Does Syndicate Pressure Affect Analysts' Incentive to Produce Information?

Evidence from Recommended Firms' Securities Class Action Lawsuits*

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Abstract

Using a sample of firms sued for financial reporting fraud, we document that syndicate pressure can taint unaffiliated analysts' incentive to release negative information promptly. We find that analysts employed by co-manager syndicate banks, which do not have direct underwriting relationships with the recommended firms but rely on affiliated main banks to be in other deals, issue downgrades as late as those employed by the main banks that provide underwriting services to the recommended firms. On the other hand, analysts employed by co-lead syndicate banks and independent banks issue downgrade revisions significantly more promptly (by 62 days) than those of main banks. Global Settlement appears to improve analysts' independence, particularly among main banks, which are subject to the greatest level of conflicts of interest, and co-manager syndicate banks, which are susceptible to syndicate pressure from main banks.

1. Introduction

Network relationship is an important feature in the financial industry. It permits information and risk sharing as well as the pooling of distribution channels to enhance various financial services ranging from securities underwriting, syndicate lending, to venture capital investing (see, for example, Hochberg, Ljungqvist, and Lu (2007)). The formation of syndicates often consists of members with ongoing relationships, such as those in securities underwriting documented by (Corwin and Schultz (2005)). Ljungqvist, Marston, and Wilhelm (2009, hereafter LMW) also show that lead managers tend to select the co-managers that they have frequently worked with in the past. The relationships may serve to mitigate agency problems within syndicates (Pichler and Wilhelm (2001)). These studies suggest that relationship maintenance is rather important among syndicate members.

To maintain strong relationships, reciprocity is a necessary element and has been discussed extensively in the literature (see, for example, Rabin (1993) and Fehr and Schmidt (2002)). Reciprocity in social psychology refers to responding to a positive action with another positive action. Conversely, in response to hostile actions, they are frequently nastier and even brutal. Such an implicit agreement can have material impacts on the behavior of syndicate members, thus, significant economic consequences. Nonetheless, very few empirical studies document such an important issue in Finance. Among the few are Hochberg, Ljungqvist, and Lu (2010). They show that strong networks among incumbent venture capitalists restrict entry, thus, increase their bargaining power over entrepreneurs. They also document a seemly retaliation behavior that incumbents freeze out other incumbents who facilitate entry into their market.

We propose in this study that social reciprocity incentivizes syndicate members in securities underwriting to act cooperatively in order to maintain their member status and

relationships with the network center – "main banks", which are lead investment banks in the syndicates and collect substantial revenues from securities issuing firms. We argue that the desire to be included in an underwriting syndicate network organized by the main bank can taint the incentive of syndicate banks to produce information. For example, syndicate banks might be pressured into acting like main banks, e.g., withholding negative information about main banks' clients even though syndicate banks do not receive any fees directly from such firms. To test this "syndicate pressure" hypothesis, we use analyst recommendations to proxy banks' information production (releasing) incentives surrounding a novel corporate event – securities class action lawsuits alleging recommended firms for engaging in financial reporting fraud.

The advantage of using lawsuit events is that we can focus on the timeliness of providing "private" negative information concerning recommended firms rather than analyzing the well-documented optimism of recommendations by affiliated analysts. Each lawsuit filing provides two critical dates: the class period starting date (proxy for the starting date of the recommended firm's wrongdoings) and the class period ending date, which is the date that wrongdoings are usually uncovered. We use this class period – lasting on average about one year – to analyze information production by analysts prior to public knowledge about the wrongdoings.[1]

Formally, the syndicate pressure hypothesis predict the following: syndicate banks, which have syndication relationships with main banks within the prior three calendar years, behave more like main banks, thus independent banks will provide downgrade revisions more promptly than main banks and syndicate banks. However, analysts employed by main banks might have better access to private information than analysts of other types of banks because of the due-

[1] Although the class period of a lawsuit is a reasonable proxy for private corporate wrongdoing period, it may suffer from the problem of statute of limitations. We address this issue in Section 4.3.3.

diligence role main banks serve as underwriters (Chemmanur and Fulghieri (1994)). If there is information spillover from main banks to syndicate partners, then syndicate banks will have better information than independent banks that have neither a direct underwriting relationship with the covered firm nor a syndicate relationship with the main banks. Therefore, if information spillover outweighs the syndicate pressure problem, syndicate banks can provide negative information first, which we test as the "information sharing" hypothesis.

The syndicate pressure and information sharing hypotheses are not mutually exclusive. Both forces can work on analyst behaviors simultaneously. To partition these two effects, we rely on the differences between co-lead and co-manager syndicate banks and the regulation changes that are designed to address the conflict of interest among analysts, which should decrease syndicate pressure effect and allow information spillover effect to prevail.

Information spillover from main banks is likely to be similar between co-lead and co-manager syndicate banks, but co-manager syndicate banks, which are smaller banks than co-lead syndicate banks, tend to rely on a main bank to be included in a syndicate.[2] In addition, the median number of co-manager partners working with top ten lead underwriters each year has increased dramatically over the years, which suggests intense competition among these co-manager syndicate banks. The large pool of co-managers to choose from further weakens their independence from main banks relative to co-lead syndicate banks. Therefore, distinguishing between co-lead and co-manager syndicate banks provides a natural control of information sharing with differing levels of syndicate pressure.

[2] Corwin and Schultz (2005) show that co-manager positions appeared with increasing frequency during the 1990s as some issuers sought wider analyst coverage and market-making capacity. LMW (2009) argue that investment banks have a strong incentive to compete for co-manager positions to earn underwriting fees as well as for access to build relationship with the client.

Using a sample of analyst recommendations from five types of banks[3] surrounding securities class action lawsuits of recommended firms during 1996-2006, we document findings consistent with the syndicate pressure hypothesis. Our analysis on sued firms shows that co-manager syndicate banks did not provide more prompt downgrade revisions than lead manager main banks. On the other hand, co-lead syndicate banks and independent banks issued downgrade revisions significantly earlier by 21% of the duration of the class period (62 days) than lead manager main banks. These findings are consistent with our conjecture that co-managers are more susceptible to syndicate pressure compared to co-lead syndicate banks.

In addition, we find significant changes in the timeliness of downgrades during the class period following the Global Settlement and the adoption of NASD Rule 2711. We find that main banks and co-manager syndicate banks significantly improved their promptness in disseminating negative information. The findings are consistent with Kadan et al. (2009) and Chen and Chen (2009). They suggests that NASD Rule 2711 served its purpose in mitigating conflicts of interest since main banks and co-manager syndicate banks are most influenced by such problems.

Following the adoption of Rule 2711, we observe some minor level of information sharing (spillover) effect. Both co-lead and co-manager syndicate banks provide significantly more prompt downgrades than main banks, but independent banks are no longer significantly different from main banks. However, the differences between syndicate banks and independent banks are not significant. After the adoption of Rule 2711, there are fewer syndicate pressure problems, thus we observe the effect of information sharing, albeit to a less significant degree.

[3] If there are both co-lead and co-manager relationships between a pair of banks, we allow the co-lead relationship to dominate the co-manager relationship. By the same token, we allow the main bank relationship to dominate the syndicate bank relationship. These bank types are formally defined in Panel A of Appendix A1.

Our paper fits into the literature addressing the following general and broad research questions: How do institutions work with and affect each other? What are the consequences of their behaviors? These are important questions but empirical evidence is scare. We provide evidence to show that reciprocity has material effects on the behavior of financial institutions and such incentives can affect information production function of these banks.

Our study also contributes to the literature as follows. We provide the first analysis of the timeliness of analysts' recommendations during negative events prior to public awareness of the events. Most of the prior studies on analysts' conflicts of interest have been focused on earnings forecasts accuracy and biases in stock recommendations. There is little extant research on how analysts' conflicts of interest affect the timeliness of information that they provide. Exceptions are O'Brien, McNichols, and Lin (2005), who document that affiliated analysts downgrade significantly more slowly than unaffiliated analysts after IPOs and SEOs. However, there are no particular private information events following equity issuance in their study. Ljungqvist et al. (2007) document that, after a large stock price drop – a publicly known event, the strength of the underwriting relationship has no effect on how timely analysts issue downgrades. We believe that it is essential to examine how timely analysts disseminate *negative private* information, since this channel will greatly contribute to a fair and efficient market.

Finally, the analysis surrounding the adoption of NASD Rule 2711 enhances the understanding on the effects of this rule. For example, Chen and Chen (2009) focus on the improvement of stock recommendations reflecting firms' fundamental values. Kadan et al. (2009) document the declining optimism of affiliated analysts and a massive shift of rating mechanisms from a five tier to a three tier system surrounding the summer of 2002, which also reduces the quality of information. Therefore, the lower optimism documented by prior literature

can also be driven by this loss of information. Our analysis examining the promptness of analysts in disseminating unfavorable information is less susceptible to the shift in rating mechanisms.

The remainder of the paper is organized as follows. In Section 2, we elaborate on our testable hypotheses. Section 3 describes the data and variables. Section 4 presents the empirical results, and section 5 concludes the paper.

2. Literature Review and Hypothesis Development

2.1. Analyst recommendations and the securities underwriting business

The primary role of a sell-side analyst is to channel information in the form of investment recommendations, earnings forecasts, and detailed reports, from firms to investors. However, sell-side analysts usually work for integrated investment banking houses, thus they are under implicit (or explicit in some circumstances) pressure to publish favorable research about their covered firms that currently have an investment banking relationship or a potential, future relationship so as to boost investment banking fee revenues. Lin and McNichols (1998), for example, report that the recommendations of lead and co-underwriter analysts are significantly more favorable than those of unaffiliated analysts. Michaely and Womack (1999) show that affiliated banks tend to provide more optimistic recommendations after IPOs than unaffiliated banks. Other studies of conflicts of interest in sell-side research are Chan, Karceski, and Lakonishok (2007); Barber, Lehavy, and Trueman (2007); and Agrawal and Chen (2008).

Ljungqvist, Marston, and Wilhelm (2006) document aggressively optimistic recommendations by analysts, even among established ones, prior to debt and equity deals. Nevertheless this aggressive analyst behavior does not increase their bank's probability of winning an underwriting mandate. LMW (2009) show that aggressively optimistic research attracts co-management appointments, however, which in turn significantly increase a bank's

chances of winning lead-management mandates in the future. Analysts might also be under pressure to help generate trading commissions for the brokerage unit of the investment banks. Jackson (2005) and Cowen, Groysberg, and Healy (2006) show that optimistic analysts generate more trades for their brokerage firms.

The evidence is less conclusive with respect to other research outputs such as earnings forecasts (Dugar and Nathan (1995), Cowen, Groysberg, and Healy (2006)), price targets (Cowen, Groysberg, and Healy (2006)), long-term earnings growth forecasts (Lin and McNichols (1998), Dechow, Hutton, and Sloan (2000)), and the timeliness of disseminating information. O'Brien, McNichols, and Lin (2005) show that, for a sample of IPOs and SEOs during 1994-2001, affiliated analysts downgrade significantly more slowly than unaffiliated analysts. In contrast, Ljungqvist et al., (2007) find that the strength of the underwriting relationship has little effect on how timely analysts downgrade their recommendations after a large stock price drop.

The stock market crash of 2000-2001 triggered the concerns that analysts' biased research misled investors. Changes in the regulation of analyst research started in July 2002, with the new NASD Rule 2711 and the amended NYSE Rule 472. In April 2003, ten of the largest investment banks reached a settlement with the SEC, NY Attorney General, NASD, NASAA, NYSE, and State Regulators on the investigation of conflicts of interest faced by sell-side analysts. These banks agreed to pay a total of $1.4 billion in penalties and funds for investors to settle government charges that their analysts had issued misleading, optimistic stock research to win investment banking business from the firms they covered. This global settlement requires banks to ensure that stock recommendations are not tainted by efforts to obtain investment banking deals, to disclose analyst recommendations to the public, and to furnish independent stock

research. The global settlement intends to sever ties between the investment banking business and stock research and restore investor confidence.

Kadan et al. (2009) find that these regulations have had some success in curbing the conflicts of interest of analyst research. For example, while affiliated analysts were significantly more likely to issue optimistic recommendations than unaffiliated analysts before the regulations, they are no longer more optimistic after the regulations. However, the overall informativeness of recommendation has declined following the regulations. Chen and Chen (2009) show that the adoption of Rule 2711 has significantly improved analysts' independence. Analysts' independence is proxied by the extent to which analysts incorporate the intrinsic value estimates relative to the stock prices (V/P). They document a stronger relation between analysts' stock recommendation and V/P, and a weaker relation between analysts' recommendations and measures of conflicts of interest after Rule 2711 than before the Rule.

The settlement is fundamentally grounded on the premise that analysts who are free from potential conflicts of interest do indeed provide superior and unbiased stock research. In this paper, we provide empirical evidence on whether and to what extent analyst biases in their recommendations are related to different degrees of ties among investment banks.

2.2. Hypothesis development

Recent research has suggested that receiving underwriting fees from client firms imposes a conflict of interest problem for investment banks, which may lead to more favorable analysts' recommendations. However, there is little research on the indirect ties between syndicate banks and covered firms as a result of syndicate network and how these indirect ties might affect banks' incentive to produce truthful and timely information.

Corwin and Schulz (2005) document that co-managers appear more frequently in the underwriting syndicate during the 1990s because of issuers' desire for wider analyst coverage and market-making capacity. LMW (2009) show that in 1970, the average lead bank in equity deals had only 5.3 unique co-management partners. In contrast, it increases sharply during the 1990s to 46.3 in 2000. Debt syndicates followed a similar pattern. The rising number of co-management opportunities (as shown in Figure 1) represents a fundamental change in exclusivity rather than the persistence of a small number of strong syndicate relationships alongside a large number of incidental partnerships. LMW (2009) show that aggressive, optimistic research attracts co-management appointments, which in turn significantly increases a bank's chances of winning lead-management mandates in the future. As such, to gain or maintain access to participate in a syndicate as a co-manager, unaffiliated syndicate banks may be coerced to behave more like their network partner (e.g., an affiliated main bank), providing more optimistic recommendations or withholding negative information from the public longer than independent banks. We test this as the "syndicate pressure" hypothesis. Our paper is different from the traditional studies examining how bank-client relationship affects analysts' recommendations, since syndicate relationship is not a direct bank-client underwriting relationship, instead is more of a network relation.

Since co-managers enjoy modest immediate financial gains compared with lead managers (LMW, 2009), their conflict of interest problem may not be as strong as that of the lead managers. In addition, analysts employed by main banks have a better access to private information than analysts of other types of banks (Chemmanur and Fulghieri (1994)). Information spillover from the main banks to syndicate partners would allow syndicate banks to have better information than independent banks that have had neither a direct underwriting

relationship with the covered firm nor a syndicate relationship with the main banks. Therefore, we should observe that syndicate banks (if there is any information spillover) provide information earlier than independent banks. We call this the "information sharing" hypothesis.

The syndicate pressure hypothesis and the information sharing hypothesis are not mutually exclusive. Both forces can work simultaneously. We use two ways to distinguish them. The first is to examine the difference between the two types of syndication relationship – co-lead syndicate banks and co-manager syndicate banks. We propose that co-lead syndicate banks are less prone to syndicate pressure, since they are lead banks and have the power and capacity to organize syndicates on their own. On the contrary, co-manager syndicate banks are more subject to syndicate pressure, since they serve as co-managers and their access to syndicate participation is mostly dependent on invitations by other banks.

Appendix A2 presents the average market share of different banks as lead underwriters in securities underwriting during our sample period for each type of banks. Co-manager syndicate banks tend to be much smaller (about one tenth in market share) compared to lead-manager syndicate bank. Market share supposedly does capture some aspects of market power in underwriting. In addition, the pool of co-managers has increased dramatically from 1986 to 2005. The median number of co-manager partners working with top 10 underwriters each year in either bond or equity markets is below 20 in most of the beginning years, but the number increased to above 50 for bond market and 70 for equity market in 2005.

The change in market structure indicates intense competition among the co-managers that cannot organize their own syndicates. Such a competitive environment is likely to erode the independence of these co-managers from main banks. Therefore, co-manager syndicate banks

are very much dependent on main banks to participate in syndicates, suggesting that they are subject to great syndicate pressure.[4] As such, under the syndicate pressure hypothesis, co-manager syndicate banks will behave more like main banks, while co-lead syndicate banks will behave more like independent banks.

The differential sensitivity of syndicate pressure between the two types of banks provides a strong test of our syndicate pressure hypothesis. This is because co-lead and co-manage syndicate banks are not likely to have different extents of information sharing since both have business ties with main banks. Observed different analyst behaviors between these two types of banks will provide evidence that syndicate pressure plays a role in analysts' information production.

Secondly, we use regulation Rule 2711 to tease out the effect of syndicate pressure and use the opportunity to look for evidence that shows information sharing. Implementing Rule 2711 reduces the conflicts of interest problem, thus, the syndicate pressure. It, therefore, allows information sharing effect to prevail. In such a case, co-lead and co-manager syndicate banks might become more prompt in revealing negative information than independent banks following Rule 2711.

3. Data, Variables, and Descriptive Statistics

[4] While co-manager main banks are smaller than lead-manager main banks, the difference in market share is much smaller, about half. As such, co-manager main banks have some market power, hence are less sensitive to syndicate pressure from lead-manager main banks. The smaller degree of syndicate pressure associated with co-manager main banks will be dominated by the stronger conflict of interest force that comes from fees collected from client firms. Therefore, the differential behavior between co-manager main banks and lead-manager main banks offers a weaker test for the syndicate pressure hypothesis than that between the two types of syndicate banks.

The construction of the dataset in this paper is an enormous task as we keep all brokers with underwriting business in our initial sample. We do so because we intend to examine the analyst behavior of a broader range of brokers, not only those that have a direct underwriting relationship but also those that are under syndicate pressure. This approach is different from, for example, LMW (2009), who focus on the top 50 banks since their events of interest are securities underwriting. The task requires hand-matching firms from different databases, hand-searching mergers and acquisitions among financial institutions, and hand-matching institutions from various databases at the right point in time due to frequent changes of ownerships among institutions. The data used in this paper are drawn from eight major data sources:

(1) The I/B/E/S database of stock recommendations, which provides analyst and brokerage firm information.

(2) The website of Stanford Securities Class Action Clearinghouse in cooperation with Cornerstone Research, which posts federal securities fraud class action lawsuits.

(3) The Thomson Financial/SDC Platinum database of U.S. domestic securities offerings, from which we obtain firm securities issuance history, underwriter characteristics and syndication relationship.

(4) The Loan Pricing Corporation's DealScan database of loans, which we use to construct loan market shares of broker affiliated parent holding companies and lending relationships between affiliated banks and recommended firms.

(5) The Thomson Financial/Spectrum 13f database of institutional holdings, from which we find equity ownership of broker affiliated institutions and overall institutional holdings of recommended firms.

(6) The Thomson Financial/SDC Platinum database of mergers and acquisitions, which we use to identify the mergers and acquisitions among financial institutions that have effects on our data construction. The effective merger date is used to link institutions from the above databases. We consider two institutions as one integrated organization during the year of merger. We disconnect the ties for the institutions spun off from the parent companies during the year of such transactions. We also search company information, such as their websites, annual report, Hoover's Online, Corporate Affiliates, etc, to identify the history of institutions.

(7) Center for Research in Security Prices (CRSP) for shares outstanding and stock price information.

(8) COMPUSTAT for firm characteristics.

3.1. Sample selection

3.1.1. Sued firms

In 1995, Congress passed the Private Securities Litigation Reform Act (PSLRA) to discourage frivolous lawsuits. In order to keep the sample within the same regulatory regime, our sample spans the years 1996 to 2006.[5] We end our analysis in 2006 because IBES stopped providing the broker translations file. As a result, we cannot match analyst characteristics obtained from the historical earnings forecasts file to stock recommendations.[6] We start the sample construction by using 1600 securities class action lawsuits. Among them, we identify 706 unique firms (associated with 748 lawsuits) that have main banks, i.e., securities issuance

[5] Evidence supporting PSLRA discourages frivolous securities fraud litigation is provided by Johnson, Nelson, and Pritchard (2007). See also Shivdasani and Song (2011) for more discussions on the merit of using lawsuits as a proxy of client quality.

[6] We find that only 30% of analysts in the old broker translations file obtained in 2006 can be matched to recently downloaded IBES dataset. The mismatching is consistent with the data revision issue raised by Ljungqvist, Malloy, and Marston (2009).

activities, within three years prior to the class period starting dates.[7] There are a small number of firms that have more than one lawsuit during our sample period. We focus on the first lawsuits in our analysis. However, the results remain robust to the inclusion of all lawsuits for each firm.

A unique advantage of using securities class action lawsuits to study the timeliness of analyst recommendations is that the lawsuit filings provide several critical dates. Figure 2 provides a time lines of these dates. The first one is the class period starting date, which specifies when the wrongdoing starts. The second one is the class period ending date, which specifies when the wrongdoing ends. It is also the time at which the wrongdoing is uncovered.[8] The average (median) number of days during the class period is 388 (296). Therefore, the class period represents a uniquely defined window to examine an analyst's ability and incentive to detect a firm's fraudulent behavior prior to the bad news becoming public.

The nature of a negative event also facilitates the study of various brokerage incentives – information sharing or conflicts of interest – better than a positive event. We also identify the date that the value of a buy and hold investment strategy starting on the class period starting date reaches its highest point during the class period. As shown in Figure 2, the mean (median) number of days from the beginning of the class period to the maximum value date is 140 (77). Finally, on average, the lawsuits are filed 123 day (or 37 days in median) after the class period ending date.

[7] We exclude security frauds that involve wrong-doings of agents of the firm or investor, rather that of the firm management.

[8] Class period is defined legally as the time period during which the plaintiffs held the stock and during which the illegal activity took place. It is the time period in which possible money loss occurred due to the illegal actions of those being accused in the securities class action. Dyck, Morse, and Zingales (2010) use the class period starting date as the main misconduct starting date. They also use class period ending date as the whistle blowing date when the firms themselves reveal the information. We understand that the class period might not be a perfect proxy for the event window. Therefore we examine the robustness of the results using various event windows, e.g., starting three months prior to the class period starting date. The results remain qualitatively the same.

Figure 2 and Table 1 present results on the wealth change of investing in sued firms during the class action period. Based on a sample of the first lawsuits only, every dollar invested in sued firms at the beginning of the class period up to two days prior to the end of the class period drops 13% to 87 cents on average. However, before it drops to 87 cents, the average value climbs to $1.63 because sued firms might actively cook their books or disseminate overly optimistic information about the prospects of the firm. Therefore, the maximum buy and hold value (BH value) marks the point of declining stock values of sued firms after initial run ups. If an investor purchases the stock at the maximum point, by two days prior to the wrongdoing being uncovered, the investor has lost about half of the investment's value. Furthermore, the stock price of sued firms drops another 21% during the three-day event window surrounding the class period ending date. The value continues to drop an additional 12% between one day following the class period ending date and two days prior to the lawsuit filing. Finally, it drops another 5% during the three-day window surrounding the lawsuit filing date. The total average wealth loss is 43% from the beginning of the class period to one day following the lawsuit filing. On the other hand, both concurrent value- and equally-weighted indexes and all matched samples (not reported) show positive gains in value. In summary, investors of sued firms experience tremendous wealth losses during the class action period.

3.1.2. Matched non-sued firms

In order to investigate the unique analyst behaviors associated with the negative information event, e.g., the class action lawsuit, we identify benchmark non-sued firms in the same industries as the sued firms classified by their two-digit SIC codes. We employ three procedures to construct matched samples using information during the fiscal year prior to the class period starting date. The first method chooses non-sued firms having the same types of

main bank analysts as those of sued firms followed by the closest total assets, then the closest number of analysts. The second procedure chooses non-sued firms with the closest total assets then the closest number of analysts. The third method is similar to the second one but reverses the criterion by matching with the number of analysts and then total assets.

Sued firms appear to be larger in total assets, have more analysts, and more recommendations than those non-sued firms in any matched sample. Because the third matched sample produces the most comparable size, market value of equity, number of analysts, and number of recommendations, we report results based on this matching procedure. However, our main results are robust regardless of which matched sample is used.

3.2. Syndication relationship

As illustrated in Panel A of Appendix A1, we define main banks as those that have underwritten securities offerings within three years prior to issuing recommendations with respect to a client. In this paper, we distinguish main banks' roles as book managers or co-managers in the syndicates of securities issues.[9] They are categorized as lead manager main banks and co-manager main banks, respectively. The main banks in our study are typically called affiliated banks in the extant literature. Furthermore, among unaffiliated banks, we identify an indirect connection between an unaffiliated broker and a covered firm via a syndicate relationship. There are two types of syndicate relationships: (1) book and book manager, i.e., co-lead syndication and (2) book manager and co-manager, i.e., co-manager syndication, where the first role is for the main bank and the second role is for a syndicate bank. For example, when JP Morgan is a main bank of a client, it also has book managed many deals with other underwriters participating as book or co-managers within three calendar years prior to the event date. If those

[9] Corwin and Schultz (2005) show that the allocation of proceeds to a co-manager is about half of that to a book manager percentagewise.

underwriters have not served this JP Morgan's client in securities issuance within the three calendar years prior to the recommendation date, they are syndicate banks of JP Morgan with respect to this client.[10]

When a brokerage bank did not serve the client in the underwriting business and had no syndication relationship with any of its main banks within the previous three calendar years, it is classified as an independent bank. To insure that all banks have the same baseline of incentives to compete for future underwriting business, we only include brokers with an underwriting business (i.e., we exclude independent research firms). However, our results are stronger as those independent research firms without any underwriting operation are included in the analysis.

The finer categorization of broker types in this paper is a unique departure from other studies in this area. In particular, we further split the unaffiliated analysts into three types – co-lead syndicate banks, co-manager syndicate banks, and independent brokers, which allow us to examine the syndicate pressure hypothesis.

3.3. Stock recommendation and timeliness

Because of the unique nature of lawsuits, which provides key event dates, we focus on the timeliness of recommendation revisions after the class period starting date (wrongdoing starting date). Analyzing recommendation revisions allows us to restrict the comparison to be within firms and brokers.

The percentage of brokers providing downgrade revisions during each period of lawsuit events are reported in Table 2. Among sued firms, co-lead syndicate banks and independent banks have significantly higher proportions of brokers issuing downgrades than both types of

[10] The extent of joint book relationships increased dramatically during 1990-2005. In 1990, there is only one pair of joint book mangers in bond underwriting among the top ten underwriters. In 2005, almost all top ten banks paired up as joint book managers in underwriting deals. The prevalence of co-lead syndication relationship among top underwriters suggests that most of the co-manager syndicate banks and independent brokers are smaller banks.

main banks during the pre-class period and the first event period – between the class period starting date and the maximum BH value date. The results indicate that co-lead syndicate banks and independent banks have a significantly higher tendency to issue downgrades earlier than main banks, particularly when the stock prices of the firms being sued are inflated. Co-manager syndicate banks have the highest tendency to issue downgrades among all bank types within two years prior to class period starting date and two years after lawsuits, however no different from the lead manager main banks within the class period.

In contrast, we do not observe the same pattern among the matched, non-sued sample. In fact, proportionally fewer co-lead syndicate banks issued downgrades than lead manager main banks during the pre-class period for non-sued firms. Given that this different behavior among main banks, syndicate banks, and independent banks exists only among sued firms, it is unique to the negative information production process, i.e., the class action lawsuit events.

During the second half of the class period, between the maximum BH value date and the class period ending date, all types of banks have similar percentages of brokers issuing downgrades regardless of the sample used. The proportions of brokers issuing downgrades continues to grow for sued firms among all types of banks during the third event period, but such a pattern does not exist for the matched sample. A significantly larger proportion of lead manager main banks issue downgrades than do co-lead syndicate banks during this period, which is after the market has learned of the wrongdoings of the sued firms since the bad news becomes public on the class period ending date. Overall, Table 2 suggests that main banks provide a negative assessment of sued firms later than other banks.

In Table 3, we provide a sample distribution of all the analyst recommendation revisions issued within two years prior to the class period (serving as benchmark period) and from the

class period to the lawsuit filing date (information production, i.e., sample period). During the two-year benchmark period, sued firms have a comparable number of revisions to matched firms, 6595 (48.8%) versus 6917 (51.2%). In contrast, sued firms have many more recommendation revisions (61.8%) during the class period than matched firms (38.2%), which is consistent with the nature of the class period being information intensive. The percentage of recommendations issued for sued firms further increased to 74% following the class period and prior to the lawsuit filing date.

3.4. Explanatory Variables

As we examine the timeliness of analyst recommendations in multiple regressions, we control for many analyst-specific, bank-specific, and firm-specific variables. In this section, we discuss how we construct these independent variables. Detailed variable definitions are provided in Panel B of Appendix A1.

3.4.1. Analyst characteristics

We construct three variables measuring the reputation-related career concerns of analysts. The first is based on the annual Institutional Investor All-America Research Team ranking. We define an all-star dummy variable that equals one if the analyst was an all-star (i.e., ranked as a top-three or a runner-up analyst in her industry) in the year prior to making the recommendation, and zero otherwise. The second measure is the analyst's seniority taken as the number of years since her first appearance in the IBES earnings forecasts and recommendation databases. Hong, Kubik, and Solomon (2000) show that senior analysts are more likely to provide bold earnings forecasts and herd less. The third variable is analyst forecast accuracy as in Hong and Kubik (2003). Assuming that analyst reputation partly derives from forecasting ability, forecast accuracy should be a good proxy for analyst reputation. However, this variable is not available

for many observations. Therefore, we do not use it in our main analysis. Instead we include it in robustness tests in Section 4.3.

As shown in Table 4, sued firms have significantly more senior and all-star analysts than matched non-sued firms during the benchmark period but not the sample period. In fact, during the sample period, sued firms are followed by fewer all-star analysts than the matched sample. This phenomenon of all-star analysts dropping sued firms during sample period is consistent with the explanation that all-star analysts may possess negative information of sued firms but reluctant to provide information. There are no significant differences in relative forecast accuracy between these two types of firms regardless of period.

3.4.2. Bank pressure proxies

We employ several "bank pressure proxies" that measure the amount of pressure an analyst might face to offer an inflated recommendation or to postpone the dissemination of negative firm prospects. The more lucrative the client, the more tempted is the analyst to inflate or to postpone the recommendation, since the benefit of liquidating reputation capital will be greater. We follow LMW (2006) and construct a loyalty index, which, for each bank, measures how often it retains its clients in consecutive equity or debt deals, divided by the number of clients. Because we include many smaller banks that did not underwrite any deals in a particular year, thereby resulting in a missing value in loyalty index, we include a dummy variable for the missing values so as to differentiate them from observations without retained clients. Table 4 shows that sued firms' brokers have a significantly higher level of client loyalty than matched firms' brokers in the bond market prior to the class period, but a lower level of client loyalty in the equity market during the sample period.

We do not calculate the fee pressure measure proposed by LMW (2006) because our event of interest is lawsuit filing with a broader sample of brokers. In addition, fee information is not available for many deals, resulting in too many missing observations. However, we calculate a similar measure – the firm's share of a bank's debt or equity deals during the prior five calendar years. The higher the firm's share, the more important the client is. These measures should be highly positively correlated to fee incomes from this client. Table 4 shows no significant differences in these measures between sued and non-sued firms. We also control for the firm's overall debt and equity issuing amounts over the 5-year horizon. Sued firms issued more debt but less equity than matched firms during the benchmark period, but less debt during the sample period.

Since the size of the potential pool of "side payments" bankers used to gain analyst cooperation might change over time, we follow LMW (2006) and control for this effect by computing the percentage difference in market-wide proceeds raised during the current quarter and a 5-year quarterly moving average.

3.4.3. Equity ownership by brokerage banks

We calculate the fraction of a firm's equity directly owned by a brokerage bank whose analyst(s) provide coverage for the firm. Ownership data are obtained from the Thomson Financial/Spectrum 13f database. Table 4 shows that sued firms have a significantly higher level of institutional ownership and a greater likelihood of brokers holding their equity than matched non-sued firms during the benchmark period. However, the latter variable is not significantly different between firm types during the sample period.

3.4.4. Bank reputation in underwriting and lending

We control for bank reputation by using their market shares in the debt, equity, and loan markets during the prior calendar year. We only consider their roles as lead managers. When the deals are lead managed or arranged by multiple banks, we allocated the dollar amounts equally among participant banks. Each bank's deal amounts are aggregated then divided by the total market amounts during the calendar year prior to stock recommendations. There are no significant differences between sued and matched firms during the sample period. However, matched firms tend to have fewer reputable underwriters than sued firms in both the debt and equity markets prior to the sample period.

3.4.5. Firm characteristics

The timeliness of analyst revision is likely to be affected by firms' general information environment. In particular, larger firms or firms with lower information opacity will facilitate research analysts to provide timelier information to the market. We include three firm-specific variables (Firm size, Tobin's Q, and information opacity) to capture the cross-sectional difference in the information environment. Firm size is measured by total assets. Tobin's Q is computed as total assets minus book value of equity plus market value of equity, divided by total assets. Following Kim and Verrecchia (2001), we compute a proxy for information opacity as the logarithm of the beta coefficient of trading volume in the regression,

$$Ln\left|\frac{P_t - P_{t+1}}{P_{t+1}}\right| = \beta_0 + \beta_1\left(VOL_t - AVGVOL\right) + \varepsilon, \qquad (1)$$

where,

P_t: daily stock closing price,

VOL_t: daily trading volume of the stock in thousands of shares,

AVGVOL: the average daily stock trading volume within the last 6-month (we use 182 days) in thousands of shares.

Kim and Verrecchia (2001) posit that, when the firm discloses more information, market makers rely on the disclosure itself, rather than on alternative sources of information about firm value, such as volume. Thus, as the firm commits to report information in a timely fashion, stock returns are less likely to be associated with trading volume. This predicts that firms with poor disclosure (or greater information opacity) should have a larger slope coefficient on trading volume (β_1). As shown in Table 4, sued firms are significantly larger and have a higher Tobin's Q than non-sued firms during both periods. Information opacity in sued firms is lower than that in non-sued firms.

4. Empirical Results

4.1. Univariate Analysis of Stock Recommendations

Table 5 reports summary statistics on the level, change, and timeliness of analyst recommendations of sued firms and their matched non-sued firms issued by various types of brokerage banks. Based on all analyst revisions from the class period starting date to the lawsuit filing date as shown in the left side of Panel A, we find that syndicate banks and independent banks provide less favorable prior and current recommendations than main (affiliated) banks, with the co-lead syndicate banks being the least optimistic. To investigate how timely different types of analysts update information regarding the firms being sued after wrongdoing occurs, we construct a timeliness variable, "scaled # days" as the number of days between the date of the current revision and the class period starting date divided by the duration of the class period multiplied by 100.[11] Revisions by independent banks come significantly earlier than affiliated

[11] We scale the number of days it takes an analyst to revise her recommendation using the class period duration because firms being sued experienced various class period lengths. Thus "scaled # days" provides a uniform measure of timeliness across sued firms with different lengths of class periods. As such, the end of event window is mostly used for scaling the timeliness measure. Even if the class period ending date does not correspond to the first

main banks. However, both types of syndicate banks that have no direct affiliation with covered firms do not provide revisions earlier than the main banks. While co-manager syndicate banks appear marginally later than lead main banks, they are not different from co-manager main banks.

Next we turn to the right side of Panel A, in which we only focus on downgrade revisions, thereby examining how soon different types of banks disclose negative information about the sued firms. Based on this scaled measure, independent banks provide the earliest downgrades for sued firms, followed by co-lead syndicate banks. Co-manager syndicate banks (unaffiliated), in contrast, provide downgrades no sooner than affiliated main banks. This result is consistent with our syndicate pressure hypothesis – the syndicate relationship may pressure analysts employed by co-manager syndicate banks to delay the issuance of negative information. The difference in timeliness between the two types of syndicated banks reflects different degree of syndicate pressure. Co-lead syndicate banks are less sensitive to this pressure than co-manager syndicate banks because they have the capacity to organize and lead their own syndicates.

To address the concern that the timing pattern above is not unique to our event of interest, we conduct the same analysis for matched non-sued firms as shown in Panel B of Table 5. Independent banks and co-manager syndicate banks offer revisions and downgrades significantly sooner than main banks. Nevertheless, as we discuss in section 4.2, there are no significant differences in the timing of downgrades among broker types for matched firms in multiple regressions where we control for firm-, analyst-, and bank-specific variables.

4.2. Multivariate Analysis of Downgrade Timeliness

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public announcement of firms' misconduct, the imprecision is the same for all types of analysts following the same firm. Therefore it will not bias our results in a particular way among different types of analysts.

To examine the incentives to provide timely information during the class period, we test the effect of different bank types on the scaled numbers of days between the class period starting dates and the dates when revisions are provided. In the multivariate framework as shown in Table 6, we regression "Scaled # days" on firm-, analyst-, and bank-specific variables that affect the timeliness of information production. We include four bank dummy variables. As a result, the effect of lead manager main bank is reflected in the intercept. More negative estimates on bank type dummies indicate the revisions are issued earlier relative to lead manager main banks.

As shown in regression (1) of Table 6, we track all downgrades from the class period starting date to the lawsuit filing date. We go beyond the class period ending date (i.e., wrongdoings are known to the public) since some analysts do not provide any downgrade until after the class period ending date. Excluding such analysts may bias our analysis of the timeliness of downgrades because it does not allow many followers to be included in the analysis. We find the same rank order as that of the univariate tests in Table 5. Independent banks and co-lead syndicate banks issue downgrades significantly earlier than main banks by 24% and 21% of the duration of the class period, respectively. Given that the median class period is 296 days, they are equivalent to providing downgrades earlier by 71 and 62 days, respectively. Although they are defined as unaffiliated banks in the extant literature, co-manager syndicate banks behave no differently from main banks in the timeliness of their downgrades.

One concern with the above analysis is that the timing pattern may be driven by the fact that some types of banks provide multiple downgrades, thereby resulting in a later timing on average than those banks providing only one downgrade. To address this issue, we focus on the first downgrade provided by each analyst with respect to each sued firm in regression (2), and obtain similar results.

Including downgrades beyond the class period ending date imposes a potential issue - we include downgrades triggered by the revelation of the negative news of corporate fraud to the public at the class period ending date. Thus in regressions (3) and (4), we track downgrades only within the class period. In addition, main banks tend to provide a wider range of coverage, including smaller firms with a more serious information asymmetry problem, thus main banks may appear to produce information later. As such, we restrict our sample to include only firms with at least one recommendation from each bank type during the class period to address this potential selection bias problem. This procedure provides a stronger test of how information sharing and syndicate pressure affect research analysts' incentives to disseminate negative private information prior to public awareness of the wrongdoings. Again we find that both independent banks and co-lead syndicate banks, but not co-manager syndicate banks, provide downgrades earlier than main banks after the wrongdoings occur, with our focus on all downgrades in regression (3) or only the first downgrade by each analyst, with respect to each firm, in regression (4). As we focus on downgrades within the class period, the magnitudes of the coefficient estimates on co-lead syndicate bank and independent bank become smaller, however they remain statistically significant. Independent banks and co-lead syndicate banks issue downgrades significantly earlier than main banks by 9% and 6% of the duration of the class period, respectively.

These findings suggest that, due to reputational concerns and/or fewer conflict of interest problems, co-lead syndicate banks have better incentives to provide timely negative information than lead manager main banks. In contrast, syndicate pressure appears to be the dominant effect on co-manager syndicate banks. Despite no direct ties to the covered firms, the need to maintain access to syndicates reduces their incentive to produce timely negative information during the

class period. Syndicate pressure also appears to be the dominant effect on co-manager main banks, despite smaller fees from issuing firms as co-managers.

As for the control variables, more senior analysts provide revisions earlier, though the result is significant in only one model. Although the sign is negative for the all-star dummy, it is not significant. A high loyalty index in the equity market is associated with earlier downgrades by analysts. A sued firm that raises more capital in the debt or equity markets has a significantly higher tendency to receive later downgrades because the conflicts of interest problem is more severe. When firms are more important to their banks in the debt underwriting market, the updates come in significantly later. Firms involved in IPO allocation lawsuits also have significantly delayed first downgrades.[12]

4.3. Robustness Tests of Timeliness and Survival Analysis

4.3.1. Matched Non-sued Firms

To ensure that the above results are unique to our sued firms, we use our matched sample to repeat the analyses in Table 6 but do not find the same pattern (results available upon request). In general, there are no differences among bank types regarding the timing of downgrades with one exception. Independent banks provide downgrades significantly *later* than lead manager main banks in the matched sample corresponding to regression (2) in Table 6. This result could be driven by the fact that independent banks do not have as much timely information as those

[12] We report the reasons (not mutually exclusive) for filing lawsuits in Appendix A3. Among the 748 lawsuits, 145 are related to initial public offering (IPO) allocation and tie-in agreements between investment bankers and institutional investors. Presumably, analysts affiliated with these investment banks may have more pressure to withhold negative information about these IPO firms. However, we do not find significant results using this subsample (results not reported). The most popular reason for filing a lawsuit, about 86% of the cases, is that the firms artificially inflated securities prices during the class period. Therefore, stock prices typically increase substantially then decline gradually during the class period.

lead manager main banks that have a close connection with the covered firms via the underwriting relationship.

4.3.2. Excluding Potential Frivolous Lawsuits

To address the concern that our results might be driven by frivolous lawsuits, we follow Dyck, Morse, Zingales (2010) and apply additional filters as we construct the sample: excluding all cases where the judicial review process leads to their dismissal, only including those firms where the settlement is at least $3 million and an asset size of at least $750 millions. We repeat the regression model (1) in Table 6 using the subsample of lawsuits with additional filters and results are reported in Appendix A4. The coefficient estimates using the sample of Dyck, Morse, Zingales (2010) as shown in column (2) are similar to those in column (1), but become less significant since the sample size is reduced from 3430 to 1401. To increase the size of the sample hence the statistical power of the test, in column (3), we estimate the model using a subsample of lawsuits with the same filters as Dyck, Morse, Zingales (2010) except restricting lawsuit firms to those with an assets of at least $500 millions. The sample size is increased to 1583, and the main results are marginally significant. These results suggest that our main findings are not driven by frivolous lawsuits.

4.3.3. Alternative Event Windows for Information Production

This study focuses on analysts' private information production about corporate fraud. One concern is that class period starting date might not be the exact date when misconduct occurs, and class period ending date might not represent the first date corporate fraud is revealed to the public. We admit that the class period is not a perfect proxy for the event window, but it is a reasonable proxy due to the following reasons.

First of all, class period is defined legally as the time period during which the plaintiffs held the stock and during which the illegal activity took place. It is the time period in which possible money loss occurred due to the illegal actions of those being accused in the securities class action. Dyck, Morse, and Zingales (2010) also use the class period starting date as the main misconduct starting date. They also use class period ending date as the whistle blowing date when the firms themselves reveal the information.

Although the class period has been used in literature for wrongdoing period (see, for example, Dyck, Morse, and Zingales (2010)), it may suffer from the problem of statute of limitations, i.e., the wrongdoings could actually happen earlier than the class period. To address this concern, we analyze 45 cases of our sample firms that are also subject to the SEC enforcement actions during September, 1995 to March, 2004. We find 10 cases having the class period beginning dates earlier than the SEC wrongdoing beginning dates and 12 cases the SEC dates are earlier but the differences are within one year. For the remaining 23 cases that SEC beginning dates are earlier for more than one year, the SEC wrongdoing *ending* dates are, on average, two years earlier than the class period beginning dates, which suggests that many SEC cases are not for the same wrongdoings, in particular for those ended more than three years ago. Nonetheless, there are quite a few cases the SEC dates are earlier than the class periods. To address the statute of limitations concern, we extend the wrongdoing beginning date back by 100 scaled days prior to the class period beginning date. The main conclusion remains robust. We also follow Dyck, Morse, and Zingales (2010) and start the event 3 month prior to the class period, and our results still hold.

Secondly, we downloaded the Internet Appendix of Dyck, Morse, and Zingales (2010) and compared the class period ending date to the whistle blowing dates they hand collected. On

average, the whistle blowing date is 30 days *later* than the class period ending date, and the median difference between the two dates is zero. The staleness of initial revelation date is also discussed in Karpoff, Koester, Lee, and Martin (2012). They report that, the median information revelation date is 23 days earlier than the lawsuit filing dates, the median class period ending date is 37 days earlier than the lawsuit filing date in our sample. Therefore, the revelation dates we use are indeed slightly earlier than those reported in Karpoff et al. (2012). To address the concern that the public might be aware of the misconducts before class period ending date, we calculate the average number of days conditional on the whistle blowing date being earlier than the class period ending date. The average is 32 days. Therefore, we examine analyst recommendations up to 60 days prior to the class period ending date. The main results remain robust (all robustness test results are available upon request).

Thirdly, our main result still holds as we use alternatively windows of events. E.g., in columns (1) and (2) of Table 6, we extend the event window beyond class period until lawsuit filing dates as the end of event. The results remain the same.

As a last defense, even if the class period beginning date is not a reliable indicator of when the misconduct began, unless this imprecision is systematically correlated with the timeliness of a particular type of analysts, this imprecision will be random noise and bias against us to find any significant results.

4.3.4. Survival Analysis

The final robustness check that we conduct is using the survival analysis also known as duration model. We report the estimated coefficients of Cox semi-parametric proportional hazards model in Table 7 for both sued and non-sued matched samples. The sued sample

includes recommendations issued during the period between the class period starting date and the lawsuit filing date. For each firm-broker, only the first downgrade is included and classified as the failure event. For those do not provide any downgrades during our event window, they are included as the non-failure event. Our main findings remain robust. In the first regression of the sued sample, the significant positive coefficient estimates on both co-lead syndicate bank and independent bank dummies indicate that analysts employed by both types of banks have a higher probability of downgrading sued firms than those employed by main banks at a given time prior to the lawsuit filing date. The coefficient estimate on co-manager syndicate bank dummy is insignificant, suggesting no difference in the promptness of downgrades between unaffiliated co-manager syndicate banks and affiliated main banks. Nevertheless, these patterns do not exist among matched non-sued firms as shown in the second regression in Table 7.

We graph the failure functions in Figure 3, which shows that more than (about) 25% of independent (co-lead syndicate) banks have downgraded sued firms around scaled 50 days following the class period starting date (t=0), i.e., mid-class period. However, at the same time, much less than 25% of main banks downgrades sued firms, which translates into longer time to downgrade sued firms among main banks compared to co-lead syndicate banks and independent banks. Figure 3 also shows that the order of timeliness among analysts from the most prompt to the least coincides with our prediction of the conflict of interest problem – independent banks followed by co-lead syndicate banks, then co-manager syndicate banks, and finally, the main banks. Surrounding class period ending date (t=100) – when the public learns about sued firms' wrongdoings – there is a jump of downgrades by all types of banks.[13]

[13] Because the estimation of duration model seems to demand a lot of observations to show significant results, we use the straightforward OLS regression analysis of "scaled # days" for the subsample analysis surrounding the adoption of Rule 2711, which is reported in the next subsection.

4.3.5. Additional Robustness Tests

Lastly, we conduct a list of robustness tests and obtain essentially the same significant results. The estimates are similar for the samples excluding financial firms, including all lawsuits, including brokers not engaged in the underwriting business, and including relative forecast error. Due to concerns over the objectivity of analyst recommendations and the Global Settlement, major brokerage firms changed their rating system in the summer of 2002. To address this issue, we drop observations from August 1, 2002 to July 31, 2003, and the main findings remain robust. As such, the results for these tests are not reported for brevity.

4.4. The Effect of Rule 2711 on Downgrade Timeliness of Sued Firms

Chen and Chen (2009) examine the extent to which analysts incorporate intrinsic value estimates relative to stock prices surrounding Rule 2711 and find that analysts' independence improved. In this section, we will examine the effect of Rule 2711 on improving analyst independence in our context of the timeliness of revealing negative information. It is possible that the rule may not enhance the incentive to reveal negative information although, on average, the intrinsic value estimates relative to stock prices show a stronger relation to stock recommendations as shown in Chen and Chen (2009). As we argue above, we intend to use regulation change to tease out the effect of syndicate pressure and use the opportunity to look for evidence that shows information spillover.

In Table 8, we split the sample of downgrades of sued firms from the class period starting date to the lawsuit filing date into two subsamples: those prior to the implementation of Rule 2711 on August 1, 2002 and those after August 1, 2002. Regression results for the timeliness of downgrades before and after Rule 2711 are reported in regressions (1) and (2) respectively. Following Rule 2711, lead manager main banks as well as other types of banks become more

prompt in providing negative information than before the Rule. In addition, while both co-lead and co-manager syndicate banks are more prompt than lead manager main banks following Rule 2711 (regression 2), the difference between co-lead and co-manager syndicate banks becomes negligible. The results indicate that syndicate pressure is no longer coercing co-manager syndicate banks as much as prior to Rule 2711. Interestingly, independent banks are no longer different from main banks in the timing of negative information production after Rule 2711 is adopted. Nevertheless, F-tests show that the estimates for independent banks and syndicate banks are not significantly different. Therefore, we cannot conclude that there is a highly significant information spillover from main banks to syndicate banks.

We formally test the differences of each type of banks before and after Rule 2711 in regressions (3) and (4) by including a Post Rule 2711 dummy variable and its interaction terms with other bank indicators. The Post Rule 2711 dummy is negative and significant in the regressions suggesting that lead-manager main banks become more prompt in providing downgrades. The coefficient estimates on interaction terms between Post Rule 2711 and other bank type dummies are all positive, but insignificant except Independent bank*Post-rule 2711. These results suggest that Rule 2711 improves analyst independence to a lower extent for other types of banks than for main banks.

4.5. Informativeness of Downgrades by Different Types of Banks

We find above that co-lead syndicate banks and independent banks disseminate negative information more quickly than main banks during the class period. A natural question arising is whether these banks provide more informative information to the financial markets. As a result, we start with a sample consisting of only the first downgrade issued during a sued firm's class period. We compute cumulative abnormal returns (CARs) and abnormal trading volume over a

3-day window [-1, 0, 1], where day 0 is the first date issuing a downgrade during the class period. The equally weighted market index is used to calculate 3-day CARs in decimal format and abnormal stock trading volume in log format. The results are reported in Table 9. We conduct analysis for both sued (in Panel A) and matched non-sued firms (in Panel B), including multiple recommendations issued on the same day (on the left) or including single recommendations issued on a day (on the right).

We find significantly more negative stock reactions and higher trading volume for sued firms, suggesting that first downgrades issued for sued firms appear to be more informative than those for the matched sample. Prior to these downgrades, sued firms are regarded as good performers with more upgrades issued than the matched sample. Therefore, the first downgrades seem to be more surprising and disappointing to investors. Although the trading volumes are similar among bank types, the stock reactions show different patterns. Among sued firms, syndicate banks and independent banks are associated with higher 3-day CARs. Therefore, we only use 3-day CARs in the multiple regressions and report the results in Table 10.

As with Table 7, we include all downgrades from the class period starting date to the lawsuit filing date in regression (1). We find no significant difference in stock market reactions to downgrades offered by different bank types. The results remain the same when we only keep the first downgrade from each analyst per firm in regression (2), keep all downgrades during the class period in regression (3), and keep the first downgrade from each analyst per firm during the class period in regression (4).

The first downgrades provided by more senior analysts had less negative impacts. However this result is only significant in regression (4). Although the estimate for all-star analysts has the expected negative sign, it is not significant. Firms with more prior securities

issuances are more affected by the downgrades. When the market has more debt issuance activities, the CARs are significantly more negative. If a bank holds issuer's equity, the downgrade is more informative as indicated by a significantly more negative CAR. Larger firms' downgrades have significantly less negative market reactions. IPO allocation lawsuits are associated with less negative market returns in regressions (1) and (2).

Overall, we find that while affiliated main banks tend to delay revealing negative information before firms' wrongdoings are known to the public, their downgrades are as informative as those provided by the independent banks and co-lead syndicate banks, which are often earlier.

5. Conclusions

Prior literature has focused on documenting the conflict of interest problem of affiliated analysts from brokerage firms having direct bank-client relationship. Compared to unaffiliated analysts, affiliated analysts (main banks in this paper) are more reluctant to provide negative information on those underwriting clients. In this study, we test the syndicate pressure hypothesis by dividing the set of unaffiliated analysts into finer categories and recognizing the indirect tie between an unaffiliated bank and a recommended firm via a syndicate network. Although these syndicate banks do not serve recommending firms directly, the desire to be included in a syndicate might taint their analysts' incentive to produce negative information.

Consistent with the syndicate pressure hypothesis, we find that unaffiliated co-manager syndicate banks tend to delay issuing downgrade revisions as much as the main banks for a group of firms sued for financial reporting fraud. On the other hand, co-lead syndicate banks and independent banks are significantly more prompt in providing negative information on sued firms. The findings suggest that syndicate pressure is stronger for co-managers than for co-lead

syndicate banks because the latter have the capacity to organize syndicates themselves; thus, they are less dependent on other lead managers. Finally, we document that the Global Settlement and the adoption of NASD Rule 2711 improve the independence of all types of banks, particularly among main banks and co-manager syndicate banks. We also find some weak evidence of information sharing among syndicate banks and main banks after NASD Rule 2711 was implemented. This study suggests that network ties via underwriting syndicates significantly affect analysts' incentive to produce negative information.

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Appendix A1 Variable definitions

Panel A. Definition of bank types

Bank type in the paper	Bank type in the extant literature	Definition
Lead manager main bank	Affiliated bank	Banks that have underwritten securities offerings as lead managers within three years prior to issuing recommendations with respect to a client.
Co-manager main bank	Affiliated bank	Banks that have underwritten securities offerings as co-managers within three years prior to issuing recommendations with respect to a client.
Co-lead syndicate bank	Unaffiliated bank	Banks that have not underwritten securities offerings within three years with respect to a client, but have syndicate relationship(s) as a co-lead manager with the client's main banks within the prior three years.
Co-manager syndicate bank	Unaffiliated bank	Banks that have not underwritten securities offerings within three years with respect to a client, but have syndicate relationship(s) as a co-manager with the client's main banks within the prior three years.
Independent bank	Unaffiliated bank	Banks that have not served the client in the underwriting business and had no syndication relationship with any of its main banks within the previous three calendar years.

Panel B. Definition of control variables

Variable	Definition
Analyst-specific	
Analyst seniority (years)	Analyst's seniority is the number of years since her first appearance in the IBES earnings forecasts and recommendation databases.
=1 if all-star analyst	The all-star analyst dummy variable equals one if the analyst was an all-star (i.e., ranked as a top-three or runner-up analyst in her industry) in the year prior to making the recommendation, and zero otherwise.
Relative forecast accuracy	Analyst forecast accuracy as in Hong and Kubik (2003).
Bank pressure	
Loyalty index in bond (equity) market	Following LMW (2006), we construct a loyalty index which, for each bank, measures how often it retains its clients in consecutive debt (equity) deals, divided by the number of clients.
=1 if no bond (equity) loyalty index	Because we include many smaller banks that did not underwrite any deals in a particular year thereby resulting in a missing value in the loyalty measure, we include a dummy variable for the missing values so as to differentiate it from observations with zero retained clients.
Fee pressure	
Firm's share of bank's debt (equity) deals in prior 5 years (%)	Firm's dollar amounts of securities issuance allocated to a bank as a percentage of bank's total debt (equity) underwriting dollar amounts during the prior five calendar years.
Log issuer's bond (equity) proceeds in prior 5 years	Logarithm of firm's overall debt (equity) issuing amounts in millions during the prior 5 years.
Proxy for side payments	
Change in bond (equity) issue activities	Following LMW (2006), we compute the percentage difference in market-wide average proceeds raised during the current quarter and a 5-year quarterly moving average in the bond (equity) market.
Equity ownership by brokerage banks	
Institutional holdings (%)	Institutional holding is as a percentage of common shares outstanding.
=1 if bank holds stake in issuer's equity	Equals to one if a firm's equity is owned by a brokerage bank whose analyst provides coverage for the firm.
Bank reputation in underwriting and lending	
Bank's market share in debt (equity) underwriting (%)	Bank's aggregated total dollar amounts in lead underwriting as a percentage of all deal amounts in bond (equity) market during the calendar year prior to stock recommendation.
Bank's market share in loan market (%)	Bank's aggregated total dollar amounts of loans lead arranged as a percentage of all deal amounts in the loan market during the

	calendar year prior to stock recommendation.
Firm-specific	
Firm size	Total value of book assets
Tobin's Q	(Total assets -Book value of equity + Market value of equity) divided by Total assets.
Information opacity	Following Kim and Verrecchia (2001), we compute a proxy for firm's information opacity as the logarithm of the coefficient of the trading volume in the regression $Ln\left\|\frac{P_t - P_{t+1}}{P_{t+1}}\right\| = \beta_0 + \beta_1(VOL_t - AVGVOL) + \varepsilon,$ where, P_t: daily stock closing price, VOL_t: daily trading volume of the stock in thousands of shares, *AVGVOL*: the average daily stock trading volume within the last 6-months (we use 182 days) in thousands of shares. Kim and Verrecchia (2001) posit that, when the firm discloses more information, market makers rely on the disclosure itself, rather than on alternative sources of information about firm value, such as volume. Thus, as the firm commits to report information in a timely fashion, stock returns are less likely to be associated with trading volume. This predicts that firms with poor disclosure (or greater information opacity) would have a larger slope coefficient on trading volume (β_1).

Appendix A2 Market share in securities underwriting by bank type

This table reports average market shares of banks during our sample period. See Appendix A1, Panel A for the definitions of bank types

	Lead manager main bank	**Co-manager main bank**	**Co-lead syndicate bank**	**Co-manager syndicate bank**	**Independent bank**
Bank's market share in debt underwriting (%)	8.32	4.56	5.83	0.36	0.31
Bank's market share in equity underwriting (%)	8.26	3.81	5.54	0.67	0.43

Appendix A3 Reasons for filing lawsuits

This table reports the sample distribution of the reasons for filing securities class action lawsuits during 1996 to 2006.

Reasons for filing lawsuits	No.	%
IPO allocation, Tie-in/laddering Agreements	145	19.4
General financial misreporting	541	72.3
Artificially inflate securities prices	640	85.6
Inadequate internal control	87	11.6
Bond issuance related	55	7.4
Equity issuance related	293	39.2
Mergers and acquisitions related	122	16.3
Insider trading	255	34.1
SEC 1934 Sections 10(b) and rule 10b-5	643	86.0
SEC 1933 Section 11	246	32.9
GAAP violation/improper accounting	239	32.0
Investment banks also sued in the same filing	208	27.8
Total number of lawsuits	748	100.0

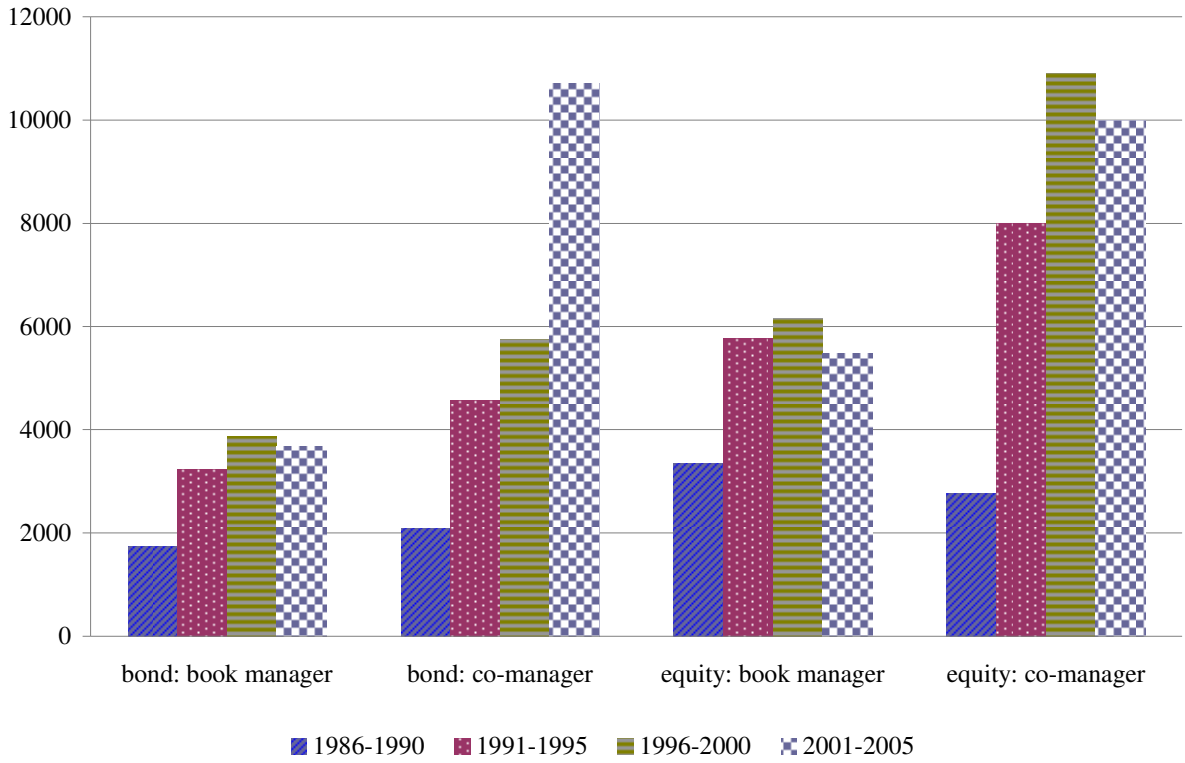
Appendix A4 Robustness check using the sample screening criteria in Dyck, Morse, Zingales (2010)

This table reports the robustness test results applying the lawsuit sample screening criteria in Dyck, Morse, Zingales (2010). The 1st column replicates the result in Table 6 column (1), where we use a lawsuit sample based on our own screening criteria. In the 2nd column, we apply the same screening criteria as Dyck, Morse, Zingales (2010) and restricting lawsuit firms to those with assets size of at least $750 millions. In the 3rd column, we apply the same screening criteria as Dyck, Morse, Zingales (2010) but restricting lawsuit firms to those with assets size of at least $500 millions. Standard errors are clustered allowing correlations within brokers.

	Original results Table 6 column (1)			DMZ criteria Assets>=750 $mil			DMZ criteria Assets>=500 $mil		
	(1)			(2)			(3)		
	Coef.	*t*-test		Coef.	*t*-test		Coef.	*t*-test	
Intercept (=lead manager main bank)	83.22	4.5	***	53.72	1.36		62.27	1.81	*
=1 if co-manager main bank	-7.49	-0.68		-12.85	-0.47		-12.09	-0.51	
=1 if co-lead syndicate bank	-21.02	-2.21	**	-33.04	-1.82	*	-33.19	-1.90	*
=1 if co-manager syndicate bank	-12.58	-1.27		-13.86	-0.70		-16.75	-0.90	
=1 if independent bank	-23.56	-1.97	**	-31.96	-1.53		-32.61	-1.68	*
Analyst seniority (year)	-0.18	-0.19		-0.37	-0.24		-0.54	-0.40	
=1 if all-star analyst	-12.03	-1.55		-19.96	-1.48		-17.53	-1.41	
Loyalty index in bond market	-4.47	-0.21		4.80	4.77	***	4.61	5.02	***
=1 if no bond loyalty index	-10.97	-1.5		8.34	3.80	***	8.14	4.07	***
Loyalty index in equity market	-1.06	-0.09		-4.08	-2.12	**	-3.94	-2.17	**
=1 if no equity loyalty index	-1.59	-0.27		-0.53	-0.44		-0.93	-0.79	
Firm's share of bank's debt prior 5 yrs (%)	-1.1	-1.03		1.82	2.90	***	1.56	2.54	***
Firm's share of bank's equity prior 5 yrs (%)	0.74	0.89		-0.84	-1.39		-0.94	-1.66	*
Log issuer's bond proceeds in prior 5 yrs	5.4	5.26	***	-6.99	-2.88	***	-6.37	-2.82	***
Log issuer's equity proceeds in prior 5 yrs	5.59	4.12	***	-27.55	-1.71	*	-27.10	-1.93	*
Change in bond issue activities	-4.65	-0.75		-14.22	-0.90		-11.83	-0.86	
Change in equity issue activities	-6.24	-2.33	**	8.82	0.38		9.12	0.45	
Institutional holdings (%)	-0.12	-1.58		-13.33	-1.11		-12.97	-1.22	
=1 if bank holds stake in issuer's equity	3.54	0.61		0.09	0.55		0.08	0.63	
Bank's market share in debt underwriting (%)	0.62	2.14	**	-1.36	-0.13		0.59	0.06	
Bank's market share in equity underwriting (%)	-0.31	-0.69		10.52	1.38		5.69	0.86	
Bank's market share in loan market (%)	-4.08	-3.42	***	-0.71	-0.11		-1.20	-0.20	
Log (total assets)	0.3	0.16		34.31	3.41	***	37.76	4.39	***
Tobin's Q	-0.61	-3.07	***	33.90	2.41	**	30.43	2.48	**
Information opacity	0.9	0.41		14.33	2.41	**	12.27	2.53	***
=1 if IPO allocation lawsuit	55.74	7.2	***	19.64	2.81	***	16.46	2.79	***
Ln(no of recommendations on the same day)	18.56	3.81	***	1.55	0.74		1.84	1.42	
R^2	0.05			0.07			0.07		
Number of observations	3430			1401			1583		
Number of broker clusters	157			118			122		

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Figure 1 Number of underwriting mandate opportunities



The data are obtained from the Thomson Financial/SDC Platinum database of securities offerings. They represent the number of underwriting opportunities available as either a book manager or a co-manager in the markets during the reported time periods.

Figure 2 Time line of events associated with lawsuits, changes in buy and hold stock value of lawsuit firms, and data construction

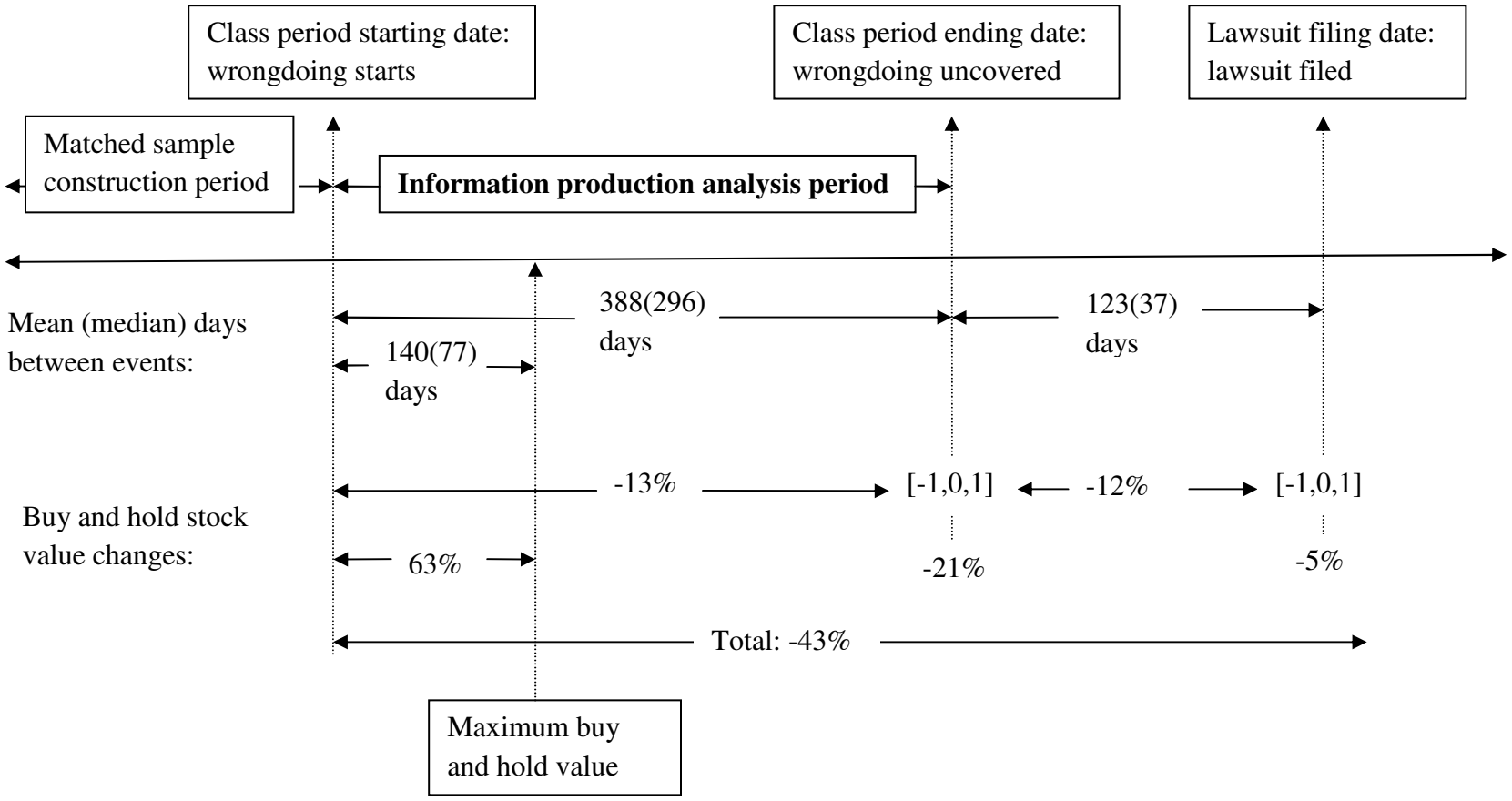


Figure 3 Failure functions of downgrades by analyst type

"Time to downgrade" represents "Scaled # days," which is the number of days that the current recommendation is issued after the class period starting date (i.e., wrong doing beginning date) divided by the duration of a class period and multiplied by 100. Time 0 (100) corresponds to class period starting (ending) date. See Appendix A1 for the definitions of analyst types and Table 7 for sample description. The y-axis shows failure (downgrade) rates.

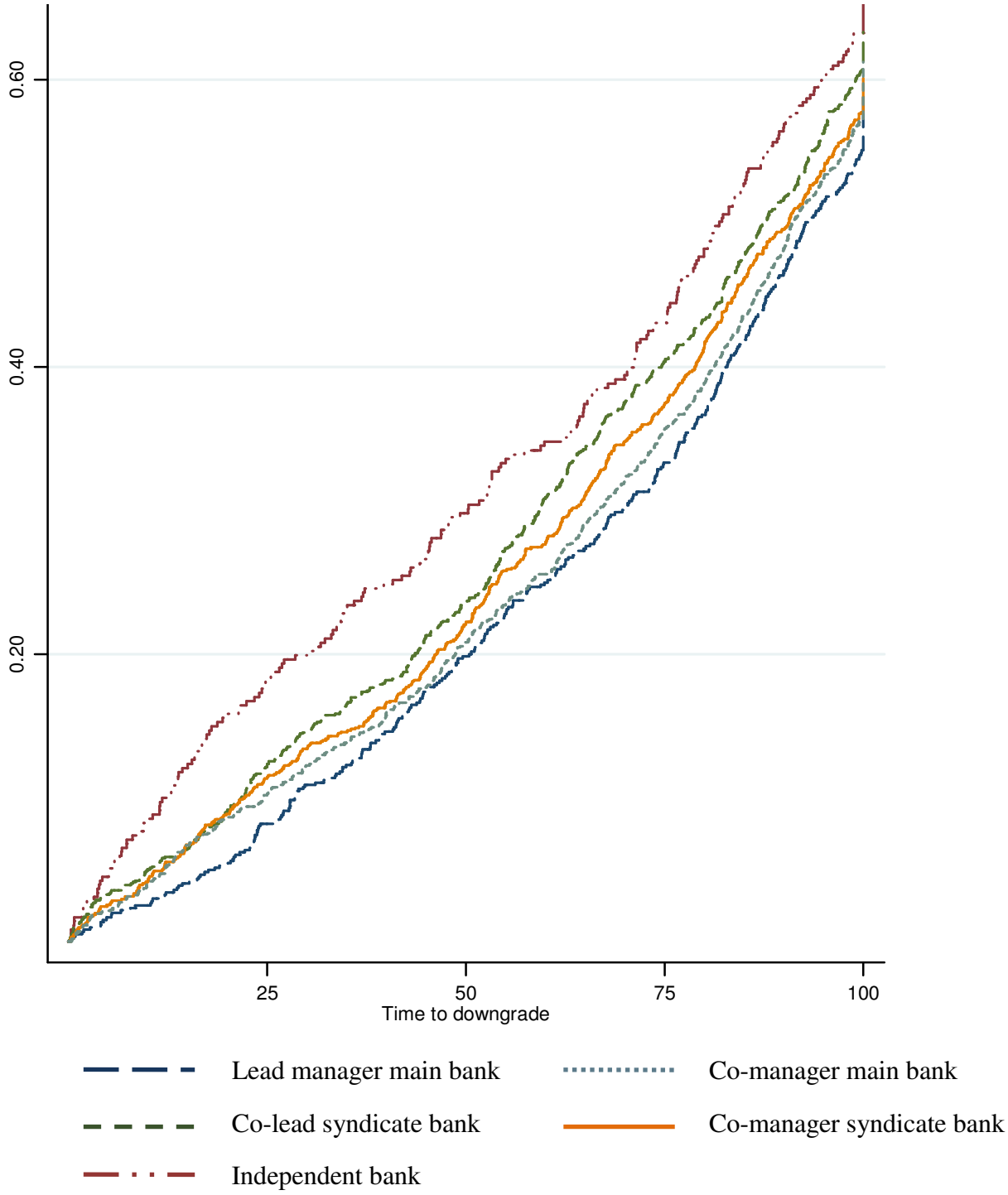


Table 1 Buy and hold value of investing in stocks of sued firms during event windows

The sample consists of firms being sued in securities class action lawsuits from 1996 to 2006. Class period is specified in each lawsuit dating the beginning and the end of a sued firm's wrongdoing. The class period starting date to the max value day denotes the time period that a buy and hold investment reaches maximum value staring from the beginning of class period. The class ending date denotes the day when wrongdoing is uncovered. Lawsuit date is the day when the lawsuit is filed. This table reports the buy and hold value of the sued firms or the market indexes at the end of the time interval if $1 was invested at the beginning of the interval. Significance levels of tests of differences between sued firms and the market index are indicated next to the means and medians of sued firms. The significance levels are the same regardless of the type of market index used.

		Sued firms				**Value weighted index**		**Equally weighted index**	
Event window	Obs.	Mean		Median		Mean	Median	Mean	Median
Class period starting date to two days prior to class period ending date	519	0.87	***	0.82	***	1.09	1.07	1.29	1.17
Class period starting date to max value day	519	1.63	***	1.30	***	1.09	1.05	1.17	1.10
Three days around class period ending date [-1,0,1]	686	0.79	***	0.81	***	1.00	1.01	1.00	1.01
Class period ending date to two days prior to lawsuit date	541	0.88	***	0.94	***	1.00	1.00	1.11	1.05
Three days around lawsuit date [-1,0,1]	682	0.95	***	0.98	***	1.00	1.00	1.00	1.01

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 2 Likelihood of issuing downgrades by brokerage bank type and by time period

This table reports the percentage of brokers that issued recommendation downgrades regarding sued firms (in Panel A) or matched, non-sued firms (in Panel B) during various time windows around the class action lawsuits. The sued sample consists of analyst recommendations by brokers of firms sued in securities class action lawsuits from 1996 to 2006. The matched sample contains non-sued firms in the same industry (classified by 2-digit SIC code) as sued firms with the closest number of analysts followed by closest firm size (total assets) during the year prior to the class period. The class period is specified in each lawsuit dating the beginning and the end of a sued firm's wrongdoing. Max BH value date denotes the day when a buy-and-hold investment reaches maximum value during the class period. Panel C reports the differences between sued and matched samples. Significance levels of tests of differences in percentages between lead manager main bank and other types of banks are denoted next to the statistics of other types of banks.

	Within two years prior to class beginning date		(1) Class beginning date to max BH value		(2) Max BH value to class ending date		(3) Class ending date to lawsuit filling date		(4) Within two years after lawsuit filing date	
Panel A: Sued sample										
Lead manager main bank	51.8		35.9		70.2		85.3		65.2	
Co manager main bank	52.0		36.3		74.4		85.7		70.9	*
Co-lead syndicate bank	57.4	***	46.9	**	70.6		76.2	**	65.3	
Co-manager syndicate bank	60.5	***	41.8		69.2		84.2		71.2	*
Independent bank	57.4	***	57.0	***	68.2		79.0		69.1	
All types	56.4		43.5		70.6		82.3		68.4	
Panel B: Matched sample										
Lead manager main bank	62.8		49.1		63.2		66.3		66.4	
Co manager main bank	61.4		46.6		63.6		63.9		67.2	
Co-lead syndicate bank	56.8	**	49.7		64.6		49.7	***	63.5	
Co-manager syndicate bank	63.1		57.6	*	65.4		68.1		70.5	
Independent bank	62.6		56.0		65.1		69.1		70.6	
All types	61.1		52.0		64.5		62.3		67.2	
Panel C: Difference between A and B										
Lead manager main bank	-11.0	***	-13.1	**	7.0		19.0	***	-1.2	
Co manager main bank	-9.4	***	-10.3	**	10.8	***	21.7	***	3.7	
Co-lead syndicate bank	0.6		-2.8		6.0	*	26.5	***	1.7	
Co-manager syndicate bank	-2.6		-15.8	***	3.8		16.2	***	0.7	
Independent bank	-5.1		1.0		3.1		9.9		-1.6	
All types	-4.7	***	-8.5	***	6.2	***	20.0	***	1.2	

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 3 Distribution of stock recommendation revisions over years

This table presents the sample distribution of stock recommendation revisions for sued firms and matched, non-sued firms during 1993-2006. We only include the recommendations of interests, i.e., those issued within two years prior to a sued firm's class period up to lawsuit filing date. Class period is specified in each lawsuit dating the beginning and the end of a sued firm's wrongdoing. Matched sample firms are non-sued firms in the same industry (classified by 2-digit SIC code) as sued firms with the closest number of analysts followed by closest firm size (total assets) during the year prior to class period.

		Sued sample		Matched sample	
Time period	All	No.	% of all	No.	% of all
Total	28,690	16,565	57.7	12,125	42.3
1993	7	3	42.9	4	57.1
1994	394	189	48.0	205	52.0
1995	1,222	661	54.1	561	45.9
1996	1,656	954	57.6	702	42.4
1997	2,181	1,153	52.9	1,028	47.1
1998	3,064	1,599	52.2	1,465	47.8
1999	3,458	1,726	49.9	1,732	50.1
2000	4,238	2,475	58.4	1,763	41.6
2001	3,832	2,627	68.6	1,205	31.4
2002	3,804	2,343	61.6	1,461	38.4
2003	2,226	1,243	55.8	983	44.2
2004	1,419	810	57.1	609	42.9
2005	738	474	64.2	264	35.8
2006	451	308	68.3	143	31.7
Prior to class period	13,512	6,595	48.8	6,917	51.2
During class period	10,381	6,420	61.8	3,961	38.2
Class period to lawsuit filing date	4,797	3,550	74.0	1,247	26.0
Before Rule 2711	22,052	12,638	57.3	9,414	42.7
Post Rule 2711	6,638	3,927	59.2	2,711	40.8

Table 4 Mean value of analysts' and brokers' characteristic variables

This table reports the mean values of characteristic variables of analysts and brokerage banks issued stock recommendations for sued and matched, non-sued firms issued within two years prior to a sued firm's class period and up to the lawsuit filing date. Matched sample firms are non-sued firms in the same industry (classified by 2-digit SIC code) as sued firms with the closest number of analysts followed by closest firm size (total assets) during the year prior to class period. Tests of differences in means between groups are reported next to the matched sample.

	Class period starting date to lawsuit filing date (sample period)			**Within 2-year prior to class period (benchmark period)**		
Variable	Sued	Matched		Sued	Matched	
Analyst seniority (year)	4.23	4.30		3.81	3.61	***
=1 if all-star analyst	0.13	0.15	***	0.14	0.13	***
Relative forecast accuracy	50.75	50.60		50.98	50.44	
Loyalty index in bond market	0.23	0.24		0.24	0.23	**
=1 if no bond loyalty index	0.48	0.46	***	0.47	0.49	***
Loyalty index in equity market	0.43	0.45	***	0.45	0.46	
=1 if no equity loyalty index	0.18	0.17		0.17	0.17	
Firm's share of bank's debt deals prior 5 years (%)	0.04	0.02		0.03	0.03	
Firm's share of bank's equity deals prior 5 years (%)	0.22	0.27		0.24	0.28	
Log issuer's bond proceeds in prior 5 years (in $mil)	1.81	2.05	***	2.42	1.90	***
Log issuer's equity proceeds in prior 5 years (in $mil)	4.28	4.25		3.86	4.13	***
Change in bond issue activities	0.22	0.17	***	0.18	0.21	***
Change in equity issue activities	0.06	0.08	***	0.17	0.19	**
Institutional holdings (%)	60.34	59.60		65.81	57.77	***
=1 if bank holds stake in issuer's equity	0.54	0.53		0.53	0.45	***
Bank's market share in debt underwriting (%)	3.99	4.01		3.85	3.53	***
Bank's market share in equity underwriting (%)	3.66	3.76		3.57	3.32	***
Bank's market share in loan market (%)	1.28	1.29		1.16	1.16	
Total assets ($Bn)	13.56	9.52	***	11.47	6.13	***
Tobin's Q	4.38	3.06	***	3.50	3.26	***
Information opacity	-10.93	-10.71	***	-11.12	-10.71	***
Number of recommendations on the same day	1.67	3.65	***	1.30	2.97	***
No. of observation	9970	5208		6595	6917	

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 5 Univariate analysis of stock recommendations, revisions, and timeliness

This table reports summary statistics on the level, revision, and timeliness of analyst recommendations of sued and matched non-sued firms issued by various types of brokerage banks. The sample includes recommendations issued during the period between the class period starting date and the lawsuit filing date. Current recommendations are those issued during the sample period. Prior recommendation indicates the latest recommendation issued by the same broker for the same firm prior to the current recommendation. Change in recommendation indicates the difference between current and prior recommendations. The column labeled "Scaled # days" is the number of days that the current recommendation is issued after the class period starting date (i.e., wrong doing beginning date) divided by the duration of a class period and multiplied by 100. Matched sample firms are non-sued firms in the same industry (classified by 2-digit SIC code) as sued firms with the closest number of analysts followed by closest firm size (total assets) during the year prior to the class period. Significance levels of tests of differences in percentages between lead manager main bank and other types of banks are denoted next to the statistics of other types of banks. The tests of differences between the sued and matched samples for all types of banks are reported at the end of the table.

	All revisions								Downgrade revision only					
		Prior		Change		Current		Scaled # days				Current		Scaled # days
	N	Mean		Mean		Mean		Median	N	% of all		Mean		Median
Panel A: Sued sample														
Lead manager main bank	1,508	4.13		-0.46		3.67		82.4	798	52.92		3.18		95.2
co manager main bank	2,516	4.16		-0.50		3.66		84.2	1,431	56.88	*	3.17		93.4
co-lead syndicate bank	2,520	3.91	***	-0.36	***	3.55	***	81.2	1,330	52.78		3.07	***	91.7	**
co-manager syndicate bank	2,533	4.07	**	-0.39	*	3.68		84.1	*	1,399	55.23		3.15		94.4
Independent bank	893	4.03	***	-0.39		3.64		77.2	**	487	54.54		3.07	***	87.0	***
All types	9,970	4.06		-0.42		3.63		82.4	5,445	54.61		3.13		92.8	
Panel B: Matched sample														
Lead manager main bank	766	4.10		-0.28		3.82		65.8	345	45.04		3.29		65.8
co manager main bank	1,190	4.05		-0.30		3.75	*	66.1	574	48.24		3.19	***	67.4
co-lead syndicate bank	1,418	3.80	***	-0.18	**	3.62	***	65.8	616	43.44		3.07	***	69.4
co-manager syndicate bank	1,294	4.04		-0.26		3.78		57.3	***	656	50.70	***	3.23	*	56.9	**
Independent bank	540	4.04		-0.25		3.80		53.3	***	265	49.07		3.19	**	55.8	**
All types	5,208	3.99		-0.25		3.74		62.2	2,456	47.16		3.18		64.1	
Diff. for all types: *t*/z-test		-4.815	***	8.81	***	6.67	***	-15.8	***		-8.729	***	3.26	***	-15.9	***

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 6 Analysis of timeliness of downgrade revisions – Sued firms

In this table, we examine in multiple regressions the effect of various types of brokerage banks on the timeliness of the downgrades of sued firms from the class period starting date to the lawsuit filing date in regressions (1) and (2). Regressions (3) and (4) are based on downgrades only during the class period. We also restrict the sample in regressions (3) and (4) to firms having at least one recommendation from each bank type, i.e., main bank, syndicate bank, and independent bank, during class period. Regressions (1) and (3) are based on all downgrades within the specified periods. Regressions (2) and (4) are based on only the first downgrades of each broker-firm pair. The dependent variable is "Scaled # days," which is the number of days that the current recommendation is issued after the class period beginning date (i.e., wrong doing starting date) divided by the duration of a class period, multiplied by 100. Standard errors are clustered allowing correlations within brokers.

	Downgrades from the class period starting date to the lawsuit filing date						**Downgrades from the class period starting date to class period ending date**					
	All downgrades			First downgrades per broker-firm			All downgrades			First downgrades per broker-firm		
	(1)			(2)			(3)			(4)		
	Coef.	*t*-test		Coef.	*t*-test		Coef.	*t*-test		Coef.	*t*-test	
Intercept (=lead manager main bank)	83.22	4.50	***	77.69	4.48	***	53.87	6.28	***	61.25	6.49	***
=1 if co-manager main bank	-7.49	-0.68		-7.84	-0.89		-2.49	-0.94		-3.66	-1.33	
=1 if co-lead syndicate bank	-21.02	-2.21	**	-16.69	-2.04	**	-6.33	-2.25	**	-6.32	-2.01	**
=1 if co-manager syndicate bank	-12.58	-1.27		-5.68	-0.61		-3.98	-1.33		-4.21	-1.31	
=1 if independent bank	-23.56	-1.97	**	-21.23	-1.65	*	-9.29	-2.29	**	-8.51	-1.99	**
Analyst seniority (year)	-0.18	-0.19		0.15	0.14		-0.59	-1.81	*	-0.47	-1.36	
=1 if all-star analyst	-12.03	-1.55		-2.29	-0.29		-0.55	-0.23		-1.25	-0.51	
Loyalty index in bond market	-4.47	-0.21		4.96	0.27		-1.13	-0.24		-3.46	-0.65	
=1 if no bond loyalty index	-10.97	-1.50		-2.68	-0.40		1.77	0.55		2.14	0.63	
Loyalty index in equity market	-1.06	-0.09		-8.47	-0.74		-6.10	-1.84	*	-7.71	-2.29	**
=1 if no equity loyalty index	-1.59	-0.27		-5.18	-0.86		-1.53	-0.55		-2.45	-0.88	
Firm's share of bank's debt deals prior 5 years (%)	-1.10	-1.03		-0.83	-1.03		3.42	2.14	**	3.96	2.45	**
Firm's share of bank's equity deals prior 5 years (%)	0.74	0.89		0.91	1.27		0.71	1.17		0.75	1.18	
Log issuer's bond proceeds in prior 5 years (in $mil)	5.40	5.26	***	4.51	4.66	***	0.34	1.30		0.37	1.41	
Log issuer's equity proceeds in prior 5 years (in $mil)	5.59	4.12	***	4.33	3.61	***	0.83	2.85	***	1.40	4.73	***
Change in bond issue activities	-4.65	-0.75		-3.63	-0.56		1.55	0.93		4.19	2.42	**

Change in equity issue activities	-6.24	-2.33	**	-4.85	-1.72	*	-4.99	-2.82	***	-6.35	-3.26	***
Institutional holdings (%)	-0.12	-1.58		-0.07	-0.99		-0.01	-0.43		-0.05	-1.84	*
=1 if bank holds stake in issuer's equity	3.54	0.61		6.43	1.34		2.28	1.03		3.29	1.53	
Bank's market share in debt underwriting (%)	0.62	2.14	**	0.38	1.44		-0.13	-0.97		-0.19	-1.32	
Bank's market share in equity underwriting (%)	-0.31	-0.69		0.01	0.03		0.32	2.36	**	0.37	2.53	***
Bank's market share in loan market (%)	-4.08	-3.42	***	-3.31	-3.17	***	0.39	1.01		0.42	1.03	
Log (total assets)	0.30	0.16		-0.32	-0.21		-1.03	-1.44		-1.47	-2.04	**
Tobin's Q	-0.61	-3.07	***	-0.70	-3.67	***	0.10	1.20		0.20	1.99	**
Information opacity	0.90	0.41		1.17	0.58		-0.99	-1.03		-0.29	-0.27	
=1 if IPO allocation lawsuit	55.74	7.20	***	57.43	7.93	***	13.64	4.96	***	12.08	4.32	***
Ln(number of recommendations on the same day)	18.56	3.81	***	20.82	4.01	***	4.52	2.96	***	6.00	3.48	***
R^2	0.05			0.05			0.07			0.11		
Number of observations	3430			2697			1532			1175		
Number of broker clusters	157			153			129			127		

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 7 Survival analysis of the timeliness of downgrades

The sued sample includes recommendations issued during the period between the class period starting date and the lawsuit filing date. For each firm-broker, only the first downgrade is included and classified as the failure event. For those do not provide any downgrades during our event window, they are included as the non-failure event. The time variable is "Scaled # days," which is the number of days that the current recommendation is issued after the class period starting date (i.e., wrong doing beginning date) divided by the duration of a class period and multiplied by 100. Matched sample firms are non-sued firms in the same industry (classified by 2-digit SIC code) as sued firms with the closest number of analysts followed by closest firm size (total assets) during the year prior to the class period. Standard errors are clustered allowing correlations within brokers.

	Sued sample			**Matched sample**		
	Coef.	z-test		Coef.	z-test	
=1 if co-manager main bank	0.045	0.77		0.006	0.05	
=1 if co-lead syndicate bank	0.128	2.36	**	0.032	0.28	
=1 if co-manager syndicate bank	0.014	0.23		0.126	1.01	
=1 if independent bank	0.169	1.78	*	-0.125	-0.77	
Analyst seniority (year)	0.003	0.32		-0.015	-1.58	
=1 if all-star analyst	0.005	0.08		-0.069	-0.91	
Loyalty index in bond market	-0.070	-0.62		0.414	2.03	**
=1 if no bond loyalty index	-0.058	-1.09		0.252	1.81	*
Loyalty index in equity market	-0.161	-1.79	*	0.127	1.17	
=1 if no equity loyalty index	-0.042	-0.57		0.065	0.64	
Firm's share of bank's debt deals prior 5 years (%)	-0.001	-0.06		-0.032	-0.70	
Firm's share of bank's equity deals prior 5 years (%)	-0.003	-0.80		-0.006	-0.32	
Log issuer's bond proceeds in prior 5 years (in $mil)	-0.051	-5.04	***	-0.021	-1.75	*
Log issuer's equity proceeds in prior 5 years (in $mil)	-0.024	-2.28	**	-0.039	-3.14	***
Change in bond issue activities	-0.079	-1.55		-0.222	-3.66	***
Change in equity issue activities	0.040	0.94		0.309	4.21	***
Institutional holdings (%)	0.001	1.27		-0.0004	-0.31	
=1 if bank holds stake in issuer's equity	-0.023	-0.52		0.030	0.37	
Bank's market share in debt underwriting (%)	-0.001	-0.54		0.003	0.74	
Bank's market share in equity underwriting (%)	-0.003	-0.93		-0.002	-0.25	
Bank's market share in loan market (%)	0.016	1.60		-0.008	-0.43	
log (total assets)	0.083	4.10	***	-0.003	-0.09	
Tobin's Q	0.017	6.54	***	-0.023	-2.46	***
Information opacity	0.070	3.24	***	0.045	1.18	
=1 if IPO allocation lawsuit	-0.716	-10.09	***			
ln(number of recommendations on the same day)	-0.152	-5.33	***	-0.012	-0.32	
Log pseudolikelihood	-18485			-7519		
Number of observations	3329			1738		
Number of downgrades	2695			1211		
Number of broker clusters	157			139		

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 8 Analysis of timeliness of downgrade revisions of sued firms surrounding Rule 2711

This table reports the effect of various types of banks on the timeliness of the downgrades of sued firms before and after the implementation of Rule 2711. The full sample period is from the class period starting date to the lawsuit filing date. Regressions (1) and (2) are based on a subsample prior to and following August 1, 2002 when Rule 2711 was adopted, respectively. Regressions (3) and (4) are based on the full sample but incorporate a Post-rule 2711 dummy and its interaction terms. Post-rule 2711 is a dummy variable that equals one for downgrades provided after August 1, 2002, and zero otherwise. The dependent variable is "Scaled # days," which is the number of days that the current recommendation is issued after the class period beginning date (i.e., wrong doing starting date) divided by the duration of a class period, multiplied by 100. Standard errors are clustered allowing correlations within brokers.

	Subsample						**Full Sample**					
	Before Rule 2711			Post Rule 2711			All downgrades			First downgrades per broker-firm		
	(1)			(2)			(3)			(4)		
	Coef.	*t*-test		Coef.	*t*-test		Coef.	*t*-test		Coef.	*t*-test	
Intercept (=lead manager main bank)	91.58	4.10	***	65.90	3.02	***	87.61	4.33	***	81.57	4.26	***
=1 if co-manager main bank	-10.38	-0.71		-1.52	-0.30		-11.45	-0.79		-11.20	-0.97	
=1 if co-lead syndicate bank	-24.95	-1.84	*	-12.67	-2.42	**	-24.33	-1.83	*	-18.25	-1.64	*
=1 if co-manager syndicate bank	-14.33	-1.13		-12.33	-1.74	*	-15.81	-1.27		-8.42	-0.74	
=1 if independent bank	-26.67	-1.81	*	-3.38	-0.24		-32.05	-2.20	**	-26.97	-1.77	*
Post-rule 2711							-24.98	-1.93	*	-20.41	-1.78	*
Co-manager main bank*Post-rule 2711							13.87	0.94		12.35	0.97	
Co-lead syndicate bank*Post-rule 2711							11.78	0.82		5.17	0.40	
Co-manager syndicate bank*Post-rule 2711							9.96	0.74		9.56	0.72	
Independent bank*Post-rule 2711							45.53	2.28	**	32.16	1.73	*
Analyst seniority (year)	0.24	0.17		-0.44	-0.69		0.32	0.35		0.59	0.56	
=1 if all-star analyst	-12.74	-1.20		-4.65	-0.96		-12.37	-1.59		-2.55	-0.32	
Loyalty index in bond market	-10.03	-0.41		-1.03	-0.07		-6.48	-0.31		2.75	0.14	
=1 if no bond loyalty index	-12.61	-1.27		-7.57	-0.84		-10.97	-1.50		-3.01	-0.43	
Loyalty index in equity market	-2.25	-0.15		2.63	0.30		-1.81	-0.15		-9.02	-0.76	
=1 if no equity loyalty index	-6.71	-0.86		6.70	0.97		-2.23	-0.38		-5.64	-0.92	
Firm's share of bank's debt deals prior 5 years (%)	-1.93	-1.29		22.10	7.34	***	-1.30	-1.14		-1.01	-1.15	

Firm's share of bank's equity deals prior 5 years (%)	0.87	0.97		-0.07	-0.14		0.71	0.84		0.89	1.23	
Log issuer's bond proceeds in prior 5 years (in $mil)	7.28	4.65	***	0.21	0.21		5.35	5.24	***	4.42	4.62	***
Log issuer's equity proceeds in prior 5 years (in $mil)	7.09	3.75	***	1.45	1.68	*	5.59	4.13	***	4.32	3.58	***
Change in bond issue activities	-16.57	-1.97	**	17.99	3.56	***	-9.78	-1.42		-7.98	-1.02	
Change in equity issue activities	-10.11	-3.04	***	-7.52	-1.00		-8.15	-2.93	***	-6.35	-2.04	**
Institutional holdings (%)	-0.09	-1.07		-0.31	-2.93	***	-0.09	-1.22		-0.05	-0.71	
=1 if bank holds stake in issuer's equity	5.50	0.76		-2.52	-0.49		3.80	0.65		6.82	1.39	
Bank's market share in debt underwriting (%)	0.60	1.65	*	0.03	0.06		0.58	1.89	*	0.35	1.22	
Bank's market share in equity underwriting (%)	-0.16	-0.23		-0.43	-1.40		-0.24	-0.51		0.05	0.13	
Bank's market share in loan market (%)	-4.05	-2.39	**	-1.18	-0.76		-3.82	-2.76	***	-3.17	-2.82	***
Log (total assets)	-0.64	-0.29		-0.13	-0.05		0.06	0.03		-0.52	-0.34	
Tobin's Q	-0.62	-2.60	***	-4.77	-2.83	***	-0.70	-3.46	***	-0.77	-3.90	***
Information opacity	1.45	0.54		-5.59	-2.00	**	0.68	0.32		1.00	0.51	
=1 if IPO allocation lawsuit	58.63	7.34	***	–	–		55.12	7.13	***	56.83	7.91	***
Ln(number of recommendations on the same day)	23.50	3.91	***	6.07	2.04	**	18.29	3.85	***	20.61	4.06	***
R^2	0.06			0.09			0.05			0.05		
Number of observations	2588			842			3430			2697		
Number of broker clusters	138			90			157			153		

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 9 Univariate analysis of informativeness of the first downgrade revisions during class period

The sample consists of only the first downgrade issued during a sued firm's class period, which is specified in each lawsuit dating the beginning and the end of a sued firm's wrongdoing. We compute cumulative abnormal returns (CARs) and abnormal trading volume over a 3-day window [-1, 0, 1], where day 0 is the first date that a downgrade is issued during the class period. The equally weighted market index is used to calculate 3-day CARs in decimal format and abnormal stock trading volume in log format. We conduct analysis for both sued and matched non-sued firms. The matched sample is non-sued firms in the same industry (classified by 2-digit SIC code) as sued firms with the closest number of analysts followed by the closest firm size (total assets) during the year prior to the class period. Significance levels of tests of differences between lead manager main bank and other types of banks are denoted next to the statistics of other types of banks. The tests of differences between sued and matched samples for all types of banks are reported at the end of the table.

	Include multiple recommendations issued on the same day				**Include only one recommendation issued on the day**			
	N	CAR	Volume		N	CAR	Volume	
Panel A: Sued sample								
Lead manager main bank	131	-0.14	5.96		100	-0.10	5.16	
co manager main bank	250	-0.14	6.43		198	-0.10	5.92	*
co-lead syndicate bank	127	-0.09 **	5.39		93	-0.07	5.06	
co-manager syndicate bank	164	-0.08 ***	6.38		121	-0.03 ***	5.88	
Independent bank	73	-0.09	5.74		58	-0.04 **	5.09	
All types	745	-0.11	6.09		570	-0.08	5.55	
Panel B: Matched sample								
Lead manager main bank	67	-0.09	4.10		26	-0.02	2.29	
co manager main bank	118	-0.08	4.37		50	-0.03	4.08	*
co-lead syndicate bank	56	-0.08	4.29		19	-0.04	2.71	
co-manager syndicate bank	110	-0.07	5.08	*	40	-0.03	3.48	
Independent bank	51	-0.03 **	4.16		20	-0.05	2.78	
All types	402	-0.07	4.48		155	-0.03	3.29	
Diff. for all types: *t*/z-test		3.46 ***	-7.04	***		2.96 ***	-6.74	***

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 10 Analysis of informativeness of the downgrade revisions – sued firms

In this table, we examine in multiple regressions the effect of various types of brokerage banks on stock market reactions to the downgrades of sued firms from the class period starting date to the lawsuit filing date in regressions (1) and (2). Regressions (3) and (4) are based on downgrades only during the class period. We also restrict the sample in regressions (3) and (4) to firms having at least one recommendation from each bank type, i.e., main bank, syndicate bank, and independent bank, during class period. Regressions (1) and (3) are based on all downgrades within the specified periods. Regressions (2) and (4) are based on only the first downgrades of broker-firm observations. The dependent variable is the cumulative abnormal return (CARs) in percentage format over a 3-day window [-1, 0, 1], where day 0 is the date of downgrade issuance. The equally weighted market index is used to calculate 3-day CARs.

	Downgrades from the class period starting date to the lawsuit filing date						**Downgrades from the class period starting date to class period ending date**					
	All downgrades			**First downgrades per broker-firm**			**All downgrades**			**First downgrades per broker-firm**		
	(1)			**(2)**			**(3)**			**(4)**		
	Coef.	***t*-test**		**Coef.**	***t*-test**		**Coef.**	***t*-test**		**Coef.**	***t*-test**	
Intercept (=lead manager main bank)	-42.15	-13.06	***	-42.71	-11.69	***	-26.06	-6.53	***	-26.46	-5.98	***
=1 if co-manager main bank	-1.59	-1.46		-1.85	-1.49		-3.04	-2.28	**	-2.63	-1.66	*
=1 if co-lead syndicate bank	0.87	0.79		0.46	0.37		-1.12	-0.74		-1.13	-0.67	
=1 if co-manager syndicate bank	1.35	1.26		1.22	0.97		-1.05	-0.59		-0.83	-0.41	
=1 if independent bank	1.11	0.67		-0.11	-0.06		-1.61	-0.82		-2.64	-1.15	
Analyst seniority (year)	0.04	0.40		0.09	0.81		0.16	1.53		0.24	1.82	*
=1 if all-star analyst	0.63	0.60		0.53	0.46		-1.65	-1.43		-1.98	-1.36	
Loyalty index in bond market	-0.67	-0.31		-2.02	-0.80		-1.55	-0.60		-2.07	-0.74	
=1 if no bond loyalty index	-0.22	-0.16		-0.55	-0.31		-1.68	-1.10		-2.12	-1.40	
Loyalty index in equity market	0.74	0.53		0.74	0.48		1.69	0.87		1.51	0.60	
=1 if no equity loyalty index	-0.33	-0.30		-0.91	-0.77		0.18	0.15		-0.29	-0.19	
Firm's share of bank's debt deals prior 5 years (%)	0.08	0.99		0.02	0.23		0.66	1.11		0.47	0.70	
Firm's share of bank's equity deals prior 5 years (%)	-0.17	-1.48		-0.15	-1.37		-0.52	-1.23		-0.58	-1.27	
Log issuer's bond proceeds in prior 5 years (in $mil)	-0.24	-2.38	**	-0.15	-1.39		-0.18	-1.67	*	-0.11	-0.92	
Log issuer's equity proceeds in prior 5 years (in $mil)	-0.19	-1.85	*	-0.16	-1.26		-0.19	-1.84	*	-0.20	-1.43	
Change in bond issue activities	-2.63	-3.49	***	-3.06	-3.46	***	-2.53	-2.38	**	-3.31	-2.62	***

Change in equity issue activities	-0.16	-0.20		-0.46	-0.55		-0.39	-0.35		-0.17	-0.13	
Institutional holdings (%)	0.00	0.08		-0.01	-0.40		-0.02	-1.15		-0.03	-1.68	*
=1 if bank holds stake in issuer's equity	-1.60	-2.21	**	-1.99	-2.37	**	-2.13	-2.56	***	-2.44	-2.42	**
Bank's market share in debt underwriting (%)	-0.10	-1.43		-0.10	-1.54		0.04	0.33		0.05	0.40	
Bank's market share in equity underwriting (%)	-0.01	-0.09		-0.02	-0.39		-0.05	-0.55		-0.08	-0.81	
Bank's market share in loan market (%)	0.18	1.10		0.16	0.88		-0.23	-1.20		-0.29	-1.33	
log (total assets)	2.27	7.47	***	2.36	7.09	***	1.69	5.29	***	1.83	5.08	***
Tobin's Q	-0.09	-1.31		-0.08	-1.08		0.10	1.24		0.14	1.47	
Information opacity	-1.93	-5.28	***	-2.01	-4.80	***	-1.33	-3.57	***	-1.36	-2.99	***
=1 if IPO allocation lawsuit	5.94	5.06	***	6.28	4.65	***	-0.39	-0.14		-0.35	-0.11	
ln(number of recommendations on the same day)	-16.85	-27.92	***	-17.23	-27.83	***	-13.77	-14.64	***	-13.93	-12.72	***
R^2	0.34			0.35			0.25			0.25		
Number of observations	3455			2719			1532			1175		
Number of broker clusters	158			154			129			127		

*, **, *** Significant at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.