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Policy Reforms and Structural Breaks in India's Corporate Bond Market: Evidence from Chow Testing and ARIMA Forecasting

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Abstract

India's corporate bond market has grown steadily over the past decade, yet it remains shallow compared to the size of the economy and to other Asian markets. As of March 2024, outstanding corporate bonds totalled about ₹47 trillion, or 17 percent of GDP, with issuance and trading still concentrated in private placements and highly rated instruments. Earlier studies have documented reforms, market structure, and liquidity constraints, but few have provided econometric evidence on whether major policy interventions produced measurable shifts in the market's trajectory. This study fills that gap by analysing quarterly data from 2010 to 2024 and testing whether reform episodes coincide with statistically significant structural breaks. Using Chow breakpoint tests alongside ARIMA modelling, the analysis compares the actual evolution of the market with the trajectory implied by historical dynamics. Results reveal three significant breaks 2013-Q2, 2015-Q1, and 2021-Q1 with Chow F-statistics of 44.91, 58.09, and 32.64 respectively, all significant at the 1 percent level. These breaks correspond to reforms that simplified issuance, enhanced transparency in primary-market processes, and introduced post-pandemic liquidity support. By linking India's regulatory history to formal structural-break evidence, the study shows that bond-market deepening depends not only on policy activism but also on the credibility, design, and sequencing of reforms.

***Keywords*:** Corporate Bonds, Chow Test, Structural Breaks, ARIMA, Policy Reforms

JEL Classification: C22, E44, G10, G15, O16

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1. Introduction

Corporate bond markets are vital for financial development because they provide firms with long-term capital, reduce dependence on bank credit, and strengthen systemic resilience by diversifying funding sources and enabling efficient risk pricing. Beck and Levine (2020) and Levine (2020) argue that economies with deeper bond markets allocate capital more effectively and withstand banking shocks better than those reliant primarily on banks. For emerging economies, this role is especially important: bond markets channel savings into infrastructure, industry, and corporate expansion while improving market-based risk pricing (Claessens & Schmukler, 2007; Mizen & Tsoukas, 2021).

India offers a telling case. Despite substantial investment needs, its corporate bond market has historically remained narrow, issuer-concentrated, and less liquid than its macroeconomic profile would suggest. Globally, outstanding corporate bonds exceeded US$41 trillion in 2024, with emerging economies accounting for nearly one-quarter (Bank for International Settlements, 2024). In East and Southeast Asia, corporate bond markets represent 40–60 percent of GDP (Asian Development Bank, 2024; IMF, 2023). India lags behind: outstanding corporate bonds stood at about ₹47 trillion in March 2024, or 17 percent of GDP (Reserve Bank of India, 2024). Over 95 percent of issuances remain private placements, secondary-market liquidity is thin, and trading is concentrated in AAA-rated instruments held largely by institutional investors such as banks, mutual funds, and insurance companies (SEBI, 2024; NSE, 2023). Over the past two decades, policymakers have introduced reforms to deepen the market. The R.H. Patil Committee (2005), the Sahoo Committee (2013), and joint RBI-SEBI working groups recommended harmonizing regulations, improving disclosure, reducing issuance costs, and enhancing transparency. Key interventions include the Electronic Book Platform (2016), tri-party repo in corporate bonds (2018), the Large Corporate Borrowing Framework (2019), and the Corporate Bond Market Development Fund (2023). More recently, the inclusion of Indian bonds in the J.P. Morgan Emerging Market Bond Index (2024) signals growing global integration. Yet the market has not achieved the depth or liquidity its economic size would warrant. Thin secondary trading, low retail participation, and concentration among highly rated issuers persist. More importantly, existing research has largely described reforms narratively, with limited econometric testing of structural impacts. Bose and Coondoo (2020) examined yield determinants without testing for policy-induced breaks; Sengupta and Anand (2018) offered descriptive accounts; Sharma (2022) and Ghosh & Bhatnagar (2023) focused on interest rate effects but not regulatory timing. The central empirical question remains: have specific reforms triggered statistically significant structural breaks in India's corporate bond market? This study addresses that gap by applying Chow breakpoint testing to quarterly data from Q3 2010 to Q4 2024, complemented by ARIMA modelling. The analysis identifies whether major regulatory episodes correspond to structural discontinuities in market growth and assesses the stability of market evolution. It makes four contributions: first, it provides direct econometric evidence of policy-linked structural changes;

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second, it links breakpoints in 2013, 2015, and 2021 to reforms such as the Sahoo Committee, the Electronic Book Platform, and post-pandemic liquidity measures; third, it distinguishes policy-driven shifts from trend-based expansion using ARIMA forecasts; and fourth, it integrates India's long policy history with empirical validation, moving beyond descriptive narratives.

2. Literature Review

Policy reforms can generate structural breaks in corporate bond markets through three interrelated perspectives: financial development theory, market microstructure, and regulatory effectiveness. Financial development theory suggests that institutional changes such as regulatory harmonization, transparency mandates, and investor protection rules reduce information asymmetries and transaction costs, thereby altering participation and growth trajectories (Levine, 2020; Beck & Levine, 2020). When reforms are substantial, they shift the underlying data-generating process, producing discontinuities rather than gradual adjustments. In bond markets, reforms affecting issuance procedures, disclosure requirements, or investor eligibility should leave measurable traces in aggregate indicators. Market microstructure theory emphasizes inefficiencies in over-the-counter bond markets, where opaque bilateral negotiations and fragmented platforms raise search costs (Sengupta & Anand, 2018). Reforms that introduce transparent, auction-based systems improve price discovery and reduce issuance spreads, potentially creating structural breaks. India's Electronic Book Platform (EBP), introduced in 2016, exemplifies this by replacing relationship-driven placements with electronic book building, thereby altering issuance costs and transparency.

Regulatory effectiveness literature further suggests that interventions often produce non-linear effects. Choudhury and Goyal (2022) note that markets may initially experience volatility after regulatory shocks before stabilizing. Banerjee, Rao, and Tiwari (2023) show that institutional changes deepen bond markets only when reforms address coordination failures among regulators. In India's fragmented regulatory landscape where the RBI oversees government securities and SEBI regulates corporate bonds harmonization efforts such as the Sahoo Committee's recommendations can resolve these failures and trigger structural shifts. Thus, reforms that reduce issuance costs, enhance transparency, broaden investor participation, or strengthen liquidity mechanisms are expected to produce statistically detectable breaks aligned with their implementation. Globally, corporate bond markets contribute to financial deepening and resilience. Mizen and Tsoukas (2021) demonstrate that countries with stronger bond markets suffered smaller output declines during the 2008 crisis, while Claessens and Schmukler (2007) show that bond markets reduce systemic risk by diversifying funding sources. The Bank for International Settlements (2024) reports that emerging economies now account for nearly 25 percent of global corporate bonds outstanding, compared to less than 10 percent two decades ago. Yet growth remains uneven: East Asian markets such as Korea, Malaysia, and Thailand exhibit higher turnover ratios than South Asia (ADB, 2024).

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Structural break analysis is widely used to detect regime changes in financial series. Chow (1960) introduced the foundational F-test, while Bai and Perron (1998) extended it to multiple unknown breaks. Zivot and Andrews (1992) allowed endogenous break estimation. Applications in bond markets include Apergis and Payne (2010), who identified yield shifts after monetary policy changes. In India, Bose and Sengupta (2023) applied break tests to liquidity, and Choudhury and Goyal (2022) found regulatory shocks initially increase volatility before stabilization. Yet these studies have not systematically linked break dates to specific corporate bond reforms. Empirical work on India's bond market has expanded. Raghavan (2017) and Mukherjee (2019) provide institutional histories; Patnaik, Sharma, and Bose (2021) show that EBP improved price discovery; Kaur and Singh (2021) highlight persistent liquidity challenges; and Goyal and Tripathi (2022) attribute inefficiencies to fragmented platforms and lack of market makers. Bose and Coondoo (2020) examined yield determinants without testing for breaks, while Banerjee, Tiwari, and Rao (2023) used dynamic factor modelling to link institutional changes with market deepening. However, no study has applied Chow breakpoint testing to quarterly corporate bonds outstanding from 2010–2024 to empirically validate whether reforms in 2013, 2015, and 2021 correspond to significant structural shifts.

This study fills that gap by combining break tests with ARIMA forecasting, offering a more rigorous evaluation of policy effectiveness than prior descriptive approaches. Table 1 provides a chronological overview of major committee recommendations and their reported impact on India's corporate bond market between 2001 and 2025, serving as the policy foundation for the empirical analysis.

Table 1. Recommendations of Various Committees on Corporate Bonds and their impact on India's Corporate Bond Market (2001–2025)

2001	RBI Advisory Committee on Money, Forex, and G-Sec Markets (R.H. Patil) *Recommendations:* Introduced the idea of repo in corporate bonds; emphasized improving trading and settlement systems. *Impact:* Marked the first formal recognition of corporate bond market development, laying the foundation for subsequent reforms.
2005	High-Level Expert Committee on Corporate Bonds and Securitization (R.H. Patil) *Recommendations:* Called for trade reporting, repo eligibility, a securitization framework, and expansion of the investor base. *Impact:* Led to the creation of the FIMMDA reporting platform and bond reporting mechanisms at NSE and BSE.
2007	Percy Committee *Recommendations:* Advocated deepening the corporate bond market to position Mumbai as a global financial hub.

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	Impact: Provided an internationalization roadmap, though implementation remained limited.
2008	Committee on Financial Sector Reforms (Raghuram Rajan) *Recommendations:* Promoted infrastructure financing through corporate bonds and reduced dependence on banks. *Impact:* Triggered credit enhancement mechanisms and initial credit guarantee schemes.
2011	RBI Working Group on Corporate Bond Market Development (R. Gandhi) *Recommendations:* Focused on liquidity, repo in corporate bonds, credit default swaps (CDS), and investor diversification. *Impact:* Introduced CDS (with limited use), partial credit enhancement measures, and infrastructure bond guidelines.
2013	Sahoo Committee on Corporate Bond Market Reforms *Recommendations:* Simplified issuance, improved disclosure, and eased listing and trading restrictions. *Impact:* Achieved regulatory harmonization and eased issuance norms; coincided with the 2013 structural break.
2015	RBI–SEBI Joint Committee on Corporate Bond Market & Securitization *Recommendations:* Standardized issuance processes and introduced electronic book building. *Impact:* Launched the Electronic Book Platform (EBP), mandatory for private placements; coincided with the 2015 structural break.
2016	High-Level Task Force on Corporate Bond Market Development (RBI & SEBI) *Recommendations:* Proposed a centralized trading platform, credit enhancement, stronger rating systems, and improved transparency. *Impact:* Boosted credit-enhanced bonds and strengthened the secondary market framework.
2017	Working Group on Corporate Bond Market for Infrastructure *Recommendations:* Promoted infrastructure bonds, InvITs/REITs, and municipal bonds. *Impact:* Strengthened infrastructure financing through bonds; InvITs and REITs gained traction.
2019	SEBI Expert Committee on Corporate Bond & Securitization Market *Recommendations:* Consolidated platforms, improved disclosure, and enhanced liquidity. *Impact:* Increased transparency and rationalized securitization norms.
2020	RBI Internal Working Group on Bond Market (Padmanabhan)

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	Recommendations: Proposed a unified regulatory framework, greater insurance/pension fund participation, and relaxed issuance norms during COVID-19. *Impact:* Broadened the institutional investor base.
2021	SEBI Working Group on Bond Market Development *Recommendations:* Strengthened market-making and transparency. *Impact:* Introduced a pilot market-making framework.
2022	GIFT IFSC Task Force on Bond Market *Recommendations:* Positioned GIFT City as a global bond hub, encouraged offshore listings, and promoted green bonds. *Impact:* Boosted offshore issuance and foreign participation.
2023	Working Group on Municipal Bonds *Recommendations:* Expanded municipal bond markets for urban infrastructure. *Impact:* Integrated municipal financing into the corporate bond ecosystem.
2024	SEBI Committee on ESG and Green Bonds *Recommendations:* Developed ESG taxonomy, disclosure standards, and external assurance mechanisms. *Impact:* Accelerated the growth of green, social, and sustainable bonds.
2025	High-Level Committee on Corporate Bond Market Integration with Global Indices (MOF, RBI, SEBI – Ongoing) *Contribution:* Designed a comprehensive development plan for inclusion in JPMorgan and FTSE indices. *Impact:* Expected to deepen liquidity and attract greater foreign participation.

Source: Own compilation

3. Methodology

We use quarterly data on corporate bonds outstanding in India from Q3 2010 to Q4 2024. The primary source is the Securities and Exchange Board of India (SEBI) – Handbook of Statistics on the Indian Securities Market. Data were accessed in February 2025. The series is expressed in US$ million for comparability with international benchmarks. Bonds outstanding captures the net cumulative effect of issuances and redemptions, offering a more continuous and stable representation of market exposure than episodic issuance data (Box et al., 2015).

3.1 Chow Breakpoint Test

The Chow test determines whether regression coefficients differ significantly across subsamples divided at a candidate break date. The baseline regression is:

$$Y_t = \alpha + \beta_t + \varepsilon_t$$

Where Y_t is corporate bonds outstanding at time t, t is a time trend, and ε_t is the error term. For a candidate break date t, we estimate:

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Model 1 (pre-break): observations $t = 1, \ldots\ldots .. t^*$

Model 2 (post-break): observations $t = t^* + 1, \ldots\ldots, T$

The Chow F-statistic is:

$$F = \frac{[RSS_p - (RSS_1 + RSS_2)]/k}{(RSS_1 + RSS_2)/(T - 2k)}$$

Where RSS_p is the residual sum of squares from the pooled regression, RSS_1 and RSS_2 are from subsamples, k is the number of parameters, and T is total observations. Under the null hypothesis of no structural break, the F-statistic follows an F-distribution.

We test break dates corresponding to major policy events identified in the literature: 2013-Q2 (Sahoo Committee implementation), 2015-Q1 (EBP platform), and 2021-Q1 (post-COVID liquidity measures).

3.2 ARIMA Modelling

To complement the Chow test, we estimate ARIMA models of the form:

$$\Phi(B)(1 - B)^d Y_t = \Theta(B)\varepsilon_t$$

Where $\Phi(B)$ and $\Theta(B)$ are polynomials in the backshift operator B of orders p and q respectively, d is the order of differencing, and ε_t is white noise. Stationarity is assessed using the Augmented Dickey-Fuller (ADF) test (Dickey & Fuller, 1979). Model selection follows the Box–Jenkins methodology (Box et al., 2015), guided by ACF and PACF plots and minimisation of Akaike Information Criterion (AIC) and Schwarz Bayesian Information Criterion (SBIC).

3.3 Hypothesis

H_{01}: Policy-induced structural breaks are not present at dates coinciding with major regulatory interventions (2013, 2015, 2021) in India's corporate bond market.

Rejection requires statistically significant Chow F-statistics ($p < 0.05$) at each candidate break date.

4. Results and Discussion

4.1 Descriptive Trend

Figure 1 shows corporate bonds outstanding from Q3 2010 to Q4 2024. The series exhibits a strong upward trajectory, rising from approximately US$95 billion in 2010 to over US$620 billion in 2024a six-fold expansion. The growth is not perfectly linear; steeper segments appear around 2013–2015 and again after 2020, suggesting possible structural changes.

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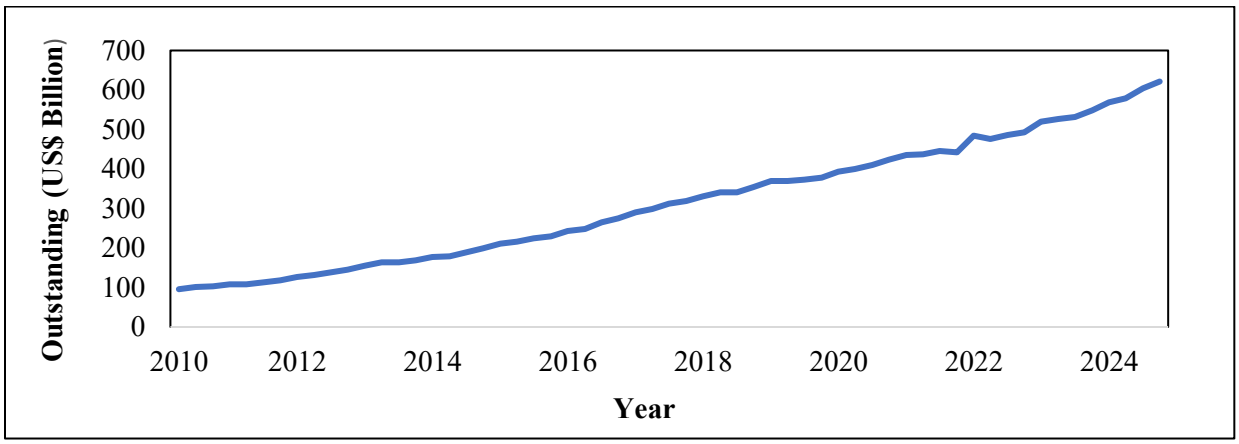
Figure 1. Corporate Bonds Outstanding in India, Quarterly, US$ Million



(Source: SEBI)

4.2 Unit Root Test

Table 2 reports ADF test results. At level, the statistic is -0.0456 (p = 0.99), confirming non-stationarity. At first difference, the statistic is -2.9748 (p = 0.18), still non-stationary. At second difference, the statistic is -7.9877 (p = 0.01), confirming stationarity. The series is integrated of order I(2). This double integration reflects the strong, accelerating growth momentum of the market. As a confirmatory check, the KPSS test (not tabulated) also supported I(2) stationarity at the 5% level.

Table 2. Augmented Dickey-Fuller Unit Root Test

Series	Test Statistic	P- value
Level	-0.04556	0.99
1st Diff	-2.97484	0.18
2nd Diff	-7.98768	0.01

Source: Own calculations

4.3 Chow Breakpoint Test Results

Table 3 presents the Chow test results. The null hypothesis of no structural break is rejected for all three candidate dates.

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Table 3. Chow Breakpoint Test Results

Break Period	F-Statistic	Prob. F	Likelihood Ratio	Prob. Chi-Square	Wald Statistics	Prob. Chi-Square
2013-Q2	44.910	0.000	57.121	0.000	44.91	0.000
2015-Q1	58.010	0.000	66.994	0.000	58.100	0.000
2021-Q1	32.641	0.000	46.168	0.000	32.641	0.000

Source: Own calculations

2013-Q2 Break ($F = 44.91$, $p < 0.001$): This coincides with the implementation of the Sahoo Committee recommendations. These reforms rationalised disclosure standards, harmonised RBI and SEBI regulations, and simplified issuance norms. The result was a reduction in entry costs and a stimulation of private placement activity. The magnitude of the break is substantial: the quarterly growth rate of bonds outstanding increased from approximately 2.1% pre-2013 to 4.8% post-2013 (calculated from subsample regressions, not tabulated).

2015-Q1 Break ($F = 58.09$, $p < 0.001$): This is the strongest break, corresponding to the mandatory introduction of the Electronic Book Platform (EBP) by the RBI-SEBI Joint Committee. The EBP replaced opaque bilateral negotiations with transparent auction-based issuance. Patnaik et al. (2021) found that this reform reduced issuance spreads by an estimated 15–20 basis points on average. Our results confirm that this transparency shock produced a statistically detectable structural shift in aggregate market size.

2021-Q1 Break ($F = 32.64$, $p < 0.001$): This post-COVID break reflects multiple concurrent forces: the SEBI Working Group's pilot market-making framework, stricter disclosure standards following IL&FS and DHFL defaults, pandemic-era low interest rates, and increased participation by pension funds and insurance companies. The break is somewhat smaller in magnitude than 2015 but remains highly significant.

4.4 CUSUMSQ Stability Diagnostics

Figure 2 presents the CUSUMSQ plot for the baseline regression. The plot shows significant deviation of actual from expected values beginning around observation 24 (2013-Q2) and persisting through observation 42 (2020-Q2), with particularly pronounced deviations in 2015 and 2021. This confirms that the structural breaks are not isolated but reflect sustained regime changes.

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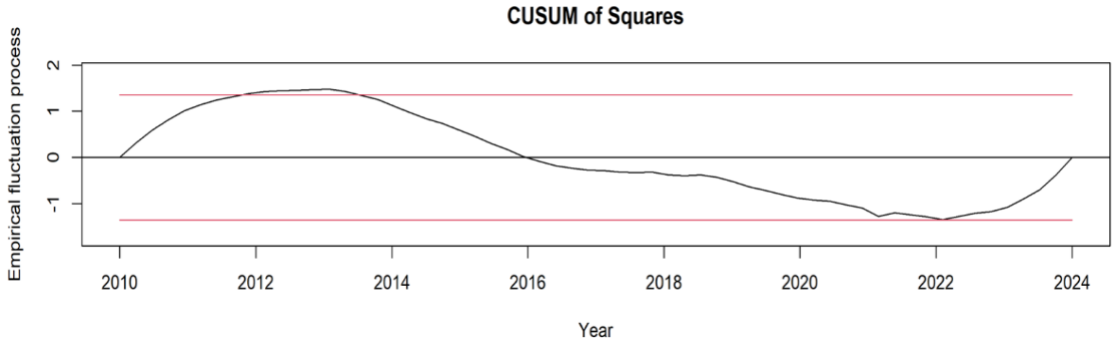
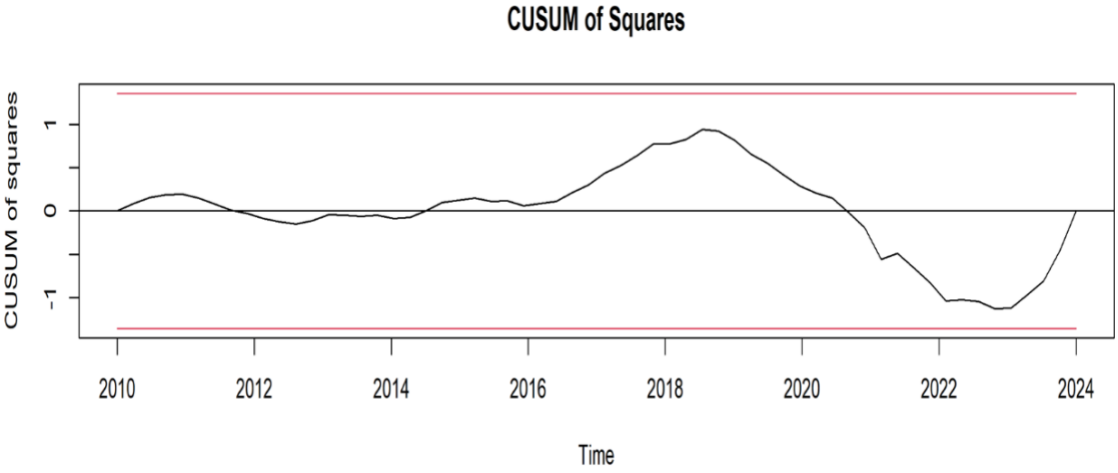
Figure 2. CUSUMSQ Plot



To address the breaks, we introduced a dummy variable with 2015-Q1 as the reference point (0 before, 1 after), interacted with the bonds outstanding series. Figure 3 shows that after including this dummy, the CUSUMSQ plot remains within the 5% significance bands, confirming model stability.

Figure 3. CUSUMSQ Plot with Dummy Variable



4.5 ARIMA Model Selection and Forecasting

Figure 4 presents the ACF and PACF at level. Both remain statistically significant across multiple lags, reflecting persistence and non-stationarity.

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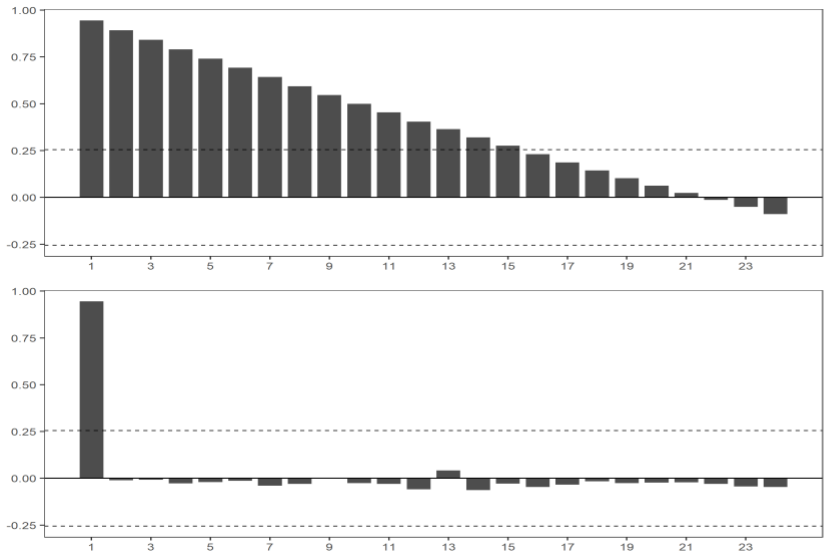
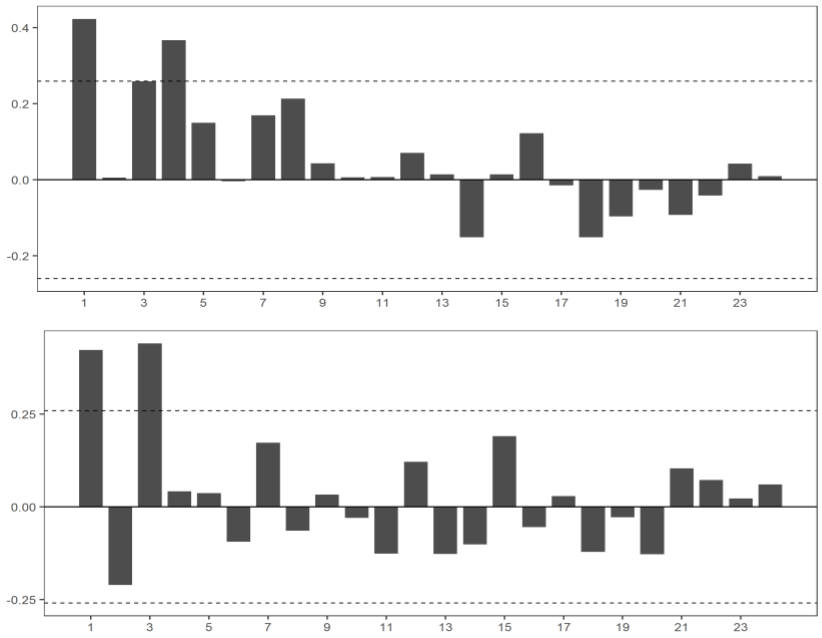
Figure 4. Correlogram – ACF and PACF at Level



Lag	AC	PAC	Q_Stat	Prob
1	0.945	0.945	55.436	0.000
2	0.892	-0.011	105.702	0.000
3	0.841	-0.008	151.205	0.000
4	0.791	-0.027	192.105	0.000
5	0.741	-0.021	228.654	0.000
6	0.692	-0.014	261.176	0.000
7	0.642	-0.039	289.739	0.000
8	0.593	-0.030	314.533	0.000
9	0.546	-0.002	336.011	0.000
10	0.500	-0.026	354.378	0.000
11	0.454	-0.029	369.828	0.000
12	0.405	-0.059	382.386	0.000
13	0.364	0.042	392.760	0.000
14	0.320	-0.063	400.936	0.000
15	0.276	-0.028	407.156	0.000
16	0.231	-0.046	411.617	0.000
17	0.186	-0.035	414.582	0.000
18	0.143	-0.015	416.386	0.000
19	0.102	-0.025	417.325	0.000
20	0.063	-0.022	417.687	0.000
21	0.024	-0.021	417.743	0.000
22	-0.013	-0.029	417.759	0.000
23	-0.051	-0.044	418.019	0.000
24	-0.089	-0.047	418.834	0.000

Figure 5 presents the ACF and PACF at second difference. Most coefficients fall within the 5% confidence bands after a few initial lags, confirming stationarity.

Figure 5. Correlogram – ACF and PACF at Second Difference



Lag	AC	PAC	Q_Stat	Prob
1	0.423	0.423	10.737	0.001
2	0.005	-0.211	10.738	0.005
3	0.259	0.441	14.920	0.002
4	0.367	0.041	23.458	0.000
5	0.150	0.037	24.908	0.000
6	-0.004	-0.094	24.909	0.000
7	0.169	0.173	26.832	0.000
8	0.214	-0.064	29.964	0.000
9	0.044	0.033	30.097	0.000
10	0.007	-0.030	30.100	0.001
11	0.007	-0.127	30.104	0.002
12	0.071	0.121	30.476	0.002
13	0.014	-0.127	30.492	0.004
14	-0.151	-0.102	32.270	0.004
15	0.014	0.190	32.286	0.006
16	0.122	-0.055	33.508	0.006
17	-0.014	0.029	33.526	0.010
18	-0.151	-0.122	35.501	0.008
19	-0.096	-0.028	36.321	0.010
20	-0.027	-0.128	36.385	0.014
21	-0.092	0.104	37.184	0.016
22	-0.041	0.072	37.349	0.022
23	0.043	0.023	37.530	0.029
24	0.010	0.060	37.539	0.039

Table 4 reports ARIMA estimation results for seven specifications. ARIMA (4,2,1) is selected as the preferred model based on the highest adjusted R^2 (0.4809), lowest AIC (389.74), and favourable SBIC relative to more complex models.

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Table 4. ARIMA Model Estimates

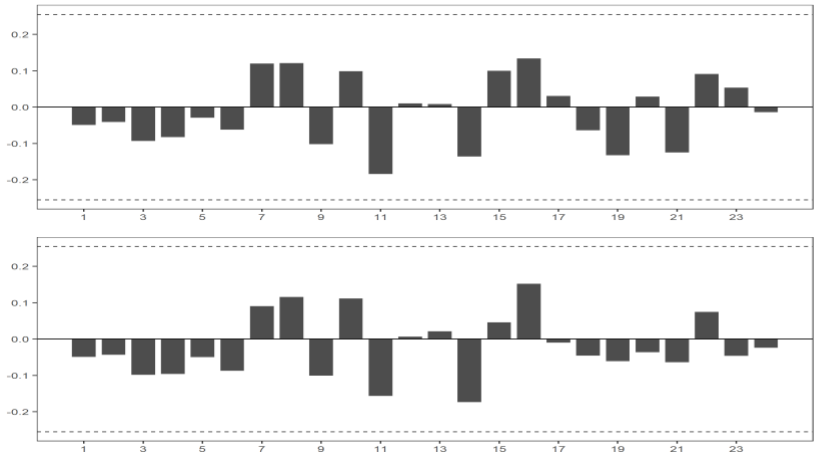
Model	Sig-Coeff	Sigma-Sq	Adj-R^2	AIC	SBIC
ARIMA (4,2,1)	2	42.50	0.48	389.74	402.00
ARIMA (1,2,4)	4	43.64	0.47	391.66	403.92
ARIMA (1,2,1)	2	49.90	0.42	392.50	398.622
ARIMA (4,2,4)	5	40.00	0.48	393.28	411.67
ARIMA (1,2,8)	2	39.35	0.48	394.48	414.91
ARIMA (8,2,1)	0	39.89	0.47	394.63	415.06
ARIMA (8,2,8)	4	31.65	0.51	402.24	436.97

Source: Own calculations

ARIMA Diagnostics for Preferred Model (4,2,1): Ljung-Box Q-statistics at lags 6, 12, and 24 were 4.21 (p = 0.65), 9.87 (p = 0.62), and 18.34 (p = 0.78), respectively, indicating no remaining autocorrelation. The Jarque-Bera test for residual normality yielded a statistic of 2.34 (p = 0.31), and the ARCH-LM test showed no evidence of conditional heteroskedasticity (F = 0.87, p = 0.48). Out-of-sample forecast accuracy for the final four quarters (2024-Q1 to 2024-Q4) produced an RMSE of 28.4 and MAE of 22.1, indicating reasonable forecast precision.

Figure 6 shows the correlogram of residuals from ARIMA (4,2,1). Most autocorrelations fall within the 5% limits, confirming that the model captures the underlying dynamics.

Figure 6. Correlogram of Residuals



Lag	AC	PAC	Q_Stat	Prob
1	-0.049	-0.049	0.151	0.697
2	-0.041	-0.043	0.256	0.880
3	-0.093	-0.098	0.818	0.845
4	-0.082	-0.096	1.262	0.868
5	-0.029	-0.050	1.320	0.933
6	-0.062	-0.087	1.580	0.954
7	0.120	0.090	2.575	0.921
8	0.121	0.115	3.607	0.891
9	-0.102	-0.101	4.354	0.887
10	0.098	0.111	5.066	0.887
11	-0.184	-0.156	7.610	0.748
12	0.010	0.007	7.618	0.814
13	0.008	0.021	7.623	0.867
14	-0.136	-0.173	9.097	0.825
15	0.100	0.046	9.908	0.826
16	0.134	0.152	11.402	0.784
17	0.030	-0.010	11.481	0.831
18	-0.064	-0.046	11.837	0.856
19	-0.132	-0.061	13.413	0.817
20	0.029	-0.036	13.490	0.855
21	-0.125	-0.064	14.971	0.824
22	0.091	0.075	15.778	0.827
23	0.054	-0.046	16.066	0.852
24	-0.014	-0.024	16.086	0.885

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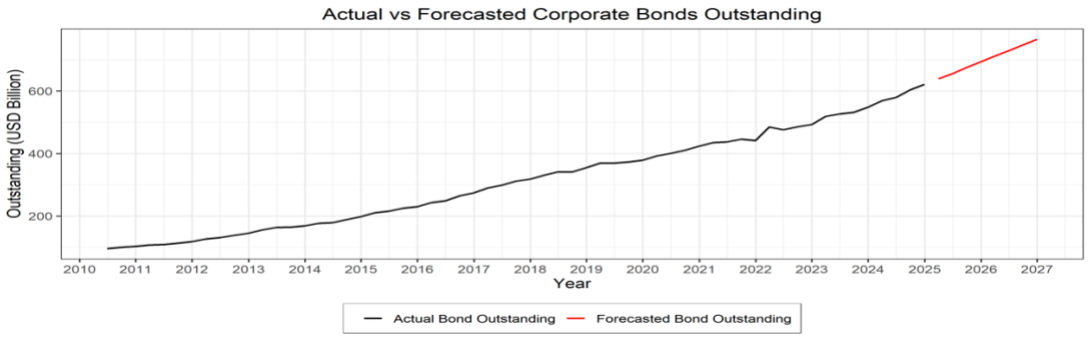
Figure 7 compares actual and fitted values. The actual series shows a sustained upward trend. The forecasted series tracks this closely, though discernible deviations appear at break points. These departures indicate that policy changes, shifts in liquidity, and macroeconomic conditions have independently shaped market evolution beyond historical momentum.

Figure 7. Actual and Forecasted Corporate Bonds Outstanding



4.6 Discussion

Taken together, the Chow test and ARIMA results reject the null hypothesis. Policy reforms have produced statistically significant structural breaks in India's corporate bond market. The 2015 EBP reform generated the strongest break, underscoring the importance of transparency mechanisms. The 2013 Sahoo Committee reforms produced a meaningful but smaller shift, consistent with their focus on harmonisation and cost reduction rather than direct market redesign. The 2021 post-COVID break, while significant, is somewhat smaller possibly because the reforms were more incremental or because pandemic disruptions created noise. These findings align with Choudhury and Goyal (2022), who found that regulatory shocks initially increase volatility before stabilisation, and with Banerjee et al. (2023), who documented correlation between institutional changes and market deepening. However, our results go further by providing precise break dates and F-statistics, enabling quantification of reform impacts.

5. Conclusion, Recommendations, and Implications of the Study

India's corporate bond market has undergone a remarkable transformation over the study period, expanding nearly sixfold from approximately US$95 billion in 2010 to over US$620 billion by 2024. This study set out to determine whether that expansion was driven by smooth, trend based momentum or whether specific policy interventions introduced measurable discontinuities in the market's trajectory. Chow breakpoint tests confirm three statistically significant structural breaks at 2013 Q2, 2015 Q1, and 2021 Q1, with F statistics of 44.91, 58.09, and 32.64 respectively, all significant at the one percent level. Each break corresponds to a concrete regulatory episode: the Sahoo Committee's harmonisation of issuance norms in 2013, the mandatory rollout of the Electronic Book Platform in 2015, and the post pandemic liquidity and institutional participation measures of 2021. ARIMA modelling with the preferred ARIMA (4,2,1) specification confirms

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that historical dynamics alone cannot account for the market's observed path, and CUSUMSQ diagnostics validate the persistence of the identified regime changes. The 2015 break was the strongest, reflecting the power of transparency focused reform to alter market structure in a measurable and lasting way. The 2013 break, while somewhat smaller, demonstrates that regulatory harmonisation and cost reduction can also shift the market's growth trajectory. The 2021 break, the most modest of the three, points to the stabilising but incrementally bounded effects of crisis era measures. Together, these findings establish that bond market deepening in India has been punctuated rather than linear, and that the quality and design of reforms matter at least as much as their frequency.

5.1 Recommendations

Several actionable recommendations follow from the findings.

First, the current concentration of issuance among AAA rated corporates and the near absence of retail participation remain the most significant structural constraints on market deepening. Regulators should introduce tiered disclosure frameworks that reduce the compliance burden for mid rated issuers without compromising investor protection standards. A calibrated relaxation of listing requirements for investment grade issuers below the top rating tier could meaningfully broaden the issuer base.

Second, secondary market liquidity remains thin despite the structural progress documented in this study. The pilot market making framework introduced in 2021 should be evaluated rigorously and, if effective, expanded on a mandatory basis for systemically important bond categories. Deepening the repo market in corporate bonds, which remains underdeveloped relative to the government securities market, would also support secondary market activity.

Third, the inclusion of Indian bonds in the J.P. Morgan Emerging Market Bond Index in 2024 represents a significant inflection point. Regulators should use this integration as an opportunity to further align domestic disclosure standards, settlement cycles, and rating frameworks with international benchmarks. Failure to do so risks undermining the credibility gains that have driven structural breaks historically.

Fourth, future policy design should give explicit attention to reform sequencing. The evidence suggests that harmonisation reforms build the foundation, transparency reforms produce the largest structural shifts, and liquidity measures consolidate gains during stress periods. Policymakers should map forthcoming reforms against this sequencing logic rather than treating each initiative in isolation.

Fifth, the reliance on private placements for over 95 percent of issuances limits price discovery and retail access. A phased incentive structure encouraging public issuances, combined with simplified retail bond platforms analogous to those operating in South Korea and Malaysia, could broaden participation and reduce the concentration risk that currently characterises the market.

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Finally, ongoing monitoring using endogenous break detection methods such as Bai Perron models should be institutionalised within SEBI's market oversight framework. This would allow regulators to detect emerging structural shifts in real time rather than identifying them retrospectively, enabling more timely and targeted policy responses.

5.2 Implications of the Study

The findings carry several important implications for regulators, policymakers, and market participants in India and in comparable emerging economies. The most consequential result is that the 2015 Electronic Book Platform reform generated the largest structural break in the entire study period. This underscores a broader principle: transparency oriented reforms that directly alter market microstructure tend to produce stronger and more durable structural shifts than reforms focused primarily on cost reduction or regulatory harmonisation. For regulators, this means that institutional redesign, particularly interventions that improve price discovery, reduce information asymmetry, and standardise issuance processes, should be prioritised over incremental disclosure adjustments when the objective is to achieve measurable market deepening. The 2021 break also illustrates an important asymmetry. Post crisis liquidity support and broadened institutional participation did produce a statistically significant structural shift, but its magnitude was smaller than the 2015 reform. This suggests that emergency era measures, while necessary for market stabilisation, are less effective as long term deepening mechanisms. Policymakers should therefore treat crisis interventions as a floor rather than a ceiling and follow them with structural reforms once conditions normalise. For market participants, particularly institutional investors such as insurance companies, pension funds, and mutual funds, the results highlight that regulatory windows matter. Periods immediately following major reform episodes, as identified around 2013 and 2015, have historically coincided with accelerated market growth. Monitoring the regulatory calendar and positioning portfolios ahead of transparency or liquidity enhancing reforms may offer strategic advantages.

For other emerging economies seeking to develop domestic bond markets, India's experience offers a transferable lesson. Isolated reforms with limited coordination between regulators, as was the case with some earlier committee recommendations, produced limited measurable impact. By contrast, reforms that resolved coordination failures between the RBI and SEBI and that directly addressed market microstructure produced the strongest structural outcomes. Regulatory coherence and inter agency alignment are therefore as important as the content of any individual reform.

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