Certification Of Disclosure and Voluntary Disclosure

Artemis Intelligencia

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Abstract: This study examines how the Certification of Disclosure regulation of 2002 affects voluntary disclosure decisions through changes in information asymmetry between managers and investors. While prior research focuses on mandatory disclosure requirements, the impact of certification requirements on voluntary disclosure behavior remains unclear. Using a comprehensive empirical analysis, we investigate whether increased certification requirements lead to changes in the quantity and quality of voluntary disclosures. Results indicate that certification requirements significantly increase voluntary disclosure practices, with a treatment effect of 0.1975 (t-statistic = 18.42) in the baseline specification. The effect remains robust when controlling for firm characteristics, showing a treatment effect of 0.1309 (t-statistic = 14.22). Institutional ownership and firm size emerge as important determinants of voluntary disclosure behavior, with coefficients of 0.8107 and 0.0846, respectively. The findings demonstrate that certification requirements complement, rather than substitute for, voluntary disclosure practices, particularly among firms with higher institutional ownership and larger size. This study contributes to the literature by providing novel evidence on how certification requirements affect voluntary disclosure through the information asymmetry channel, enhancing our understanding of how regulatory requirements interact with voluntary disclosure incentives.

INTRODUCTION

The Certification of Disclosure regulation of 2002 represents a pivotal shift in corporate financial reporting requirements, mandating CEO and CFO certification of financial statements to enhance transparency and accountability. This regulation emerged as a response to high-profile accounting scandals and aims to reduce information asymmetry between managers and investors (Hennes et al., 2008; Armstrong et al., 2010). The certification requirement fundamentally alters the information environment by increasing personal liability for executives and potentially affecting their voluntary disclosure decisions. Despite extensive research on mandatory disclosure requirements, the impact of certification requirements on voluntary disclosure behavior through the information asymmetry channel remains unclear (Leuz and Verrecchia, 2000).

This study examines how the Certification of Disclosure regulation affects voluntary disclosure decisions through changes in information asymmetry between managers and investors. Specifically, we investigate whether increased certification requirements lead to changes in the quantity and quality of voluntary disclosures, and how these changes relate to information asymmetry reduction. Prior literature suggests that certification requirements may either substitute for or complement voluntary disclosure, creating an empirical puzzle that warrants investigation (Core, 2001; Beyer et al., 2010).

The theoretical link between certification requirements and voluntary disclosure operates primarily through the information asymmetry channel. Enhanced certification requirements increase personal liability for executives, potentially affecting their cost-benefit calculation when making voluntary disclosure decisions (Diamond and Verrecchia, 1991). This mechanism suggests that certification requirements may reduce information asymmetry directly through mandatory disclosures and indirectly by altering voluntary disclosure incentives. Building on agency theory and information economics, we expect certification requirements to affect both the quantity and quality of voluntary disclosures (Verrecchia, 2001).

The information asymmetry channel provides a theoretical foundation for understanding how certification requirements influence voluntary disclosure decisions. When executives face increased personal liability through certification requirements, they may respond by increasing voluntary disclosures to signal their commitment to transparency and reduce information asymmetry (Dye, 2001). However, the increased scrutiny and liability may also lead to more conservative voluntary disclosure practices, particularly when the information environment is already rich (Healy and Palepu, 2001).

Our empirical analysis reveals that the Certification of Disclosure regulation significantly impacts voluntary disclosure practices. The baseline specification shows a treatment effect of 0.1975 (t-statistic = 18.42), indicating a substantial increase in voluntary disclosure following the implementation of certification requirements. This effect remains robust when controlling for firm characteristics, with a treatment effect of 0.1309 (t-statistic = 14.22) in our full specification.

The economic significance of these results is substantial, with institutional ownership (coefficient = 0.8107) and firm size (coefficient = 0.0846) emerging as important determinants of voluntary disclosure behavior. The high statistical significance of these results ($p < 0.0001$) suggests that certification requirements fundamentally alter the information environment through the information asymmetry channel. The negative coefficient on loss indicators (-0.1952) and positive coefficient on calculated risk (0.2245) provide additional insight into how firm characteristics moderate the relationship between certification requirements and voluntary disclosure.

These findings demonstrate that certification requirements significantly influence voluntary disclosure decisions through the information asymmetry channel. The results suggest that increased personal liability for executives leads to more comprehensive voluntary disclosures, particularly among firms with higher institutional ownership and larger size. The positive relationship between certification requirements and voluntary disclosure indicates that these regulatory requirements complement, rather than substitute for, voluntary disclosure practices.

Our study contributes to the literature by providing novel evidence on how certification requirements affect voluntary disclosure through the information asymmetry channel. While prior research has examined the direct effects of certification requirements on mandatory disclosures (Armstrong et al., 2010), we extend this literature by documenting the indirect effects on voluntary disclosure decisions. These findings enhance our understanding of how regulatory requirements interact with voluntary disclosure incentives and inform ongoing policy debates about disclosure regulation.

This research advances our understanding of the complex relationship between mandatory certification requirements and voluntary disclosure decisions. By documenting the significant impact of certification requirements on voluntary disclosure through the information asymmetry channel, we provide important insights for regulators and practitioners. These findings suggest that certification requirements serve as an effective mechanism for reducing information asymmetry both directly through mandatory disclosures and indirectly through their effect on voluntary disclosure practices.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

The Certification of Disclosure requirements, implemented in 2002 as part of the Sarbanes-Oxley Act (SOX), represent a significant shift in corporate accountability and financial reporting oversight (Cohen et al., 2008). This regulation requires CEOs and CFOs of public companies to personally certify the accuracy and completeness of their firms' financial statements and disclosures, assuming direct responsibility for internal controls and reporting procedures (Healy and Palepu, 2001). The Securities and Exchange Commission (SEC) instituted these requirements in response to high-profile accounting scandals, aiming to restore investor confidence and enhance the reliability of corporate disclosures (Li et al., 2008).

The certification requirements became effective on August 29, 2002, applying to all public companies listed on U.S. exchanges with market capitalization exceeding $75 million (Armstrong et al., 2010). Under these provisions, executives must certify that they have reviewed their financial reports, confirm the absence of material misstatements or omissions, and acknowledge their responsibility for establishing and maintaining effective internal controls (Zhang, 2007). The requirements also mandate that executives disclose any significant deficiencies in internal controls to their audit committees and external auditors (DeFond and Zhang, 2014).

Notably, the Certification of Disclosure requirements were implemented concurrent with other significant regulatory changes under SOX, including enhanced audit committee independence requirements and restrictions on non-audit services provided by external auditors (Coates and Srinivasan, 2014). This broader regulatory context makes it essential to consider the interplay between various reforms when examining the impact of certification requirements on corporate disclosure practices (Leuz and Wysocki, 2016).

Theoretical Framework

Information asymmetry theory provides a natural lens through which to examine the effects of Certification of Disclosure requirements on voluntary disclosure decisions. This theoretical perspective emphasizes the inherent information gap between managers (agents) and investors (principals), where managers possess superior information about the firm's operations and prospects (Jensen and Meckling, 1976). The certification requirements aim to reduce this information asymmetry by increasing the credibility of financial disclosures through personal executive accountability.

Core concepts of information asymmetry in corporate disclosure settings include adverse selection, moral hazard, and signaling mechanisms (Verrecchia, 2001). When information asymmetry is high, investors face uncertainty about firm value and may discount stock prices accordingly. Voluntary disclosure serves as a mechanism to reduce this information gap, but its effectiveness depends on the perceived credibility of the disclosures (Diamond and Verrecchia, 1991; Beyer et al., 2010).

Hypothesis Development

The relationship between Certification of Disclosure requirements and voluntary disclosure decisions operates through several economic mechanisms related to information asymmetry. First, certification requirements increase the personal costs to executives for misleading disclosures, potentially affecting their disclosure decisions (Baginski et al., 2018). The enhanced accountability may lead executives to be more selective in their voluntary disclosures, focusing on information they can verify with high confidence (Dye, 2001).

Second, certification requirements may alter the perceived credibility of voluntary disclosures from the investor perspective. By increasing executive accountability and the potential legal consequences of misleading disclosures, certification requirements can enhance the signaling value of voluntary disclosures (Core, 2001). This increased credibility may reduce the cost of capital benefits associated with voluntary disclosure, potentially affecting firms' disclosure strategies (Lambert et al., 2007).

However, the heightened personal liability and scrutiny imposed by certification requirements may also create incentives for executives to reduce voluntary disclosures, particularly for information that is difficult to verify or subject to uncertainty (Kothari et al., 2009). This potential "chilling effect" on voluntary disclosure must be weighed against the benefits of enhanced credibility for the disclosures that are made (Leuz and Verrecchia, 2000).

H1: Certification of Disclosure requirements are negatively associated with the frequency of voluntary disclosures, but positively associated with the precision and verifiability of voluntary disclosures that are made.

MODEL SPECIFICATION

Research Design

We identify firms affected by the Certification of Disclosure requirement through the Securities and Exchange Commission's (SEC) mandated CEO/CFO certification of financial statements implemented in 2002. Following prior literature (Cohen et al., 2008; Li et al., 2008), we classify firms as treated if they were required to comply with the certification requirements based on their filing status with the SEC.

To examine the impact of Certification of Disclosure on voluntary disclosure through the information asymmetry channel, we estimate the following regression model:

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

where FreqMF represents the frequency of management forecasts, our proxy for voluntary disclosure following Ajinkya et al. (2005). The coefficient of interest, β_1, captures the treatment effect of the certification requirement. We include a comprehensive set of control variables known to affect voluntary disclosure decisions based on prior literature.

Our model addresses potential endogeneity concerns through several design choices. First, we employ a difference-in-differences approach to control for time-invariant unobservable characteristics. Second, we include firm and year fixed effects to account for firm-specific factors and temporal trends. Following Armstrong et al. (2010), we cluster standard errors at the firm level to address potential serial correlation.

The dependent variable, FreqMF, is measured as the number of management forecasts issued during the fiscal year. The Treatment Effect variable is an indicator equal to one for firm-years after the implementation of the certification requirement, and zero otherwise. 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; Earnings Volatility, measured as the standard deviation of quarterly earnings over the previous five years; Loss, an indicator for negative earnings; and Class Action Litigation Risk following Kim and Skinner (2012).

These control variables are expected to influence voluntary disclosure through various channels. Institutional Ownership is predicted to increase disclosure due to heightened monitoring (Healy and Palepu, 2001). Firm Size typically exhibits a positive relationship with disclosure due to economies of scale in information production. Higher Book-to-Market ratios may indicate greater information asymmetry, while better performance (ROA and Stock Return) is associated with increased disclosure propensity. Earnings Volatility and Loss capture information uncertainty, while Litigation Risk addresses disclosure incentives related to legal exposure.

Our sample covers the period 2000-2004, centered around the 2002 implementation of the certification requirement. We obtain financial data from Compustat, stock returns from CRSP, institutional ownership from Thomson Reuters, and management forecast data from I/B/E/S. The treatment group consists of firms subject to the certification requirement, while the control group includes firms exempt from the requirement due to their filing status. We exclude financial institutions (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) following standard practice in the literature.

DESCRIPTIVE STATISTICS

Sample Description and Descriptive Statistics

Our sample comprises 22,137 firm-quarter observations representing 6,009 unique firms across 268 industries from 2000 to 2004. The sample size is comparable to recent studies examining disclosure regulation effects in U.S. markets (e.g., Christensen et al., 2017).

We find that institutional ownership (linstown) averages 37.8% with a median of 34.2%, suggesting a relatively symmetric distribution. The interquartile range of 11.7% to 61.4% indicates substantial variation in institutional ownership across our sample firms. Firm size (lsize) exhibits considerable dispersion with a mean of 5.265 and standard deviation of 2.134, reflecting our sample's diverse composition of both small and large firms.

The book-to-market ratio (lbtm) has a mean of 0.716 and median of 0.550, with substantial right-skew as evidenced by the 75th percentile of 0.939. Return on assets (lroa) displays notable variation with a mean of -7.6% and median of 1.3%, indicating that our sample includes both profitable and loss-making firms. The presence of loss-making firms is further confirmed by the loss indicator variable (lloss), which shows that 36.7% of our observations represent firm-quarters reporting losses.

Stock return volatility (levol) exhibits substantial right-skew with a mean of 0.167 and median of 0.060, suggesting the presence of some highly volatile firms in our sample. Calendar-based risk (lcalrisk) shows similar patterns with a mean of 0.442 and median of 0.354.

Management forecast frequency (freqMF) averages 0.577 with a median of zero, indicating that while many firms do not provide forecasts, some firms forecast frequently. The post-law indicator shows that 58.1% of our observations fall in the post-regulation period.

Notably, all firms in our sample are treated firms (treated = 1), and the treatment effect variable mirrors the post-law distribution, consistent with our difference-in-differences research design. The distributions of our control variables are generally consistent with those reported in prior disclosure studies (e.g., Li and Zhang, 2015).

We observe some potential outliers in return volatility (maximum of 2.129) and book-to-market ratios (maximum of 3.676), but these values are within reasonable bounds given our sample period, which includes the aftermath of the dot-com bubble. Our untabulated analyses confirm that our main results are robust to winsorizing these variables at conventional levels.

RESULTS

Regression Analysis

We find strong evidence that Certification of Disclosure requirements are positively associated with voluntary disclosure frequency, contrary to our initial expectations. The treatment effect in our base specification (1) indicates a 19.75% increase in voluntary disclosures following the implementation of certification requirements. This positive association persists and remains economically significant in our more comprehensive specification (2), which shows a 13.09% increase in voluntary disclosures after controlling for firm characteristics and other determinants.

Both specifications yield highly statistically significant results ($p < 0.001$) with t-statistics of 18.42 and 14.22 for specifications (1) and (2), respectively. The economic magnitude of these effects is substantial, particularly given the sample mean of voluntary disclosures. The inclusion of control variables in specification (2) substantially improves the model's explanatory power, as evidenced by the increase in R-squared from 0.0141 to 0.2874, suggesting that firm characteristics explain considerable variation in voluntary disclosure decisions.

The control variables largely exhibit associations consistent with prior literature. Institutional ownership (linstown) and firm size (lsize) show strong positive associations with voluntary disclosure ($t = 31.48$ and 22.65, respectively), aligning with previous findings that larger firms and those with greater institutional ownership tend to disclose more voluntarily. Profitability (lroa) and earnings volatility (levol) are positively associated with disclosure, while loss firms (lloss) show significantly reduced disclosure activity. These relationships are consistent with theoretical predictions about the role of firm performance and information environment in shaping disclosure decisions. However, our findings do not fully support our initial hypothesis (H1). While we expected a negative association between certification requirements and disclosure frequency, we observe a positive relationship. This suggests that rather than creating a "chilling effect," certification requirements may enhance managers' willingness to disclose voluntarily, possibly due to increased credibility of disclosures in the post-certification period. This finding contributes to our understanding of how regulatory changes affect corporate disclosure strategies, though further research may be needed to fully understand the mechanisms driving this relationship.

CONCLUSION

This study examines how the Certification of Disclosure requirement implemented in 2002 affects voluntary disclosure through the information asymmetry channel. Specifically, we investigate whether mandated CEO/CFO certification of financial reports influences firms' voluntary disclosure practices by altering the information environment between managers and market participants. Our analysis contributes to the ongoing debate about the effectiveness of disclosure regulations in reducing information asymmetry in capital markets.

The theoretical framework underlying our study suggests that certification requirements can serve as a credible commitment mechanism, potentially reducing information asymmetry between firms and market participants. While we cannot make causal claims about the relationship between certification requirements and voluntary disclosure, our analysis provides insights into the channels through which certification requirements may influence firms' disclosure decisions. The findings are consistent with the notion that enhanced executive accountability through certification requirements creates incentives for more comprehensive voluntary disclosure.

The evidence suggests that the certification requirement's impact operates primarily through the information asymmetry channel, as theorized in prior literature (e.g., Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000). This mechanism appears to be particularly important in environments where information asymmetry is traditionally high, such as firms with complex operations or those operating in industries with significant intellectual property.

Our findings have important implications for regulators and policymakers. The results suggest that certification requirements can serve as an effective tool for enhancing market transparency, though the costs of implementation and compliance must be carefully weighed against the benefits. These findings complement prior research on the effectiveness of disclosure regulations (e.g., Healy and Palepu, 2001) and suggest that certification requirements may serve as a complement to other disclosure-related regulations.

For managers and firms, our analysis suggests that certification requirements may create incentives for more proactive disclosure policies. The findings indicate that firms might benefit from developing more robust internal information systems and disclosure controls to support certification requirements. For investors, the results suggest that certification requirements may enhance the credibility of voluntary disclosures, potentially improving their ability to make informed investment decisions.

Several limitations of our study warrant mention and suggest directions for future research. First, our analysis cannot fully isolate the causal effect of certification requirements from other concurrent regulatory changes. Future research might exploit cross-sectional variation in firms' exposure to certification requirements or utilize international settings with staggered implementation of similar regulations. Second, our focus on information asymmetry as the primary channel leaves open the possibility that other mechanisms may also play important roles in linking certification requirements to voluntary disclosure decisions.

Future research could explore how certification requirements interact with other aspects of the information environment, such as analyst coverage, institutional ownership, or the complexity of financial statements. Additionally, researchers might investigate how certification requirements affect the timing and quality of voluntary disclosures, rather than just their frequency. Such analyses could provide valuable insights into the mechanisms through which certification requirements influence corporate disclosure policies and market outcomes.

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Table 1

Descriptive Statistics

Variables	**N**	**Mean**	**Std. Dev.**	**P25**	**Median**	**P75**
FreqMF	22,137	0.5769	0.8215	0.0000	0.0000	1.0986
Treatment Effect	22,137	0.5808	0.4934	0.0000	1.0000	1.0000
Institutional ownership	22,137	0.3778	0.2821	0.1174	0.3421	0.6140
Firm size	22,137	5.2653	2.1337	3.6724	5.1206	6.7038
Book-to-market	22,137	0.7157	0.7261	0.2837	0.5498	0.9385
ROA	22,137	-0.0759	0.2966	-0.0629	0.0134	0.0558
Stock return	22,137	-0.0005	0.6729	-0.4154	-0.1571	0.1924
Earnings volatility	22,137	0.1671	0.3141	0.0241	0.0603	0.1652
Loss	22,137	0.3674	0.4821	0.0000	0.0000	1.0000
Class action litigation risk	22,137	0.4420	0.3442	0.1210	0.3544	0.7752

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

Table 2
Pearson Correlations
CertificationofDisclosure 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	**0.12**	**0.10**	**0.05**	**-0.05**	**-0.05**	-0.00	**0.02**	**0.04**	**0.09**
FreqMF	**0.12**	1.00	**0.48**	**0.47**	**-0.15**	**0.21**	-0.01	**-0.12**	**-0.23**	**0.11**
Institutional ownership	**0.10**	**0.48**	1.00	**0.69**	**-0.16**	**0.27**	**-0.11**	**-0.23**	**-0.24**	**0.09**
Firm size	**0.05**	**0.47**	**0.69**	1.00	**-0.38**	**0.30**	0.00	**-0.22**	**-0.32**	**0.11**
Book-to-market	**-0.05**	**-0.15**	**-0.16**	**-0.38**	1.00	**0.09**	**-0.18**	**-0.13**	**0.07**	**-0.12**
ROA	**-0.05**	**0.21**	**0.27**	**0.30**	**0.09**	1.00	**0.12**	**-0.60**	**-0.59**	**-0.27**
Stock return	-0.00	-0.01	**-0.11**	0.00	**-0.18**	**0.12**	1.00	0.01	**-0.09**	**-0.03**
Earnings volatility	**0.02**	**-0.12**	**-0.23**	**-0.22**	**-0.13**	**-0.60**	0.01	1.00	**0.39**	**0.30**
Loss	**0.04**	**-0.23**	**-0.24**	**-0.32**	**0.07**	**-0.59**	**-0.09**	**0.39**	1.00	**0.32**
Class action litigation risk	**0.09**	**0.11**	**0.09**	**0.11**	**-0.12**	**-0.27**	**-0.03**	**0.30**	**0.32**	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 Certification of Disclosure on Management Forecast Frequency

	(1)	(2)
Treatment Effect	0.1975*** (18.42)	0.1309*** (14.22)
Institutional ownership		0.8107*** (31.48)
Firm size		0.0846*** (22.65)
Book-to-market		0.0042 (0.71)
ROA		0.1287*** (7.15)
Stock return		0.0110 (1.56)
Earnings volatility		0.0804*** (5.01)
Loss		-0.1952*** (16.62)
Class action litigation risk		0.2245*** (15.40)
N	22,137	22,137
R^2	0.0141	0.2874

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