Norwegian School of Economics
Bergen, Spring 2023

Does Analyst Affiliation Matter?

Analyzing Performance of Security Analyst Recommendations Subsequent IPO, Loan Syndication, and M&A Events.

Erblinda Berisha & Ludvig-Johannes Hetty Carlsen

Supervisor: Francisco Santos

Master thesis, Economics and Business Administration

Major: Financial Economics

NORWEGIAN SCHOOL OF ECONOMICS

Acknowledgements

This master's thesis marks the end of our MSc in Economics and Business Administration, with a major in Financial Economics. Our time here has been exciting and highly educational. We want to express our sincere gratitude to our supervisor, Francisco Santos for his guidance, support, and valuable insights throughout the entire semester. We also want to thank NHH for providing necessary access to databases that have been highly useful for our study. Finally, we would like to extend our gratitude to our friends and fellow students for making the time at NHH memorable.

Norwegian School of Economics

Bergen, May 2023

Erblinda Berisha

Ludvig-Johannes Hetty Carlsen

Abstract

This thesis examines the differences in the value of analyst consensus recommendations subsequent to IPOs, syndicated loans, and M&A deals depending on their affiliation status. Relying on recommendations issued on U.S. firms between January 2002 and December 2020, we document statistically significant differences between affiliated and non-affiliated analysts subsequent to IPOs and M&A deals. However, subsequent to syndicated loans, we find no statistically significant differences between the analysts. Stocks with the least favorable recommendations from non-affiliated analysts generate a monthly abnormal gross return of −2.665 percent subsequent to IPOs. Contrarily, stocks with the least favorable recommendations from affiliated analysts generate a monthly abnormal gross return of −3.259 percent subsequent to M&A deals. The results suggest that affiliated analysts' subsequent M&A deals possess informational advantages, while subsequent IPOs they reveal a tendency to issue biased recommendations.

Keywords – Security analysts, portfolio performance, analyst coverage, stock recommendation

Contents

List of Figures

List of Tables

1 Introduction

The investment value of analyst recommendations has long been established as informative for investors. Brokerage houses invest substantial resources into their security research, presumably due to their shared beliefs that analysts' advice possesses valuable insights and generates potential superior returns (Barber et al. (2001); Womack (1996)). However, under the efficient market hypothesis by Fama (1970), investors should not be able to systematically outperform the market based on public information. Grossman and Stiglitz (1980) critiques this, arguing that information is costly and that prices cannot reflect all available information. Further stating that security analysts and other market participants acquiring information would not be sufficiently compensated in relation to the cost of gathering this information. Womack (1996) states that market participants should be willing to pay for information if the expected return is at least as great as the cost of information. Suggesting that analyst recommendations are indeed valuable.

The event studies by Stickel (1995) and Womack (1996) find that favorable (unfavorable) changes in analysts' recommendations are complemented by positive (negative) returns at the time of their announcement. Suggesting that there might exist profitable investment strategies based on security analysts' recommendations. This is further examined by Barber et al. (2001) who instead adopt an investor-oriented approach, that finds profitable investment strategies involving consensus analysis recommendations. Finding that these strategies generate monthly abnormal gross returns in both the most favorable and the least favorable recommended stocks.

By applying the framework from Barber et al. (2001) we aim to further the research of security analyst recommendations by looking at all recommendations issued on U.S. firms in the period Jan-2002 to Dec-2020. Their method is built upon actively implementing the recommendations of security analysts in a buy-and-hold strategy. The consensus estimates on a firm are utilized to categorize them into one of five portfolios ranging from most favorable to least favorable. Where the issued recommendations impact the portfolios for up to a maximum of 30 calendar days. These portfolios are rebalanced daily in relation to their composition of firms as well as the individual firm's weight relative to their market capitalization.

Building upon the established literature that highlights the value of stock recommendations and the disparities in analysts' performance based on affiliation. This thesis aims to examine the differences between analysts by segmenting their affiliation status in relation to recent corporate events. We hypothesize that affiliated analysts subsequent to recent IPOs, syndicated loans, and M&A deals possess superior information that results in more valuable recommendations. However, due to economic incentives to retain future business, analysts may taint their recommendations by being overly optimistic or biased to not jeopardize these relationships. This assumption stems from the previous literature (e.g., Dugar and Nathan, 1995; Lin and McNichols, 1998; Stickel, 1990) that find evidence of analysts issuing overly optimistic recommendations to both retain existing relationships and to land future investment banking deals or advisory roles. This creates a potential conflict of interest for affiliated analysts, who face the choice between providing superior versus biased recommendations. The exact cause of potential differences is unobservable in our method, however their performance combined with previous literature can be indicative of the potential source.

Michaely and Womack (1999), Kolasinski and Kothari (2008), and Chen and Martin (2011) in their event-study research examined the impact of analyst recommendations subsequent to IPOs, mergers & acquisitions, and loan syndication respectively. Our study differs by adopting a portfolio approach to assess the performance of the recommendations. These type of corporate events allows underwriters, advisors, and lenders to obtain superior information on firms that are not commonly known in the market. While there exist regulations and laws in place to limit insider information, the potential for informational spillover will always be present.

Segmenting analysts into either affiliated or independent groups allows us to explore the differences in the value of their recommendations. This thesis adapts the method from Michaely and Womack (1999), Kolasinski and Kothari (2008), and Chen and Martin (2011) to designate analysts' recommendations as either affiliated or independent in relation to recent corporate events. To analyze the performance of these recommendations, we create consensus portfolios with daily rebalancing based on their recommendations following the framework by Barber et al. (2001). Enabling us to examine the performance, and disparities between the analyst groups subsequent to the different corporate events.

For our sample period, subsequent to IPOs, we find statistically significant disparities between the performance of affiliated and independent analysts. Specifically, independent analysts outperform affiliated analysts in their most favorable recommendations. The negative returns in affiliated analysts' most favorable recommended stocks suggest the presence of potential bias subsequent to IPOs. Further, shorting the least favorable recommended stocks by independent analysts generates statistically significant monthly abnormal gross returns of -2.665 percent. Thus, subsequent to IPOs independent recommendations are more valuable for investors.

Subsequent to loan syndication, we find that independent analysts' both most favorable and least favorable recommendations generate statistically significant abnormal gross returns. Further, for affiliated analysts, we find no statistically significant results in our analysis. However, when increasing the affiliation period and event window to one year in our robustness test, affiliated analysts' most favorable recommendations generate statistically significant abnormal returns. Indicating that affiliated analysts may have superior information that manifests itself more in the long-run. Thus, subsequent to loan syndication further research is needed to find the relative performance and value between independent and affiliated analysts.

In contrast, subsequent to M&A deals, affiliated analysts' least favorable recommendations outperform their independent peers. Suggesting that they enjoy potential informational advantages when issuing least favorable recommendations. However, our results subsequent to M&A deals is contrary to the recent literature, which finds that they are biased and perform poorer than independent analysts. While our robustness test show that when increasing the maximum holding period, independent analysts generate abnormal gross returns for their most favorably recommended stocks. Indicating that the sample and method substantially affects the results.

The findings in our thesis are supportive of both Michaely and Womack (1999) and Chen and Martin (2011), but are contradictory to Kolasinski and Kothari (2008). The latter is important, as our approach provides credence that when looking at M&A deals, the use of the method has large implications on potential results. This is supported by Barber et al. (2007), who also find contradictory results to both us and Kolasinski and Kothari (2008).

Our thesis contributes to the security analysts' performance literature by providing further insight into the difference between affiliated and independent analysts. Particularly, readers will gain valuable insights into the performance of analysts segregated by affiliation status subsequent to the corporate events of IPOs, syndicated loans, and M&A deals. By offering a comprehensive understanding of analysts' performance subsequent to these events individually and collectively.

The structure of this thesis is as follows: Section 2 describes the data and sample selection process. In section 3, we present our research design, outlining the methodology and framework for portfolio construction and the designation of affiliation. Section 4 presents and discuss the results, starting with the validation of Barber et al. (2001)'s study for our sample period and discussing the comparability. Thereafter, results in the context of following different corporate events is presented, both looking at them collectively and individually. Section 5 discusses the robustness test and limitations of the thesis. Finally, we end the paper in section 6 by presenting the conclusions.

2 Data

In this section, we describe the different datasets we use for our analysis. The primary data vendors are Wharton Research Data Services (WRDS) and SDC Platinum (SDC). The former provides access to the Center for Research in Security Prices (CRSP) for the daily stock data, I/B/E/S for the analyst recommendations, and the Fama-French factor models. We use SDC for information on IPOs, M&A's, and syndicated loans. WRDS also provides us with a linking table between IBES TICKERs, an unique identifier for each firm in their dataset, to historical PERMNO numbers of CRSP.

2.1 I/B/E/S

Our analysis consists of recommendations issued between Jan-2002 and Dec-2020. This provides us with an initial sample of 530 903 recommendations over the period. There are instances of IBES contributing firms, henceforth contributors, giving out more than one recommendation on the same company per day. These are either double registered in the IBES database or revisions that have been issued on the same day from a contributor. For the analysis, it is important that only one of the issued recommendations on a firm from a contributor is active per day. That is, we can not have two issued recommendations from the same contributor influencing the consensus estimates at the same time. Therefore, to be consistent in our method of rebalancing at the end of each day, and only relying on information that is available at the time, we have done the following changes: recommendations issued after 16:00 are moved to the following day, additionally, we only use the last recommendation issued on any given day, before 16:00. This further reduces our dataset to 528 432 recommendations. Our final sample is 507 568 after removing data points where there is no valid link to CRSP.

2.1.1 Top 50 IBES Contributors

A limitation in our data and possible source of error is the need for manually linking the contributors in the IBES database to the advisors and underwriters from the SDC database. Unfortunately, there is no linking table that exists between them, and this process needs to be done manually. In our sample period, there is a total of 961 unique

contributors in the IBES database, including all of these would be an extensive job in terms of manually linking to SDC and determining if they have an advisory or investment banking division.

We, therefore, limit our analysis to only look at the top 50 contributors for each year based on the number of recommendations issued in the previous years. The metric we use must rely on information that is available at the time. For every year in our sample period, we look at the previous two years and determine the top 50 contributors by their total number of recommendations issued. This yields us a final sample of 139 unique contributors which reduces our sample to 350 861 recommendations.

Our decision can be supported by Mola and Guidolin (2009). They find evidence that investors discount the recommendations of small research departments in the short run compared to large research departments. Mola and Guidolin (2009) explains this as large research departments are given the belief by investors to have superior information.

2.1.2 Distribution of Recommendations

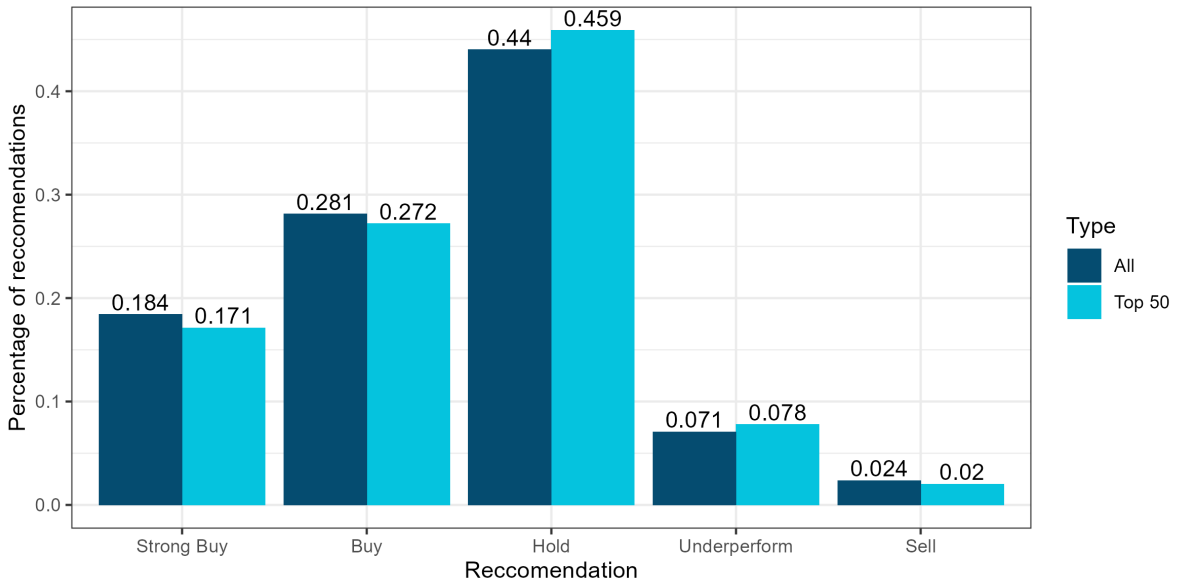
In Figure 2.1 we show the distribution of issued recommendations. There is a clear indication of a higher tendency to issue favorable compared to unfavorable recommendations. This is consistent with Barber et al. (2001, 2006). We see a clear reluctance of analysts to issue sell recommendations, compared to more favorable recommendations.

Compared to the percentage distribution between "Buy", "Hold" and "Sell" from Barber et al. (2006) over time, it is no surprise that our distribution between "Buy" and "Hold" is close. Barber et al. (2006) saw a majority of "Buy" recommendations in 1996 moving towards equality with "Hold" in 2003. Their most plausible explanation is the increased pressure by regulators on brokerage houses' ratings and new regulations. Where we see small differences between the distribution of all contributors and the top 50 contributors.

2.1.3 Loss of Recommendations

A possible severe limitation of our study is the loss of recommendations over time. According to the WRDS overview of IBES, any contributor to the IBES database is

Figure 2.1: Distribution of Recommendations by All & Top 50 IBES Contributors



This figure shows the percentage distribution of all recommendations issued by All and Top 50 IBES contributing firms in the period Jan-2002 to Dec-2020.

allowed to remove their recommendations at any point. Where at least 10 to 12 brokers have had their estimates removed from IBES. This problem is confounded by the fact that not all recommendations are available in the academic version of the WRDS IBES database. This is explained by WRDS as some brokers require users to have a direct license with each broker to obtain their contributions.

This problem can be seen when comparing our recommendations data to previous studies. We can exemplify this by looking at the number of recommendations in Barber et al. (2003) for the years 2000 and 2001. Here, their total amount of recommendations is 90 414 for the two years, but the data available to us would only amount to 60 164. This is a reduction of 33.4 percent, which is rather substantial. It is however important to note that the years 2000 and 2001 are omitted by us, the reasoning is seen in section 2.6 , but this is an important factor to keep in mind for our study. Thus, there is the possibility that brokers ex-post remove their unfavorable or unflattering recommendations, especially when seen compared to the 2000 and 2001 sample differences, and the average rating of our recommendations to that of Barber et al. (2003).

Comparing our recommendations data to a recent thesis by Celebi (2016), we see that our data do not differ too much. While they do not explicitly state their number of yearly

recommendations, by comparing their average ratings to ours we see they are almost identical. With a variation between 0 to 0.02 in the average ratings between 2002 and 2015. This provides evidence that in the past 7 years, there have not been any major changes to the academic version of the IBES database.

2.2 CRSP

We rely on CRSP through WRDS for our stock data. We extract data on all U.S. stocks available between Jan-2002 and Dec-2020. However, our portfolio is only comprised of firms that have had recent events which are further explained in section 2.3.

An important issue to note is that there exists missing data in the database. This especially goes for the delisted return of firms on the day it is removed from a stock market. This can create special problems for us, as we do not act upon news of delisting in companies, only on the consensus recommendations. Therefore, if a contributor has not removed their recommendation on a company before it is delisted, then we are invested until the day it is removed from the stock market and receives its delisting return.

WRDS and CRSP provide their own dataset with the delisting date and delisting return of their covered firms. However, there are still missing returns in this dataset. To overcome this issue, we have employed the following method:

1. If there exists a return on the stock on its delisting date in our daily stock file, then that return is kept for the stock.
2. If the stock does not have a delisted return in our daily stock file, then we use the return reported in the delisted dataset.
3. If the delisted return is omitted from both datasets, we employ a total return of -30% on the day the stock is delisted, in accordance with Shumway (1997).

2.3 SDC Platinum

From SDC we extract information on IPOs, syndicated loans, and M&A deals in the U.S. in the period between Jan-2002 and Dec-2020. This data forms the basis for our proxies for affiliation of the investment banks, advisory services, and research departments.

For IPO data we extract all IPOs in our sample period from SDC, which consists of 3 958 deals. We remove all deals with an initial value of less than 5 million USD in accordance with Michaely and Womack (1999).

Our final IPO deal sample consists of 2 886 deals after removing deals with no link to CRSP. The average number of lead and co-lead managers is 2.7 from a total of 7 871 lead and co-lead managers related to the deals. The lead managers extracted are the ones coded as either lead or co-lead underwriter in the SDC database.

For syndicated loans, there must be a public company that borrows, and we are only looking at the direct borrower, not at any parent companies or guarantors. In accordance with Chen and Martin (2011) we only look at loans to non-financial firms, which means we remove all two-digit sic codes between 60-69. Our final loan sample consists of 18 442 loans. This is reduced from 111 324 total observations, where the data cleaning involved removing unwanted industries and where we do not have a valid link to CRSP. The majority of loans removed from desired industries are to non-public companies and a minority of public companies that we could not establish a link to.

There is a total of 4 597 lead agents in our final sample that have at least a 10 percent stake in the loan they syndicated. However, this only boils down to a total of 1 770 loans, meaning that each loan has had an average of 2.5 lead agents.

We follow the method of Kolasinski and Kothari (2008) when selecting M&A deals, which will only consist of statutory mergers and acquisitions of assets. All other deal types are therefore excluded, such as buybacks, split-offs, spin-offs, and recapitalizations. Additionally, we only extract deals from SDC in the time period for which the value of the deal was at least 5 million dollars to remove small deals of less economic significance. Specifically, we only look at M&A deals for which the acquirer held less than 50 percent of the shares at the time of the deal announcement. This stems from advisor incentives. Where we do not want too high initial ownership which could distort their actions or deals with small economic significance.

As in Kolasinski and Kothari (2008) at least one of the participants, the acquirer or target, needs to have a financial advisor in the deal. Where we also impose that the acquiring firm needs to be public, as this would make for a better comparison in our analysis.

It is also important that we only rely on information that is available at the time. This is in contrast to Kolasinski and Kothari (2008), as their event study framework can rely on information ex-post. Notably, it forces us to make several changes to how we look at the data. We include deals where the acquirer seeks to own 100 percent of the target firm, even if they are not able to do this. This is important, as removing these deals would constitute information that would not have been known at the time.

Our restriction of looking at information that is only available at the time means we also have withdrawn deals in our sample. However, all withdrawn deals stop influencing affiliation when the announcement of withdrawal is made. Consequently, this is relevant when we are examining the potential bias of affiliated analysts, but not when examining potential informational advantages. Additionally, we look at deals from the day they are announced, and not from their effective date.

From a total of 20 914 M&A deals, our sample is reduced to 6 782 after cleaning and removing deals with no link to CRSP, and at least one party having involved a financial advisor. Of these, acquiring firms hired a financial advisor in 4 604 deals compared to target firms 5 914. The analysts that we look at as affiliated in the event of M&A deals are firms that are affiliated with either the acquirer or the target firms. That is, the event itself is based on acquiring firms, but the analysts issuing recommendations subsequent to the event can be affiliated either through the acquirer or the target firm. Thus, if a target advisor issues a recommendation on the acquiring firm, they will be flagged as affiliated.

2.4 Database Linking

A potential source of error in our thesis is the quality of our linking between databases, a limitation we aim to minimize. The stocks from the CRSP database use their PERMNO identifiers, which are not found in the IBES database. We use a tool by WRDS, "IBES CRSP LINK (BETA)", to ensure the best available link. The linking table includes historical PERMNO numbers and IBES TICKERs for which dates they were valid. We use this information to first initially place each recommendation for each stock. Due to the fact that PERMNO numbers can change over time, we use the linking table to assign the PERMNO number for each individual day, and not only on the issue day of the recommendation.

This process, however, is worse to use when linking to the SDC database. Here we utilize the companies' six-digit cusip numbers. As we wish to link the company as a whole, using eight- or nine-digit cusip would entail linking specific securities that would not be fit for our purpose. Thus, we manually create a linking table for each company in the SDC database. This is done by matching the six-digit cusip numbers for the companies in the SDC database to the six-digit cusip of corresponding stock in the CRSP daily file at or around the issue (announcement) in the SDC database. This creates an initial link between SDC and the other databases, by utilizing the CRSP PERMNO identifier as the common denominator between the three databases. We ensure the validity of the SDC to CRSP link by ensuring there only exists one distinct pair.

2.5 IBES Contributors and SDC Advisors

To identify which IBES contributors that are linked with investment banks or advisory services, we manually match financial institutions with data from IBES and SDC. Our main problem lies in the difference in the designation of the names in the different databases. IBES uses a shorthand "ESTIMID" for their contributors, such as "FBOSTON" for "Credit Suisse" or "MERILL" for Merill Lynch. These can not be directly mapped to SDC, mainly from SDC using both the companies' names and parent companies or organizations. Such as "BofA securities", which need to be manually linked to Merill Lynch. While some institutions can easily be mapped by eye, others need to be researched to determine their connection. We, therefore, do the manual job of linking the contributors to SDC for each of our sample years. Taking into consideration potential mergers or acquisitions of investment banks, advisory services, or the banks themselves.

When a security firm's name cannot be determined by its "ESTIMID", we look up the name of an analyst who made recommendations for that company. Next, we look into the analyst's job history using tools like FINRA BrokerCheck (FINRA, 2023), Refinitiv (Thomson Reuters, 2023), or LinkedIn. For instance, we check for an analyst in FINRA BrokerCheck who provided recommendations with the ID "FBOSTON" and find out that they were employed by Credit Suisse at the time the recommendation was issued. If a firm has changed its name over the years, we refer to the firm's website and find the name history.

We include the top 50 contributors each year and include a total of 139 distinct contributors in our sample. Some of the contributors in our sample lack a corresponding bank, as they do not engage in underwriting or advisory services. Unless they merge or are acquired by an investment- or commercial bank that engages in these activities, they will be flagged as independent.

There were numerous mergers and acquisitions involving banks and security firms both during the sample period and before it. This complicates our data in at least two ways: first, we must take into consideration relationships inherited through acquisitions. Second, over the time period of our sample, some of the contributors were acquired. As a result, we must take into consideration relationships that begin throughout the sample period.

To address these issues, we identify all M&A transactions involving our sample that were concluded between 2001 and 2020 using SDC's Mergers and Acquisitions database. We include the year 2001 because, if an M&A transaction occurred during that fiscal year, it would be treated as a part of the acquirer firm from the next fiscal year. As a result, we presume that the relationship starts in the fiscal year after the transaction. We see a shortcoming in that a relationship may develop before it is considered in our research because some transactions are completed at the start of a fiscal year. However, we allow for one year such that any client-affiliated information can be segmented into the acquirer firm after the transaction.

We attempt to ensure the accuracy of our research by manually matching. Although the process is time-consuming, it is necessary to correctly identify which analysts are affiliated with the companies on which they make recommendations.

2.6 Sample Period and New Regulations

The start of our sample period is chosen based on two different important factors. First that Barber et al. (2003) finds a significant bias in analyst recommendations between 2000 and 2001. In line with their suggestion, we exclude these years from our research to increase the reliability of our results. Additionally, our bias would have been increased due to a large number of missing recommendations in our data compared to their study from 2003, which would only confound these issues.

Secondly, new regulatory requirements that were implemented at the start of this century create a new regulatory environment, making earlier periods less relevant. On the 23rd of October 2000, the U.S. Securities and Exchange Commission (SEC) implemented the Regulation Fair Disclosure (FD)[1]. This was to prevent companies from sharing information with just a selected group of analysts and institutional investors instead of disclosing the information to the general public. Prior to the implementation of this regulation, certain institutional investors and security analysts might have had an advantage over other investors. The implementation of this regulation tries to prohibit selective disclosure of information and requires firms to disclose information publicly.

Eleswarapu et al. (2004) find that the Regulation Fair Disclosure has had a positive impact on information asymmetry. Contrary, Gomes et al. (2007) finds an increase in information asymmetry after the implementation of the regulation. Thus, making it hard to find any clear conclusion on its impact on analyst recommendations.

In July 2002, NYSE Rule 472[2] and NASD Rule 2711[3] were implemented to separate security research departments and investment banking departments within banks. NASD Rule 2711 requires that every brokerage firm discloses the distribution of their stock recommendations. Its implementation, along with NYSE Rule 472, aimed to promote impartiality and transparency in equity research, providing investors with more reliable information.

In April 2003, The Global Settlement[4] was implemented by the SEC to physically separate these departments as well. Before the implementation of these regulations, Dugar and Nathan (1995), and Lin and McNichols (1998) find that analysts affiliated with an investment bank make recommendations that are more optimistic than independent analysts. Clarke et al. (2011) examines the impact of the regulations on affiliated and independent analysts. They find that after the new regulations were implemented, both affiliated and independent analysts issued fewer strong buys. Indicating that security analysts overall were more optimistic before the regulations took place.

[1]Information: Regulation Fair Disclosure: https://www.sec.gov/rules/final/33-7881.htm
[2]Information: NYSE Rule 472: https://www.finra.org/rules-guidance/rulebooks/retired-rules/rule-472
[3]Information: NASD Rule 2711: https://www.finra.org/rules-guidance/rulebooks/retired-rules/2711
[4]Information: The Global Settlement: https://www.finra.org/rules-guidance/guidance/reports/2003-global-settlement

3 Research Design

This section presents the framework and methodology for this thesis. It starts by outlining how our portfolios are constructed, both in terms of their composition and the partitioning to separate portfolios based on consensus recommendations. It continues with how the returns are calculated, both daily and monthly returns. Thereafter, it introduces portfolios that show the differences in performance between the analyst groups. How the affiliation of security analysts is determined, and how long after events we use the issued recommendations. This section ends by introducing how the portfolio evaluation is done.

3.1 Portfolio Construction

The framework in Barber et al. (2001) provides the method for our portfolio construction, weighting, and return calculations. We use daily consensus recommendations from all contributors to create partitioned portfolios for a buy-and-hold strategy with daily rebalancing. The rebalancing derives from both changes in composition from consensus estimates and from weight rebalancing.

We first need to calculate the consensus recommendations of each covered firm and place them into separate portfolios. For the adoption of Barber et al. (2001) study, we use the consensus of all contributors. However, for the subsequent parts of our analysis, we create two consensus recommendations, one for affiliated and one for independent analysts.

$$\bar{A}_{i\tau-1} = \frac{1}{n_{i\tau-1}} \sum_{j=1}^{n_{i\tau-1}} A_{ij\tau-1} \tag{3.1}$$

Equation 3.1, from Barber et al. (2001), formally shows how we calculate the consensus estimates in our thesis. We find the average analyst estimate for firm i on date $\tau - 1$ by adding all outstanding recommendations by analyst $j = 1$ to $n_{i\tau-1}$ on that day and dividing by the number of outstanding recommendations. Similarly to Barber et al. (2001) we create five different portfolios based on the consensus recommendations, ranging from most favorable to least favorable. The partitions are shown in Table 3.1. Recommendations from the security analysts range from strong buy (1) to sell (5).

Table 3.1: Portfolio Partitions

Portfolio	From	To
1	$\bar{A}_{i\tau-1} \geq 1$	$\bar{A}_{i\tau-1} \leq 1.5$
2	$\bar{A}_{i\tau-1} > 1.5$	$\bar{A}_{i\tau-1} \leq 2.0$
3	$\bar{A}_{i\tau-1} > 2.0$	$\bar{A}_{i\tau-1} \leq 2.5$
4	$\bar{A}_{i\tau-1} > 2.5$	$\bar{A}_{i\tau-1} \leq 3.0$
5	$\bar{A}_{i\tau-1} > 3.0$	

Note: This table shows the consensus recommendation ranges for the five portfolio partitions. The recommendations are from strong buy (1) to sell (5).

The consensus rating of each firm is calculated daily by all outstanding recommendations. To ensure the relevance of our recommendations we set a maximum period of 30 calendar days for their investment value from its issue. While a contributor might have an active recommendation on a firm after 30 days, it will stop impacting our consensus estimates after the 30-day mark. This contrasts to Mola and Guidolin (2009) that uses an assumption that recommendations have an investment value of one year. Our decision is based on our adaption of Barber et al. (2001) and 30 days creating the closest adaption of their study.

An important caveat to take into consideration is security analysts' ability to both revoke or change their active recommendations on firms. This is reflected in our method of stopping any previous recommendations if a new one is issued on a firm within the 30-day period. Thus, if a brokerage house issues a new recommendation after ten days, then the previous recommendations stop impacting our consensus estimates on this day and the new one takes over.

IBES through WRDS provides an additional dataset that shows the dates for when recommendations are stopped. This information is either obtained from the contributor themselves informing IBES that their recommendation is no longer active, or, 180 days have passed since the recommendation was issued and the contributor has not sent a confirmation of the estimate to IBES. For our purposes, the only relevance is when contributors themselves have informed IBES that the recommendation is no longer active, as we do not extend the relevance of recommendations past 180 days.

3.1.1 Portfolio Returns

The portfolio returns are calculated daily before it is compounded into a monthly return for each of the portfolios. As in Barber et al. (2001) we use value-weighted portfolios. We do this to not overweight small companies, such that bigger and more important firms are given a higher weight to be more represented in the overall returns. However, we use an equal-weighted portfolio approach for our robustness tests.

Formally, we use the equations from Barber et al. (2001) to show how the portfolio returns are constructed:

$$R_{p\tau} = \sum_{i=1}^{n_{p\tau-1}} x_{i\tau-1} R_{i\tau} \tag{3.2}$$

$$R_{p\tau} = \prod_{\tau=1}^{n} (1 + R_{p\tau}) - 1 \tag{3.3}$$

Equation 3.2 provides us with the daily return calculation. Where:

$x_{i\tau-1}$ The weight of firm i in portfolio p. Calculated by date $\tau - 1$ market capitalization of firm i, divided by the aggregate market capitalization of all firms in the portfolio on date $\tau - 1$.

$R_{i\tau}$ Return of firm i on date τ.

$n_{p\tau-1}$ Number of firms in portfolio p on the close of trading on date $\tau - 1$.

At the end of each day, after calculating the daily consensus of each firm. The portfolios are rebalanced both in terms of value-weighting the firms and of which firms each portfolio consists. Thereafter, the daily return of each portfolio is calculated as in equation 3.2, and the daily returns are cumulated as in equation 3.3. This creates monthly returns for each of the individual portfolios.

The daily rebalancing is obtained from Barber et al. (2001), as they find it to be a better strategy than rebalancing less frequently. They find that daily rebalancing is crucial to capture gross returns from the most favorable recommended stocks, however, it is not as important for the least favorable recommended. As we want to look at the performance

for all intervals of recommendations, a daily rebalancing method is therefore chosen. This allows us to quickly respond to changes in recommendations.

Under the assumption there is no change in the portfolio composition stemming from a change in consensus recommendations on a firm, then the daily rebalancing would do the following: At the end of each trading day, firms comprising each portfolio are either sold or bought to reflect their new weights. Where the weight is dependent on their market capitalization, determined by $x_{i\tau-1}$ from equation 3.2. When this rebalancing is done, we are calculating the weight of firm i, $x_{i\tau-1}$, for date τ.

3.1.2 Difference portfolios

A sixth portfolio is created for each analyst group, in addition to the five portfolio partitions presented in table 3.1. This portfolio is the difference in return of portfolios (1) and (5). Essentially, they are created by buying portfolio (1) and shorting portfolio (5), these are denoted as $(1-5)^j$, where $j = \{A, I\}$ for affiliated and independent respectively.

Additionally, to better compare the difference between the portfolio returns based on affiliated and independent analysts' recommendations we create a set of portfolios between the partitioned portfolios. This is presented as a new set of five portfolios, this process involves buying the affiliated portfolio and shorting the corresponding portfolio for the independent analysts. Where portfolio (1) of this new set, is buying affiliated portfolio (1) and selling independent portfolio (1) for all pairs. More notably: $(i)^A - (i)^I$ for $i \in (1, 2, 3, 4, 5)$. This new set of portfolios is there to determine if there is a difference between the two groups. If there are no differences between them, then the value of these portfolios would be zero.

For the new set of five portfolios, a sixth portfolio is also created. This portfolio is based on buying the difference portfolio of the affiliated, $(1-5)^A$, and shorting the independent portfolio $(1-5)^I$. This portfolio is denoted as $(1-5)^A - (1-5)^I$ in the tables. This portfolio will show which of the two groups has the best strategy when buying their most favorable (1) recommended stocks and selling their least favorable (5). Again, if there are no differences between the two groups, the estimate of this portfolio should be zero.

One important caveat for this set of portfolios is the need for pairing between the months we are taking the difference for. That is, for every month, there has to be a portfolio to buy and a portfolio to sell. Due to the disparity in the distribution of recommendations, there will be months when some portfolios do not have matching pairs. For example, if for a given month there only exist a portfolio (1) and not a portfolio (5), then the difference portfolio $(1-5)^j$ can not be calculated. Therefore, the number of observations in the difference portfolios: $(1-5)^j$, $(i)^A-(i)^I$, and $(1-5)^A-(1-5)^I$, will in instances be lower than the number of observations their underlying portfolios are comprised off.

3.2 Affiliation and Length of Events

When determining how long an event is relevant and the affiliation period, we refer to: Michaely and Womack (1999), Chen and Martin (2011), and Kolasinski and Kothari (2008) for the decisions made in their papers. However, as our method needs to be uniform across the different event types, we have to make certain adjustments.

Michaely and Womack (1999) use recommendations within the first year since the offering date of the IPO. In Chen and Martin (2011) they use recommendations in the one-year period either before or after the loan initiation date. While Kolasinski and Kothari (2008) method is different, they use the ± 90 days from the announcement date of a M&A deal. Basing our decision on the previous papers, we use recommendations within 180 days from the issue or announcement of the event. This applies both to how long from the event a recommendation is relevant for us, and to determine the affiliation of the analyst. The choice of 180 days was a middle ground between the papers, however, we do use a one-year period in our robustness.

Based on this, any recommendation issued within 180 days from the IPO date or announcement of a syndicated loan or a M&A deal impacts our consensus estimates. The recommendation that is issued thereafter impacts the consensus rating on a firm for a maximum of 30 days, which is consistent with our base methodology from Barber et al. (2001). It is important to note, that if a recommendation is issued on day 180 from the event, then this recommendation and firm will be part of our portfolios for up to 30 calendar days.

To distinguish between affiliated and independent recommendations, we look to the same papers to make our determination. For IPOs, Michaely and Womack (1999) state that all lead and co-lead underwriters are affiliated. Thus, even if a broker was involved in the IPO process, if they are not the lead or the co-lead underwriter, their recommendation would be flagged as independent.

For syndicated loans, it is again the lead or co-lead manager that would be flagged as affiliated. However, in accordance with Chen and Martin (2011) the lead manager also needs to have at least a 10 percent stake in the syndicated loan. Thus, if there is a recommendation issued on a firm that has taken up a loan, but the broker does not have at least a 10 percent stake, the recommendation would be flagged as independent.

For M&A deals we use financial advisors that either helped the acquirer or the target firm. While Kolasinski and Kothari (2008) makes a distinction on lead advisors, our dataset did not distinguish on this, however, the majority of deals had only one advisor per target or acquirer.

To further clarify this subsection, and ensure no confusion on what constitutes an affiliated analyst or the events, the following example is created:

There was an IPO issued exactly three months ago on firm XYZ. The bank in which analyst X is employed by was the lead underwriter for this IPO. When analyst X issues a buy recommendation on this firm, this recommendation is flagged as affiliated. The recommendation will now impact the consensus estimate of firm XYZ, but only within the affiliated analyst's segmentation. Analyst X does not issue a new recommendation or stop her recommendation from her issue, and thus, her recommendation will influence the consensus estimate of firm XYZ for 30 whole calendar days. After 30 days, we do not view this recommendation as valuable anymore. This means, if there are no other active recommendations on firm XYZ, it will no longer be part of any portfolio. Additionally, if analyst X would have issued her recommendation exactly 181 days after the IPO date, her recommendation would not impact any portfolio, given that it has passed the 180-day mark. However, one of the robustness tests increases the window from six months (180 days) to one year.

3.3 Performance Evaluation

To determine the profitability of our strategies and to find the risk-adjusted returns of our portfolios we use the framework established by Fama and French.

This is consistent with Barber et al. (2001), however, compared to their study, we use the Fama-French Five-Factor model with momentum Fama and French (2015). This model was not available at the time, instead they mainly used Carhart (1997). It is also important to note that Barber et al. (2001) uses Carhart and the Three-Factor model not because they believe the factor loadings represent risk factors, but rather to assess whether the superior returns are due to analyst stock-picking abilities. Thus, by the same argument, our choice of the Five-Factor model with momentum adds two more characteristics to distinguish these abilities.

$$\mathrm{r}_{pt} - r_{ft} = \alpha_p + \beta_p(r_{mt} - r_{ft}) + s_p SMB_t + h_p HML + r_i RMW + c_i CMA + m_p PMOM + \epsilon_{pt} \quad (3.4)$$

Equation 3.4 presents the Fama-French Five-Factor model with momentum. The construction of the portfolios and more details can be found in Fama and French (2015) or at Kenneth R. French's website[5].

[5] https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

4 Analysis

This section covers the findings and analysis of the empirical research in our thesis. Firstly, we provide descriptive statistics for the overall analysts' recommendations in our sample. Further, we undertake a validation of the study by Barber et al. (2001), demonstrating the feasibility and validity of our method and the comparability of the results. Thereafter, we present the results of our contribution based on the same portfolio strategy but when differentiating on the affiliation status of the analysts. First by showing the results of all the events together, followed by the segmentation of the events, namely IPOs, syndicated loans, and M&As.

4.1 Descriptive Statistics

Table 4.1: Descriptive Statistics on Recommendations From IBES

Year	Firms covered	Research Departments	Avg. RD per firm	Number of recommendations	Buy	Hold	Sell	Average rating
2002	4,237	244	5.14	43,322	21,638	17,567	4,117	2.41
2003	4,034	304	4.24	31,998	13,687	14,608	3,703	2.53
2004	4,295	343	4.00	31,059	13,975	14,040	3,044	2.48
2005	4,440	344	3.71	28,669	13,144	12,869	2,656	2.45
2006	4,476	317	3.98	30,544	13,556	13,989	2,999	2.50
2007	4,538	295	3.71	30,085	13,802	13,534	2,749	2.47
2008	4,256	296	3.87	33,194	14,153	14,877	4,164	2.54
2009	3,835	310	4.03	29,108	12,633	12,905	3,570	2.53
2010	3,877	343	3.85	27,843	13,617	12,063	2,163	2.39
2011	3,893	313	4.03	28,449	14,147	11,866	2,436	2.41
2012	3,840	309	3.83	27,009	12,315	12,200	2,494	2.49
2013	3,784	293	3.59	23,617	10,756	10,820	2,041	2.49
2014	3,855	304	3.71	23,070	11,612	9,856	1,602	2.41
2015	3,917	306	3.68	22,616	10,852	9,923	1,841	2.45
2016	3,754	295	3.63	21,529	9,256	10,146	2,127	2.55
2017	3,690	284	3.52	18,980	9,270	8,265	1,445	2.44
2018	3,618	288	3.32	18,062	9,135	7,524	1,403	2.41
2019	3,659	276	3.51	18,657	8,650	8,443	1,564	2.49
2020	3,771	307	3.56	19,757	10,040	7,981	1,736	2.44
Overall	10,019	961	10.73	507,568	236,238	223,476	47,854	2.47

The information in the table provides descriptive statistics for the dataset before the reduction to the top 50 contributors. The number of recommendations is all recommendations issued by year. Firms covered are the number of U.S. firms that have received at least one recommendation in that year. The research department shows the number of contributors that issued at least one recommendation that year. Followed by the number of "Buy", "Hold", and "Sell" issued each year. The last column presents the average rating from recommendations for each year in the sample period Jan-2002 to Dec-2020.

Table 4.1 shows a clear decline in the number of recommendations over the years. Further, the number of covered firms moves in the same direction. A possible explanation for this

could be that analysts no longer issue recommendations for the sake of issuing them, but rather are more genuine in their belief in the recommendations they issue. This could be driven by reputational concerns or regulatory requirements implemented over our sample period. As discussed in section 2.6.

The pattern observed in Table 4.1 diverges from the upward trend Barber et al. (2001) finds in their study from 1985 to 1996. However, their sample period is different from ours, and several potential factors could explain this disparity. Possible explanations could be the pronounced flood of mergers and acquisitions during the period, or the regulatory requirements implemented subsequent to their sample period.

Table 4.1 also shows that the number of "Buy" and "Hold" recommendations have been halved, whereas "Sell" recommendations have been reduced to one-fourth over the years. This might indicate that the reluctance to issue sell recommendations has increased over the years. The average rating over the years is relatively stable, between buy and hold.

4.2 Validation of Barber et al. (2001)

In this part, we present the validation of the study by Barber et al. (2001) for our sample period. Initially, we show the results for all recommendations, thereafter we narrow down our sample to the top 50 contributors. The use of all recommendations is to determine possible differences between our sample period and the sample period from Barber et al. (2001). This is to validate that analyst recommendations are still valuable, as shown in their study. We further present the results of the top 50 contributors to see any difference between them and all contributors. Allowing us to explore potential disparities in the sample periods or amount of contributors, and maintain consistency throughout the analysis.

Table 4.2 displays the coefficient estimates of portfolios constructed according to the consensus recommendations of analysts from Jan-2002 to Dec-2020, ignoring their affiliation status. Where we see that the coefficient estimates on the market risk premium are significant and close to one in both panels. Indicating that all the portfolios pose similar risks to the market.

Table 4.2: Regression Results for All Recommendations by IBES Contributors

	Dependent variable:											
	Ri - Rf											
	Panel A: Carhart						Panel B: FF5 + Momentum					
	(1)	(2)	(3)	(4)	(5)	(1 − 5)	(1)	(2)	(3)	(4)	(5)	(1 − 5)
Rm - Rf	1.032***	1.010***	1.017***	1.011***	1.093***	−0.061	1.014***	0.999***	1.017***	1.015***	1.127***	−0.113**
	(0.028)	(0.020)	(0.033)	(0.017)	(0.033)	(0.049)	(0.028)	(0.020)	(0.034)	(0.018)	(0.034)	(0.050)
SMB	0.016	0.012	−0.009	−0.043	−0.042	0.058	0.023	0.019	0.006	−0.039	−0.011	0.034
	(0.046)	(0.033)	(0.054)	(0.028)	(0.055)	(0.081)	(0.046)	(0.033)	(0.055)	(0.028)	(0.055)	(0.080)
HML	−0.037	−0.121***	0.004	0.023	0.087*	−0.125*	0.024	−0.076**	0.015	0.023	0.011	0.013
	(0.042)	(0.030)	(0.049)	(0.025)	(0.050)	(0.074)	(0.048)	(0.034)	(0.058)	(0.030)	(0.057)	(0.083)
RMW							−0.031	−0.003	0.049	0.019	0.202***	−0.233**
							(0.058)	(0.042)	(0.070)	(0.036)	(0.070)	(0.102)
CMA							−0.234***	−0.181***	−0.068	0.015	0.204**	−0.438***
							(0.073)	(0.052)	(0.088)	(0.045)	(0.088)	(0.128)
MOM	0.076***	0.014	0.002	−0.042***	−0.132***	0.208***	0.077***	0.013	−0.004	−0.044***	−0.151***	0.228***
	(0.026)	(0.019)	(0.031)	(0.016)	(0.031)	(0.046)	(0.026)	(0.019)	(0.031)	(0.016)	(0.031)	(0.046)
Alpha	0.203*	0.200***	0.0003	−0.293***	−0.419***	0.622***	0.249**	0.228***	−0.009	−0.302***	−0.528***	0.777***
	(0.106)	(0.076)	(0.126)	(0.064)	(0.128)	(0.188)	(0.108)	(0.077)	(0.130)	(0.067)	(0.129)	(0.188)
Observations	228	228	228	228	228	228	228	228	228	228	228	228
R^2	0.889	0.939	0.856	0.959	0.883	0.170	0.894	0.942	0.857	0.959	0.889	0.223
Adjusted R^2	0.887	0.938	0.853	0.958	0.881	0.155	0.891	0.941	0.853	0.957	0.886	0.202

Note: *p<0.1; **p<0.05; ***p<0.01

This table presents time-series regression estimates of the Carhart four-factor model in Panel A and the Fama-French Five-Factor model plus momentum in Panel B. Based on the daily average analyst recommendations, five portfolios are constructed for the sample period Jan-2002 to Dec-2020. These portfolios (1) to (5), each contain stocks with consensus analyst recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. Each issued recommendation from an analyst impacts the consensus for a maximum of 30 calendar days unless a new recommendation is issued on the same firm, or the previous recommendation is stopped. The difference between the returns for portfolios (1) and (5) is shown in the sixth column in Panel A for Carhart, and in the sixth column in Panel B for Fama-French, denoted as (1-5). This portfolio is derived by subtracting the returns of portfolio (5) from the returns of portfolio (1). That is, buying portfolio (1) and selling portfolio (5). The coefficient estimates from the time-series regressions of the portfolio returns (R_p) are the market excess return ($R_m - R_f$), size variable (SMB), book-to-market variable (HML), profitability variable (RMW), investment variable (CMA), and momentum variable (MOM). The dependent variable is the portfolio return minus the risk-free rate, notated as alpha in this table. Returns in this table are gross transaction costs. The standard errors appear below the coefficient estimates. The coefficient estimates that are significant at a level of 10 percent, 5 percent, or 1 percent will have the symbol "*", "**", or "***" respectively.

Consistent with Barber et al. (2001), we find portfolio (1) in Panel A to be tilted towards smaller firms. However, in contrast, for portfolio (5) our results are differing, tilting towards larger firms. It is important to note that our results are only economically significant, while theirs are statistically significant for both portfolios. This indicates that their finding and argument of analysts being reluctant to issue sell recommendations on larger firms is not as relevant for our sample period.

Significant estimates in Panel A show that favorably recommended portfolios are tilted toward growth stocks that have performed well in the recent past shown in columns (1) and (2). Whereas the least favorable recommended portfolios are tilted toward value stocks that have performed poorly in the recent past shown in column (5) in Panel A. These estimates are consistent with Barber et al. (2001), which finds that the least favorable recommendations are correlated with value firms.

Significant alpha estimates in Panel A show that both the most favorable recommended portfolios (1) and the least favorable recommended portfolios (5) yield abnormal gross returns. Buying the most favorable portfolio (1) generates monthly abnormal gross returns of 20.3 basis points, whereas selling the least favorable portfolio (5) generates monthly abnormal gross returns of 41.9 basis points. The significant positive alpha estimate of portfolio $(1 - 5)$ in Panel B shows that the strategy of buying the most favorable recommended stocks (1) and selling the least favorable recommended stocks (2) yields monthly abnormal returns of 67.1 basis points.

A number of previous studies, including those by Stickel (1995), Jegadeesh et al. (2004), and Chang and Chan (2008), find significant positive returns associated with analysts' recommendations. The findings from these studies suggest that investors may benefit from following analysts' recommendations. This is consistent with Womack (1996), who finds that analysts seem to have stock-picking abilities and market timing skills. Suggesting that their recommendations are valuable and that investors may profit from them.

There seems to be evidence supporting the value of analysts' recommendations based on our validation of Barber et al. (2001), as well as the findings of previous studies including Stickel (1995), Womack (1996), Jegadeesh et al. (2004), and Chang and Chan (2008). The latter part of our research will show our contribution to determining if there is value in

segmenting the affiliation status of analysts, by expanding on the framework by Barber et al. (2001).

4.2.1 Top 50 IBES Contributors

This part presents the results when narrowing down the sample to the top 50 IBES contributors. The coefficient estimates are shown in Table 4.3.

Table 4.3: Regression Results for Recommendations by Top 50 IBES Contributors

	Dependent variable:											
	Ri - Rf											
	Panel A: Carhart						Panel B: FF5 + Momentum					
	(1)	(2)	(3)	(4)	(5)	(1 − 5)	(1)	(2)	(3)	(4)	(5)	(1 − 5)
Rm - Rf	0.994***	1.034***	1.035***	1.019***	1.053***	−0.058	0.976***	1.020***	1.044***	1.022***	1.067***	−0.091*
	(0.033)	(0.022)	(0.042)	(0.019)	(0.037)	(0.051)	(0.034)	(0.023)	(0.044)	(0.020)	(0.039)	(0.052)
SMB	0.055	−0.003	−0.077	−0.018	−0.019	0.074	0.064	0.001	−0.090	0.0004	0.008	0.056
	(0.054)	(0.036)	(0.070)	(0.031)	(0.062)	(0.084)	(0.054)	(0.036)	(0.072)	(0.032)	(0.063)	(0.085)
HML	−0.128**	−0.092***	−0.081	0.038	0.100*	−0.228***	−0.060	−0.050	−0.088	0.042	0.073	−0.133
	(0.049)	(0.033)	(0.064)	(0.028)	(0.056)	(0.076)	(0.056)	(0.038)	(0.074)	(0.033)	(0.065)	(0.088)
RMW							−0.010	−0.040	0.012	0.063	0.119	−0.130
							(0.069)	(0.046)	(0.091)	(0.040)	(0.080)	(0.108)
CMA							−0.291***	−0.145**	0.082	−0.047	0.041	−0.332**
							(0.087)	(0.058)	(0.114)	(0.051)	(0.100)	(0.135)
MOM	0.053*	0.013	−0.020	−0.028	−0.238***	0.291***	0.051*	0.016	−0.020	−0.035*	−0.250***	0.301***
	(0.031)	(0.020)	(0.039)	(0.018)	(0.035)	(0.047)	(0.031)	(0.021)	(0.041)	(0.018)	(0.036)	(0.048)
Alpha	0.119	0.152*	0.164	−0.295***	−0.405***	0.523***	0.166	0.189**	0.149	−0.313***	−0.457***	0.623***
	(0.126)	(0.083)	(0.162)	(0.072)	(0.142)	(0.194)	(0.127)	(0.085)	(0.168)	(0.074)	(0.147)	(0.198)
Observations	228	228	228	228	228	228	228	228	228	228	228	228
R^2	0.844	0.931	0.783	0.949	0.866	0.277	0.851	0.933	0.784	0.950	0.867	0.298
Adjusted R^2	0.841	0.930	0.779	0.948	0.863	0.264	0.847	0.931	0.778	0.949	0.863	0.279
Note:												*p<0.1; **p<0.05; ***p<0.01

This table presents coefficient estimates of the Carhart Four-Factor model in Panel A and the Fama-French Five-Factor model plus momentum in Panel A. Each portfolio is based on the daily average analyst recommendations from the top 50 contributing firms in IBES. Based on the daily average analyst recommendations from the top 50 contributing firms in IBES, five portfolios are constructed for the sample period Jan-2002 to Dec-2020. These portfolios (1) to (5), each contain stocks with consensus analyst recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. Each issued recommendation from an analyst impacts the consensus for a maximum of 30 calendar days unless a new recommendation is issued on the same firm, or the previous recommendation is stopped. The difference between the returns for portfolios (1) and (5) is shown in the sixth column in Panel A for Carhart, and in the sixth column in Panel B for Fama-French, denoted as (1 − 5). This portfolio is derived by subtracting the returns of portfolio (5) from the returns of portfolio (1). That is, buying portfolio (1) and selling portfolio (5). The coefficient estimates from the time-series regressions of the portfolio returns (R_p) are the market excess return ($R_m - R_f$), size variable (SMB), book-to-market variable (HML), profitability variable (RMW), investment variable (CMA), and momentum variable (MOM). The dependent variable is the portfolio return minus the risk-free rate, notated as alpha in this table. Returns in this table are gross transaction costs. The standard errors appear below the coefficient estimates. The coefficient estimates that are significant at a level of 10 percent, 5 percent, or 1 percent will have the symbol "*", "**", or "***" respectively.

Controlling for market risk, size, book-to-market, price momentum, profitability, and investment effects in Table 4.3, the portfolio with the least favorably recommended stocks (5) yields a significant monthly abnormal gross return of 41 basis points and 46 basis points for Panel A and B respectively. For Carhart, the results are negligibly different from using all contributors, while there are differences for the Five-Factor model. This is seen from the lower estimate of the least favorable (5) portfolio in Panel B, suggesting

that the top 50 contributors either are more reluctant or issue worse sell recommendations compared to all contributors. Subsequently, the portfolios $(1-5)$ in Table 4.3, show that buying the most favorably recommended portfolio and selling short the least favorable portfolio yields a monthly abnormal gross return of 42 basis points in Panel A and 52 basis points in Panel B. Both models are at least roughly 10 basis points lower than all contributors. This indicates, if one were to follow all consensus estimates, one should be using all available information and not just restricting it to the contributors with the most reports.

From Table 4.3 we see evidence that the top 50 contributors focus on low book-to-market stocks in their buy recommendations, while high book-to-market for sell recommendations. The significant HML coefficients in Panel A indicate that analysts focus on growth firms in their buy recommendations while sell recommendations usually represent value firms. This is consistent with findings from studies employing value-weighted portfolios such as Barber et al. (2001) and Jegadeesh et al. (2004), which find the same trend. Their findings indicate that analysts more often issue positive recommendations for growth stocks over value stocks. Of greatest interest is when narrowed down, the results from the top 50 contributors are consistent with all recommendations from Table 4.2. However, the abnormal returns generated from the top contributors are generally lower.

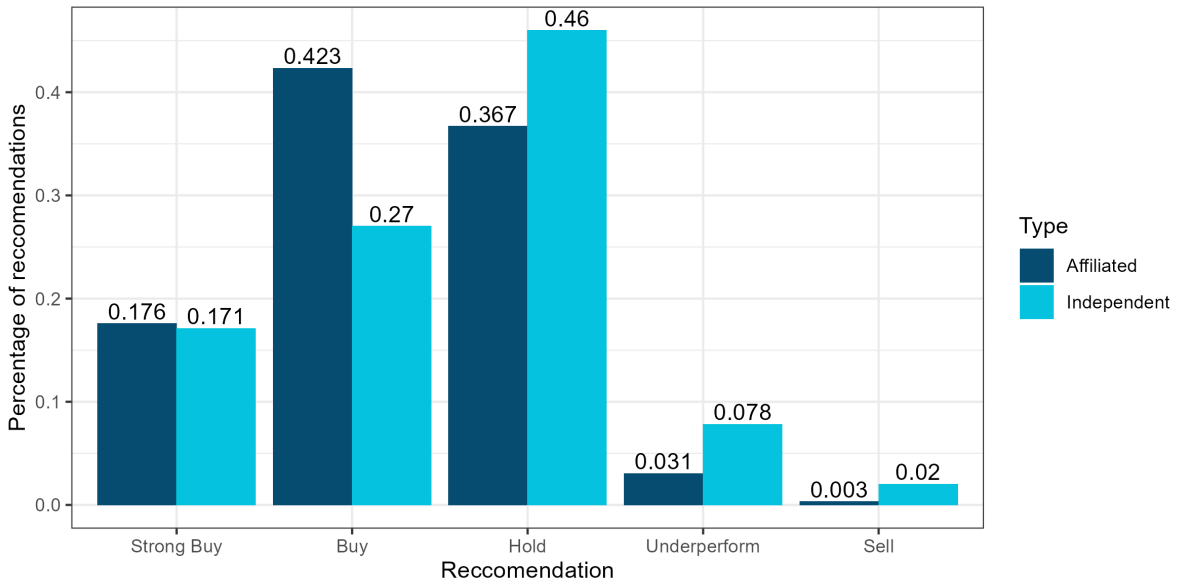
4.3 Portfolio Performance Based on Affiliation Status

This part will assess potential distinctions in the performance of recommendations provided by affiliated to those by independent analysts following the different events; IPOs, syndicated loans, and M&A deals. Particularly, we aim to look at whether affiliated analysts are biased or possess informational advantages by looking at the pattern and performance in their recommendations.

Figure 4.1 shows the distribution of recommendations between affiliated and independent analysts. We observe a clear inclination of affiliated analysts to issue buy recommendations over independent ones. There is also a significant difference in the number of "Sell" recommendations with independent analysts having a significantly higher proportion.

In Table 4.4 we observe descriptive statistics on the recommendations and event types

Figure 4.1: Distribution of Recommendations by Affiliation Status



This figure shows the percentage distribution of issued recommendations of the top 50 IBES contributors by their affiliation status when the recommendation was issued from Jan-2002 to Dec-2020.

in our dataset from the top 50 contributors in the IBES database. The three first columns for Number of IPO, Loan or M&A events show how many of the events that happened in that year which received at least one recommendation within six months of its issue or announcement. The IPO-, Loan-, and M&A recommendations show how many recommendations of that type that was issued in that year for each particular event type. The three last columns show the average rating for the recommendations issued.

Table 4.4: Descriptive Statistics on Recommendations and Event Types

Year	Number of IPO events	Number of Loan events	Number of M&A events	IPO Recommendations	Loan Recommendations	M&A Recommendations	Average IPO rating	Average Loan rating	Average M&A rating
2002	63	677	295	292	4,845	1,513	1.89	2.47	2.39
2003	60	704	312	143	2,913	1,441	2.09	2.57	2.45
2004	181	435	317	678	1,946	1,282	2.24	2.62	2.52
2005	159	339	344	711	1,302	1,228	2.27	2.52	2.43
2006	161	357	355	718	1,342	1,406	2.28	2.52	2.48
2007	159	281	309	904	1,198	1,273	2.25	2.50	2.41
2008	25	494	208	302	1,813	1,023	2.16	2.54	2.57
2009	51	323	145	225	1,307	584	2.16	2.51	2.43
2010	103	447	198	506	1,375	712	2.01	2.40	2.28
2011	79	775	194	440	2,901	905	2.11	2.42	2.31
2012	88	581	242	361	2,513	912	2.25	2.53	2.43
2013	128	630	222	401	1,858	759	2.23	2.46	2.38
2014	120	614	297	436	1,992	962	2.15	2.38	2.26
2015	68	577	284	276	2,004	949	2.26	2.46	2.29
2016	39	496	223	108	1,566	783	2.27	2.52	2.40
2017	65	522	212	222	1,518	746	2.34	2.45	2.33
2018	68	524	231	130	1,581	707	2.17	2.45	2.26
2019	64	451	205	221	1,532	695	2.13	2.52	2.41
2020	66	328	111	221	1,397	505	2.11	2.50	2.34
Overall	1,747	9,555	4,704	7,295	36,903	18,385	2.19	2.49	2.40

For the sample period Jan-2002 to Dec-2020, this table presents descriptive statistics on recommendations and event types after reducing the sample to the top 50 contributors each year. The three first columns show the number of events that received at least one recommendation within six months of their issue for IPOs, syndicated loans, and M&As respectively. Columns 4 to 6 show the number of recommendations for the events IPOs, syndicated loans, and M&As issued for that year respectively. The three last columns show the average rating for the recommendations issued subsequent to the different event types in that year.

The average IPO rating in Table 4.4 is more favorable over the years compared to syndicated loans and M&A deals. However, the average ratings following IPOs, syndicated loan, and M&A deals are all generally more favorable compared to the average rating of all recommendations in Table 4.1. This is consistent with Figure 4.1 which shows that affiliated analysts issue more favorable recommendations than independent analysts, which might drive the average ratings subsequent to the events to be more favorable. The distribution of independent analysts' recommendations in Figure 4.1 shows that independent analysts issue more hold and sell than affiliated analysts, which might further explain the differences in average ratings between Table 4.1 and 4.4.

4.3.1 All Events

This part presents the coefficient estimates for affiliated and independent analysts and the difference between them following all events under one. For this part, analysts can be affiliated through the three different event types, and thus, an analyst who is affiliated in this part would not necessarily be affiliated with the same issued recommendation for the later analysis.

The tables from this part onward contain three different parts. Panel A shows the individual portfolios for the affiliated analysts, where the sixth column represents buying portfolio (1) and selling portfolio (5), noted as $(1-5)$. The same applies to Panel B, for independent analysts. Panel C shows portfolios where you buy the affiliated and sell the corresponding independent portfolio. That is, for the first column (1) in Panel C, you buy portfolio (1) of the affiliated and sell the corresponding portfolio (1) for the independent analysts. While the sixth column, in Panel C, represents buying the sixth portfolio from Panel A and selling the sixth portfolio from Panel B. Observant readers will notice that not all portfolios have the same amount of observations. For the portfolios noted as (1-5) and all of Panel C, the number of observations denotes how many months there existed a portfolio to both buy and sell. Thus, the total number might be lower than the original, as they need corresponding months. For further explanation, see section 3.1.2.

Table 4.5 represents the coefficient estimates of all events. When looking at Panel C, there are no statistically significant alpha estimates. However, when looking at their economic significance, there is an indication that affiliated analysts have better information when

Table 4.5: Regression Results Subsequent to All Events Collectively: Affiliated vs. Independent

	Dependent variable:																	
	Rp: Excess return of portfolio																	
	Panel A: Affiliated						Panel B: Independent						Panel C: Affiliated - Independent					
	(1)	(2)	(3)	(4)	(5)	$(1-5)^A$	(1)	(2)	(3)	(4)	(5)	$(1-5)^I$	(1)	(2)	(3)	(4)	(5)	$(1-5)^A$ - $(1-5)^I$
Rm-Rf	0.785***	0.960***	0.494*	0.872***	0.792***	0.210	0.851***	1.105***	0.999***	1.005***	1.053***	−0.202**	−0.071	−0.147	−0.264	−0.134	−0.297	0.436
	(0.204)	(0.141)	(0.263)	(0.217)	(0.220)	(0.334)	(0.054)	(0.042)	(0.077)	(0.036)	(0.073)	(0.084)	(0.212)	(0.145)	(0.303)	(0.220)	(0.237)	(0.359)
SMB	0.447	0.610***	−0.260	0.047	−0.091	0.377	0.099	−0.005	−0.161	−0.044	0.0002	0.099	0.349	0.625***	−0.242	0.097	−0.205	0.375
	(0.332)	(0.231)	(0.390)	(0.352)	(0.344)	(0.530)	(0.087)	(0.067)	(0.124)	(0.058)	(0.117)	(0.136)	(0.345)	(0.237)	(0.450)	(0.357)	(0.370)	(0.568)
HML	0.150	−0.141	−0.002	−0.305	−0.173	0.608	−0.158*	0.154**	−0.072	0.061	0.124	−0.282**	0.305	−0.299	−0.009	−0.367	−0.112	0.835
	(0.349)	(0.237)	(0.493)	(0.365)	(0.381)	(0.583)	(0.091)	(0.070)	(0.129)	(0.060)	(0.122)	(0.141)	(0.363)	(0.243)	(0.568)	(0.370)	(0.411)	(0.626)
RMW	−0.311	−0.260	−0.564	−0.714	−0.931**	1.056	−0.046	−0.022	−0.049	0.150**	0.312**	−0.358**	−0.274	−0.223	−0.106	−0.863*	−1.337***	1.425**
	(0.424)	(0.299)	(0.617)	(0.446)	(0.439)	(0.669)	(0.111)	(0.086)	(0.158)	(0.073)	(0.149)	(0.172)	(0.441)	(0.306)	(0.712)	(0.452)	(0.473)	(0.718)
CMA	−0.479	−0.109	−0.940	−0.685	0.228	−0.361	−0.289**	−0.099	0.111	0.094	0.179	−0.467**	−0.171	−0.014	−1.023	−0.768	−0.083	0.046
	(0.540)	(0.363)	(0.741)	(0.563)	(0.608)	(0.931)	(0.140)	(0.108)	(0.198)	(0.092)	(0.187)	(0.217)	(0.561)	(0.372)	(0.854)	(0.571)	(0.655)	(0.999)
MOM	−0.072	0.136	−0.265	0.050	−0.079	−0.030	0.033	0.103***	−0.026	−0.049	−0.266***	0.299***	−0.103	0.017	−0.299	0.105	0.138	−0.309
	(0.187)	(0.151)	(0.265)	(0.202)	(0.186)	(0.284)	(0.050)	(0.038)	(0.070)	(0.033)	(0.066)	(0.077)	(0.194)	(0.155)	(0.305)	(0.205)	(0.201)	(0.304)
Alpha	0.385	0.081	−1.449	−0.304	−0.863	1.646	0.306	−0.165	−0.135	−0.607***	−0.839***	1.145***	0.082	0.251	−1.656	0.291	−0.007	0.325
	(0.781)	(0.532)	(0.886)	(0.825)	(0.788)	(1.218)	(0.205)	(0.158)	(0.290)	(0.135)	(0.274)	(0.318)	(0.812)	(0.546)	(1.021)	(0.836)	(0.848)	(1.307)
Observations	214	227	144	227	150	144	228	228	228	228	228	228	214	227	144	227	150	144
R^2	0.155	0.304	0.063	0.140	0.219	0.046	0.636	0.822	0.526	0.843	0.642	0.216	0.021	0.042	0.031	0.043	0.074	0.095
Adjusted R^2	0.131	0.285	0.022	0.117	0.186	0.004	0.626	0.817	0.513	0.839	0.633	0.195	−0.007	0.016	−0.011	0.017	0.035	0.056

Note: *p<0.1; **p<0.05; ***p<0.01

This table presents the coefficient estimates derived from the time-series regression of the Fama-French Five-Factor model plus momentum subsequent to "All events". That is subsequent to IPOs, syndicated loans, and M&As grouped together. Panel A displays portfolios constructed using daily average recommendations from affiliated analysts, obtained from the top 50 contributing firms in IBES for the sample period Jan-2002 to Dec-2020. In contrast, Panel B presents portfolios constructed based on daily average independent analysts' recommendations from the top 50 contributing firms in IBES. These portfolios (1) to (5), each contain stocks with consensus analyst recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. Each issued recommendation from an analyst impacts the consensus for a maximum of 30 calendar days unless a new recommendation is issued on the same firm, or the previous recommendation is stopped. The difference between the returns for portfolios (1) and (5) is shown in the sixth column in Panel A for affiliated analysts, and in the sixth column in Panel B for independent analysts, denoted as (1-5). This portfolio is derived by subtracting the returns of portfolio (5) from the returns of portfolio (1). That is, buying portfolio (1) and selling portfolio (5). Panel C presents the difference between affiliated and independent analysts' portfolios estimates. Portfolio (1) in Panel C will therefore display the difference between affiliated analysts' portfolio (1) from Panel A and independent analysts' portfolio (1) from Panel B. These portfolios are derived by subtracting independent portfolio estimates from affiliated portfolio estimates for the months that they both have active recommendations. The sixth column in Panel C shows the difference between the sixth column in Panel A and the sixth column in Panel B. Again, subtracting the independent (1-5) portfolio from the affiliated (1-5) portfolio. The coefficient estimates from the time-series regressions of the portfolio returns (R_p) are the market excess return ($R_m - R_f$), size variable (SMB), book-to-market variable (HML), profitability variable (RMW), investment variable (CMA), and momentum variable (MOM). The dependent variable is the portfolio return minus the risk-free rate, notated as alpha in this table. Returns in this table are excess returns and gross transaction costs. The standard errors appear below the coefficient estimates. The coefficient estimates that are significant at a level of 10 percent, 5 percent, or 1 percent will have the symbol "*", "**", or "***" respectively.

issuing buy recommendations, seen through columns (1) and (2) in Panel C. While for the strongest sell recommendations, the economic significance indicates no difference between them, as the alpha is close to zero.

By following the strategy of buying the most favorable portfolio (1) and selling the least favorable portfolio (5) for each group, in Panel C column 6, we see that buying the affiliated and shorting the independent yields an economic positive abnormal gross return. This indicates that, for all events, affiliated analysts could inherit better information than independent analysts. Thus, if there were to be no difference between the two analyst groups, the estimate of the difference between the two portfolios should be zero.

Furthermore, a greater understanding of the disparities between the two analyst groups can be found by looking more closely at both Panel A and B. The strategy of buying the most favorable (1) and selling the least favorable (5) for both analyst groups are economically more in favor of affiliated analysts, portfolio $(1-5)$. However, the statistical significance favors independent analysts. This shows that implementing a portfolio strategy based on analysts' recommendations, especially by shorting independent analysts' least favorable recommendations (4) and (5) in Panel B, yields abnormal gross returns. This also applies to buying their most favored stocks (1) and selling their least favored ones (5), portfolio (1-5). In contrast, to gain more insight, the higher economic significance of affiliated analysts' estimates for all events, shows that they add value through better economic information that could be exploited by investors in their own analysis of the firms.

Significant estimates on the SMB coefficient in Panel A show that favorable recommendations, portfolio (1), of affiliated analysts are tilted toward smaller firms, whereas they issue unfavorable recommendations toward larger firms. The significant estimates on MOM and HML coefficient in Panel B for portfolio (2) show that independent analysts' recommendations are tilted towards value firms that have performed well in the recent past for their buy recommendations. According to Jegadeesh et al. (2004) analysts prefer to issue favorable recommendations on growth stocks with high momentum. In the case of portfolio (1) in Panel A, we observe that this is not applicable to affiliated analysts. However, it is important to note that these estimates are not statistically significant. Thus, making it hard to conclude whether they issue favorable recommendations based on the firm characteristics Jegadeesh et al. (2004) suggests.

The observations in Panel A, portfolio (5) show that affiliated analysts issue fewer unfavorable recommendations than their independent peers. This could be supported by the findings of McNichols and O'Brien (1998) who find that affiliated analysts tend to drop coverage on firms they expect to do poorly, rather than retain them and issue negative recommendations.

The overall findings for all events suggest that for the most favorable recommendations, portfolios (1) and (2), affiliated analysts might possess superior information compared to their independent peers. The difference between affiliated and independent portfolios, shown in Panel C for portfolios (1) and (2), further support this. However, this informational advantage does not translate into outperforming unfavorable recommendations. Womack (1996) find that affiliated analysts are reluctant to issue sell recommendations on firms they have a relationship with, a finding that is supported by the fewer observation in portfolio (5) in Panel A compared to Panel B. However, the nearly zero alpha estimate of portfolio (5) in Panel C, indicates that when both affiliated and independent analysts issue sell recommendations, their economic value is nearly identical. When implementing strategies based on affiliated analysts' recommendations, investors should exercise caution. While these analysts may have superior information in their favorable recommendations, their reluctance to issue sell recommendations may limit their ability to outperform their independent peers. Suggesting that affiliated analysts mostly add informational value, rather than investment value.

In order to gain a deeper insight into the differences between affiliated and independent analysts, we will proceed by looking at each of the events separately. This enables us to identify in which type of events affiliated analysts might possess superior information or exhibit bias in their recommendations. This further examination aims to provide a deeper insight into the nature of recommendations provided by affiliated and independent analysts, and the discrepancies between them.

4.3.2 IPOs

This part of our analysis focuses on recommendations issued in relation to recent IPOs. By commenting on the results in the tables below, we aim to shed light on any variation between analysts' recommendations based on their affiliation status subsequent to IPOs.

Table 4.6: Regression Results Subsequent to IPOs: Affiliated vs. Independent

	Dependent variable:																	
	Rp: Excess return of portfolio																	
	Panel A: Affiliated						Panel B: Independent						Panel C: Affiliated - Independent					
	(1)	(2)	(3)	(4)	(5)	$(1-5)^A$	(1)	(2)	(3)	(4)	(5)	$(1-5)^I$	(1)	(2)	(3)	(4)	(5)	$(1-5)^A$ - $(1-5)^I$
Rm - Rf	0.510**	0.685***	0.526**	0.816***	0.519	0.117	0.580***	1.132***	0.909***	1.137***	0.498	0.270	−0.070	−0.502*	−0.552	−0.409	0.160	−0.830
	(0.229)	(0.196)	(0.265)	(0.296)	(0.348)	(0.630)	(0.210)	(0.215)	(0.249)	(0.196)	(0.352)	(0.419)	(0.334)	(0.265)	(0.402)	(0.319)	(0.738)	(1.182)
SMB	1.077***	0.753**	−0.306	0.344	0.046	1.251	1.015***	0.434	−0.026	0.816**	−0.684	1.175*	−0.093	0.367	−0.287	−0.522	1.757	−0.981
	(0.382)	(0.317)	(0.394)	(0.479)	(0.613)	(1.130)	(0.340)	(0.348)	(0.379)	(0.326)	(0.592)	(0.706)	(0.545)	(0.427)	(0.571)	(0.532)	(1.128)	(1.837)
HML	−0.117	−0.778**	−0.004	−0.308	0.540	0.140	−0.865**	−0.958***	0.566	−0.609*	−0.659	−0.295	0.747	−0.050	−0.486	0.485	−1.784	0.451
	(0.390)	(0.343)	(0.494)	(0.537)	(0.630)	(1.132)	(0.361)	(0.361)	(0.407)	(0.337)	(0.730)	(0.872)	(0.585)	(0.461)	(0.730)	(0.594)	(1.409)	(2.239)
RMW	−0.102	−0.241	−0.592	−0.985	−1.366*	1.408	−1.105**	−0.677	−1.198**	−0.280	−1.306	0.366	0.938	0.417	1.447	−0.823	1.747	−0.629
	(0.489)	(0.410)	(0.619)	(0.606)	(0.708)	(1.264)	(0.443)	(0.445)	(0.547)	(0.420)	(0.849)	(1.017)	(0.707)	(0.554)	(0.923)	(0.681)	(1.270)	(2.017)
CMA	−0.855	0.784	−0.977	−0.248	−0.018	−0.425	0.211	0.075	−1.202*	−0.579	−0.419	0.117	−0.896	0.762	0.589	0.034	−0.652	3.878
	(0.620)	(0.506)	(0.745)	(0.781)	(1.079)	(1.931)	(0.536)	(0.558)	(0.655)	(0.514)	(0.990)	(1.205)	(0.883)	(0.681)	(1.129)	(0.858)	(2.102)	(3.374)
MOM	−0.006	−0.041	−0.278	0.207	0.255	−0.295	0.269	0.375*	0.308	0.106	−0.153	0.499	−0.297	−0.425	−0.829**	0.048	−0.330	−0.507
	(0.264)	(0.209)	(0.266)	(0.275)	(0.400)	(0.716)	(0.224)	(0.197)	(0.255)	(0.212)	(0.410)	(0.488)	(0.379)	(0.282)	(0.397)	(0.355)	(0.770)	(1.219)
Alpha	−0.974	0.763	−1.445	−0.204	−0.844	0.884	0.694	−0.240	−0.508	−1.453*	−2.665**	3.537**	−2.197*	1.217	−1.714	1.569	0.992	−1.484
	(0.883)	(0.730)	(0.893)	(1.119)	(1.321)	(2.398)	(0.783)	(0.819)	(0.893)	(0.749)	(1.281)	(1.543)	(1.259)	(0.986)	(1.333)	(1.217)	(2.451)	(3.889)
Observations	193	216	142	216	78	73	215	223	154	223	104	102	187	214	113	211	48	46
R^2	0.127	0.158	0.068	0.089	0.154	0.055	0.195	0.203	0.196	0.254	0.117	0.054	0.030	0.037	0.105	0.021	0.110	0.114
Adjusted R^2	0.098	0.134	0.026	0.063	0.082	−0.031	0.172	0.181	0.163	0.233	0.063	−0.006	−0.002	0.009	0.054	−0.008	−0.020	−0.022

Note: *p<0.1; **p<0.05; ***p<0.01

This table presents the coefficient estimates derived from the time-series regression of the Fama-French Five-Factor model plus momentum subsequent to IPOs. Panel A displays portfolios constructed using daily average recommendations from affiliated analysts, obtained from the top 50 contributing firms in IBES for the sample period Jan-2002 to Dec-2020. In contrast, Panel B presents portfolios constructed based on daily average independent analysts' recommendations from the top 50 contributing firms in IBES. These portfolios (1) to (5), each contain stocks with consensus analyst recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. Each issued recommendation from an analyst impacts the consensus for a maximum of 30 calendar days unless a new recommendation is issued on the same firm, or the previous recommendation is stopped. The difference between the returns for portfolios (1) and (5) is shown in the sixth column in Panel A for affiliated analysts, and in the sixth column in Panel B for independent analysts, denoted as $(1-5)$. This portfolio is derived by subtracting the returns of portfolio (5) from the returns of portfolio (1). That is, buying portfolio (1) and selling portfolio (5). Panel C presents the difference between affiliated and independent analysts' portfolios estimates. Portfolio (1) in Panel C will therefore display the difference between affiliated analysts' portfolio (1) from Panel A and independent analysts' portfolio (1) from Panel B. These portfolios are derived by subtracting independent portfolio estimates from affiliated portfolio estimates for the months that they both have active recommendations. The sixth column in Panel C shows the difference between the sixth column in Panel A and the sixth column in Panel B. Again, subtracting the independent $(1-5)$ portfolio from the affiliated $(1-5)$ portfolio. The coefficient estimates from the time-series regressions of the portfolio returns (R_p) are the market excess return ($R_m - R_f$), size variable (SMB), book-to-market variable (HML), profitability variable (RMW), investment variable (CMA), and momentum variable (MOM). The dependent variable is the portfolio return minus the risk-free rate, notated as alpha in this table. Returns in this table are excess returns and gross transaction costs. The standard errors appear below the coefficient estimates. The coefficient estimates that are significant at a level of 10 percent, 5 percent, or 1 percent will have the symbol "*", "**", or "***" respectively.

Looking at the coefficient estimates in Table 4.6 we see a clear disparity of the alpha estimates compared to all events in Table 4.5. Starting again by drawing attention to the sixth column in Panel C, the negative economic significant estimate shows a clear favor towards independent analysts. The strong negative value shows a clear indication that there exist differences between the two analyst groups.

Specifically, when dissecting Panel C further in Table 4.6, from portfolio (1) through (5), independent analysts tend to outperform in both the most favorable (1) and least favorable (5) recommendations. While for portfolios (2) and (4), affiliated analysts seem to issue better recommendations than their independent peers. This indicates that affiliated analysts may possess bias when issuing both strong buy and sell recommendations. Previous literature on analyst recommendations subsequent to IPOs offers further insight and explanation of this finding.

Michaely and Womack (1999) proposes that the bias in favorable recommendations stems from "booster shots" following poor IPO performance. Where affiliated analysts try to increase the stock price by issuing favorable recommendations. We do also see this when looking at Panel A in Table 4.6 between portfolios (1) and (2). Where portfolio (1) has a strong negative economic estimate, while portfolio (2) is positive. This further highlights that affiliated analysts' most favorable recommendations might possess strong bias through trying to support the performance of the recent IPO. This could also be supported by our robustness test when changing the affiliation and event window to one year, as seen in Table 5.2. Here the difference between affiliated and independent analysts subsequent to IPOs becomes positive, indicating that there could be severe bias in the first six months of an issued recommendation compared to later. Michaely and Womack (1999) hypothesizes that affiliated analysts are particularly likely to issue favorable recommendations when firms perform poorly subsequent to IPOs. The strong economical, but statistically insignificant, positive alpha of portfolio (2) in Panel A suggests that this bias is most relevant for the strong buy recommendations.

Upon closer examination of the estimates in Panel A and B in Table 4.6, it appears that independent analysts have better stock-picking abilities than their affiliated peers. By having a comparable higher absolute alpha estimate for both portfolios (1) and (5) in Panel B over A, then independent analysts seem to outperform their affiliated peers. This

is also indicated by the statistically significant estimate of portfolios (4) and (5) in Panel B, where an investor should short these recommendations by independent analysts. This is consistent with Michaely and Womack (1999), who find in their event-study framework that the post-recommendations performance of affiliated analysts is worse compared to independent analysts.

For independent analysts, Table 4.6 Panel B, indicates that they perform better on "strong buy" recommendations than "buy" recommendations, due to a positive alpha estimate for portfolio (1) and a negative alpha estimate for portfolio (2). A potential explanation for this is that they only issue strong buy recommendations when they truly believe in them. We are unable to draw any conclusions about whether independent analysts outperform affiliated analysts in terms of their favorable recommendations because the alpha estimates lack statistical significance.

The number of observations in Panel A and B for portfolio (5) shows that both affiliated and independent analysts are reluctant to issue unfavorable recommendations. According to Bradley et al. (2003), after an IPO, when analysts' coverage is initiated, it is typically a favorable recommendation. This is further supported by James and Karceski (2006), who find that recommendations subsequent to IPOs are biased towards buy recommendations. This pattern is also seen in our results. However, we observe that affiliated analysts tend to issue fewer unfavorable recommendations than independent analysts. Previous studies (e.g., Bradley et al., 2003; Cliff and Denis, 2004; James and Karceski, 2006; Michaely and Womack, 1999) also observe this, with affiliated analysts issuing less unfavorable recommendations, and more favorable recommendations on firms they have a relationship with.

The significant positive SMB coefficients for portfolio (1) in Panel A and B, for both affiliated and independent analysts indicate that both groups are skewed towards smaller firms for the most favorable recommendations. Due to significant variations in IPO valuations, smaller firms with a more conservative initial price approach may have a larger upside resulting in more buy recommendations. Ferris et al. (2013) find that post-IPO performance is usually linked inversely to the conservatism in their initial offering and underpricing. Compared to IPOs with large initial valuations, where the risk and potential downside are higher, it could be easier to defend possible sell recommendations.

The negative estimates on the HML coefficient for portfolio (1) in both Panel A and B, suggest that favorable recommendations from both affiliated and independent analysts are skewed toward growth stocks. This is not a surprise, as IPO firms are likely to have better growth prospects than older, more established firms (James and Karceski, 2006). Research by Jegadeesh et al. (2004) suggests that stocks that receive favorable recommendations typically have a positive price momentum. Results in Panel A for portfolio (1), show that for the most favorable recommendations, affiliated analysts follow firms with poor momentum, however, for the independent analysts in Panel B, portfolio (1), we observe the same pattern as Jegadeesh et al. (2004). For affiliated analysts, we see the opposite pattern. Where they issue the least favorable recommendations on firms that have performed well in the recent past. That can again be explained by the "booster shots", as they want to issue strong recommendations on firms that perform poorly to increase the stock price.

Overall, the results from Table 4.6 indicate that subsequent to IPOs, the most favorable recommendations in Panel A portfolio (1), provided by affiliated analysts exhibit strong evidence of bias. On the other hand, although few observations, the statistically significant estimate of affiliated most unfavorable recommendations portfolio (5), also underperform their independent peers. This raises concerns about the objectivity of the affiliated analysts and thus suggests that their recommendations are biased. This bias might arise from the affiliated analysts' desire to maintain good relationships with the firms they have recently underwritten, and not jeopardize further business by issuing unfavorable recommendations. These findings suggest that independent analysts' recommendations tend to inherit more value in their recommendations compared to affiliated analysts. Notably, the only recommendations that add economic value from affiliated analysts are recommendations falling within portfolio (2) in Panel A. This portfolio economically outperforms its independent peers. However, affiliated analysts' strong buy recommendations might be valuable for investors in identifying which IPOs might perform poorly. This information could be valuable for investors as they could consider short positions in affiliated portfolio (1).

4.3.3 Syndicated Loans

In this part of the analysis, we examine the performance of recommendations issued by both affiliated and independent analysts subsequent to firms taking up syndicated loans. This part aims to observe if there is any merit in distinguishing affiliation for loan events, and if there are some valuable insights to be derived.

Table 4.7 shows the coefficient estimates for the syndicated loans. The negative estimate of portfolio $(1-5)^A - (1-5)^I$ in Panel C, column 6, indicates that in the months where there exist similar portfolios for both affiliated and independent, the independent analysts tend to outperform their affiliated peers. This finding is in essence rather strange in comparison to the literature. However, this result could be driven by the extremely poor performance of affiliated analysts' portfolio (5) in Panel A. While its economic value is largely positive, one has to remember the inherent recommendations issued within this portfolio. Portfolio (5) is the consensus estimate of hold and sell, thus a positive abnormal gross return is counterintuitive when considering it states you want to buy a hold/sell recommendation, especially from an affiliated analyst.

In the literature, both Chen and Martin (2011) and Ergungor et al. (2015), find that the forecast accuracy of affiliated analysts' estimates significantly outperforms their independent peers. However, Ergungor et al. (2015) also find that lender-affiliated analysts are more likely to issue pessimistic forecasts below their peers' estimates. This pessimism could be a potential explanation for the counter-intuitive result in portfolio (5) for Panel A. While both Chen and Martin (2011) and Ergungor et al. (2015) argue that lender-affiliated analysts gain informational advantages from their relationships, which is reflected in their forecasts of the firms. It is however important to note that an estimate of a firm's EPS is considerably different than issuing a buy, hold, or sell recommendation on the same firm. Therefore, while the affiliated analyst's forecasts are better, their issued recommendations might not inherit the same economic value for investors. The only indicative result we have of informational advantages is in the economic return of portfolio (1) for Panel A over Panel B. It is however only the independent analysts that have a statistically significant estimate.

Table 4.7: Regression Results Subsequent to Syndicated Loans: Affiliated vs. Independent

	Dependent variable:															
	Rp: Excess return of portfolio															
	Panel A: Affiliated					Panel B: Independent						Panel C: Affiliated - Independent				
	(1)	(2)	(4)	(5)	$(1-5)^A$	(1)	(2)	(3)	(4)	(5)	$(1-5)^I$	(1)	(2)	(4)	(5)	$(1-5)^A$ - $(1-5)^I$
Rm - Rf	0.361	0.577***	0.635***	0.084	−0.004	0.821***	1.061***	0.948***	0.958***	1.071***	−0.250**	−0.512**	−0.441**	−0.318**	−1.105***	0.146
	(0.242)	(0.175)	(0.150)	(0.278)	(0.659)	(0.059)	(0.047)	(0.097)	(0.044)	(0.081)	(0.097)	(0.246)	(0.191)	(0.154)	(0.347)	(0.730)
SMB	−0.078	0.007	−0.105	0.039	−0.080	0.202**	−0.042	0.058	−0.001	0.230*	−0.028	−0.273	−0.095	−0.175	−0.424	0.467
	(0.304)	(0.292)	(0.243)	(0.400)	(0.821)	(0.095)	(0.075)	(0.156)	(0.071)	(0.131)	(0.156)	(0.309)	(0.317)	(0.248)	(0.498)	(0.910)
HML	−0.067	−0.404	−0.472*	−0.429	−0.383	−0.195**	0.092	0.100	0.062	−0.051	−0.145	−0.173	−0.485	−0.461*	−0.280	−1.390
	(0.380)	(0.280)	(0.247)	(0.361)	(1.095)	(0.099)	(0.079)	(0.163)	(0.074)	(0.136)	(0.163)	(0.386)	(0.305)	(0.252)	(0.450)	(1.214)
RMW	0.328	−0.254	0.256	−0.262	2.175	0.108	0.019	0.083	0.162*	0.467***	−0.360*	0.167	−0.357	0.199	−1.050*	3.539**
	(0.412)	(0.335)	(0.315)	(0.476)	(1.491)	(0.121)	(0.096)	(0.199)	(0.090)	(0.167)	(0.199)	(0.419)	(0.365)	(0.322)	(0.593)	(1.652)
CMA	0.225	0.800*	0.974**	−0.051	2.236	−0.022	−0.176	−0.054	0.037	0.414**	−0.436*	0.575	0.903*	1.040**	−0.595	3.642
	(0.519)	(0.428)	(0.408)	(0.687)	(2.078)	(0.152)	(0.121)	(0.250)	(0.113)	(0.209)	(0.250)	(0.528)	(0.465)	(0.417)	(0.857)	(2.303)
MOM	−0.189	−0.082	−0.039	−0.316	−0.287	−0.051	0.103**	0.001	−0.008	−0.218***	0.167*	−0.127	−0.147	0.0002	−0.279	−0.605
	(0.160)	(0.186)	(0.135)	(0.278)	(0.687)	(0.054)	(0.043)	(0.089)	(0.040)	(0.074)	(0.089)	(0.163)	(0.202)	(0.138)	(0.347)	(0.762)
Alpha	1.363	0.685	0.548	1.325	0.277	0.736***	0.027	0.010	−0.383**	−0.941***	1.678***	0.994	0.369	0.980	2.220*	−0.676
	(0.831)	(0.701)	(0.584)	(0.903)	(2.329)	(0.223)	(0.177)	(0.367)	(0.166)	(0.307)	(0.366)	(0.845)	(0.762)	(0.597)	(1.126)	(2.582)
Observations	95	97	153	62	31	228	228	228	228	228	228	95	97	153	62	31
R^2	0.066	0.188	0.150	0.080	0.133	0.590	0.765	0.403	0.759	0.587	0.114	0.092	0.137	0.136	0.293	0.215
Adjusted R^2	0.002	0.133	0.115	−0.021	−0.084	0.579	0.759	0.387	0.753	0.576	0.090	0.030	0.080	0.100	0.216	0.019

Note: *p<0.1; **p<0.05; ***p<0.01

This table presents the coefficient estimates derived from the time-series regression of the Fama-French Five-Factor model plus momentum subsequent to syndicated loans. Panel A displays portfolios constructed using daily average recommendations from affiliated analysts, obtained from the top 50 contributing firms in IBES for the sample period Jan-2002 to Dec-2020. In contrast, Panel B presents portfolios constructed based on daily average independent analysts' recommendations from the top 50 contributing firms in IBES. These portfolios (1) to (5), each contain stocks with consensus analyst recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. However, affiliated portfolio (3) is missing due to a lack of observations in this consensus range. Each issued recommendation from an analyst impacts the consensus for a maximum of 30 calendar days unless a new recommendation is issued on the same firm, or the previous recommendation is stopped. The difference between the returns for portfolios (1) and (5) is shown in the sixth column in Panel A for affiliated analysts, and in the sixth column in Panel B for independent analysts, denoted as (1-5). This portfolio is derived by subtracting the returns of portfolio (5) from the returns of portfolio (1). That is, buying portfolio (1) and selling portfolio (5). Panel C presents the difference between affiliated and independent analysts' portfolios estimates. Portfolio (1) in Panel C will therefore display the difference between affiliated analysts' portfolio (1) from Panel A and independent analysts' portfolio (1) from Panel B. These portfolios are derived by subtracting independent portfolio estimates from affiliated portfolio estimates for the months that they both have active recommendations. Portfolio (3) in Panel C is also missing here, due to the lack of affiliated analysts in their portfolio (3) in Panel A. The sixth column in Panel C shows the difference between the sixth column in Panel A and the sixth column in Panel B. Again, subtracting the independent (1-5) portfolio from the affiliated (1-5) portfolio. The coefficient estimates from the time-series regressions of the portfolio returns (R_p) are the market excess return ($R_m - R_f$), size variable (SMB), book-to-market variable (HML), profitability variable (RMW), investment variable (CMA), and momentum variable (MOM). The dependent variable is the portfolio return minus the risk-free rate, notated as alpha in this table. Returns in this table are excess returns and gross transaction costs. The standard errors appear below the coefficient estimates. The coefficient estimates that are significant at a level of 10 percent, 5 percent, or 1 percent will have the symbol "*", "**", or "***" respectively.

Limiting the comparison to portfolio (1) of both affiliated and independent analysts. Panel C column 1, shows that for the months when both issued recommendations, affiliated analysts economically outperform their affiliated peers. This supports the informational advantage hypothesis of both Chen and Martin (2011) and Ergungor et al. (2015). An important caveat is the few observations for the affiliated analysts, which could lead to few recommendations driving the results, compared to the full sample for independent analysts. This lack of observations could also indicate a clear reluctance of lender-affiliated analysts to issue recommendations on firms they have a relationship with.

The regulations that were implemented at the start of our sample period, discussed in section 2.6, could be a potential explanation for the alphas from the affiliated analysts. The regulatory constraints from NASD Rule 2711 and NYSE Rule 472 further limit the communication between the lender and security divisions. These regulations should restrain the potential informational advantage for the lender-affiliated analysts, which could be the underlying cause of the few observations from them. However, this is contradictory to both Chen and Martin (2011) and Ergungor et al. (2015) who did find this informational spillover within the earnings forecasts.

Regarding syndicated loans, independent analysts have inherent investment and economic value. This is supported by the statistically significant results from Panel B, independent portfolios (1), (4), and (5), along with the strategy portfolio of buying (1) and selling (5), noted as $(1-5)^I$. Thus, an investor should buy portfolios (1) and $(1-5)^I$, while shorting portfolios (4) and (5). This makes it possible for investors to capitalize on sizable monthly gross returns.

The statistically significant estimates of the SMB and HML coefficient for the independent portfolios (1) and (5) in Panel B, shows that independent analysts issue recommendations on small-growth firms. That is, for both their most favorable and least favorable recommendations, they follow firms with the same characteristics subsequent to syndicated loans. Barber et al. (2001) find that small-growth firms outperform small-value firms in their sample period. This is consistent with the abnormal gross returns we see in portfolios (1) and (5) in Panel B, following small-growth firms subsequent to syndicated loans.

Overall, the segregation between lender-affiliated and independent analysts for syndicated

loans adds minimal value for investors. There are both few and insignificant results for the affiliated analysts. Therefore, when placed together with independent analysts' recommendations, they should not create large distortions in overall consensus recommendations. Thus, exerting effort to distinguish between them subsequent to syndicated loans, would most likely cost more than the potential upside. While independent analyst recommendations add investment value for investors. Comparing the results from Panel B Table 4.7 to the initial regressions in Table 4.3. Then looking at recent loan initiation of firms could be a good proxy for when investors should follow analysts' recommendations. Where the independent analysts for all portfolios outperform a strategy of looking at all issued recommendations by the analysts. Thus, in and of itself, segregating syndicated loans over other events is helpful and adds more investment value for investors than when not segregating.

4.3.4 M&As

The last part of our analysis examines the performance of recommendations issued subsequent to the announcement of M&A deals. Trying to find the divergent performance of analysts based on their affiliation status, and their potential value.

Table 4.8 presents the coefficient estimates for portfolios subsequent recommendations issued after M&A deal announcements. An initial observation from all estimates in Panel C favors an assumption that affiliated analysts inherit strong informational advantages over their independent peers. Especially from portfolio (5) and portfolio $(1-5)^A-(1-5)^I$ having statistical significant estimates. These estimates show evidence that there are significant differences between the two groups when they issued recommendations in the same months and are directly comparable. While an important caveat to bring forward is the few observation in the last two columns in Panel C , meaning the sample for comparison is rather small, which could significantly skew our results.

A comparison in Panel C between portfolios that have a high amount of observations, most notably portfolios (2) and (4), shows a contradicting story to portfolios (5) and $(1-5)^A-(1-5)^I$. To better understand this potential difference, we need to look at Panel A and B. In general, a significant mention is the negative coefficient estimates of all regular portfolios except portfolio (1) for both affiliated and independent analysts. This

Table 4.8: Regression Results Subsequent to M&A Announcements: Affiliated vs. Independent

	Dependent variable:															
	Rp: Excess return of portfolio															
	Panel A: Affiliated					Panel B: Independent						Panel C: Affiliated - Independent				
	(1)	(2)	(4)	(5)	$(1-5)^A$	(1)	(2)	(3)	(4)	(5)	$(1-5)^I$	(1)	(2)	(4)	(5)	$(1-5)^A$ - $(1-5)^I$
Rm - Rf	0.456**	0.662***	0.818***	0.798**	−0.678	0.969***	1.137***	1.003***	0.981***	0.964***	0.005	−0.509**	−0.502***	−0.112	0.127	−1.339
	(0.202)	(0.160)	(0.226)	(0.360)	(0.696)	(0.069)	(0.062)	(0.101)	(0.060)	(0.157)	(0.166)	(0.221)	(0.168)	(0.233)	(0.560)	(0.967)
SMB	0.498	0.350	0.299	−0.053	0.013	0.130	−0.021	0.103	0.090	−0.015	0.145	0.447	0.419	0.105	0.254	−0.671
	(0.309)	(0.255)	(0.351)	(0.489)	(0.907)	(0.112)	(0.100)	(0.162)	(0.096)	(0.254)	(0.267)	(0.338)	(0.268)	(0.361)	(0.761)	(1.259)
HML	−0.155	0.416	0.644*	−2.187***	1.393	−0.0003	0.069	−0.066	0.027	−0.557**	0.557**	−0.194	0.303	0.604	−1.561	0.940
	(0.340)	(0.262)	(0.360)	(0.656)	(1.270)	(0.117)	(0.104)	(0.169)	(0.100)	(0.264)	(0.278)	(0.372)	(0.276)	(0.371)	(1.022)	(1.763)
RMW	−0.261	0.262	−0.354	0.134	−0.167	−0.231	−0.028	−0.126	−0.028	−0.539*	0.308	−0.149	0.359	−0.291	−0.075	−0.315
	(0.427)	(0.327)	(0.470)	(0.767)	(1.420)	(0.143)	(0.127)	(0.207)	(0.123)	(0.323)	(0.340)	(0.468)	(0.345)	(0.485)	(1.195)	(1.971)
CMA	0.053	−0.409	−0.890	2.544**	−2.122	−0.480***	0.069	−0.215	0.154	−0.447	−0.032	0.590	−0.512	−0.933	2.616*	−2.108
	(0.504)	(0.399)	(0.574)	(0.955)	(1.915)	(0.179)	(0.160)	(0.259)	(0.154)	(0.405)	(0.427)	(0.552)	(0.421)	(0.591)	(1.486)	(2.659)
MOM	−0.004	0.040	0.050	−0.298	0.159	0.187***	0.133**	0.110	−0.103*	−0.502***	0.688***	−0.154	−0.141	0.225	0.377	−0.385
	(0.215)	(0.173)	(0.194)	(0.239)	(0.672)	(0.064)	(0.057)	(0.092)	(0.055)	(0.144)	(0.152)	(0.236)	(0.182)	(0.200)	(0.372)	(0.933)
Alpha	0.538	−0.534	−0.237	−3.259**	5.320**	0.168	−0.319	−0.124	−0.790***	−0.441	0.609	0.296	−0.312	0.468	−3.288*	6.079*
	(0.737)	(0.584)	(0.813)	(1.251)	(2.268)	(0.263)	(0.235)	(0.381)	(0.226)	(0.595)	(0.626)	(0.807)	(0.615)	(0.838)	(1.947)	(3.148)
Observations	146	192	192	55	38	228	228	228	228	228	228	146	192	192	55	38
R^2	0.108	0.181	0.181	0.353	0.138	0.584	0.679	0.405	0.684	0.341	0.120	0.057	0.073	0.026	0.140	0.127
Adjusted R^2	0.069	0.155	0.155	0.272	−0.029	0.573	0.670	0.389	0.676	0.323	0.096	0.017	0.042	−0.005	0.032	−0.042

Note: *p<0.1; **p<0.05; ***p<0.01

This table presents the coefficient estimates derived from the time-series regression of the Fama-French Five-Factor model plus momentum subsequent to M&A deals. Panel A displays portfolios constructed using daily average recommendations from affiliated analysts, obtained from the top 50 contributing firms in IBES for the sample period Jan-2002 to Dec-2020. In contrast, Panel B presents portfolios constructed based on daily average independent analysts' recommendations from the top 50 contributing firms in IBES. These portfolios (1) to (5), each contain stocks with consensus analyst recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. However, affiliated portfolio (3) is missing due to a lack of observation in this consensus range. Each issued recommendation from an analyst impacts the consensus for a maximum of 30 calendar days unless a new recommendation is issued on the same firm, or the previous recommendation is stopped. The difference between the returns for portfolios (1) and (5) is shown in the sixth column in Panel A for affiliated analysts, and in the sixth column in Panel B for independent analysts, denoted as (1-5). This portfolio is derived by subtracting the returns of portfolio (5) from the returns of portfolio (1). That is, buying portfolio (1) and selling portfolio (5). Panel C presents the difference between affiliated and independent analysts' portfolios estimates. Portfolio (1) in Panel C will therefore display the difference between affiliated analysts' portfolio (1) from Panel A and independent analysts' portfolio (1) from Panel B. These portfolios are derived by subtracting independent portfolio estimates from affiliated portfolio estimates for the months that they both have active recommendations. Portfolio (3) in Panel C is also missing here, due to the lack of affiliated analysts in their portfolio (3) in Panel A. The sixth column in Panel C shows the difference between the sixth column in Panel A and the sixth column in Panel B. Again, subtracting independent (1-5) portfolio from affiliated (1-5) portfolio. The coefficient estimates from the time-series regressions of the portfolio returns (R_p) are the market excess return ($R_m - R_f$), size variable (SMB), book-to-market variable (HML), profitability variable (RMW), investment variable (CMA), and momentum variable (MOM). The dependent variable is the portfolio return minus the risk-free rate, notated as alpha in this table. Returns in this table are excess returns and gross transaction costs. The standard error appears below the coefficient estimates. The coefficient estimates that are significant at a level of 10 percent, 5 percent, or 1 percent will have the symbol "*", "**", or "***" respectively.

shows that any investor would like to buy the most favorable portfolio (1), and short all other consensus recommendations by the analysts.

Considering the absolute value of the portfolio returns in both Panel A and B, affiliated analysts outperform independent analysts in portfolio (2). However, they underperform relative to independent analysts in portfolio (4). Further, portfolio (2), for both analyst groups, is contradictory to its inherent recommendation range, of consensus between (1.5-2.0], which is a regular "buy" recommendation. This indicates, that in general, only strong buy recommendations would yield a positive return for investors when looking at M&A deals, and all other recommendations should be shorted. In the notion of following the inherent understanding of "buy" recommendation for portfolio (2) in Panel A and B, recommendations provided by affiliated analysts essentially perform worse compared to independent analysts.

The significant negative estimates of the HML coefficient for portfolio (5) in both Panel A and B, show that affiliated and independent analysts issue least favorable recommendations on growth firms. However, affiliated analysts tend to follow firms with conservative investment strategies shown in Panel A, portfolio (5). Whereas independent analysts, tend to follow firms with aggressive investment strategies for both their most favorable and least favorable recommendations. Revealing that the firms they issue recommendations on have different characteristics, thereby indicating that affiliated analysts have better stock-picking abilities subsequent to M&A deals.

Ljungqvist et al. (2009) suggests that issuing optimistically biased recommendations on firms they have a relationship with does not increase the probability of winning future investment banking business. However, our findings indicate that affiliated analysts are reluctant to issue unfavorable recommendations compared to independent analysts. This discrepancy is especially shown in portfolio (5) in both Panel A and B, where the number of observations for independent analysts is four times as great. Suggesting that affiliated analysts are reluctant to issue sell recommendations on firms they have relationships with. The large and significant alpha on the affiliated portfolio (5) in Panel A, suggests that when affiliated analysts issue sell recommendations, they are generally more accurate. The most plausible reasoning is, if they are going to issue sell recommendations, they want to be absolutely confident in their assessments.

Previous literature on the impact of affiliation status subsequent to M&A deals is rather inconclusive. Findings of both Kolasinski and Kothari (2008) and Agrawal and Chen (2008) in their event studies, show that affiliated recommendations are more biased than their independent peers. This is not supported by our results. Both portfolio (1) and (5) in Panel A outperforms their counterparts in Panel B. This provides clear indications of informational advantages for advisory-affiliated analysts. These analysts issue superior recommendations that yield a higher monthly abnormal gross return than their independent peers. The estimates in Panel A for portfolio (5) and $(1-5)^A$ are also statistically significant, compared to the independent in Panel B. Thus, yielding investment value, and investors would short and buy these portfolios respectively.

The overall results from the regressions in Table 4.8 highlight potential informational spillover from advisory services to security analysts. There exists investment value for investors to short the least favored stocks in Panel A, portfolio (5) of affiliated analysts, or by buying the strategy portfolio $(1-5)^A$. However, this is not feasible as a comprehensive investment strategy since in a sample period of 228 months, one would solely be able to exploit it for 55 or 38 of them, depending on the portfolio. Thus, the most economic conclusion one can extract is that when affiliated analysts issue a strong sell recommendation, they would in general yield a strong abnormal gross return. However, only the strong buy recommendations, ending up in portfolio (1) for both affiliated and independent analysts are potential buy candidates.

Interestingly, Cowen et al. (2006), examining forecast accuracy between affiliated and independent analysts, also find contradictory results to Kolasinski and Kothari (2008) and Agrawal and Chen (2008). They find no statistical difference between affiliated and independent analysts' forecasts. While Barber et al. (2007), who also employ a portfolio strategy in a similar manner to us, find that investment bank analysts "buy" recommendations tend to underperform their independent peers. However, they are looking at changes through upgrades and downgrades of existing recommendations. Whereas we only look at newly issued recommendations. We additionally employ a different portfolio construction. This shows that the choice of method and framework have a substantial impact on the results of the analysis. Therefore, it is essential to carefully choose the framework and method for the results to be in relation to the research objective.

5 Robustness and Limitations

To ensure the validity of our results we perform three different robustness tests. The tests consist of changing one of the parameters in the portfolio construction at a time. That is: to increase the investment value of recommendations from 30 to 180 days, to increase the event and affiliation window from six months to one year, and use equal-weighted portfolios instead of value-weighted portfolios.

Table 5.1: Robustness Test Results: 180 Days Maximum Holding Period

Portfolio	Panel A: Affiliated				Panel B: Independent				Panel C: Affiliated - Independent			
	All	IPO	Syndicated Loans	M&A	All	IPO	Syndicated Loans	M&A	All	IPO	Syndicated Loans	M&A
(1)	0.419	−0.635	−0.412	0.402	−0.366**	0.023	−0.032	−0.365*	0.780*	−0.643	−0.350	0.734
	(0.418)	(0.594)	(0.601)	(0.526)	(0.151)	(0.491)	(0.184)	(0.212)	(0.463)	(0.741)	(0.604)	(0.561)
(2)	−0.542	−0.198	0.373	−0.838*	0.026	0.564	0.078	−0.010	−0.568*	−0.680	0.167	−0.811
	(0.331)	(0.473)	(0.541)	(0.481)	(0.101)	(0.495)	(0.115)	(0.138)	(0.344)	(0.596)	(0.546)	(0.506)
(3)	−0.372	−0.180			−0.040	0.124	0.074	−0.127	−0.353	−0.124		
	(0.722)	(0.740)			(0.489)	(0.715)	(0.155)	(0.181)	(0.742)	(0.967)		
(4)	−0.422	−1.164	0.416	−0.476	−0.234**	−0.937	−0.116	−0.282*	−0.188	−0.152	0.560	−0.186
	(0.365)	(0.727)	(0.415)	(0.489)	(0.115)	(0.645)	(0.133)	(0.164)	(0.377)	(0.863)	(0.420)	(0.507)
(5)	0.137	−0.348	0.752	−1.395	−0.105	−2.352*	−0.080	0.093	0.196	0.625	0.946	−1.493
	(0.688)	(1.515)	(0.826)	(0.999)	(0.200)	(1.272)	(0.206)	(0.290)	(0.728)	(2.325)	(0.833)	(1.101)
(1-5)	−0.044	0.190	−0.938	1.910	−0.260	2.369*	0.048	−0.457				
	(0.835)	(1.812)	(1.000)	(1.291)	(0.231)	(1.265)	(0.257)	(0.341)				
$(1-5)^A - (1-5)^I$									0.150	−1.899	−0.828	2.397*
									(0.877)	(2.667)	(1.014)	(1.408)

Note: *p<0.1; **p<0.05; ***p<0.01

This table presents the monthly abnormal gross returns (alpha) of the Fama-French Five-Factor model plus momentum based on average daily analyst recommendations for the sample period Jan-2002 to Dec-2020. The maximum investment value of each recommendation is set to 180 days. All other parameters are held constant, with six months of affiliation period and value-weighted portfolios. Panel A shows the alpha estimates for all events collectively in column 1 and the three next columns show estimates for the different events individually. Panel B follows the same structure, just for independent analysts. Whereas Panel C presents the alpha estimates of the difference between affiliated and independent analysts' performance. Rows 1 to 5 show alpha estimates for the different portfolios based on consensus recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. Row 6 show the difference in the performance of the most favorable recommendations, portfolio (1), and least favorable recommendations, portfolio (5). That is portfolio (1) minus portfolio (5). Lastly, row 7 presents the alpha estimate of the strategy of buying portfolio (1-5) from affiliated analysts and selling portfolio (1-5) from independent analysts. That is (1-5) affiliated minus (1-5) independent. The significant alpha estimates will have the symbol "*", "**", or "***" for significance levels 10 percent, 5 percent, or 1 percent respectively.

Our first robustness test is shown in Table 5.1. This table presents alpha estimates for when the investment value of recommendations has been increased to 180 instead of 30 days. This means, that a recommendation will impact the consensus estimates for up to 180 days, on average considerably increasing the holding period of the stocks. Interestingly, portfolio (1) Panel A for syndicated loans, has inverted its sign from positive to negative. This indicates that the possible informational advantage of affiliated analysts is short-lived, as long as they do not revoke their issued recommendations. Additionally, for M&A Panel A, the longer holding period reduces the value of affiliated analysts' recommendations. Thus, overall, the value of affiliated analysts might be short-lived, and holding the recommendations for too long will reduce potential earnings.

The estimates for independent analysts in Table 5.1 Panel B show a different story. The independent analysts' recommendations gain value in the long run for both syndicated loans and IPOs, with both higher absolute returns and more statistically significant results. Whereas they lose value for M&A deals and all events, where the latter most likely is driven by the performance of M&A deals.

Overall, the robustness test in Table 5.1 shows that between affiliated and independent analysts, increasing the investment value of their recommendations yields varying results. The informational advantage in favorable recommendations (1) is increased for all events, but the potential bias is reduced for IPOs. Seen from the alpha estimate of portfolio (1) for Panel C, the reduced absolute value indicates that the bias for affiliated analysts dissipates with the longer holding period. We also observe this for M&A and syndicated loans when comparing the Panel C portfolios, with again reduced absolute returns. This favors that the potential biases of affiliated analysts and their impact on returns dissipate with a longer holding period of the investment. However, this would make sense, as the increased holding period would allow more information to be factored into the stock price.

Table 5.2: Robustness Test Results: One Year Affiliation Window

Alpha	Panel A: Affiliated				Panel B: Independent				Panel C: Affiliated - Independent			
	All	IPO	Syndicated Loans	M&A	All	IPO	Syndicated Loans	M&A	All	IPO	Syndicated Loans	M&A
(1)	0.551	0.193	1.556**	0.423	0.220	−0.084	0.512***	0.164	0.330	0.579	1.071	0.172
	(0.567)	(0.746)	(0.622)	(0.617)	(0.168)	(0.613)	(0.186)	(0.218)	(0.595)	(0.980)	(0.683)	(0.694)
(2)	−0.679	0.572	0.831	−0.540	0.102	0.057	0.239*	−0.031	−0.781*	0.515	0.516	−0.544
	(0.423)	(0.569)	(0.658)	(0.556)	(0.118)	(0.584)	(0.137)	(0.165)	(0.421)	(0.767)	(0.692)	(0.561)
(3)	−1.409	−1.281			−0.030	0.130	0.183	−0.290	−1.594	−0.744		
	(0.915)	(0.946)			(0.223)	(0.768)	(0.293)	(0.337)	(0.974)	(1.117)		
(4)	−0.704	−0.806	0.003	−0.703	−0.392***	−1.385**	−0.323**	−0.489***	−0.313	0.659	0.348	−0.191
	(0.501)	(0.837)	(0.497)	(0.645)	(0.103)	(0.630)	(0.130)	(0.159)	(0.509)	(0.955)	(0.484)	(0.660)
(5)	−0.566	−2.728**	0.822	−0.652	−0.451*	−2.500*	−0.457*	−0.124	−0.222	−1.031	1.595*	−0.692
	(0.849)	(1.225)	(0.739)	(1.201)	(0.251)	(1.174)	(0.255)	(0.422)	(0.898)	(2.125)	(0.822)	(1.436)
(1-5)	1.303	3.145*	1.584	2.271	0.671**	2.183*	0.969***	0.288				
	(1.025)	(1.598)	(1.325)	(1.684)	(0.279)	(1.236)	(0.295)	(0.466)				
$(1-5)^A - (1-5)^I$									0.693	1.747	0.277	2.180
									(1.096)	(2.551)	(1.454)	(2.048)

Note: *p<0.1; **p<0.05; ***p<0.01

This table presents the monthly abnormal gross returns (alpha) of the Fama-French Five-Factor model plus momentum based on average daily analyst recommendations for the sample period Jan-2002 to Dec-2020. The affiliation period and maximum time from an event are set to one year. All other parameters are held constant, with the maximum investment value of each recommendation set to 30 days, and value-weighted portfolios. Panel A shows the alpha estimates for all events collectively in column 1 and the three next columns show estimates for the different events individually. Panel B follows the same structure, just for independent analysts. Whereas Panel C presents the alpha estimates of the difference between affiliated and independent analysts' performance. Rows 1 to 5 show alpha estimates for the different portfolios based on consensus recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. Row 6 show the difference in the performance of the most favorable recommendations, portfolio (1), and least favorable recommendations, portfolio (5). That is portfolio (1) minus portfolio (5). Lastly, row 7 presents the alpha estimate of the strategy of buying portfolio (1-5) from affiliated analysts and selling portfolio (1-5) from independent analysts. That is (1-5) affiliated minus (1-5) independent. The significant alpha estimates will have the symbol "*", "**", or "***" for significance levels 10 percent, 5 percent, or 1 percent respectively.

The second robustness test is performed by increasing the affiliation and time period after the event which is relevant to one year. These portfolios keep the investment period of 30 days for the recommendations. The results are shown in Table 5.2.

For the "all events" regressions, for both affiliated and independent in Panel A and B, we see an increased performance in portfolio (1). However, all other portfolios perform worse, whereas the statistical significance of the independent portfolios is kept. This indicates that around the events, there is a lot of noise that could impact the results. Since the performance of the least favorable recommendations performs worse in absolute terms, this could be indicative of negative news being more relevant around the event times than later periods.

However, from Panel C in Table 5.2 for all events, the values of the portfolios indicate that affiliated analysts' recommendations perform better. There is a higher absolute value for the portfolios. Indicating that there might be a time lag before the advantages of affiliated analysts manifest themselves in better recommendations.

For IPO events, we see in Table 5.2 that affiliated analysts in Panel A portfolio (1) perform better than when the affiliation period is shorter. For the least favorable recommendations (5), both affiliated and independent analysts now yields statistically significant returns. While Panel C, with portfolio (1) turning positive, indicates that the biases of affiliated analysts are removed when increasing the time from the IPO. Affiliated are now issuing more informative recommendations. Most importantly, there is now no statistical difference between the analysts given by Panel C.

Overall, for syndicated loans in Table 5.2 Panel A and B, we see a general loss in absolute returns of the portfolios. It is interesting to note that the difference between the analysts, seen in Panel C, mostly remains the same as the baseline regressions. Interestingly, the most favored recommendations (1) in Panel A from affiliated analysts are now statistically significant. While portfolio (1) in Panel C is not able to conclude that they statistically outperform their independent peers, its economic significance could indicate more long-term superior information.

While for M&A deals, Panel C from Table 5.2 shows that there are fewer differences between the two analyst groups. Where both affiliated and independent analysts lose

value for their least favorable recommendations (5). However, we see no major changes in portfolio (1). Thus, for M&A events, the time period right after the deals is most relevant for sell recommendations. This would make sense, as the large costs of mergers or acquisitions could negatively impact the short-term performance of the firms. This would warrant sell recommendations and the subsequent short-term performance in the market.

Table 5.3: Robustness Test Results: Equal-Weighted Portfolios

Portfolio	Panel A: Affiliated				Panel B: Independent				Panel C: Affiliated - Independent			
	All	IPO	Syndicated Loans	M&A	All	IPO	Syndicated Loans	M&A	All	IPO	Syndicated Loans	M&A
(1)	0.126	−0.797	1.232	0.539	0.602***	0.528	0.749***	0.439*	−0.489	−1.723	0.119	0.139
	(0.757)	(0.885)	(0.818)	(0.742)	(0.162)	(0.691)	(0.212)	(0.225)	(0.767)	(1.131)	(0.876)	(0.760)
(2)	0.371	0.879	0.899	−0.382	0.326**	1.116	0.328*	0.186	0.054	−0.149	0.500	−0.517
	(0.532)	(0.712)	(0.696)	(0.586)	(0.126)	(0.734)	(0.169)	(0.173)	(0.531)	(0.910)	(0.745)	(0.613)
(3)	−1.261	−1.267			0.013	−0.203	0.141	−0.025	−1.208	−1.755		
	(0.927)	(0.934)			(0.242)	(0.899)	(0.349)	(0.319)	(0.959)	(1.332)		
(4)	−0.834	−0.830	0.568	−0.158	−0.416***	−1.167*	−0.347**	−0.491***	−0.431	0.697	0.856	0.281
	(0.763)	(0.930)	(0.582)	(0.775)	(0.133)	(0.699)	(0.167)	(0.186)	(0.763)	(1.047)	(0.612)	(0.788)
(5)	−0.866	−0.250	1.370	−3.405***	−0.722*	−2.897**	−0.539	−1.198**	0.040	2.841	1.622	−3.004**
	(0.788)	(1.310)	(0.888)	(1.243)	(0.378)	(1.308)	(0.482)	(0.544)	(0.858)	(2.490)	(1.193)	(1.490)
(1-5)	1.430	0.871	−0.286	5.244**	1.324***	3.356**	1.288**	1.637***				
	(1.245)	(2.391)	(2.283)	(2.182)	(0.406)	(1.467)	(0.531)	(0.576)				
$(1-5)^A - (1-5)^I$									−0.059	−3.302	1.209	4.681*
									(1.300)	(3.987)	(3.074)	(2.477)

Note: *p<0.1; **p<0.05; ***p<0.01

This table presents the monthly abnormal gross returns (alpha) of the Fama-French Five-Factor model plus momentum based on average daily analyst recommendations for the sample period Jan-2002 to Dec-2020. The portfolios are equally weighted. All other parameters are held constant, with the maximum investment value of each recommendation set to 30 days and an affiliation period of six months. Panel A shows the alpha estimates for all events collectively in column 1 and the three next columns show estimates for the different events individually. Panel B follows the same structure, just for independent analysts. Whereas Panel C presents the alpha estimates of the difference between affiliated and independent analysts' performance. Rows 1 to 5 show alpha estimates for the different portfolios based on consensus recommendations of (1-1.5], (1.5-2], (2-2.5], (2.5-3], and greater than 3 respectively. Row 6 show the difference in the performance of the most favorable recommendations, portfolio (1), and least favorable recommendations, portfolio (5). That is portfolio (1) minus portfolio (5). Lastly, row 7 presents the alpha estimate of the strategy of buying portfolio (1-5) from affiliated analysts and selling portfolio (1-5) from independent analysts. That is (1-5) affiliated minus (1-5) independent. The significant alpha estimates will have the symbol "*", "**", or "***" for significance levels 10 percent, 5 percent, or 1 percent respectively.

Strikingly, when using equal-weighted portfolios in Table 5.3, the estimates show little disparities in terms of their economic values. On the other hand, some of the estimates are more statistically significant. However, the results seem more all over the place regarding the returns. Overall using equal-weighted portfolios is not a good portfolio approach. The disparaging differences in the general estimates give credence to why value-weighted portfolio approaches are preferred over equal-weighted. As discussed by Barber et al. (2001), by value-weighting portfolios, one is better able to capture the economic significance of portfolio returns. Thus, this robustness test provides an inclination as to why we use a value-weighted approach.

Overall, the robustness test indicates that the parameters and framework we have chosen in our method are suitable for our objective. That is, looking at differences in portfolio performance between affiliated and independent analysts.

5.1 Limitations

A severe limitation of our study is the limited sample size for affiliated analysts. While we produce statistically significant results for several of our portfolios with few observations, their estimates will offer limited economical value. Especially, when compared to independent analysts. While, in general, the sample size for each of the events individually is acceptable. Our ability to draw out meaningful results is reduced by the contrast in observations. There are a few remedies to reduce this issue. One potential solution is to match all IBES contributors to the advisors in SDC. This could potentially provide a larger sample to gain more observations for affiliated analysts' least recommended stocks but is not guaranteed.

Another limitation is that our analysis does not include transaction costs. While our results could indicate profitable investment strategies, not factoring in the transaction costs would make it hard to conclude if they are in fact profitable. However, this does not impact the economic significance of the results, making them still relevant for comparison to the previous literature. It would be interesting to further the research by including transaction costs and making changes in the frequency of trading. Another potential avenue to explore is instead of weighting the proportions based on value, would rather purchase the amount of stock in relation to the number of outstanding recommendations. That is, instead of using consensus estimates, one would act upon each individual stock recommendation basing the weight on the number of recommendations.

6 Conclusion

The objective of this thesis was to analyze the portfolio performance of recommendations from security analysts based on their affiliation status subsequent to corporate events. The overall results signify that there is no consistent outperformance by one of the analyst's groups in terms of generating abnormal returns based on portfolio strategies. However, we observe that the value of the different analyst groups varies depending on the type of event we examine. Most importantly, aggregating all the events under one shows no discernable differences between affiliated and independent analysts. The only exception is for independent analysts' least favorable recommendations, generating statistically significant abnormal gross returns. However, conducting a direct comparison between affiliated and independent analysts show no direct difference between their performance subsequent to all events under one.

By further segregating the corporate events into their individual components, we find evidence of both bias and informational advantages. Following IPOs, we see a statistically significant difference between affiliated and independent analysts. A portfolio that buys the most favorable recommended stocks by affiliated analysts and shorts the independent yield a monthly abnormal gross return of -2.197 percent. This strongly supports Michaely and Womack (1999), which finds that underwriting affiliated analysts issue "booster shots" subsequent to underperforming IPOs, trying to increase their stock price. Hence, they lack objectivity, and their most favorable recommendations exhibit bias. We additionally find that independent analysts' least favorable recommendations are valuable to investors subsequent to IPOs, generating a statistically significant monthly abnormal gross return of -2.665 percent. Indicating that investors would like to short this portfolio.

From a portfolio perspective, independent analysts are valuable for investors subsequent to syndicated loans. They deliver statistically significant abnormal gross returns in both their most favorable and least favorable recommended stocks. More interestingly, these returns also surpass the abnormal gross returns generated when validating the method of Barber et al. (2001) for our sample period. This shows that it is more favorable for investors to use recent loan syndication as a proxy for when they should allow independent analysts' recommendations to influence their portfolios. While Chen and Martin (2011) find that

lender-affiliated analysts issue more accurate EPS forecasts on firms, our results only supports this by affiliated analysts issuing more economically valuable recommendation than their independent peers. However, increasing the time since the event makes the most favorable recommended stocks of lender-affiliated analysts statistically significant, we can not concisely conclude that they have superior information. This result however can help to support Chen and Martin (2011), but it is important to note the difference in sample periods.

In the event of M&A deals, there exists a value for investors to listen to advisory-affiliated analysts' least favorable recommendations. We find a statistically significant monthly abnormal gross return of -3.529 percent, showing that it is profitable to short these recommendations absent transaction costs. This provides evidence of potential superior information. They also statistically outperform their independent peers when buying the lender-affiliated least favorable recommended stocks and shorting the independent least favorable recommended stocks. These results lean towards advisory-affiliated analysts exploiting informational advantages, which is in contrast to the literature. Malmendier and Shanthikumar (2014) suggests that advisory-affiliated analysts issue optimistic reports to win over potential future advisory businesses. Kolasinski and Kothari (2008) find in their event study that affiliated analysts issue biased forecasts. On the contrary Barber et al. (2007) find no statistically significant difference in affiliated compared to independent recommendations. This makes it hard to derive meaningful arguments from our results. Consequently, it is essential to employ the appropriate method and framework when analyzing the performance of analysts subsequent to M&A deals.

In general, we find evidence that affiliated analysts tend to be more biased in their recommendations. However, we also find that they potentially inhibit informational advantages, but they rarely result in more valuable recommendations than their independent peers. Compared to the literature, the results from both IPO and lender-affiliated analysts are moving as expected when looking at their economic significance. While the results of M&A affiliated analysts are contradictory. This could stem from differences in method or sample period. However, our results serve as indicators for investors when considering what type of analysts and strategies they should follow subsequent to the different corporate events.

References

Agrawal, A. and Chen, M. (2008). Do Analyst Conflicts Matter? Evidence from Stock Recommendations. *The Journal of Law and Economics*, 51(3):503–537.

Barber, B., Lehavy, R., McNichols, M., and Trueman, B. (2001). Can Investors Profit from the Prophets? Security Analyst Recommendations and Stock Returns. *The Journal of Finance*, 56(2):531 – 563.

Barber, B., Lehavy, R., McNichols, M., and Trueman, B. (2003). Reassessing the Returns to Analysts' Stock Recommendations. *Financial Analysts Journal*, 59(2):88 – 96.

Barber, B., Lehavy, R., McNichols, M., and Trueman, B. (2006). Buys, holds, and sells: The distribution of investment banks' stock ratings and the implications for the profitability of analysts' recommendations. *Journal of Accounting and Economics*, 41(1-2):87 – 117.

Barber, B., Lehavy, R., and Trueman, B. (2007). Comparing the stock recommendation performance of investment banks and independent research firms. *The Journal of Financial Economics*, 85(2):490–517.

Bradley, D. J., Jordan, B. D., and Ritter, J. R. (2003). The Quiet Period Goes out with a Bang. *The Journal of Finance*, 58(1):1–36.

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, 52(1):57–82.

Celebi, C. G. (2016). Value of Analyst Recommendations: Is it Possible for Investors to Profit from Them? Master's thesis, Tilburg School of Economics and Management.

Center for Research in Security Prices (n.d.a). *CRSP Daily stock file*. [Daily stock information on all US companies, 2000 - 2020]. [Dataset] Retrieved March 15, 2023, from Wharton Research Data Services, https://wrds-web.wharton.upenn.edu/.

Center for Research in Security Prices (n.d.b). *CRSP Delisting Information*. [Delisted returns on listed US companies, 2000 - 2020]. [Dataset] Retrieved March 15, 2023, from Wharton Research Data Services, https://wrds-web.wharton.upenn.edu/.

Chang, Y.-H. and Chan, C.-C. (2008). Financial analysts' stock recommendation revisions and stock price changes. *Applied Financial Economics*, 18(4):309–325.

Chen, T. and Martin, X. (2011). Do Bank-Affiliated Analysts Benefit from Lending Relationships? *Journal of Accounting Research*, 49(3):633–675.

Clarke, J., Khorana, A., Patel, A., and Rau, P. R. (2011). Independents' day? Analyst behavior surrounding the Global Settlement. *Annals of Finance*, 7:529–547.

Cliff, M. T. and Denis, D. J. (2004). Do Initial Public Offering Firms Purchase Analyst Coverage with Underpricing? *The Journal of Finance*, 59(6):2871–2901.

Cowen, A., Groysberg, B., and Healy, P. (2006). Which types of analyst firms are more optimistic? *Journal of Accounting and Economics*, 41(1-2):119–146.

Dugar, A. and Nathan, S. (1995). The Effect of Investment Banking Relationships

on Financial Analysts' Earnings Forecasts and Investment Recommendations. *Contemporary Accounting Research*, 12(1):131–160.

Eleswarapu, V. R., Thompson, R., and Venkataraman, K. (2004). The Impact of Regulation Fair Disclosure: Trading Costs and Information Asymmetry. *Journal of Financial and Quantitative Analysis*, 39(2):209–225.

Ergungor, O. E., Madureira, L., Nayar, N., and Singh, A. K. (2015). Lending relationships and analysts' forecasts. *Journal of Financial Intermediation*, 24(1):71–88.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2):383–417.

Fama, E. F. and French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, 116(1):1–22.

Fama, E. F. and French, K. R. (n.d.). *5 Factors Plus Momentum - Monthly Frequency*. [Five factors for US market, 2000 - 2020]. [Dataset] Retrieved March 15, 2023, from Wharton Research Data Services, https://wrds-web.wharton.upenn.edu/.

Ferris, S. P., Hao, Q., and Liao, M.-Y. (2013). The Effect of Issuer Conservatism on IPO Pricing and Performance. *Review of Finance*, 17(3):993 – 1027.

FINRA (2023). *BrokerCheck*. https://brokercheck.finra.org/.

Gomes, A., Gorton, G., and Madureira, L. (2007). SEC Regulation Fair Disclosure, information, and the cost of capital. *Journal of Corporate Finance*, 13(2-3):300–334.

Grossman, S. J. and Stiglitz, J. E. (1980). On the Impossibility of Informationally Efficient Markets. *The American Economic Review*, 70(3):393–408.

I/B/E/S Academic (n.d.a). *Recomenendations - Detail*. [All US reccomendations from 2000 to 2020]. [Dataset] Retrieved February 21, 2023, from Wharton Research Data Services, https://wrds-web.wharton.upenn.edu/.

I/B/E/S Academic (n.d.b). *Recomenendations - Stopped Recommendations*. [All stopped US reccomendations from 2000 to 2020]. [Dataset] Retrieved February 21, 2023, from Wharton Research Data Services, https://wrds-web.wharton.upenn.edu/.

James, C. and Karceski, J. (2006). Strength of analyst coverage following IPOs. *Journal of Financial Economics*, 82(1):1–34.

Jegadeesh, N., Kim, J., Krische, S. D., and Lee, C. M. C. (2004). Analyzing the Analysts: When Do Recommendations Add Value? *The Journal of Finance*, 59(3):1083–1124.

Kolasinski, A. C. and Kothari, S. P. (2008). Investment Banking and Analyst Objectivity: Evidence from Analysts Affiliated with Mergers and Acquisitions Advisors. *Journal of Financial and Quantitative Analysis*, 43(4):817–842.

Lin, H.-W. and McNichols, M. F. (1998). Underwriting relationships, analysts' earnings forecasts and investment recommendations. *Journal of Accounting and Economics*, 25(1):101–127.

Ljungqvist, A., Marston, F., and Wilhelm, W. J. (2009). Scaling the Hierarchy: How and Why Investment Banks Compete for Syndicate Co-Management Appointments. *The Review of Financial Studies*, 22(10):3977–4007.

Malmendier, U. and Shanthikumar, D. (2014). Do Security Analysts Speak in Two Tongues? *The Review of Financial Studies*, 27(5):1287–1322.

McNichols, M. F. and O'Brien, P. C. (1998). Self-Selection and Analyst Coverage. *Journal of Accounting Research*, 35(2):167–199.

Michaely, R. and Womack, K. L. (1999). Conflict of Interest and the Credibility of Underwriter Analyst Recommendations. *The Review of Financial Studies*, 12(4):653–686.

Mola, S. and Guidolin, M. (2009). Affiliated mutual funds and analyst optimism. *Journal of Financial Economics*, 93(1):108–137.

National Association of Securities Dealers (NASD) (2002). *Rule 2711. Research Analysts and Research Reports*.

New York Stock Exchange (NYSE) (2002). *Rule 472. Communications With The Public*.

SDC Platinum (n.d.a). *Global New Issues Databases*. [All IPOs and syndicated loans in the US market, 2000 - 2020]. [Dataset] Retrieved February 26, 2023, SDC Platinum standalone platofrm.

SDC Platinum (n.d.b). *Mergers & Acquisitions*. [M&A information on all US targets, 2000 - 2020]. [Dataset] Retrieved February 26, 2023, from SDC Platinum standalone platofrm.

Security and Exchange Comimission (SEC) (1999). *Selective Disclosure and Insider Trading (Regulation Fair Disclosure)*.

Security and Exchange Comimission (SEC) (2003). *The Global Settlement*.

Shumway, T. (1997). The Delisting Bias in CRSP Data. *The Journal of Finance*, 52(1):327–340.

Stickel, S. E. (1990). Predicting Individual Analyst Earnings Forecasts. *Journal of Accounting Research*, 28(2):409–417.

Stickel, S. E. (1995). The Anatomy of the Performance of Buy and Sell Recommendations. *Financial Analysts Journal*, 51(5):25–39.

Thomson Reuters (2023). Refinitiv eikon.

Wharton Research Data Services (n.d.). *IBES CRSP Link (Beta)*. [IBES TICKER to CRSP PERMNO historical matching]. [Dataset] Retrieved February 21, 2023, from Wharton Research Data Services, https://wrds-web.wharton.upenn.edu/.

Womack, K. L. (1996). Do Brokerage Analysts' Recommendations Have Investment Value? *The Journal of Finance*, 51(1):137–167.