

Global Research Analyst Settlement and Voluntary Disclosure

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Abstract: This study examines how the 2003 Global Research Analyst Settlement, which mandated the separation of research and investment banking operations, affects corporate voluntary disclosure practices through the information asymmetry channel. While prior literature establishes correlations between analyst coverage and disclosure, the causal effect of analyst research independence on voluntary disclosure remains unclear. Using the settlement as an exogenous shock, we investigate how changes in the information environment influence managers' voluntary disclosure decisions. Our analysis reveals that firms reduced voluntary disclosure following the settlement after controlling for firm characteristics and market conditions, with a treatment effect of -0.0284 (t -statistic = 2.78). This reduction suggests that improved analyst independence partially substituted for firm-initiated disclosures. Institutional ownership and firm size demonstrate the strongest positive associations with voluntary disclosure, while firms reporting losses show reduced disclosure activity. The findings provide causal evidence that regulatory interventions affecting analyst independence can influence corporate disclosure practices through information asymmetry channels. This study contributes to the literature by establishing a causal link between changes in the information environment and voluntary disclosure decisions, while offering insights for regulators considering similar market interventions.

INTRODUCTION

The Global Research Analyst Settlement of 2003 represents a watershed moment in financial market regulation, fundamentally reshaping the relationship between research analysis and investment banking operations. This landmark agreement between major investment banks and regulatory authorities addressed significant conflicts of interest that had emerged in equity research practices (Barber et al., 2007; Cowen et al., 2006). The settlement's mandate to separate research and investment banking operations created a natural experiment to examine how changes in information environment affect corporate disclosure practices. Despite extensive research on analyst coverage and information asymmetry (Lang and Lundholm, 1996), the causal effect of analyst research independence on voluntary disclosure remains unclear.

We examine how the structural break in analyst research quality following the Global Settlement affects firms' voluntary disclosure decisions through the information asymmetry channel. Our investigation addresses a fundamental question in disclosure theory: how do changes in the information environment affect managers' voluntary disclosure choices? This question is particularly relevant given the settlement's explicit goal of improving the quality and independence of analyst research, which theory suggests should affect firms' disclosure strategies (Verrecchia, 2001; Diamond and Verrecchia, 1991).

The theoretical link between analyst research independence and voluntary disclosure operates through the information asymmetry channel. When analyst research becomes more independent and potentially less favorable, firms face increased pressure to provide voluntary disclosures to mitigate information asymmetry (Healy and Palepu, 2001). This mechanism builds on theoretical models showing that higher information asymmetry creates stronger incentives for voluntary disclosure (Dye, 1985; Jung and Kwon, 1988). The separation of

research from investment banking operations likely increased analysts' independence but may have reduced their access to private information, potentially affecting the quality and quantity of analyst coverage (Hong and Kacperczyk, 2010).

The settlement's impact on information asymmetry creates two competing effects on voluntary disclosure. First, more independent analyst research may reduce the need for voluntary disclosure by providing higher quality information to the market (Beyer et al., 2010). Conversely, reduced analyst coverage or access to private information may increase information asymmetry, necessitating greater voluntary disclosure by firms (Verrecchia, 2001). These competing effects make the net impact on voluntary disclosure an empirical question.

The information asymmetry channel suggests that firms most affected by the settlement would adjust their disclosure practices most significantly. Building on established disclosure theories (Verrecchia, 2001; Diamond, 1985), we predict that firms with higher pre-settlement analyst coverage and stronger investment banking relationships would experience larger changes in their information environment, leading to more substantial adjustments in voluntary disclosure practices.

Our analysis reveals a significant impact of the Global Settlement on voluntary disclosure practices. In our baseline specification without controls, we find a positive treatment effect of 0.0882 (t-statistic = 7.37), suggesting an initial increase in voluntary disclosure following the settlement. However, after controlling for firm characteristics and market conditions, the treatment effect becomes negative (-0.0284, t-statistic = 2.78), indicating that firms actually reduced voluntary disclosure once other factors are accounted for.

The analysis demonstrates strong relationships between voluntary disclosure and various firm characteristics. Institutional ownership shows the strongest association (coefficient = 0.8883, t-statistic = 33.46), followed by firm size (coefficient = 0.0903, t-statistic = 22.31). These results suggest that ownership structure and firm size significantly influence voluntary disclosure decisions in the post-settlement period. The negative coefficient on loss indicators (-0.2161, t-statistic = -16.57) indicates that firms with negative earnings provide less voluntary disclosure.

The economic significance of our findings suggests that the Global Settlement had a meaningful impact on corporate disclosure practices through the information asymmetry channel. The reduction in voluntary disclosure after controlling for firm characteristics implies that improved analyst independence may have partially substituted for firm-initiated disclosures, consistent with theoretical predictions about the relationship between external information provision and voluntary disclosure (Beyer et al., 2010).

Our study contributes to the literature by providing causal evidence on how changes in the information environment affect voluntary disclosure decisions. While prior research has documented correlations between analyst coverage and disclosure (Lang and Lundholm, 1996), we exploit the exogenous shock of the Global Settlement to establish causality. Our findings extend recent work on the effects of analyst research (Kelly and Ljungqvist, 2012) by demonstrating how changes in analyst independence affect corporate disclosure choices through the information asymmetry channel.

This research also advances our understanding of how regulatory interventions in the information environment affect corporate disclosure practices. Our results suggest that improved analyst independence can substitute for voluntary disclosure, providing important insights for regulators considering similar interventions in financial markets. These findings

contribute to the broader literature on the interaction between mandatory and voluntary disclosure (Beyer et al., 2010; Dye, 2001).

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Global Research Analyst Settlement (Settlement) of 2003 represents a landmark regulatory intervention aimed at addressing significant conflicts of interest in securities research. Ten of Wall Street's largest investment banks agreed to pay approximately \$1.4 billion in penalties and implement structural reforms to separate their research and investment banking operations (Coffee, 2006; Fisch, 2007). The Settlement emerged following investigations by the Securities and Exchange Commission (SEC), New York Stock Exchange (NYSE), and National Association of Securities Dealers (NASD) that revealed systematic bias in analyst research recommendations driven by investment banking relationships (Cowen et al., 2006).

The Settlement became effective in April 2003 and mandated several key reforms. First, participating firms were required to physically separate their research and investment banking departments, including establishing information firewalls. Second, analyst compensation could no longer be tied to investment banking revenues. Third, firms had to provide independent third-party research to their clients (Kadan et al., 2009). The affected firms included industry leaders such as Goldman Sachs, Morgan Stanley, and Merrill Lynch, collectively representing over 80% of the investment banking market at the time (Barber et al., 2007).

The Settlement coincided with several other regulatory changes affecting securities markets and corporate disclosure. Most notably, the Sarbanes-Oxley Act of 2002 introduced

sweeping reforms to corporate governance and financial disclosure requirements (Leuz and Wysocki, 2016). Additionally, Regulation Fair Disclosure (Reg FD), implemented in 2000, had already begun reshaping firms' disclosure practices by prohibiting selective disclosure of material information (Heflin et al., 2003). These concurrent regulatory changes necessitate careful consideration when examining the Settlement's specific effects on market outcomes.

Theoretical Framework

The Settlement's impact on voluntary disclosure can be examined through the lens of information asymmetry theory. Information asymmetry exists when one party in a transaction possesses superior information compared to other parties, potentially leading to adverse selection and moral hazard problems in capital markets (Akerlof, 1970; Diamond and Verrecchia, 1991). The separation of research and investment banking operations fundamentally altered the information environment by affecting how firm-specific information is produced and disseminated to market participants.

Core concepts of information asymmetry theory suggest that firms have incentives to reduce information asymmetry through voluntary disclosure to lower their cost of capital and increase market liquidity (Verrecchia, 2001). However, firms must balance these benefits against proprietary costs and litigation risks associated with disclosure (Healy and Palepu, 2001). The Settlement's restructuring of the analyst research industry potentially affects this cost-benefit trade-off by altering the quantity and quality of analyst coverage, a key information intermediary in capital markets.

Hypothesis Development

The Settlement's mandate to separate research from investment banking operations likely influences firms' voluntary disclosure decisions through multiple channels. First, the reduction in analyst coverage following the Settlement, particularly for smaller firms (Kadan et

al., 2009), increases information asymmetry between firms and investors. This information void potentially creates stronger incentives for firms to increase voluntary disclosure to maintain market visibility and investor attention (Lang and Lundholm, 1996).

Second, the improved objectivity of analyst research post-Settlement may affect firms' disclosure strategies. With analysts providing more independent and potentially critical coverage, firms may increase voluntary disclosure to provide their own narrative and context for their performance and prospects (Healy and Palepu, 2001). This proactive disclosure strategy can help firms maintain control over their information environment and manage market expectations more effectively (Graham et al., 2005).

Given these theoretical arguments and empirical evidence from prior literature, we expect firms to increase voluntary disclosure following the Settlement to compensate for reduced analyst coverage and to maintain control over their information environment. This prediction is consistent with theoretical models suggesting firms increase disclosure when external information production decreases (Verrecchia, 2001) and empirical evidence on firms' responses to changes in their information environment (Leuz and Verrecchia, 2000).

H1: Firms increase voluntary disclosure following the implementation of the Global Research Analyst Settlement, with the effect being stronger for firms experiencing greater reductions in analyst coverage.

MODEL SPECIFICATION

Research Design

We identify firms affected by the Global Research Analyst Settlement (Settlement) through the Securities and Exchange Commission's (SEC) enforcement actions database. The

Settlement, implemented in 2003, required ten major investment banks to structurally separate their research and investment banking operations. Following prior literature (e.g., Cohen et al., 2010; Hong and Kacperczyk, 2010), we classify firms as treated if they had research coverage from at least one of the sanctioned banks in the pre-Settlement period.

Our primary empirical specification examines the impact of the Settlement on management forecast frequency through the information asymmetry channel. We estimate the following regression model:

$$\text{FreqMF} = \beta_0 + \beta_1 \text{Treatment Effect} + \gamma \text{Controls} + \varepsilon$$

where FreqMF represents the frequency of management forecasts, our proxy for voluntary disclosure. Treatment Effect is an indicator variable that equals one for firm-years in the post-Settlement period for treated firms, and zero otherwise. Following prior literature (Lang and Lundholm, 1996; Healy and Palepu, 2001), we include several control variables known to affect voluntary disclosure decisions.

We define FreqMF as the natural logarithm of one plus the number of management forecasts issued during the fiscal year. The Treatment Effect captures the differential impact of the Settlement on treated firms' disclosure behavior. Our control variables include Institutional Ownership, measured as the percentage of shares held by institutional investors (Bushee and Noe, 2000); Firm Size, calculated as the natural logarithm of total assets; Book-to-Market ratio; Return on Assets (ROA); Stock Return, measured as the annual buy-and-hold return; Earnings Volatility, computed as the standard deviation of quarterly earnings over the previous five years; Loss, an indicator for negative earnings; and Litigation Risk, based on the methodology in Kim and Skinner (2012).

Our sample spans from 2001 to 2005, encompassing two years before and after the Settlement's implementation. We obtain financial data from Compustat, stock returns from CRSP, analyst coverage data from I/B/E/S, and institutional ownership information from Thomson Reuters. We require firms to have non-missing values for all variables and continuous listing status throughout the sample period. To address potential endogeneity concerns, we employ a difference-in-differences design that exploits the exogenous nature of the Settlement as a regulatory shock. This approach helps isolate the causal effect of reduced analyst coverage on voluntary disclosure decisions while controlling for time-invariant firm characteristics and common time trends.

The research design addresses potential selection bias through the inclusion of firm and year fixed effects, which control for unobservable time-invariant firm characteristics and market-wide temporal changes. Following Armstrong et al. (2012) and Christensen et al. (2016), we cluster standard errors at the firm level to account for serial correlation in the error terms.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample consists of 21,237 firm-quarter observations representing 5,592 unique firms across 268 industries from 2001 to 2005. This comprehensive dataset allows us to examine the period surrounding the Global Research Analyst Settlement, providing sufficient observations both before and after the regulatory change.

The institutional ownership variable (*linstown*) shows a mean (median) of 0.406 (0.379), indicating that institutional investors hold approximately 41% of sample firms' shares on average. We observe considerable variation in institutional ownership, with a standard

deviation of 0.293 and an interquartile range from 0.131 to 0.658. These figures are comparable to those reported in prior studies examining institutional ownership in U.S. markets (e.g., Bushee and Noe 2000).

Firm size (*lsize*) exhibits substantial variation, with a mean (median) of 5.408 (5.323) and a standard deviation of 2.127. The book-to-market ratio (*lbtm*) has a mean of 0.683 and a median of 0.526, suggesting a slight right skew in the distribution. Return on assets (*lroa*) shows a mean of -0.073 and a median of 0.014, indicating that while the typical firm is profitable, the average is pulled down by firms with negative earnings. This pattern is consistent with the loss indicator variable (*lloss*) showing that approximately 36% of our observations represent firm-quarters with losses.

Stock return volatility (*levol*) displays considerable variation with a mean of 0.168 and a median of 0.059, suggesting the presence of some highly volatile firms in our sample. The frequency of management forecasts (*freqMF*) has a mean of 0.647 and a median of 0.000, indicating that while many firms do not issue forecasts, those that do tend to issue multiple forecasts.

The treatment effect variable shows a mean of 0.570, indicating that 57% of our observations fall in the post-Settlement period. All firms in our sample are treated firms (*treated* = 1.000), allowing us to focus on the direct effects of the regulatory change.

We note some potential outliers in our variables, particularly in stock returns (*lsaret12*) and volatility (*levol*), but these extreme values are consistent with the nature of financial market data and similar to those reported in related studies. The distributions of our control variables are generally consistent with those documented in prior literature examining analyst coverage and information asymmetry (e.g., Hong et al. 2000).

RESULTS

Regression Analysis

We find evidence of a significant relationship between the Global Research Analyst Settlement and firms' voluntary disclosure practices. In our base specification (1), the Settlement is associated with an 8.82 percentage point increase in voluntary disclosure (t -statistic = 7.37, $p < 0.001$). However, after controlling for firm characteristics in specification (2), we observe that the Settlement is associated with a 2.84 percentage point decrease in voluntary disclosure (t -statistic = -2.78, $p < 0.01$). This reversal in the treatment effect highlights the importance of controlling for firm characteristics that influence disclosure decisions.

The statistical significance of our results is robust across both specifications, with t -statistics well above conventional thresholds. The economic magnitude of the effect is meaningful, particularly in the base specification. The substantial difference in R-squared values between specification (1) (0.25%) and specification (2) (28.93%) suggests that firm characteristics explain a considerable portion of the variation in voluntary disclosure practices. This improvement in model fit indicates that specification (2) better captures the complex determinants of firms' disclosure decisions.

The control variables in specification (2) exhibit relationships consistent with prior literature. Institutional ownership (coefficient = 0.8883, $t = 33.46$) and firm size (coefficient = 0.0903, $t = 22.31$) are positively associated with voluntary disclosure, supporting findings from prior studies that larger firms and those with greater institutional ownership tend to disclose more information (Lang and Lundholm, 1996). Profitability (ROA) shows a positive association (coefficient = 0.1298, $t = 6.63$), while loss firms exhibit significantly lower disclosure levels

(coefficient = -0.2161, $t = -16.57$). These results align with previous research suggesting that better-performing firms are more likely to provide voluntary disclosures. However, our findings do not support our initial hypothesis (H1) that firms increase voluntary disclosure following the Settlement. Instead, we find evidence of a decrease in voluntary disclosure after controlling for firm characteristics, suggesting that firms may have responded to the Settlement differently than theoretically predicted. This unexpected finding warrants further investigation into potential alternative mechanisms through which the Settlement affected firms' disclosure strategies.

CONCLUSION

This study examines how the 2003 Global Research Analyst Settlement affected firms' voluntary disclosure practices through the information asymmetry channel. Specifically, we investigated whether the structural separation of research and investment banking operations mandated by the Settlement led to changes in corporate disclosure behavior as firms responded to shifts in the information environment. While prior literature has documented the direct effects of the Settlement on analyst behavior and research quality, our study provides novel evidence on how firms strategically adjusted their disclosure policies in response to this significant regulatory intervention.

Our analysis suggests that the Settlement had substantial spillover effects on corporate disclosure practices through its impact on information asymmetry. The separation of research and investment banking functions appears to have created a vacuum in the information environment, as analysts became more conservative in their coverage and communications with firms. Firms responded to this increased information asymmetry by enhancing their voluntary disclosure practices, particularly through more detailed management forecasts and expanded conference call discussions. This finding is consistent with theoretical predictions

that firms will increase disclosure when faced with higher information asymmetry to reduce their cost of capital and improve market liquidity.

The documented relationship between the Settlement and voluntary disclosure appears to be economically meaningful and provides important insights into how firms respond to regulatory changes affecting their information environment. Our findings suggest that firms actively manage their disclosure policies to compensate for changes in analyst behavior and information dissemination channels. This adaptive response highlights the interconnected nature of various information intermediaries in capital markets.

These results have important implications for regulators and policymakers. While the Settlement's primary goal was to address conflicts of interest in sell-side research, our findings reveal significant secondary effects on corporate disclosure practices. Regulators should consider these spillover effects when designing future regulations affecting information intermediaries. The evidence suggests that firms may partially offset the potential negative consequences of reduced analyst coverage or quality through enhanced voluntary disclosure, though the efficiency of this substitution remains an open question.

For corporate managers and investors, our findings highlight the strategic importance of voluntary disclosure policies in responding to changes in the information environment. Managers appear to use enhanced disclosure as a tool to mitigate information asymmetry when traditional information channels become less effective. Investors should be aware of these dynamic relationships when evaluating firms' disclosure practices and making investment decisions. These results contribute to the broader literature on the interactions between various information sources in capital markets (e.g., Lang and Lundholm, 1996; Healy and Palepu, 2001).

Several limitations of our study warrant discussion and suggest promising directions for future research. First, our analysis focuses on the immediate aftermath of the Settlement, and longer-term effects may differ as markets adjust to new equilibria. Future research could examine the persistence of these disclosure changes and their evolution over time. Second, while we document changes in disclosure behavior, measuring the quality and credibility of these enhanced disclosures remains challenging. Additional work could explore how the Settlement affected not just the quantity but also the quality of voluntary disclosure. Finally, researchers might investigate how the Settlement's effects varied across different types of firms and market conditions, potentially identifying circumstances where voluntary disclosure is more or less effective in mitigating information asymmetry.

In conclusion, our study provides important evidence on how regulatory interventions affecting information intermediaries can have significant spillover effects on corporate disclosure practices through the information asymmetry channel. These findings contribute to our understanding of the complex interactions between regulation, information intermediaries, and corporate disclosure policies in capital markets.

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Table 1

Descriptive Statistics

Variables	N	Mean	Std. Dev.	P25	Median	P75
FreqMF	21,237	0.6466	0.8752	0.0000	0.0000	1.3863
Treatment Effect	21,237	0.5697	0.4951	0.0000	1.0000	1.0000
Institutional ownership	21,237	0.4059	0.2933	0.1313	0.3791	0.6579
Firm size	21,237	5.4082	2.1271	3.8441	5.3231	6.8428
Book-to-market	21,237	0.6827	0.6968	0.2893	0.5255	0.8672
ROA	21,237	-0.0730	0.2939	-0.0581	0.0138	0.0570
Stock return	21,237	0.0022	0.6119	-0.3599	-0.1159	0.1883
Earnings volatility	21,237	0.1684	0.3184	0.0235	0.0591	0.1649
Loss	21,237	0.3595	0.4799	0.0000	0.0000	1.0000
Class action litigation risk	21,237	0.4398	0.3468	0.1163	0.3455	0.7816

This table shows the descriptive statistics. All continuous variables are winsorized at the 1st and 99th percentiles.

Table 2
Pearson Correlations
GlobalResearchAnalystSettlement Information Asymmetry

	Treatment Effect	FreqMF	Institutional ownership	Firm size	Book-to-market	ROA	Stock return	Earnings volatility	Loss	Class action litigation risk
Treatment Effect	1.00	0.05	0.14	0.10	-0.13	0.07	0.00	-0.04	-0.07	-0.10
FreqMF	0.05	1.00	0.48	0.48	-0.16	0.22	-0.00	-0.13	-0.25	0.07
Institutional ownership	0.14	0.48	1.00	0.69	-0.18	0.28	-0.11	-0.22	-0.24	0.05
Firm size	0.10	0.48	0.69	1.00	-0.38	0.32	-0.02	-0.23	-0.34	0.06
Book-to-market	-0.13	-0.16	-0.18	-0.38	1.00	0.06	-0.15	-0.11	0.10	-0.08
ROA	0.07	0.22	0.28	0.32	0.06	1.00	0.18	-0.59	-0.59	-0.29
Stock return	0.00	-0.00	-0.11	-0.02	-0.15	0.18	1.00	-0.05	-0.17	-0.09
Earnings volatility	-0.04	-0.13	-0.22	-0.23	-0.11	-0.59	-0.05	1.00	0.39	0.31
Loss	-0.07	-0.25	-0.24	-0.34	0.10	-0.59	-0.17	0.39	1.00	0.35
Class action litigation risk	-0.10	0.07	0.05	0.06	-0.08	-0.29	-0.09	0.31	0.35	1.00

This table shows the Pearson correlations for the sample. Correlations that are significant at the 0.05 level or better are highlighted in bold.

Table 3**The Impact of Global Research Analyst Settlement on Management Forecast Frequency**

	(1)	(2)
Treatment Effect	0.0882*** (7.37)	-0.0284*** (2.78)
Institutional ownership		0.8883*** (33.46)
Firm size		0.0903*** (22.31)
Book-to-market		0.0003 (0.04)
ROA		0.1298*** (6.63)
Stock return		0.0220*** (2.61)
Earnings volatility		0.0840*** (4.80)
Loss		-0.2161*** (16.57)
Class action litigation risk		0.2285*** (14.48)
N	21,237	21,237
R ²	0.0025	0.2893

Notes: t-statistics in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively.