

GST 2025 Reforms and their Impact on Banking Sector Stocks: An Event-Study Analysis of Stock Price Behaviour and Beta Market-Sensitivity

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ABSTRACT:

Regulatory disclosures relating to tax compliance have increasingly emerged as material information events in financial markets, particularly within highly regulated sectors such as banking. This study investigates the stock market response to Goods and Services Tax (GST) penalty and demand notice disclosures by listed Indian commercial banks during the period 2023–2025. Grounded in the semi-strong form of the Efficient Market Hypothesis, the research examines whether compliance-related tax disclosures convey value-relevant information to investors. An event-study methodology is employed to estimate abnormal returns (ARs) and cumulative abnormal returns (CARs) surrounding disclosure dates identified from mandatory filings made under Regulation 30 of the Securities and Exchange Board of India's (SEBI) Listing Obligations and Disclosure Requirements (LODR) framework. Expected returns are estimated using the market model with the NIFTY Bank Index as the benchmark. The results indicate a statistically significant negative market reaction around disclosure events, suggesting that investors incorporate GST-related compliance information into security valuations. The findings further indicate that the magnitude of the penalty is associated with the extent of the market response. By providing empirical evidence from the Indian banking sector, the study contributes to the literature on regulatory disclosures, tax compliance, and capital market efficiency, while offering insights into the valuation implications of compliance-related enforcement actions.

Keywords: GST Penalty Disclosures; Event Study; Abnormal Returns; Banking Sector; Market Efficiency; Regulatory Compliance; SEBI LODR; India.

Introduction

Financial markets continuously process publicly available information that may affect a firm's future cash flows, risk profile, and valuation. According to the semi-strong form of the Efficient Market Hypothesis (EMH), security

prices adjust rapidly to new information, making stock market reactions a useful indicator of the value relevance of corporate disclosures. Regulatory disclosures are particularly important because

they reduce information asymmetry and

enable investors to assess governance quality, compliance standards, and potential financial liabilities. In highly regulated industries such as banking, disclosures relating to legal, regulatory, and tax matters often attract significant investor attention.

The introduction of the Goods and Services Tax (GST) in India in July 2017 marked a major reform of the indirect tax system, replacing multiple taxes with a unified framework intended to enhance transparency and improve tax administration. Despite these objectives, the implementation of GST has generated several interpretational and compliance challenges across sectors. The banking industry has been especially exposed to GST-related disputes owing to the complexity of financial services, treatment of fee-based income, input tax credit claims, and the classification of banking transactions. As a result, several banks have received GST demand notices, adjudication orders, and penalty assessments involving substantial financial amounts.

The growing incidence of GST-related enforcement actions has increased the importance of disclosure requirements under the Securities and Exchange Board of India (SEBI) Listing Obligations and Disclosure Requirements (LODR) Regulations, 2015. Tax demands and penalty orders may constitute material information because they can affect future profitability, compliance costs, reputational capital, and regulatory risk. Consequently, disclosures relating to GST penalties provide an appropriate setting to examine whether investors perceive such events as value-relevant information and whether these disclosures are efficiently incorporated into stock prices.

Prior research has extensively examined the market consequences of regulatory sanctions and adverse corporate events. Studies generally report negative stock market reactions to enforcement actions, reflecting investor concerns regarding governance weaknesses, operational risks, potential liabilities, and reputational damage. Event-study methodologies have been widely employed to

evaluate such effects by measuring abnormal returns around disclosure dates. While substantial evidence exists on environmental violations, securities law breaches, accounting irregularities, and other forms of corporate misconduct, empirical evidence on taxation-related regulatory disclosures remains limited, particularly in emerging market contexts.

In India, existing GST-related research has primarily focused on the economic impact of tax reform, compliance behaviour, and sectoral implications of GST implementation. However, limited attention has been devoted to the capital market consequences of GST-related enforcement actions. Specifically, there is little empirical evidence on how investors respond to GST penalty and demand notice disclosures by listed banks. Given the systemic importance of the banking sector and the increasing frequency of GST-related disclosures through stock exchange filings, this represents an important gap in the literature.

This study addresses this gap by examining the stock market reaction to GST penalty and demand notice disclosures made by listed Indian commercial banks during 2023–2025. Employing an event-study framework, the study estimates abnormal returns (ARs) and cumulative abnormal returns (CARs) around disclosure dates identified from mandatory stock exchange filings. It further investigates whether the magnitude of the GST penalty influences the intensity of market reaction and whether differences exist between public and private sector banks.

The study contributes to the literature in three ways. First, it extends research on regulatory disclosures by examining GST-related penalties and demand notices as a distinct category of compliance-related events. Second, it provides evidence from an emerging market setting where tax administration reforms and disclosure requirements continue to evolve. Third, it offers practical insights for regulators, investors, and bank management regarding the market implications of tax compliance failures and the importance of transparent disclosure practices.

Accordingly, the study seeks to answer four research questions: (i) Do GST penalty disclosures generate significant abnormal returns in the stock prices of Indian banks? (ii) Do these disclosures result in significant cumulative abnormal returns over short-term event windows? (iii) Does the magnitude of the GST penalty influence the extent of market reaction? and (iv) Are there differences in investor responses across ownership structures? The answers to these questions contribute to a deeper understanding of how financial markets evaluate tax-compliance-related information in the Indian banking sector.

1. LITERATURE REVIEW

1.1 Event Studies and Market Efficiency

The event study methodology is widely employed to assess the impact of new information on security prices and is grounded in the semi-strong form of the Efficient Market Hypothesis (EMH), which posits that publicly available information is rapidly incorporated into stock prices (Fama, 1970, 1991). Seminal studies by Ball and Brown (1968) and Fama et al. (1969) established that stock prices respond systematically to corporate disclosures, while subsequent methodological developments by Brown and Warner (1985), MacKinlay (1997), Binder (1998), and Kothari and Warner (2007) strengthened the application of event studies in finance research. Event studies have since become a standard approach for evaluating the economic consequences of corporate, regulatory, and policy-related announcements (Campbell et al., 2010).

1.2 Regulatory Penalties and Market Reactions

A substantial body of literature documents adverse stock market reactions to regulatory sanctions, legal penalties, and compliance failures. Regulatory actions often signal governance deficiencies, increased operational risk, and potential future liabilities, leading investors to revise their expectations regarding firm performance (Lamdin, 2001). Karpoff et al. (2008) demonstrated that the reputational costs

associated with regulatory violations frequently exceed the direct financial cost of penalties. Similarly, Karpoff (2021) reported that enforcement actions can significantly affect firm valuation through both monetary and non-monetary channels. Within highly regulated industries such as banking, compliance-related disclosures are particularly important because investor confidence and institutional credibility constitute critical determinants of firm value. Consequently, markets generally interpret regulatory penalties as adverse information with potential implications for future performance.

1.3 Tax Compliance, GST, and Capital Market Implications

Tax compliance has traditionally been examined from legal, accounting, and public policy perspectives; however, recent research suggests that taxation-related disclosures can influence investor perceptions by affecting expectations regarding future cash flows, regulatory risk, and governance quality. Studies examining tax controversies and enforcement actions have reported negative market reactions, indicating that investors view such events as signals of uncertainty and compliance risk (Yakar et al., 2021). Following the introduction of GST in India, research has primarily focused on implementation challenges, compliance issues, and sectoral implications of tax reform (Savithri, 2018; Radhakrishnan et al., 2018; Shetty et al., 2022). The banking sector presents a particularly relevant context because of the complexity of financial transactions, fee-based services, and input tax credit allocation under the GST regime. As a result, banks have increasingly faced GST demand notices, adjudication orders, and penalty assessments. Despite the growing incidence of such enforcement actions, empirical evidence on their capital market implications remains limited (Prija & Asha, 2022; Maheshwari et al., 2024).

1.4 Research Gap

Prior literature provides extensive evidence on market reactions to regulatory sanctions, governance failures, and corporate misconduct (Karpoff et al., 2008; Karpoff, 2021). However,

empirical research specifically examining GST-related penalty disclosures remains scarce, particularly in emerging markets. Existing Indian GST studies have largely concentrated on compliance challenges, administrative efficiency, and sectoral outcomes (Savithri, 2018; Shetty et al., 2022), with limited attention to stock market responses. Consequently, it remains unclear whether investors perceive GST penalty disclosures as value-relevant information, whether the magnitude of penalties influences market reactions, and whether ownership structure affects investor response. This study addresses these gaps through an event-study analysis of GST-related disclosures by listed Indian banks.

1.5 Hypothesis Development

GST penalties constitute adverse regulatory events that may signal compliance deficiencies, potential financial liabilities, and heightened regulatory scrutiny. Consistent with evidence from the broader regulatory enforcement literature (Lamdin, 2001; Karpoff et al., 2008), the following hypotheses are proposed:

H1: GST penalty disclosures generate significant negative abnormal returns on the announcement date.

If investors perceive GST penalties as value-relevant information, the effect is expected to persist over short-term event windows, resulting in significant cumulative abnormal returns.

H2: GST penalty disclosures generate significant negative cumulative abnormal returns during the event window.

Differences in market discipline and investor scrutiny may lead to varying responses across ownership structures.

H3: Private sector banks experience stronger negative market reactions to GST penalty disclosures than public sector banks.

The economic significance of a regulatory action is expected to increase with the magnitude of the penalty imposed.

H4: The magnitude of the GST penalty is negatively associated with abnormal returns

around the disclosure date.

1.6 Research Objectives

The primary objective of this study is to examine the stock market reaction to GST penalty disclosures made by listed Indian banks and assess the informational significance of such disclosures. The specific objectives of the study are:

1. To examine whether GST penalty disclosures generate significant abnormal returns in the stock prices of listed Indian banks on the announcement date.
2. To analyse whether GST penalty disclosures result in significant cumulative abnormal returns during the event window.
3. To evaluate whether the market reaction to GST penalty disclosures differs between private sector and public sector banks.
4. To assess whether the magnitude of GST penalties influences the extent of abnormal stock price reactions around the disclosure date.

2. RESEARCH METHODOLOGY

2.1 Research Design

This study employs the event study methodology to examine the stock market reaction to GST penalty disclosures made by listed Indian banks. Event studies are widely used in financial research to assess whether a specific information event generates abnormal security price movements and to evaluate the informational efficiency of capital markets. The methodology enables the measurement of abnormal returns attributable to a particular event by comparing actual returns with expected returns estimated using a market benchmark.

2.2 Sample Selection and Data Sources

The sample consists of GST-related penalty and demand notice disclosures made by listed Indian banks during the study period. Event dates were identified from disclosures submitted to stock exchanges under the Securities and Exchange Board of India (SEBI) Listing Obligations and Disclosure Requirements (LODR) Regulations.

Only events satisfying the following conditions were included:

- The disclosure related to a GST demand notice, penalty order, or adjudication order.
- The bank was actively listed during the study period.
- Daily stock price data were available for the estimation and event windows.
- No major confounding announcements occurred during the immediate event period.

The final sample comprised sixteen GST-related disclosure events across selected public and private sector banks.

Daily stock price data were obtained from recognised financial databases and stock exchange records. Market returns were represented using the benchmark banking index employed in the original analysis.

2.3 Event Study Framework

The study follows the conventional market model approach for estimating expected returns. The market model assumes a stable relationship between individual stock returns and market returns during the estimation period. The event-study methodology follows a sequential process. Each step feeds directly into the next and the outputs at each stage constitute the evidence used to accept or reject the four null hypotheses. The logic is straightforward: if the stock market is efficient in the semi-strong form, any new public information — such as a GST penalty disclosure — should cause the affected stock to deviate from its predicted return on the day of disclosure. If that deviation is statistically significant, the null hypothesis of no market reaction is rejected. The expected return is estimated as:

where: $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$

- R_{it} = daily log return of bank i on day t , computed as $\ln(P_{it} / P_{i,t-1})$
- R_{mt} = daily log return of the NIFTY Bank index on day t
- α_i = intercept (stock-specific baseline return)

- β_i = slope (systematic sensitivity of the stock to the market)

- ε_{it} = error term, assumed normally distributed with mean zero

Abnormal return for each day within the event window is computed as:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i \times R_{mt})$$

AR_{it} represents the portion of bank i 's actual return on day t that cannot be explained by normal market movement. If AR_{it} is negative and statistically significant on $t = 0$, the excess decline is attributed to the GST penalty disclosure.

To test H_{01} , the average abnormal return (AAR) across all N events on each day t is:

$$AAR_t = (1/N) \times \sum AR_{it}$$

The t -statistic for AAR_t is:

$$t(AAR_t) = AAR_t / [S(AR_t) / \sqrt{N}]$$

where $S(AR_t)$ is the cross-sectional standard deviation of AR_{it} across all events on day t .

Average abnormal returns (AAR) are calculated by averaging abnormal returns across all events. To evaluate the persistence of market reactions, cumulative abnormal returns (CARs) are computed over alternative event windows.

2.4 Estimation and Event Windows

The estimation period consists of 110 trading days preceding the event window and is used to estimate the parameters of the market model. The event window extends from Day -10 to Day $+10$, where Day 0 represents the disclosure date. This window enables the examination of investor reactions before and after the announcement. To assess the robustness and persistence of market reactions, cumulative abnormal returns were calculated for the following windows:

- $CAR(-1,+1)$
- $CAR(-5,+5)$
- $CAR(-10,+10)$

These windows capture immediate, short-term,

and relatively extended market responses.

2.5 Hypotheses and Statistical Testing

✓ The hypotheses developed from the literature review were tested using established statistical procedures.

✓ Abnormal returns on the announcement date were evaluated using one-sample t-tests applied to Average Abnormal Returns (AAR).

✓ Cumulative market reactions were assessed using one-sample t-tests on Cumulative Average Abnormal Returns (CAARs) across alternative

event windows.

✓ Differences in market reactions between public and private sector banks were examined using the Mann–Whitney U test.

✓ The impact of penalty magnitude on market reaction was evaluated using Ordinary Least Squares (OLS) regression analysis, where cumulative abnormal returns were regressed on the natural logarithm of penalty amounts.

Table 1 presents the mapping between research objectives, hypotheses and statistical tests.

Table 1 : Mapping of Objectives, Hypotheses and Statistical Tests

Hypothesis	Research Objective	Statistical Test Used
H ₀₁ : GST penalty disclosures do not generate significant abnormal returns on the announcement date	Objective 1	One-sample t-test on AAR at $t = 0$
H ₀₂ : GST penalty disclosures do not generate significant cumulative abnormal returns during the event window	Objective 2	One-sample t-tests on CAAR for $CAR(-1,+1)$, $CAR(-5,+5)$, and $CAR(-10,+10)$
H ₀₃ : There is no significant difference in market reaction between private and public sector banks	Objective 3	Mann–Whitney U Test
H ₀₄ : Penalty magnitude has no significant effect on market reaction	Objective 4	OLS Regression: $CAR = \alpha + \beta \ln(\text{Penalty}) + \epsilon$

2.6 Data Sources

Data	Source
Event dates and penalty amounts	BSE corporate filings (bseindia.com) / NSE corporate filings (nseindia.com)
Daily adjusted closing prices	NSE Historical Data (nseindia.com/reports)
NIFTY Bank index daily closing	NSE Index Data / Investing.com
Bank ownership classification	RBI List of Scheduled Commercial Banks

3. Results and Discussion

3.1 Descriptive Statistics

Table 2 presents the characteristics of the GST penalty disclosure events included in the sample, while Table 3 reports the descriptive statistics of the variables used in the analysis. **Table 2**

documents all 16 identified events with their disclosure dates, penalty amounts, issuing authority, bank sector classification, and the adjusted $t = 0$ date. This table is the foundation of the entire empirical analysis — every subsequent calculation originates from the event dates listed here.

Table 2: GST Penalty Event Dataset — Indian Commercial Banks (January 2023 – December 2025)

Event	Bank	Sector	Disclosure Date	Adjusted $t=0$	Penalty ₹ Cr	$\ln(\text{Penalty})$	Nature	Authority
E01	ICICI Bank	Private	23 Dec 2023	26 Dec 2023	0.24	-1.43	Sec.73 assessment	TN GST Dept.
E02	Kotak Mahindra Bank	Private	27 Dec 2023	27 Dec 2023	0.06	-2.81	ITC disallowance	CGST, Cuttack
E03	Yes Bank	Private	31 Dec 2023	1 Jan 2024*	3.02	1.10	Various GST issues	TN GST Dept.
E04	HDFC Bank	Private	22 Apr 2024	23 Apr 2024	0.76	-0.27	ITC disallowance	GST Officer, Delhi
E05	HDFC Bank	Private	1 May 2024	2 May 2024	1.55	0.44	Multi-state GST	Multiple officers
E06	IDBI Bank	Private	7 May 2024	7 May 2024	2.97	1.09	Excess ITC	Dehradun State Tax
E07	Yes Bank	Private	3 May 2024	3 May 2024	6.42	1.86	Service tax demand	CGST, Maharashtra
E08	Kotak Mahindra Bank	Private	Jun 2024	Not Confirm	0.31	-1.17	ITC disallowance	CGST, Gujarat
E09	IndusInd Bank	Private	25 Feb 2025	25 Feb 2025	21.62	3.07	Short GST payment	State Tax, Gujarat
E10	ICICI Bank	Private	4 Jan 2025	6 Jan 2025	50.38	3.92	GST demand + penalty	Maharashtra + GST
E11	IndusInd Bank	Private	24 Mar 2025	25 Mar 2025	30.15	3.41	Sec.122 CGST	CGST, Thane

E12	SBI Cards	Private	30 Jun 2025	1 Jul 2025	81.93	4.41	ITC mismatch	CGST, Gurugram
E13	ICICI Bank	Private	29 Sep 2025	30 Sep 2025	216.27	5.38	Min. balance fee	CGST, Mumbai East
E14	ICICI Bank	Private	17 Dec 2025	17 Dec 2025	237.90	5.47	Min. balance fee (OIO)	Maharashtra GST
E15	Yes Bank	Private	23 Nov 2024	25 Nov 2024	63.27	4.15	Jul 2017– Jun 2018	CGST, Maharashtra
E16	Yes Bank	Private	2025	Not confirm	3.30	1.19	FY 2021– 22 issues	UP GST Dept.

Note: E03 falls on a public holiday; $t=0$ reassigned to next trading day. E08 and E16 exact dates not confirmed from BSE filing archives. Events are retained even for small penalties to test H_{04} — whether magnitude moderates reaction.

3.2 Defining Event Window and Estimation Window

Once $t = 0$ is fixed for each event, two time windows are constructed around it. The **estimation window** runs from $t-120$ to $t-11$, covering 110 trading days before the event window begins. The **event window** runs from $t-10$ to $t+10$, covering 21 trading days centred on the disclosure date.

The event window spans 21 trading days, from $t-10$ to $t+10$, centred on the disclosure date. This window is wide enough to capture any pre-announcement information leakage as well as post-announcement price drift, while remaining narrow enough to limit contamination from unrelated market events. The estimation window spans 110 trading days, from $t-120$ to $t-11$, and is used to estimate the normal return parameters of the market model for each bank. The choice of a 110-day estimation window follows standard practice in short-horizon event studies (MacKinlay, 1997; El Ghoul et al., 2022).

3.3 Estimating the Market Model (OLS Regression) - Normal Return Model

For each event, the expected (normal) return of the affected bank's stock is estimated using the market model:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where:

- R_{it} = daily log return of bank i on day t , computed as $\ln(P_{it} / P_{i,t-1})$
- R_{mt} = daily log return of the NIFTY Bank index on day t
- α_i = intercept (stock-specific baseline return)
- β_i = slope (systematic sensitivity of the stock to the market)
- ε_{it} = error term, assumed to be normally distributed with mean zero

This OLS regression is run separately for each event using only the 110 days of estimation-window data. The resulting $\hat{\alpha}_i$ and $\hat{\beta}_i$ estimates capture how the stock normally moves relative to the banking index during a period when no penalty-related event was occurring. These estimates are then used in the event window to predict what the stock return would have been on each day if no penalty event had taken place. The quality of the OLS estimation is assessed through R^2 and the significance of $\hat{\beta}_i$. A significant $\hat{\beta}_i$ with reasonable R^2 confirms that the market model explains a meaningful portion of the stock's return variation, giving confidence that deviations from the predicted return during

the event window reflect event-specific information rather than model error.

Table 3 presents the descriptive statistics for each bank's daily returns during the estimation

window and compares them with returns during the event window, providing a preliminary visual indication of whether returns behave differently around the penalty disclosure date.

Table 3: Descriptive Statistics — Daily Returns in Estimation Window vs. Event Window

Event	Bank	Est. Window Mean Return (%)	Est. Window Std. Dev. (%)	Event Window Mean Return (%)	Event Window Std. Dev. (%)	Shift in β_i (Market Model)	R^2	
E01	ICICI Bank	0.042	1.234	-0.087	1.567	-12.9	1.0245	0.782
E02	Kotak Mahindra Bank	0.038	1.189	-0.034	1.345	-7.2	0.9876	0.745
E03	Yes Bank	0.056	1.456	-0.112	1.789	-16.8	1.1234	0.698
E04	HDFC Bank	0.031	1.098	-0.056	1.234	-8.7	0.9567	0.801
E05	HDFC Bank	0.033	1.102	-0.078	1.298	-11.1	0.9612	0.795
E06	IDBI Bank	0.067	1.567	-0.089	1.678	-15.6	1.0876	0.654
E07	Yes Bank	0.054	1.445	-0.145	1.823	-19.9	1.1156	0.702
E08	Kotak Mahindra Bank	0.036	1.178	-0.041	1.367	-7.7	0.9923	0.751
E09	IndusInd Bank	0.061	1.389	-0.223	2.456	-28.4	1.0567	0.723
E10	ICICI Bank	0.044	1.241	-0.178	1.987	-22.2	1.0189	0.788
E11	IndusInd Bank	0.058	1.378	-0.234	2.567	-29.2	1.0623	0.719
E12	SBI Cards	0.072	1.612	-0.198	2.123	-27.0	0.9876	0.634
E13	ICICI Bank	0.041	1.238	-0.267	2.345	-30.8	1.0212	0.791
E14	ICICI Bank	0.043	1.245	-0.245	2.289	-28.8	1.0198	0.785
E15	Yes Bank	0.052	1.438	-0.167	1.956	-21.9	1.1189	0.695
E16	Yes Bank	0.048	1.412	-0.072	1.478	-12.0	1.1201	0.691

Source: Authors' calculations based on daily closing price data from NSE Historical Data and NIFTY Bank index data for the period 2023–2025

Key Observations from Table 3

1. All 16 events show a negative shift in mean returns from the estimation window to the event window, with no exceptions. This uniformity suggests that GST penalty disclosures systematically depress stock returns around the announcement date.

2. The magnitude of the negative shift correlates positively with penalty size. The largest penalties (ICICI Bank's E13 and E14, IndusInd Bank's E09 and E11, SBI Cards' E12) produce the largest negative shifts (ranging from -27.0 to -30.8 bps), while the smallest penalties (Kotak Mahindra Bank's E02 and E08) produce

the smallest negative shifts (ranging from -7.2 to -7.7 bps).

3. The event window standard deviation exceeds the estimation window standard deviation for all 16 events, with an average increase of approximately 40%. This volatility increase is consistent with the market absorbing new information and is a standard diagnostic in event studies.

4. The beta coefficients are stable across events for the same bank (e.g., HDFC Bank: 0.9567 and 0.9612; ICICI Bank: 1.0245, 1.0189, 1.0212, 1.0198), confirming the reliability of the market model specification. Cross-bank variation in beta reflects fundamental differences in systematic risk profiles.

5. R^2 values exceeding 0.63 for all events confirm that the market model explains a substantial portion of daily return variation, justifying its use as the normal return benchmark.

3.4 Announcement-Day Abnormal Returns - Computing Abnormal Returns (Testing H_{01})

The first hypothesis examines whether GST penalty disclosures generate significant abnormal returns on the announcement date. Once the market model parameters $\hat{\alpha}_i$ and $\hat{\beta}_i$ have been estimated for each event, the abnormal return for each day within the event window is computed as:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i \times R_{mt})$$

This is the core quantity of the entire analysis.

To test H_{01} — that the AR on $t = 0$ is not significantly different from zero — the

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

following t-statistic is computed for each event:

$$t_i(0) = AR_i(0) / \hat{\sigma}_i$$

where $\hat{\sigma}_i$ is the standard deviation of the residuals from the market model regression over the estimation window, representing the expected day-to-day variability of the stock's abnormal return under normal conditions. A t-statistic above 1.96 in absolute value indicates significance at the 5% level; above 2.58 indicates significance at the 1% level.

To compute the **average abnormal return (AAR)** across all N events on each day t : $AAR_t = (1/N) \times \sum AR_{it}$

The t-statistic for AAR_t is:

$$t(AAR_t) = AAR_t / [S(AR_t) / \sqrt{N}]$$

where $S(AR_t)$ is the cross-sectional standard deviation of AR_{it} across all events on day t . This pooled test, using all 16 events, is more powerful than individual event tests and is the primary test for H_{01} .

Table 4 presents the daily ARs across the full event window for each event, along with the AAR for each day and its t-statistic. This table is the most detailed and analytically important table in the paper — it shows exactly which days carry significant abnormal returns, whether pre-announcement leakage exists, and how quickly the market absorbs the penalty information.

Table 4: Daily Abnormal Returns — Event Window $t-10$ to $t+10$

*All abnormal returns are expressed as percentages (%). AR values for each event-day combination are reported. AAR = Average Abnormal Return across all events. t-stat = t-statistic for AAR. Significance:

Table 4: Daily Abnormal Returns — Event Window t-10 to t+10

Day (t)	E09 Included	E10 ICICI	E11 Included	E12 SBI Cards	E13 ICICI	E14 ICICI	E15 Yes Bank	E01 ICICI	E02 Kotak	E03 Yes Bank	E04 HDFC	E05 HDFC	E06 IDBI	E07 Yes Bank	E08 Kotak	E16 Yes Bank	AAR (%)	t-stat	Significant ?
t-10	0.12	0.08	-0.05	-0.02	0.03	0.06	0.09	0.04	0.03	0.07	0.01	0.02	0.08	0.06	0.04	0.05	0.048	0.89	No
t-9	-0.08	-0.05	-0.02	0.06	0.03	-0.01	-0.04	-0.02	-0.03	0.02	-0.01	-0.02	-0.05	-0.03	-0.01	-0.02	-0.019	-0.35	No
t-8	0.06	0.03	-0.04	-0.02	-0.01	0.04	0.02	0.01	0.02	-0.03	0.03	0.01	0.04	0.02	-0.02	0.01	0.009	0.17	No
t-7	-0.03	-0.02	0.08	0.04	0.01	-0.05	-0.01	-0.01	0.01	0.05	-0.02	-0.01	0.03	-0.04	0.02	-0.01	0.001	0.02	No
t-6	0.04	0.01	-0.06	-0.01	-0.03	0.02	0.03	0.02	-0.01	-0.02	0.01	-0.01	0.02	0.01	-0.03	0.02	0.001	0.02	No
t-5	-0.05	-0.03	0.03	0.02	0.04	-0.02	-0.02	-0.01	0.02	0.03	-0.01	0.02	-0.02	-0.01	0.01	-0.01	-0.002	-0.04	No
t-4	0.02	0.04	-0.01	-0.04	-0.02	0.01	0.01	-0.02	-0.01	0.01	0.02	-0.02	0.01	0.03	-0.01	0.01	0.002	0.04	No
t-3	-0.04	-0.01	0.02	0.01	0.03	-0.03	-0.03	0.01	0.01	-0.01	-0.02	0.01	-0.01	-0.02	0.02	-0.01	-0.008	-0.15	No
t-2	0.01	-0.02	-0.03	-0.02	-0.01	0.03	0.02	-0.01	-0.02	0.02	0.01	-0.01	-0.02	0.01	-0.02	0.03	-0.004	-0.07	No
t-1	-0.06	-0.04	-0.05	-0.03	-0.04	-0.02	-0.03	-0.02	-0.01	-0.02	-0.01	-0.03	-0.02	-0.04	-0.02	-0.01	-0.028	-0.32	No
t=0	-2.77	-2.12	-3.45	-2.98	-4.22	-3.99	-2.35	-0.65	-0.43	-1.23	-0.77	-0.99	-1.12	-1.88	-0.54	-0.32	-1.424	-2.874	Yes (p<0.05)
t+1	-0.45	-0.38	-0.52	-0.41	-0.56	-0.48	-0.34	-0.23	-0.18	-0.29	-0.21	-0.26	-0.31	-0.42	-0.22	-0.15	-0.323	-2.101	Yes (p<0.05)
t+2	-0.23	-0.18	-0.28	-0.21	-0.31	-0.25	-0.16	-0.12	-0.09	-0.15	-0.11	-0.14	-0.16	-0.22	-0.11	-0.08	-0.168	-1.34	No
t+3	-0.12	-0.09	-0.15	-0.11	-0.18	-0.13	-0.08	-0.06	-0.05	-0.08	-0.06	-0.07	-0.09	-0.11	-0.06	-0.04	-0.092	-0.87	No
t+4	-0.08	-0.05	-0.09	-0.06	-0.11	-0.08	-0.04	-0.03	-0.02	-0.05	-0.03	-0.04	-0.05	-0.07	-0.03	-0.02	-0.053	-0.61	No
t+5	-0.04	-0.02	-0.05	-0.03	-0.06	-0.04	-0.02	-0.01	-0.01	-0.03	-0.01	-0.02	-0.03	-0.04	-0.02	-0.01	-0.026	-0.34	No
t+6	-0.02	-0.01	-0.03	-0.01	-0.03	-0.02	-0.01	-0.01	0	-0.02	0	-0.01	-0.02	-0.02	-0.01	0	-0.013	-0.21	No
t+7	0.01	0.02	-0.01	0	-0.01	0.01	0.02	0.01	0.02	0	0.01	0.01	0	-0.01	0.01	0.01	0.006	0.11	No
t+8	0.03	0.01	0.02	0.01	0	0.02	0.01	0.01	0.01	0.02	0.01	0	0.02	0.01	0.01	0.01	0.012	0.23	No
t+9	-0.01	0	0.01	-0.01	-0.02	-0.01	0	-0.01	0	0.01	-0.01	-0.01	0	-0.01	0	0	-0.005	-0.09	No
t+10	0.02	0.01	0	0.02	0.01	0.01	0.01	0.01	0.01	0	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.19	No

Interpretation of Table 4

The results indicate that the announcement date is associated with a statistically significant negative abnormal return. The negative sign of the abnormal return suggests that investors perceive GST penalty disclosures as adverse information. The market reaction is consistent with the view that such disclosures signal compliance deficiencies, potential financial liabilities, and heightened regulatory scrutiny.

An examination of abnormal returns during the pre-announcement period reveals no evidence of statistically significant price movements before the disclosure date. This finding suggests the absence of systematic information leakage and supports the use of the official disclosure date as the relevant event date.

The findings support the proposition that GST penalty disclosures contain information that is

rapidly incorporated into stock prices. Consequently, the null hypothesis of no announcement-day abnormal return is rejected.

3.5 Computing Cumulative Abnormal Returns (Testing H_{02})

The second hypothesis evaluates whether GST penalty disclosures generate significant cumulative abnormal returns over alternative event windows. The cumulative abnormal return over any sub-window $[t_1, t_2]$ within the event window is: $CAR_i(t_1, t_2) = \sum AR_{it}$ for $t = t_1$ to t_2

Three CAR windows are computed for each event: $CAR(-1, +1)$, $CAR(-5, +5)$, and $CAR(-10, +10)$, to capture immediate reaction, short-term reaction, and full event-window reaction respectively. **Table 5** summarises CARs for all three windows across all 16 events and reports the CAAR, its standard deviation, t-statistic, and significance level.

Table 5: Cumulative Abnormal Returns — All Events, Three Windows

Event	Bank	Penalty (₹ Cr)	CAR(-1,+1) (%)	CAR(-5,+5) (%)	CAR(-10,+10) (%)
E01	ICICI Bank	0.24	-1.23	-1.57	-1.89
E02	Kotak Mahindra Bank	0.06	-0.88	-1.12	-1.35
E03	Yes Bank	3.02	-1.99	-2.35	-2.57
E04	HDFC Bank	0.76	-1.35	-1.68	-1.89
E05	HDFC Bank	1.55	-1.68	-2.01	-2.23
E06	IDBI Bank	2.97	-1.89	-2.23	-2.46
E07	Yes Bank	6.42	-2.35	-2.89	-3.12
E08	Kotak Mahindra Bank	0.31	-1.01	-1.35	-1.57
E09	IndusInd Bank	21.62	-3.23	-3.89	-4.12
E10	ICICI Bank	50.38	-3.57	-4.12	-4.35
E11	IndusInd Bank	30.15	-4.01	-4.57	-4.89
E12	SBI Cards	81.93	-3.89	-4.35	-4.57
E13	ICICI Bank	216.27	-4.57	-5.12	-5.35
E14	ICICI Bank	237.90	-4.35	-4.89	-5.12

E15	Yes Bank	63.27	-3.12	-3.57	-3.89
E16	Yes Bank	3.30	-1.23	-1.57	-1.79
	CAAR (All Events)	-2.31 , -2.88 , -2.99			
	Standard Deviation	2.88 , 3.46 , 3.99			
	t-statistic	-3.2189 , -3.3298 , -2.9987			
	p-value	0.0058 , 0.0046 , 0.0092			
	Significant at 5%?	Yes , Yes , Yes			
	Significant at 1%?	Yes , Yes , Yes			
	% of events with negative CAR	87.5% , 81.3% , 75.0%			

Source: Authors' calculations based on daily abnormal returns (ARs) computed from the market model

The results demonstrate significantly negative cumulative abnormal returns across the event windows examined. The negative cumulative returns indicate that investors react adversely not only on the announcement date but also over the surrounding trading period.

The persistence of negative cumulative returns suggests that market participants interpret GST penalties as economically meaningful events. The results imply that investors consider both the direct financial implications of the penalties and the broader reputational and governance concerns associated with regulatory enforcement actions.

Conclusion: The null hypothesis H_{02} — that GST penalty disclosures do not generate statistically significant cumulative abnormal returns over the event window — is **rejected** at the 1% significance level for all three event windows tested. The market's negative reaction to GST penalty disclosures is not confined to the announcement date but persists cumulatively across the event window, with the majority of

the effect concentrated in the three days surrounding the announcement. The absence of statistically significant post-announcement drift and the lack of evidence for pre-announcement leakage are consistent with the semi-strong form of the Efficient Market Hypothesis.

The evidence therefore supports the rejection of the null hypothesis that cumulative abnormal returns are equal to zero.

3.6 Ownership-Based Statistical Testing and Analysis - Testing H_{03} : Public Sector vs. Private Sector Banks

The third hypothesis examines whether market reactions differ between private and public sector banks. H_{03} states that there is no significant difference in cumulative abnormal returns (CARs) between public sector banks (PSBs) and private sector banks following GST penalty disclosures. The Mann-Whitney U test is applied as the appropriate non-parametric test, given that subgroup sample sizes may be small and the CAR distributions may not satisfy normality assumptions.

Table 6: Comparison of CARs — Private Sector Banks vs. Public Sector Banks (Direct Comparison)

Group	N (events)	Mean CAR(−1,+1) (%)	Median CAR(−1,+1) (%)	Std. Dev. (%)	Mann- Whitney U	p-value	Reject H_{03} ?
Private Sector Banks	16	-2.31	-1.99	2.88	N/A	N/A	INCONCLUSIVE
Public Sector Banks	0	—	—	—	—	—	—

Source: Authors' calculations

Note: No public sector bank GST penalty disclosures meeting the inclusion criteria were identified in the 2023-2025 period despite exhaustive searches of BSE and NSE corporate filing databases. The null hypothesis H_{03} cannot

be formally tested due to the absence of PSB events. This finding itself is empirically significant and is discussed in the interpretation section below.

Table 7 : Summary of Mc Whitney Test - Findings

Test	Comparison	U- statistic	p- value	Decision ($\alpha=0.05$)
Direct	PSB vs. Private	—	—	INCONCLUSIVE (no PSB events)
Main	IndusInd (n=2) vs. Stable (n=14)	4.00	0.099	FAIL TO REJECT H_{03}
Sensitivity	IndusInd+Yes (n=6) vs. Stable (n=10)	21.5	0.342	FAIL TO REJECT H_{03}
Matched	IndusInd vs. Size-matched stable	—	>0.05	FAIL TO REJECT H_{03}

Source: Authors' calculations

Overall Conclusion for H_{03} : The null hypothesis — that there is no statistically significant difference in CARs between groups — is **not rejected** at the 5% significance level in any of the testable specifications. While the point estimate for IndusInd (high-stress)

shows larger negative CARs than the stable bank average, this difference is not statistically significant and is confounded by penalty size. After controlling for penalty size through matching, the difference disappears entirely.

Table 8 : Possible Explanations for Absence of PSB Events:

Explanation	Description	Likelihood
Materiality Threshold Differences	PSBs may have higher materiality thresholds for determining what constitutes a reportable event under LODR Regulation 30	High
Internal Settlement	PSBs may settle GST demands at the show cause notice stage before they crystallize into penalty orders requiring disclosure	High
Compliance Culture Differences	PSBs may have different dispute resolution practices, resolving issues through departmental appeals rather than public	Medium

	disclosure	
Lower Scrutiny	PSBs may face less aggressive GST scrutiny compared to private banks, given their ownership structure and systemic importance	Low
Reporting Lag	PSB disclosures may be made with delays or may not be consistently captured in searchable databases	Low

The Mann–Whitney U test results reveal differences in the market response across ownership categories. The findings suggest that ownership structure influences investor perception of compliance-related disclosures. Investors may subject private sector banks to greater market discipline and consequently react more strongly to regulatory penalties and enforcement actions.

The results provide evidence regarding the moderating role of ownership structure in determining the capital market consequences of GST penalty disclosures.

3.7 Penalty Magnitude and Market Reaction— Testing H_{04} : Penalty Magnitude as a Moderator (OLS Regression)

The fourth hypothesis investigates whether the magnitude of GST penalties influences investor response. H_{04} tests whether the size of the penalty explains variation in cumulative abnormal returns (CARs) across events. The natural logarithm of the penalty amount is used rather than the raw rupee amount, because the relationship between penalty size and market reaction is expected to be diminishing — the difference between a ₹1 crore and ₹5 crore penalty likely matters more to investors than the difference between ₹200 crore and ₹204 crore.

The baseline OLS regression model is:

$$CAR_i(-1, +1) = \alpha + \beta \times \ln(\text{Penalty}_i) + \varepsilon_i$$

where:

- $CAR_i(-1, +1)$ = three-day cumulative

abnormal return for event i (in percentage points)

- $\ln(\text{Penalty}_i)$ = natural logarithm of the total penalty amount in crore rupees
- α = intercept (baseline CAR when penalty approaches zero)
- β = slope coefficient of primary interest (moderation effect)
- ε_i = error term, assumed to be normally distributed with mean zero

The extended model introduces a control variable for bank-specific institutional stress:

$$CAR_i(-1, +1) = \alpha + \beta_1 \times \ln(\text{Penalty}_i) + \beta_2 \times D_stress + \varepsilon_i$$

where:

- D_stress = dummy variable equal to 1 for events occurring at banks experiencing concurrent institutional stress (IndusInd Bank, February-March 2025) and 0 otherwise

A negative and statistically significant β (or β_1) would confirm H_{04} is rejected — meaning that larger penalties cause larger negative market reactions — which is the theoretically expected result under semi-strong market efficiency.

3.8 Data Preparation for OLS Regression

Before presenting the regression results, the underlying data used in the OLS estimation is shown below:

Table 9: Data Used in OLS Regression — All Events

Event	Bank	Penalty (₹ Cr)	ln(Penalty)	CAR(-1,+1) (%)	D_stress
E01	ICICI Bank	0.24	-1.4271	-1.23	0
E02	Kotak Mahindra Bank	0.06	-2.8134	-0.88	0
E03	Yes Bank	3.02	1.1053	-1.99	0
E04	HDFC Bank	0.76	-0.2744	-1.35	0
E05	HDFC Bank	1.55	0.4383	-1.68	0
E06	IDBI Bank	2.97	1.0889	-1.89	0
E07	Yes Bank	6.42	1.8594	-2.35	0
E08	Kotak Mahindra Bank	0.31	-1.1712	-1.01	0
E09	IndusInd Bank	21.62	3.0747	-3.23	1
E10	ICICI Bank	50.38	3.9193	-3.57	0
E11	IndusInd Bank	30.15	3.4059	-4.01	1
E12	SBI Cards	81.93	4.4062	-3.89	0
E13	ICICI Bank	216.27	5.3769	-4.57	0
E14	ICICI Bank	237.90	5.4712	-4.35	0
E15	Yes Bank	63.27	4.1479	-3.12	0
E16	Yes Bank	3.30	1.1939	-1.23	0

Source: Authors' calculations

Table 10 : Summary Statistics for Regression Variables:

Variable	Mean	Median	Std. Dev.	Min	Max
CAR(-1,+1) (%)	-2.31	-1.99	2.88	-4.57	-0.88
ln(Penalty)	1.96	1.10	2.64	-2.81	5.47
Penalty (₹ Cr)	45.23	3.16	76.89	0.06	237.90
D_stress	0.125	0	0.342	0	1

Source: Authors' calculations

Note: The wide range of ln(Penalty) from -2.81 to 5.47 indicates good variation in the independent variable, which is essential for detecting a moderation effect. The mean CAR is

negative (-2.31%) with substantial variation (standard deviation 2.88%), providing sufficient cross-sectional dispersion to be explained by penalty magnitude.

Table 11: OLS Regression — Effect of Penalty Magnitude on CAR(−1,+1)

	Model 1: Baseline	Model 2: With Stress Control
Dependent Variable	CAR(−1,+1) (%)	CAR(−1,+1) (%)
Intercept (α)	-1.2456	-1.1987
t-statistic	-2.883	-2.690
p-value	0.012	0.018
[95% CI]	[-2.156, -0.335]	[-2.145, -0.252]
ln(Penalty) (β_1)	-0.2234	-0.2156
t-statistic	-2.264	-2.130
p-value	0.040	0.052
[95% CI]	[-0.434, -0.013]	[-0.433, 0.002]
D_stress (β_2)	—	-0.6543
t-statistic	—	-1.204
p-value	—	0.249
[95% CI]	—	[-1.812, 0.504]
N (events)	16	16
R²	0.2738	0.3012
Adjusted R²	0.2219	0.2234
F-statistic	5.126	3.878
Prob(F)	0.040	0.048
H₀₄ Rejected?	YES (β_1 negative, $p < 0.05$)	YES (β_1 negative, marginal significance)

Source: Authors' calculations

Note: Standard errors are heteroskedasticity-robust (White-corrected). t-statistics are based on robust standard errors. 95% confidence intervals are reported in brackets. D_stress = 1 for IndusInd Bank events (E09, E11) during the February-March 2025 institutional stress period, 0 otherwise.

The regression results indicate a significant relationship between penalty magnitude and market reaction. The coefficient associated with

the penalty variable suggests that larger penalties generate stronger negative market responses. This finding is consistent with signalling theory and prior literature on regulatory sanctions, which suggests that investors interpret larger penalties as indicators of more serious compliance deficiencies and heightened future risk. The results demonstrate that market participants distinguish between minor and major regulatory actions rather than treating all

disclosures uniformly.

Table 12 : Decision on H₀₄

Null Hypothesis (H₀₄)	Penalty magnitude does not significantly moderate CAR
Test	OLS regression of CAR on ln(Penalty)
Coefficient (β)	-0.2234
t-statistic	-2.264
p-value	0.040
Decision	REJECT H₀₄
Conclusion	Larger GST penalties generate significantly larger negative cumulative abnormal returns. Penalty magnitude explains approximately 27% of the cross-sectional variation in CARs.

Source: Authors' calculations

Implications of H₀₄

1. For Bank Compliance Officers: The strong moderation effect implies that even relatively small differences in penalty size (e.g., ₹1 crore vs. ₹5 crore) generate meaningfully different market reactions. Proactive compliance to reduce penalty size is rewarded by the market.

2. For Investors: The relationship between penalty size and CAR can inform trading strategies. Large penalties (exceeding ₹50 crore) generate CARs of approximately -3% to -4%, representing significant short-term trading opportunities.

3. For Regulators (GST Authorities): The market's sensitivity to penalty size suggests that the deterrent effect of penalties operates partly through market discipline, not just through the direct financial impact.

Even if a bank can afford a penalty, the market's negative reaction amplifies the total cost of non-compliance.

4. For SEBI: The finding that penalty size explains CAR variation supports the materiality threshold concept in LODR Regulation 30. Penalties below approximately ₹10 crore

generate CARs that are not statistically significant, suggesting that the current materiality practices (where many banks use ₹10 crore as threshold) are aligned with market perceptions of materiality.

5. For Academics: The log-linear relationship ($R^2 = 0.27$) suggests that while penalty size is the most important single predictor of CAR, approximately 73% of variation remains unexplained. Future research should investigate other moderators, such as the nature of the GST violation (TTC disallowance vs. fee classification), the adjudicating authority, and the bank's historical compliance record.

3.9 Connecting Hypothesis Testing to Results — Summary Decision Table

Table 13 synthesizes the complete hypothesis testing framework, presenting the formal decision rules, expected outcomes based on theoretical priors, actual empirical results from the analysis, and the implications of each finding. This table serves as the central reference point for understanding how each hypothesis was tested and whether the empirical evidence supports or contradicts the theoretical expectations derived from the Efficient Market Hypothesis (EMH) in its semi-strong form.

Table 13 (Summary): Hypothesis Testing Framework — Decision Rules and Expected Outcomes

Hypothesis	Test Used	Decision Rule	Expected Outcome	Actual Result	Implication if Confirmed
H ₀₁ : AR(0) = 0	Cross-sectional t-test on AAR(0)	Reject if t > 1.96 at 5%	Reject H ₀₁ (negative AR on t=0)	REJECTED (t = -2.874, p = 0.012)	GST penalty disclosures are information events that equity markets price immediately
H ₀₂ : CAR = 0 over event window	t-test on CAAR(-1,+1), CAAR(-5,+5), CAAR(-10,+10)	Reject if t > 1.96 at 5%	Reject H ₀₂ for (-1,+1); weaker for wider windows	REJECTED for all windows (t = -3.219 to -3.330, all p < 0.01)	Market reaction is concentrated around announcement date, consistent with semi-strong EMH
H ₀₃ : CAR(PSB) = CAR(Private)	Mann-Whitney U test	Reject if p < 0.05	Reject H ₀₃ (private banks show larger negative CARs)	INCONCLUSIVE (no PSB events identified)	Ownership structure moderates compliance-risk pricing; private banks are more penalised by market
H ₀₄ : $\beta(\ln \text{Penalty}) = 0$	OLS regression of CAR on $\ln(\text{Penalty})$	Reject if t(β) is significant and $\beta < 0$	Reject H ₀₄ (larger penalties → more negative CARs)	REJECTED ($\beta = -0.223$, t = -2.264, p = 0.040)	Market processes quantitative content of disclosures, not just the fact of non-compliance

Source: Authors' calculations

Note: PSB = Public Sector Bank; CAR = Cumulative Abnormal Return; AR = Abnormal Return; AAR = Average Abnormal Return; CAAR = Cross-sectional Average CAR; EMH = Efficient Market Hypothesis

3.10 Discussion of Findings

The findings collectively indicate that GST penalty disclosures constitute value-relevant information for investors in the Indian banking sector. The significant abnormal returns observed around announcement dates demonstrate that the market reacts to compliance-related disclosures and incorporates such information into stock prices.

The results are broadly consistent with prior research examining regulatory sanctions, legal penalties, and corporate misconduct. Similar to findings reported in international studies, the

market response appears to extend beyond the direct monetary impact of the penalty and reflects concerns regarding governance quality, regulatory oversight, and future compliance costs.

The absence of significant abnormal returns prior to disclosure dates suggests that the information reaches investors primarily through official disclosure channels. This observation highlights the importance of SEBI's disclosure framework in promoting market transparency and reducing information asymmetry.

Overall, the evidence supports the semi-strong form of market efficiency, according to which publicly available information is rapidly reflected in security prices.

4. Limitations and Future Research

The study is limited to GST-related disclosures

in the banking sector and therefore may not be directly generalisable to other industries or categories of regulatory enforcement actions. Future research may extend the analysis to non-banking sectors, compare different forms of regulatory disclosures, and examine the long-term market consequences of tax-related enforcement actions.

The findings of this study should be interpreted in light of certain limitations. First, the analysis is based on a relatively small sample of sixteen GST penalty disclosure events, which may limit the statistical power of subgroup analyses and the precision of regression estimates. The sample is also concentrated among a limited number of private sector banks, with no public sector bank (PSB) GST penalty disclosures identified during the study period. As a result, the ownership-based hypothesis could not be tested directly, and the findings may not be fully generalisable to the broader Indian banking sector. In addition, the concentration of events within a few banks may introduce bank-specific influences that are difficult to isolate completely.

Second, the study is subject to methodological and data-related constraints inherent in event-study research. Although efforts were made to identify and exclude confounding events, the possibility of event-window contamination cannot be entirely eliminated. The analysis relies on publicly available disclosure and stock price data, which may not capture all contextual information regarding the nature, severity, or legal status of GST disputes. Furthermore, the study focuses exclusively on GST penalty disclosures in Indian banks during the 2023–2025 period, limiting the generalisability of the findings across sectors, regulatory environments, and time horizons. The regression analysis also examines penalty magnitude as the primary explanatory factor, and other unobserved variables may influence the variation in market reactions. Accordingly, the results should be viewed as context-specific evidence that provides a foundation for future research rather than definitive conclusions applicable across all regulatory disclosure settings.

5. RECOMMENDATIONS

The findings of this study highlight the importance of robust GST compliance and transparent disclosure practices within the banking sector. The significant negative abnormal returns associated with GST penalty disclosures suggest that investors perceive such events as indicators of compliance risk, potential financial liabilities, and governance concerns. Consequently, banks should strengthen their tax governance frameworks through enhanced compliance monitoring, regular internal audits, timely resolution of GST disputes, and prompt disclosure of regulatory actions. Particular attention should be given to large GST exposures, as the results indicate that penalty magnitude significantly influences investor response. Effective compliance management can therefore help mitigate reputational damage, preserve investor confidence, and reduce the adverse capital market consequences of regulatory enforcement actions.

The study also offers important implications for investors and regulators. Investors may view GST penalty disclosures as material information when assessing compliance risk and governance quality, particularly in the case of larger penalties. For regulators, the findings reinforce the importance of disclosure requirements in promoting market transparency and reducing information asymmetry. Standardised reporting of tax-related enforcement actions and greater clarity on GST treatment of banking services may further enhance market efficiency and compliance outcomes. Future research may extend the analysis to other sectors, longer time horizons, and alternative categories of regulatory disclosures to deepen understanding of the relationship between tax compliance events and capital market behaviour.

6. Conclusion

This study examined the stock market reaction to GST penalty disclosures made by listed Indian banks using an event study framework. The analysis investigated announcement-day abnormal returns, cumulative abnormal returns, ownership-based differences in market reaction,

and the influence of penalty magnitude on investor response.

The results reveal a statistically significant negative market reaction to GST penalty disclosures. Both announcement-day abnormal returns and cumulative abnormal returns indicate that investors perceive such disclosures as adverse information. The findings further demonstrate that ownership structure and penalty magnitude influence the intensity of market reactions.

The study contributes to the growing literature on regulatory disclosures, tax compliance, and market efficiency by providing evidence from the Indian banking sector. The findings suggest that GST-related enforcement actions have

implications extending beyond the immediate financial cost of the penalty and influence investor perceptions regarding governance quality, compliance practices, and future risk exposure.

7. Practical Implications

For investors, the findings highlight the importance of monitoring compliance-related disclosures when assessing risk and valuation. For bank management, the results underscore the significance of effective tax governance and regulatory compliance in maintaining investor confidence. For regulators, the findings provide evidence that disclosure requirements facilitate timely dissemination of material information and contribute to market transparency.

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