the variables below and provide more details in the Appendix.

Leave_Combined: Equals one if an analyst does not issue any forecasts for any brokerage involved in the merger cluster in the year after all mergers in the cluster merger are completed, and zero otherwise.

Leave_Profession: Equals one if an analyst stops releasing forecasts in IBES database in the year after all mergers in the merger cluster are completed, and zero otherwise.

Prior studies also define analyst career outcome in terms of ‘moving up’ or ‘moving down’ the brokerage hierarchy. We do not separately analyze these two categories because of potential merger-induced mechanical changes in broker size and status.

Our discussions in Section 4.1 suggests that during mergers the impact of forecast accuracy on analyst turnover is likely more complex than for regular turnovers, where the two variables are shown to relate in a linear fashion (e.g. Mikhail, Walther, and Willis, 1999; Hong and Kubik, 2003). We conjecture that in addition to turnovers due to poor performance, good performers may also have a higher tendency to leave during mergers if they do not tolerate career uncertainties and have better outside job opportunities. We try to capture this intuition of a potentially U-shaped relation between turnover and accuracy with the inclusion of a squared term of accuracy score in model (2). We also define dummy variables for top and bottom forecasting performance in models (3) and (4).

Accu_Score: The accuracy score between 0 and 100 for an analyst in a particular year.

Accu_Score_2: Squared *Accu_Score*.

Top_Accu: Equals one if an analyst's accuracy score in the year before the first merger in the merger cluster is greater than or equal to 70, and zero otherwise.

Bottom_Accu: Equals one if an analyst's accuracy score in the year before the first merger in the merger cluster is smaller than or equal to 30, and zero otherwise.

All_Star: Equals one if an analyst has ever been ranked as an Institutional Investor All-star analyst before the first merger in the merger cluster, and zero otherwise.

The following variables are used to measure brokerage firm or merger cluster characteristics. We use the size of a broker's research department in terms of the number of analysts employed to proxy for its research strength (*Research*). This is consistent with Hong, Kubik and Solomon (2000). Furthermore, Clement (1999) and Jacob, Lys, and Neale (1999) find that larger brokerage firms have more accurate analysts.

Acquirer: Equals one if the brokerage is the acquirer in the merger cluster, and zero otherwise.

Research: Natural log of the number of analysts who have issued forecasts in the IBES database from the brokerage in the year before the first merger in the merger cluster.

Overlap: Percentage of the industries (defined by three-digit SIC codes) covered by an analyst that are also covered by analysts working in other brokerage firms in the merger cluster in the year before the first merger.

Culture_Clash: Equals one if one of the brokerage firms in the merger cluster has a two-digit primary SIC code of either 60 (commercial bank) or 63 (insurance company) in the year before the first merger in the merger cluster; zero otherwise.

International: Equals one if there is at least one foreign firm involved in the merger cluster; zero otherwise.

Turmoil: Equals 1 if there are at least two merger transactions involved in the merger cluster; zero otherwise.

As control variables, we include the strength of a broker's investment banking business, measured by its Carter-Manaster ranking. The rankings are based on the relative placement of underwriter names in IPO tombstones (Carter and Manaster, 1990). They range from zero to

nine with banks having scores above eight considered highly prestigious (e.g. Corwin and Schultz, 2005). Hong and Kubik (2003) suggest that regular analyst turnover is related to investment banking incentives; however, Zhang (2005) argues the opposite. We do not have a prediction for this variable. In unreported results, we also include analyst forecast optimism, defined either as a continuous *Optimism* variable or a *Top_Optimism* (top 10% or 50%) dummy variable, in the regressions. None of the optimism variables are significant and their inclusion/exclusion has no effect on other variables. More discussions on this are in Section 4.5.

Underwriting: Equals one if a brokerage house has a Carter-Manaster Underwriter Ranking above eight in the year before the first merger in the merger cluster, and zero otherwise.

Prior studies on regular analyst turnover find mixed evidence on its relation with analyst experience. Mikhail, Walther, and Willis (1999) document a negative relation between turnover and experience. Hong, Kubik, and Solomon (2000) do not find a strong relation between turnover and experience but suggest that more experience dampens the effects of poor forecasting performance on turnover. We do not have a prediction for this variable. Experience is measured as follows:

Expr: The number of years an analyst has provided forecasts in the IBES Database before the first merger in the merger cluster.

4.3. Summary statistics

Table 3 presents the summary statistics for our main variables. Over 63% of the analysts in our sample leave the combined firm one year after the merger. In addition, about 35% of the sample analysts leave the profession one year after the merger. The mean and median accuracy scores (*Accu_Score*) are close to 50 (recall that accuracy scores are defined for ALL analysts covering a particular firm and range between 0 to 100), suggesting the median analyst performance in our merger sample is similar that in the overall analyst population. Interestingly,

Top_Accu and *Bottom_Accu* have means around 10% (these are dummy variables for the top 30% and bottom 30% accuracy performance defined for ALL analysts covering a particular firm). The fact that *Top_Accu* and *Bottom_Accu* have means much lower than 30% suggests that analysts in our merger sample have less extreme performance than the overall population. We further find that about 20.6% of our sample analysts are stars (*All_Star*), this contrasts with 7% of stars in the overall IBES analyst populations (Leone and Wu, 2002). Roughly 48% of our sample analysts were employed by the acquirer before the merger (*Acquirer*). The brokerage firms involved in mergers tend to be large, employing 65 analysts on average (during our sample period the average broker on IBES employs 14 analysts; the median is 6). The *Research* variable is the natural log of the number of analysts employed by a broker. The average analyst in our sample has about a 50% overlap of his/her industry coverage with other analysts in the merger cluster (*Overlap*). In addition, 56%, 50% and 35.6% of our sample analysts are involved in mergers with potential culture clashes, with foreign firms (*International*) and with turmoil, respectively. Fifty-five percent of our sample analysts are employed at high reputation investment banks with Carter-Manaster ranking higher than eight (*Underwriting*). Finally, the average analyst has about five years of forecasting experience (*Expr*).

[Insert Table 3 here]

We report the correlation matrix in Table 4 (with the Spearman coefficients above the diagonal and Pearson correlations below). We focus on Spearman coefficients as many of our variables are indicator variables. The inferences from Pearson coefficients are similar. We first note a high correlation, 0.56, between our two career outcome measures, *Leave_Combined* and *Leave_Profession*, which is consistent with analysts leaving the profession being a subset of those leaving the combined firm. *Accu_Score* has negative correlations with *Leave_Combined*

and *Leave_Profession*. Thus the univariate evidence supports the notion that poor performers suffer bad career outcomes. Interestingly, both *Top_Accu* and *Bottom_Accu* dummy variables have significant positive correlations with the two career outcome measures, indicating a U-shaped relation between accuracy and turnover. The correlations between turnover and the other independent variables are generally consistent with our predictions at the univariate level. For example, All-stars are less likely to turnover and acquirer status and stronger research department both are negatively related to turnover. On the other hand, higher industry overlap, culture clashes, international mergers and turmoil tend to be positively associated with turnover. Among the independent variables, we note that All-stars and analysts in stronger research departments are more accurate.

[Insert Table 4 here]

4.4. Univariate analysis

4.4.1. Turnover probability

In Table 5 Panel A we link turnover rate at the brokerage level (*Pct_Leave_Combined*) with the independent variables. We first note that the overall sample mean for *Pct_Leave_Combined* is over 71%. This is higher than the 63% reported in Table 3 at the analyst level, suggesting that smaller brokers with fewer analysts have higher turnover than larger brokers (by definition, smaller brokers are given lower weight in analyst level analysis as they have fewer analysts). We further find that analysts at acquirers have a lower turnover probability than those at targets (65% versus 75%, t-stat for difference = 2.34). This is consistent with our earlier predictions in Section 4.1. We also find that higher overlap in industry coverage among the brokers in a merger cluster is associated with higher turnover (76% versus 65% otherwise, t-stat for difference = 2.61). This is consistent with the efficiency improvement

aspect of the mergers. In addition, international mergers and mergers with turmoil see significantly higher turnover, also consistent with our predictions in Section 4.1.

[Insert Table 5 here]

4.4.2. *Who are turning over?*

Column (1) of Table 5 Panel A reports the *level* of turnover, in the next few columns we investigate *who* are turning over. Specifically, we analyze the *characteristics* of analysts, both in terms of forecast accuracy and star status, who stay with versus those depart from the combined firm. Our predictions regarding forecast accuracy are guided by the following argument. Existing literature suggests that ‘normal’ turnovers are mainly a response to poor forecasting performance (e.g. Mikhail, Walther and Willis, 1999). However, in the context of mergers other forces can potentially overwhelm this ‘normal’ turnover mechanism and upset the negative linear relation between turnover and forecast accuracy through increasing the turnover propensity for good performers. This is consistent with the finding that in the overall sample, although the analysts staying have slightly higher average accuracy score than those departing (51.45 versus 50.40), the difference is not statistically significant (t-stat = 1.57).

We conjecture that when faced with substantial career uncertainties, good performers tend to leave because they have better external career opportunities. When viewing our independent variables in this light, we believe target analysts face more career uncertainty than acquirer analysts, thus the ‘normal’ turnover mechanism of poor performers departing is likely less descriptive of target analyst turnovers than acquirer analyst turnovers. The evidence in column (2) and (3) regarding *Acquirer* is consistent with this intuition. There is no significant difference in forecast accuracy between the staying and departing analysts at the target; however,

for the acquirer the departing analysts are on average significantly less accurate, consistent with the ‘normal’ turnover mechanism at work when career uncertainties are lower.

We apply the same rationale and expect more career uncertainties in the cases of higher industry overlap (*Overlap* =1), culture clash (*Culture_Clash* =1), international mergers (*International* =1), and merger turmoil (*Turmoil* =1), therefore the ‘normal’ turnover mechanism of poor performers departing is likely less descriptive of analyst turnovers in these situations than otherwise. The results generally support our predictions. We find no difference in forecast performance between the staying and departing analysts when there is large industry coverage overlap and when there are potential culture clashes. In contrast, when there is low industry overlap and less potential for culture clashes, departing analysts are significantly less accurate than those staying, consistent with ‘normal’ turnover mechanism at work.

We also find that departing analysts are less accurate than those staying in firms stronger in research (*Research* =1) but not for firms with weaker research departments. This is consistent with higher forecast accuracy being valued more at stronger research departments.

The last column analyzes *Star_Leaving_Tendency*, defined as the percentage of stars leaving the combined firm minus the percentage of non-stars leaving the combined firm after a merger.¹⁸ For the overall sample, stars’ leaving tendency is not significantly different from non-stars’ (mean = -0.003 and insignificant). We do find that when there is large industry overlap (*Overlap* =1), stars are more likely to leave and the opposite is true when there is low overlap. Interestingly, we also find that for brokers strong in underwriting (*Underwriting* =1) stars are significantly less likely to leave than non-stars by about 5.88% (*Star_Leaving_Tendency* =-

¹⁸ The number of brokers is 105, less than the total sample of 106 due to one broker having no star analysts pre-merger.

5.88%), this is consistent with stronger investment banks work harder to retain stars given their critical roles in securities underwriting during this period.

Finally, Panel B of Table 6 finds no difference in analyst optimism in staying and departing analysts, regardless of investment banking strength. Hong and Kubik (2003) suggest that forecast optimism drives regular analyst turnover. Our results on merger-related turnovers are inconsistent with the argument in Hong and Kubik (2003).

4.5. Logistic analysis of analyst turnover

Table 6 presents logistic regression results for Models (1) to (4). In the first three columns, the dependent variable, analyst career outcome, is defined as *Leave_Combined*. It is *Leave_Profession* in the last column. Column (1) includes *Accu_Score* in linear fashion, after controlling for other variables, it is insignificant. H1 predicts a more complex and potentially U-shaped relation between turnover and forecast accuracy, therefore in the next column we add a squared term *Accu_Score_2*. Both *Accu_Score* and *Accu_Score_2* are now significantly different from zero. Their signs (negative for *Accu_Score* and positive for *Accu_Score_2*) are consistent with a U-shaped relation between turnover and forecast accuracy. In column (3), we separately model the effects of good performance and bad performance with *Top_Accu* and *Bottom_Accu*. The coefficient on *Top_Accu* is 0.5495, significantly different from zero at less than the 1% level. In terms of the marginal effect, being in the top 30% in accuracy increases turnover during a merger by 11.5%, or about 18% of the unconditional turnover probability of 63%. Thus the effect of good performers departing following a merger appears economic significant. This is a unique aspect of merger-related analyst turnover because prior studies suggest that regular analyst turnovers are driven by poor performance (e.g. Hong and Kubik, 2003). We also find an effect of poor performance on turnovers during mergers. The coefficient

on *Bottom_Accu* is 0.6576, significantly different from zero at less than the 1% level. Being in the bottom 30% in accuracy increases the turnover rate by 13.5%, or 21% of the unconditional turnover probability of 63%. In order to gauge the relative importance of good and bad forecasting performance on turnover, we conduct an F-test of the difference between *Top_Accu* and *Bottom_Accu* and find the two coefficients to be insignificantly different from each other. Therefore, in the context of mergers, good and bad performance is equally important in driving analyst turnover. We also find that star analysts are less likely to turnover, supporting H2. The coefficient on *All_Star* is -0.3307, significant at less than the 5% level. Being a star analyst reduces the turnover likelihood by 7%.

[Insert Table 6 here]

We find that both corporate and research department level strength affect analyst turnover. The coefficient on *Acquirer* is -0.5742, significant at less than the 1% level, supporting H3. Being employed by the acquirer reduces an analyst's turnover likelihood by 13%, or 21% of the unconditional turnover probability of 63%. The coefficient on *Research* is -0.2876 (p-value less than 5%), consistent with H4. A one standard deviation increase in broker size reduces analyst turnover probability by 5.6%. The results in Table 6 also support our H5 that high industry overlap increases analyst turnover (coefficient on *Overlap* being 0.4432 with p-value less than 1% and marginal effect of 4.2%). However, we do not find significant results on *Culture_Clash*, which is defined as potential culture clashes between commercial banks/insurance firms and investment banks. The results on *International* offer weak support for H7 and the general 'culture clash' story. The coefficient there is positive (0.2347) and significant at the 10% level. Finally, consistent with H8, merger turmoil significantly increases

turnover. The coefficient on *Turmoil* is 0.3999 and significant at less than the 5% level. Analysts involved in multi-deal merger clusters have higher turnover likelihood by 8.9%.

In the last column, when we look at turnover as analysts leaving the profession. We again find a U-shaped relation between turnover rate and forecast accuracy and with no significant difference between the coefficients on *Top_Accu* and *Bottom_Accu*. Further, star analysts and analysts employed by acquirers are less likely to leave the profession.

We do not find the control variables, *Underwriting* and *Expr*, to be significantly related to analyst turnover in any of the regressions. In unreported results, we include forecast optimism, defined either as a continuous *Optimism* variable or a *Top_Optimism* (top 10% or 50%) dummy variable, in the regressions. None of the optimism variables are significant and their inclusion/exclusion has no effect on other variables. The existing evidence on the effect of optimism on regular analyst turnover has been mixed. Hong and Kubik (2003) find that forecast optimism is associated with better career outcomes for analysts. Zhang (2005), on the other hand, documents that optimism is in fact associated with worse underwriting performance and worse analyst career outcomes. Even though most of our sample mergers are driven by investment banking motives, we find that forecast optimism is not associated with analyst turnover following mergers.

4.6. Post-merger firm research strength

The last research question we address is the overall effect of mergers on a brokerage firms' research strength. We measure changes in research strength by comparing the changes, from pre- to post-merger, in broker size (the number of analysts employed), the number of firms followed, the average accuracy score, and the percentage of star analysts. The pre-merger research strength is calculated across all analysts employed at the brokers in a merger cluster one

year before the first merger in the cluster. For example, the pre-merger accuracy is the average accuracy score of all analysts employed at the brokers in a merger cluster. The post-merger measures are defined similarly one year after the completions of all mergers in a cluster. The number of observations for this analysis is 59, the number of merger clusters in our sample.

In unreported results, we find that the broker size, the number of firms followed, and the average accuracy score all decline somewhat post-merger, although the changes are not significant at conventional levels. We do find a significant decline of the percentage of star analysts post-merger (the change in percentage of star analysts is -5.5%). Combined with our earlier finding that merged firms are less likely to lose their existing stars, this suggests that the newly added analysts post-merger are less likely to be star analysts. We note that our inferences in this section are likely affected by the small number of observations.

5. Conclusions

The U.S. financial industry has gone through significant consolidation since the early 1990's. Our study is the first to investigate how financial analyst career outcomes are affected by these mergers. We find that 24% of the financial analysts tracked by IBES and 49% of Institutional Investor All-Star analysts are affected by mergers during our sample period. Over 63% of the analysts involved in the mergers leave the combined firm within one year. Factors that drive merger-related analyst turnovers are more complicated than for regular turnovers. In particular, merger-related turnover has a U-shaped relation with forecast accuracy, i.e. both good and bad performers are more likely to depart following a merger. This contrasts with the linear relation between regular analyst turnover and forecast accuracy documented in prior studies. We also find that various merger-related variables, such as the comparative strength of the merger entities at the corporate level (i.e., acquirer versus target status) and at the research department

level, overlap in industry coverage, potential culture clashes and merger turmoil are important in predicting turnover. Finally, even though investment banking motives drive the majority of mergers in our sample, forecast optimism is not an important determinant of analyst career outcomes during mergers. We do find that firms stronger in investment banking are less likely to lose star analysts following a merger.

We make several contributions to the literature. First, we fill a void in the literature on analyst career concerns by documenting that merger-related analyst turnovers are driven by factors that are different and more complicated than for regular analyst turnovers.

Second, we add to the general literature on job turnovers and how they relate to performance. Prior studies on top management turnovers (e.g. Warner and Watts, 1988, on corporate executives; and Khorana, 1996, on mutual fund managers) and financial analyst turnovers are consistent in finding a negative relation between turnover and performance. We document a distinct U-shaped relation between turnover and performance for financial analysts during mergers, i.e. top performing analysts depart just as frequently as poor performers.

We also add to the literature on how mergers impact the labor force. Existing studies on executive turnover following mergers have tied target CEO turnover to poor target performance and support the disciplinary role of corporate takeovers (e.g., Martin and McConnell, 1991). Our evidence suggests that mergers can also have perhaps the unintended consequence of driving away top talents when it comes to the broader workforce. To the best of our knowledge, ours is the first study to tie merger-related turnover outside the top management team to individual employee attributes, such as job performance. Although we acknowledge that the scope of our study is limited to financial analysts, the evidence suggests that turnover mechanisms during mergers are different for top management than for other employees.

Finally, while there has been research on the recent financial industry consolidation, most analysis focuses on the causes and effects of mergers between commercial banks (e.g. Pilloff, 2004). Recognizing this limitation, Berger, Demsetz, and Strahan (1999) call for research on mergers involving non-bank financial institutions. We take a step in that direction by studying analyst career outcomes in mergers involving different types of financial firms. Although our analysis focuses on a very specific aspect of the merger wave, we add richness to the understanding of this important chapter for the financial industry.

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Appendix: Variable Definitions

We define a ‘*merger cluster*’ as a single merger transaction (‘*single-deal cluster*’) unless one of the following two situations applies (referred to as ‘*multi-deal cluster*’): 1) an acquirer in a previous transaction becomes a target within the current or next calendar year, or 2) an acquirer buys two or more targets within the same calendar year.

Dependent Variables:

Measured in the *year after* the completion of the last merger deal in a merger cluster

Analyst Level	
Leave_Combined	Equals 1 if an analyst does not issue any forecasts for any brokerage involved in the merger cluster after all mergers in the cluster merger are completed, and zero otherwise.
Leave_Profession	Equals 1 if an analyst stops releasing forecasts in IBES database after all mergers in the merger cluster are completed, and zero otherwise.
Broker Level	
Turnover Rate (Pct_Leave_Combined)	For a brokerage, it is defined as the percentage of analysts with Leave_Combined = 1.
Star_Leaving_Tendency	For a brokerage, it is defined as (number of All Stars with Leave_Combined as 1 / number of All Stars in the year before the first merger in the merger cluster) – (number of non-All Stars with Leave_Combined as 1 / number of non-All Stars in the year before the first merger in the merger cluster)

Independent Variables:

Measured in the *year before* the completion of the first merger deal in a merger cluster

Analyst Level	
Accuracy_Score	<p>For each analyst, we keep his/her last forecast for a firm-year within 120 days before the earnings announcement date. Forecast error is calculated as the absolute difference between the forecasted and actual earnings. We rank analysts following each firm-year based on the absolute forecast error. The most accurate analyst for a firm year receives a ranking of 1; the second most accurate analyst receives a ranking of 2; and onward until the worst analyst receives the highest rank. We divide the ranks minus one by the total number of analysts following this firm minus one, and calculate accuracy score as 100 minus the 100 times this ratio (Hong, Kubik and Solomon, 2000):</p> $\text{Accuracy_Score} = 100 - 100 \times \frac{\text{Accuracy_Rank} - 1}{\text{Total_Num_Analyst} - 1}$ <p>The most accurate analyst for a firm-year receives an accuracy score of 100; the least accurate analyst receives an accuracy score of 0. We then average each analyst’s accuracy scores across all firms followed by him/her in this year to obtain the accuracy score of this analyst for this year.</p>
Accu_Score_2	Squared Accu_Score.
Top_Accu	Equals 1 if an analyst’s accuracy score in the year before the first merger in the merger cluster is greater than or equal to 70, and zero otherwise.
Bottom_Accu	Equals 1 if an analyst’s accuracy score in the year before the first merger in the merger cluster is smaller than or equal to 30, and zero otherwise.

All_Star	Equals 1 if an analyst has ever been ranked as an Institutional Investor All Star analyst before the first merger in the merger cluster, and zero otherwise.
Overlap (Continuous variable used in regressions)	The percentage of the industries (defined by three-digit SIC codes) covered by an analyst that are also covered by analysts working in other brokerages in the merger cluster in the year before the first merger.
Expr	The number of years an analyst has provided forecasts in the IBES Database before the first merger in the merger cluster.
Optimism	The percentage of an analyst's forecasts which are higher than the corresponding 90-day consensus, where 90-day consensus of a forecast is defined as the mean of the earnings forecasts issued by all other analysts covering the same firm-year during the 90 days before that particular forecast.
Top_Optimism	Equals 1 if an analyst's optimism score is in top 10% or 50%, zero otherwise.
<i>Broker or Merger Cluster Level</i>	
Acquirer	Equals 1 if a brokerage is the acquirer in the merger cluster, and zero otherwise.
Research (Continuous variable used in regressions)	Natural log of the number of analysts who have issued forecasts in the IBES database from this brokerage in the year before the first merger in the merger cluster.
Research (Dummy variable in the univariate analysis)	Equals 1 if a brokerage's number of analysts in the year before the first merger in the merger cluster is above sample median, zero otherwise.
Overlap (Dummy variable used in the univariate analysis)	Equals 1 if the percentage of the industries (defined by three-digit SIC codes) covered by a brokerage that are also covered by analysts working in other brokerages in the merger cluster in the year before the first merger is greater or equal to sample median percentage, zero otherwise.
Culture_Clash	Equals 1 if one of the firms in the merger cluster has two-digit primary SIC code as either 60 (commercial bank) or 63 (insurance company) in the year before the first merger in the merger cluster, zero otherwise.
International	Equals 1 if there is at least one foreign firm involved in the merger cluster, zero otherwise.
Turmoil	Equals 1 if there are at least two merger transactions involved in the merger cluster, zero otherwise.
Underwriting	Equals 1 if a brokerage has a Carter-Manaster Underwriter Ranking above 8 in the year before the first merger in the merger cluster, and zero otherwise.

Figure 1. Six Mergers Involving First Union Corp.

Part A: Information from SDC

Deal #	Merger Announcement Date	Merger Effective Date	Target Name	Acquirer Name
1	12/12/1997	01/09/1998	Principal Financial Securities	Everen Capital Corp
2	08/19/1997	02/02/1998	Wheat First Butcher Singer	First Union Corp,Charlotte,NC
3	10/27/1998	04/01/1999	Interstate/Johnson Lane Inc	Wachovia Corp,Winston-Salem,NC
4	04/26/1999	10/01/1999	Everen Capital Corp	First Union Corp,Charlotte,NC
5	05/09/2000	08/07/2000	First Albany-Brokerage Bus	First Union Corp,Charlotte,NC
6	04/16/2001	09/04/2001	Wachovia Corp,Winston-Salem,NC	First Union Corp,Charlotte,NC

Part B: Merger tree

Numbers in brackets correspond to deals numbers in Panel A. Numbers in parentheses correspond to IBES broker codes in Panel C.

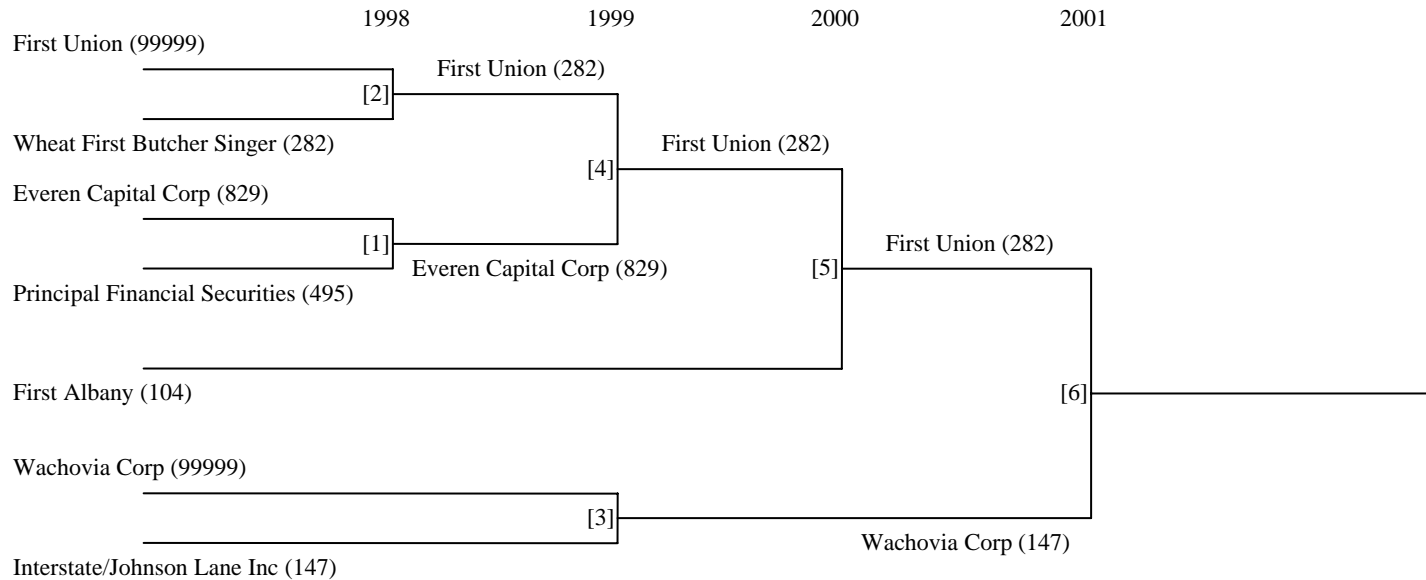


Figure 1. Six Mergers Involving First Union Corp. (Cont'd)

Part C: IBES broker information

BACODE	BANAME	BAID	# of Years Broker Stay in IBES	Last Year Broker in IBES	Average # of Analysts while Broker is in IBES	Average # of Forecasts while Broker is in IBES	# of Analyst During Broker's Last Year in IBES	# of Forecasts During Broker's Last Year in IBES
829	EVEREN SECURITIES, INC.	KEMSEC	9	1999	34.6	3719.6	36	2783
495	PRINCIPAL FINANCIAL SECURITIES	EPPLER	10	1998	12.8	1089.4	2	9
104	FIRST ALBANY CORP.	FIRSTALB	21	2006	16.5	2219.2	18	430
147	WACHOVIA SECURITIES, INC.	JOHNSON	18	2001	14.4	1507.1	17	2567
282	WACHOVIA SECURITIES	WHEAT	25	2006	31.7	4747.1	48	983

Table 1. Sample Description

Panel A: Sample selection procedures

	Number of Mergers --for Target SIC 6211	Number of Mergers -- for Target SIC 6282
Completed merger deals during 1994 to 2004 with domestic target and target primary SIC code of 6211 (investment banks and brokerage firms) or 6282 (independent research firms) in the SDC Database*	649	563
Deals with 100% ownership by acquirer after merger	514	424
Deals with the acquirer primary two-digit SIC code of 60 (commercial banks), 62 (securities firms), or 63 (insurance companies)*	314	143
Deals with both target name and acquirer name found in IBES or at the minimum with the target name found in IBES	60	0
Supplement with additional deals that are documented in Corwin and Schultz (2005) and Ljungqvist, Marston and Wilhelm (2006) --- Final sample of merger transactions	76	
Number of merger clusters (defined in the Appendix)	59	
Number of brokerage firms with analysts in IBES prior to merger	106	
Number of <u>unique</u> broker codes in our sample	77	
As a % of unique IBES broker codes during our sample period	10%	
Number of financial analysts	2,787	
Number of <u>unique</u> analysts in our sample	2,639	
As a % of unique IBES analyst codes during our sample period	24%	
Number of Star analysts	574	
Number of <u>unique</u> star analysts in our sample	476	
As a % of total number of star analysts during our sample period	49%	

*Official SIC code definitions for Acquirers and Targets
(Source: http://www.osha.gov/pls/imis/sic_manual.html)

Acquirer	Target
SIC 60: Depository Institutions	SIC 6211: Security Brokers, Dealers, and Flotation Companies
SIC 62: Security and Commodity Brokers, Dealers, Exchanges and Services	SIC 6282: Investment Advice
SIC 63: Insurance Carriers	

Our initial SDC searches include Target SIC code 6282, which includes independent research firms. However, no such deals exist in our final sample because none can be matched with IBES brokerage names.

Panel B: Distribution of sample merger transactions by year

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
2	3	1	11	16	13	14	10	3	1	2	76

Table 2. Causes for Mergers

This table summarizes the merger synergies mentioned in press releases for our 76 sample mergers in the financial industry from 1994 to 2004. The synergies are often phrased in terms of the target firm’s strength in a particular service area. Investment banking, brokerage, asset management, and research are the frequently discussed rationales behind a merger. The category ‘other’ includes target service strength in corporate finance, insurance, or syndication. We also code the cases where the goal of the merger is to create a bigger bank to compete (Bigger bank), where the target and acquirer have a geographic fit (Geographic fit), and where the merger involves a non-U.S. firm (International).

Reason offered	# of mergers	% of sample	Only reason offered	# of mergers	% of sample
Investment Banking	47	62%	Investment banking – only	20	26%
Brokerage	36	47%	Brokerage – only	7	9%
Asset management	18	24%	Asset management – only	3	4%
Research	18	24%	Research – only	0	0%
Other	11	14%	Other – only	0	0%
Bigger bank	9	12%			
Geographic fit	20	26%			
International	22	29%			
Total # of mergers	76		Total # of mergers	76	

Table 3. Summary Statistics

Our sample includes mergers in the financial industry from 1994-2004. Variable definitions are in the Appendix.

Variables	N	Mean	Std	25%	Median	75%
Leave_Combined	2,787	0.632	0.482	0.000	1.000	1.000
Leave_Profession	2,787	0.350	0.477	0.000	0.000	1.000
Accu_Score	2,787	50.789	17.785	41.103	50.817	60.625
Accu_Score_2	2,787	2,895.709	1,864.925	1,689.451	2,582.321	3,675.391
Top_Accu	2,787	0.104	0.306	0.000	0.000	0.000
Bottom_Accu	2,787	0.099	0.299	0.000	0.000	0.000
All_Star	2,787	0.206	0.404	0.000	0.000	0.000
Acquirer	2,787	0.484	0.500	0.000	0.000	1.000
Number of analysts in broker	2,787	64.946	48.361	29.000	53.000	88.000
Research	2,787	3.875	0.824	3.367	3.970	4.477
Overlap	2,787	0.503	0.432	0.000	0.500	1.000
Culture_Clash	2,787	0.562	0.496	0.000	1.000	1.000
International	2,787	0.498	0.500	0.000	0.000	1.000
Turmoil	2,787	0.356	0.479	0.000	0.000	1.000
Underwriting	2,787	0.554	0.497	0.000	1.000	1.000
Expr	2,787	5.323	3.793	2.000	4.000	8.000

Table 4. Correlation Matrix

Upper triangle reports Spearman correlation coefficients; lower triangle reports Pearson correlation coefficients. Bold coefficients are statistically significant at the $p < 0.1$ level, two-tailed test. Variable definitions are in the Appendix.

	Leave _Combined	Leave _Profession	Accu _Score	Accu_ Score_2	Top _Accu	Bottom _Accu	All _Star	Acquirer	Research	Overlap	Culture _Clash	Intl	Turmoil	Under- writing	Expr
Leave_Combined		0.560	-0.036	-0.036	0.058	0.076	-0.103	-0.141	-0.157	0.051	0.066	0.029	0.041	-0.080	-0.030
Leave_Profession	0.560		-0.039	-0.039	0.062	0.089	-0.117	-0.058	-0.085	0.008	0.067	0.027	0.036	-0.102	-0.044
Accu_Score	-0.028	-0.034		1.000	0.530	-0.517	0.040	0.024	0.073	0.010	-0.001	-0.004	-0.020	0.044	-0.001
Accu_Score_2	0.002	0.012	0.954		0.530	-0.517	0.040	0.024	0.073	0.010	-0.001	-0.004	-0.020	0.044	-0.001
Top_Accu	0.058	0.062	0.611	0.739		-0.113	-0.081	0.038	-0.004	-0.018	-0.020	0.017	0.006	-0.017	-0.113
Bottom_Accu	0.076	0.089	-0.624	-0.442	-0.113		-0.095	0.015	-0.040	-0.014	-0.034	0.016	0.020	-0.031	-0.093
All_Star	-0.103	-0.117	0.030	-0.014	-0.081	-0.095		0.082	0.312	0.172	-0.187	0.096	-0.089	0.300	0.394
Acquirer	-0.141	-0.058	0.025	0.029	0.038	0.015	0.082		0.360	0.129	-0.175	0.089	0.018	0.140	0.033
Research	-0.150	-0.091	0.048	0.036	-0.013	-0.037	0.303	0.344		0.279	-0.126	0.322	-0.113	0.631	0.060
Overlap	0.056	0.009	0.009	-0.005	-0.019	-0.013	0.179	0.126	0.264		-0.042	0.076	-0.001	0.417	-0.008
Culture_Clash	0.066	0.067	0.003	-0.008	-0.020	-0.034	-0.187	-0.175	-0.111	-0.043		-0.145	0.371	-0.089	-0.043
International	0.029	0.027	-0.009	0.004	0.017	0.016	0.096	0.089	0.337	0.070	-0.145		-0.070	0.183	0.057
Turmoil	0.041	0.036	-0.014	-0.017	0.006	0.020	-0.089	0.018	-0.107	-0.002	0.371	-0.070		-0.195	-0.015
Underwriting	-0.080	-0.102	0.037	0.025	-0.017	-0.031	0.300	0.140	0.632	0.423	-0.089	0.183	-0.195		0.053
Expr	-0.028	-0.023	0.006	-0.040	-0.100	-0.087	0.398	0.032	0.059	-0.012	-0.037	0.074	-0.006	0.042	

Table 5. Characteristics of Analysts Staying versus Departing

Our sample includes mergers in the financial industry from 1994-2004. This table reports the mean value of (1) Turnover Rate of sample brokerage houses, (2) Accuracy Score of analysts staying in the combined firm after a cluster of mergers, (3) Accuracy Score of analysts leaving the combined firm after a cluster of mergers, (4) t-stat of (2) – (3) with bold ones indicating significant difference at $p < 0.1$ level, two-tailed test, and (5) Star_Leaving_Tendency of sample brokerage with * indicating mean value significant different from zero (at $p < 0.1$ level, two-tailed test). The t-stat of the difference in Turnover Rate and Star_Leaving_Tendency for each pair of the subsamples are reported in columns (1) and (5), with bold t-stats indicating significant difference at $p < 0.1$ level, two-tailed test. Variable definitions are in the Appendix.

Panel A: Analyst turnover rate and characteristics of analysts staying versus departing

Subsamples	(1) Turnover Rate (% of analysts leaving combined firm)	(2) Average Accuracy Score of analysts staying in combined firm	(3) Average Accuracy Score of analysts leaving combined firm	(4) Difference (2) – (3)	(5) Star_Leaving_Tendency
Overall sample	0.7106 N=106	51.4495 N=1,025	50.4046 N=1,762	t-stat = 1.57	-0.003 N=105
Acquirer = 1	0.6512 (N=39)	52.40 (N=591)	50.37 (N=759)	t-stat = 2.11	-0.0001 (N=39)
Acquirer = 0	0.7453 (N=67) t-stat = -2.34	50.16 (N=434)	50.43 (N=1003)	t-stat = -0.29	-0.0047 (N=66) t-stat = 0.09
Research = 1	0.6994 (N=53)	51.84 (N=876)	50.21 (N=1437)	t-stat = 2.27	-0.0105 (N=53)
Research = 0	0.7219 (N=53) t-stat = -0.53	49.17 (N=149)	51.24 (N=325)	t-stat = -1.18	0.0046 (N=52) t-stat = -0.35
Overlap = 1	0.7597 (N=58)	50.45 (N=512)	50.55 (N=1150)	t-stat = -0.12	0.0416* (N=58)
Overlap = 0	0.6513 (N=48) t-stat = 2.61	52.45 (N=513)	50.13 (N=612)	t-stat = 2.16	-0.0581* (N=47) t-stat = 2.30
Culture_Clash = 1	0.7235 (N=59)	50.99 (N=532)	50.75 (N=1035)	t-stat = 0.27	0.0125 (N=58)
Culture_Clash = 0	0.6945 (N=47) t-stat = 0.69	51.95 (N=493)	49.91 (N=727)	t-stat = 1.96	-0.0222 (N=47) t-stat = 0.84
International = 1	0.7682 (N=39)	51.55 (N=491)	50.11 (N=897)	t-stat = 1.44	-0.0130 (N=39)
International = 0	0.6771 (N=67) t-stat = 2.09	51.35 (N=534)	50.71 (N=865)	t-stat = 0.73	0.0029 (N=66) t-stat = -0.39
Turmoil = 1	0.7651(N=40)	50.80 (N=338)	50.26 (N=653)	t-stat = 0.49	0.0254 (N=40)
Turmoil = 0	0.6776 (N=66) t-stat = 2.07	51.77 (N=687)	50.49 (N=1109)	t-stat = 1.53	-0.0205 (N=65) t-stat = 1.01
Underwriting = 1	0.6695 (N=28)	52.26 (N=621)	50.80 (N=923)	t-stat = 1.69	-0.0588** (N=28)
Underwriting = 0	0.7254 (N=78) t-stat = -1.24	50.20 (N=414)	49.97 (N=839)	t-stat = 0.22	0.0172 (N=77) t-stat = -1.91

Table 5. Characteristics of Analysts Staying versus Departing (Cont'd)

This table reports the mean value of (1) Optimism Score of analysts staying in the combined firm after a cluster of mergers, (2) Optimism Score of analysts leaving the combined firm after a cluster of mergers, (3) t-stat of (1) – (2) with bold ones indicating significant difference at $p < 0.1$ level, two-tailed test. Variable definitions are in the Appendix.

Panel B: Underwriting and forecast optimism

Subsamples	Average optimism score of <u>staying analysts</u>	Average optimism score of <u>analysts departing</u>	Difference
Underwriting = 1	0.4733 (N=659)	0.4747 (N=1,110)	t-stat = -0.14
Underwriting = 0	0.4726 (N=418)	0.4711 (N=1,041)	t-stat = 0.14

Table 6. Logistic Regression Analysis of Analyst Turnover

$$\text{Prob [Leave_Combined = 1]} = \text{Logit} (a_0 + a_{11} \text{Accu_Score} + a_2 \text{All_Star} + a_3 \text{Acquirer} + a_4 \text{Research} + a_5 \text{Overlap} + a_6 \text{Culture_Clash} + a_7 \text{International} + a_8 \text{Turmoil} + a_9 \text{Underwriting} + a_{10} \text{Expr}) \quad (1)$$

$$\text{Prob [Leave_Combined = 1]} = \text{Logit} (a_0 + a_{11} \text{Accu_Score} + a_{12} \text{Accu_Score_2} + a_2 \text{All_Star} + a_3 \text{Acquirer} + a_4 \text{Research} + a_5 \text{Overlap} + a_6 \text{Culture_Clash} + a_7 \text{International} + a_8 \text{Turmoil} + a_9 \text{Underwriting} + a_{10} \text{Expr}) \quad (2)$$

$$\text{Prob [Leave_Combined = 1]} = \text{Logit} (a_0 + a_{11} \text{Top_Accu} + a_{12} \text{Bottom_Accu} + a_2 \text{All_Star} + a_3 \text{Acquirer} + a_4 \text{Research} + a_5 \text{Overlap} + a_6 \text{Culture_Clash} + a_7 \text{International} + a_8 \text{Turmoil} + a_9 \text{Underwriting} + a_{10} \text{Expr}) \quad (3)$$

$$\text{Prob [Leave_Profession = 1]} = \text{Logit} (a_0 + a_{11} \text{Top_Accu} + a_{12} \text{Bottom_Accu} + a_2 \text{All_Star} + a_3 \text{Acquirer} + a_4 \text{Research} + a_5 \text{Overlap} + a_6 \text{Culture_Clash} + a_7 \text{International} + a_8 \text{Turmoil} + a_9 \text{Underwriting} + a_{10} \text{Expr}) \quad (4)$$

Our sample includes mergers in the financial industry from 1994-2004. We include year dummies in all regressions and cluster the standard errors by our merger clusters. Standard errors are in parentheses. ***, **, * represent significance levels of $p < 1\%$, 5% , 10% , respectively, for one-tailed tests with predicted signs and two-tailed tests otherwise. Numbers in brackets are the marginal effects on the predicted probabilities in the logistic regressions from a one standard deviation increase from the mean for a continuous variable and from zero to one for an indicator variable, with other variables measured at the mean. Variable definitions are in the Appendix.

Dep	Exp. sign	(1) Analyst level Leave_Combined	(2) Analyst level Leave_Combined	(3) Analyst level Leave_Combined	(4) Analyst level Leave_Profession
Intercept		1.6408*** (0.4685)	2.6707*** (0.5264)	1.3920*** (0.4562)	0.4333 (0.3271)
<i>Analyst Level Test Variables</i>					
Accu_Score		-0.0024 (0.0023) [-0.9%]	-0.0501*** (0.0090) [-21.7%]		
Accu_Score_2			0.0005*** (0.0000) [16.7%]		
Top_Accu	+			0.5495*** (0.1710) [11.5%]	0.4955*** (0.1278) [11.7%]
Bottom_Accu	+			0.6576*** (0.1366) [13.5%]	0.6314*** (0.1308) [15.0%]
All_Star	-	-0.3498*** (0.1469) [-8.2%]	-0.2904** (0.1525) [-6.7%]	-0.3307** (0.1505) [-7.0%]	-0.4848*** (0.1060) [-10.3%]
<i>Broker or Merger Cluster Level Test Variables</i>					
Acquirer	-	-0.5479*** (0.2040) [-12.4%]	-0.5636*** (0.2057) [-12.7%]	-0.5742*** (0.2062) [-13.0%]	-0.2386** (0.1390) [-5.3%]
Research	-	-0.2915** (0.1322) [-5.7%]	-0.2870** (0.1337) [-5.6%]	-0.2876** (0.1337) [-5.6%]	-0.0779 (0.0844) [-1.4%]

(Cont'd)

Dep	Exp. sign	(1) Analyst level Leave_Combined	(2) Analyst level Leave_Combined	(3) Analyst level Leave_Combined	(4) Analyst level Leave_Profession
Overlap	+	0.4323*** (0.1746) [4.1%]	0.4557*** (0.1717) [4.3%]	0.4432*** (0.1704) [4.2%]	0.1588* (0.1165) [1.5%]
Culture_Clash	+	-0.1302 (0.1762) [-2.9%]	-0.1045 (0.1788) [-2.3%]	-0.1001 (0.1773) [-2.2%]	0.0742 (0.1163) [1.6%]
International	+	0.2530* (0.1716) [5.7%]	0.2207* (0.1708) [5.0%]	0.2347* (0.1705) [5.3%]	0.1210 (0.0958) [2.7%]
Turmoil	+	0.4175** (0.1985) [9.3%]	0.4192** (0.1968) [9.3%]	0.3999** (0.1954) [8.9%]	0.1277 (0.1247) [2.8%]
Control Variables					
Underwriting		0.2498 (0.2337) [5.7%]	0.2456 (0.2289) [5.6%]	0.2457 (0.2296) [5.6%]	-0.1407 (0.1462) [-3.1%]
Expr		-0.003 (0.0132) [-0.2%]	0.0048 (0.0130) [0.4%]	0.0004 (0.0131) [0.3%]	0.0106 (0.0114) [0.9%]
Year dummies-Yes					
N (Y=1)		2,787 (1,762)	2,787 (1,762)	2,787 (1,762)	2,787 (976)
Unconditional probability		63% (1,762/2,787)	63%	63%	35% (976/2,787)
Pseudo-R ²		8.54%	9.61%	9.52%	5.88%