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A TRUE VISIONARY

*"You see things and you say **Why?** But I dream of things that never were and say **Why not?**"*

- George Bernard Shaw



Shri Jagannath Gupta
(1950 - 1980)

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He lives no more but his dreams live on....and on!*

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Editor's Desk

Navigating Change: Technology, Leadership, and Economic Dynamics

In an era where the only constant is change, the interplay between technology, leadership, and economic dynamics has emerged as the defining force shaping our professional, societal, and personal landscapes. Today, we are not merely witnesses to change—we are active participants in a fast-moving, interconnected ecosystem where decisions made in boardrooms, laboratories, and policy circles ripple instantly across continents.

Technology continues to redefine the boundaries of possibility. From artificial intelligence and blockchain to green energy solutions and advanced manufacturing, disruptive innovations are transforming industries at an unprecedented pace. Yet, technology alone cannot guarantee progress. The ability to harness these tools effectively depends on visionary leadership—leaders who can anticipate change, inspire teams, and create adaptive, resilient organizations that thrive amid uncertainty.

Economic dynamics further complicate this picture. Geopolitical shifts, climate imperatives, and fluctuating markets demand strategies that balance agility with long-term sustainability. Businesses, governments, and academic institutions must collaborate in fostering innovation while ensuring inclusivity and equitable growth. This requires an acute awareness of how technological adoption and leadership decisions influence economic patterns—from global supply chains to local employment landscapes.

As we navigate the complex currents of change, one lesson stands out: adaptability is no longer a competitive advantage—it is a survival imperative. The convergence of technology, leadership, and economic dynamics will continue to test our ingenuity, ethics, and resolve. It is our hope that the research presented here not only deepens understanding but also inspires our readers to lead with foresight, innovate with responsibility, and act with purpose.

Prof. Ram Kumar Mishra

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NEXUS BETWEEN EXTERNAL COMMERCIAL BORROWINGS AND MACROECONOMIC VARIABLES IN INDIA – AN INVESTIGATION

Dr. Vikram K. Joshi*

Purpose: The external commercial borrowings (ECBs) is an instrument to raise the funds for the businesses from the foreign dealer banks by the Indian corporates. The ease of norms of ECBs in India had led to increase in ECBs over the past few years. Hence, it is pertinent to study the nexus between ECB and macroeconomic indicators impacting ECBs in India, so that the right measures may be adopted to regulate the economic indicators / ECBs for better management and governance.

Design/Methodology/Approach: There are various macroeconomic indicators which are possible factors conducive for rise in ECBs. These include consumer price index (CPI), index of industrial production (IIP – proxy for economic growth), exports, imports, exchange rate (ER) and Money Supply (MS). The secondary data on these variables is collected from the website of Reserve Bank of India (RBI) from January 2021 to October 2024. The study uses Vector Error Correction Model (VECM) approach.

Findings: The study found that there exists a short-run and long-run causality between various macroeconomic indicators and the ECBs. Granger causality test confirms the short-run causality between the IIP and the ECBs. The error correction term is found to be negative and significant for dependent variable Import, indicating that there exists a short-run and long-run causality between the various macroeconomic indicators including ECBs with imports at 1% level of significance with the speed of adjustment to shock at 2.7%.

Originality/value: The present policy of regulatory bodies to ease the norms of ECB are likely to change the landscape of India's growth trajectory. The study provides a perspective with regard to existence of nexus between the ECB and various macroeconomic indicators in India. Hence, the study suggests the measures to encourage ECBs in India by adopting certain macroeconomic prudence.

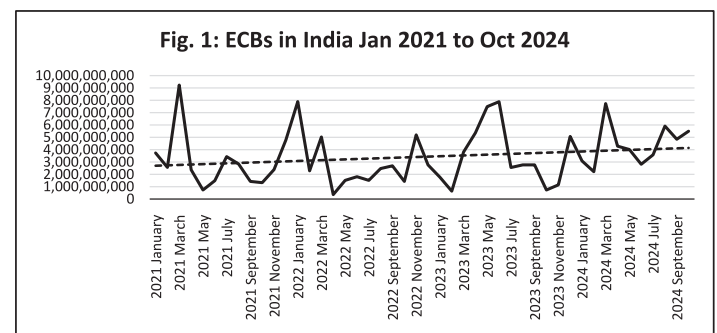
Keywords : External Commercial Borrowings, Consumer Price Index, Index of Industrial Production, Exchange rate, Money Supply and Imports.

JEL Code: F21, F31, F34, F37

I. Introduction

External Commercial Borrowings (ECB) has emerged as an instrument for the Indian firms to raise funds from outside India in foreign currencies. It can be used by the private corporates and public sector undertakings either to expand their current capacity or fetch new investment in the businesses, when domestic resources are insufficient to meet the fund requirements. (Saxena 2020). ECB also emerged as one of the prominent sources of foreign capital in terms of its contribution in capital account of India's Balance of Payment (BoP). ECBs are the commercial loans with minimum average maturity of 3 years, that are obtained from the lenders residing outside India, in the form of bank loans, suppliers' credit, buyers' credit, bonds and securitized instruments. (Ray et. al. 2017). The funds from ECBs may be raised either through approval route or the automatic route depending upon certain eligibility regulations as prescribed by the RBI and the government. According to recent guidelines of RBI, the startup businesses in India are also eligible to avail the ECBs from overseas. The important reason for opting for ECB by Indian corporates is the interest rate differential

between the India and other countries (Verma & Prakash, 2011; Singh 2007). But amidst the rising global interest rates, the country has experienced increase in ECBs over the last few years which is evident from the following figure 1 showing the trend of ECBs in recent past.



Source: Author's Computation based on Secondary Data

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As seen in fig 1, ECBs have witnessed rising trend from January 2021 – October 2024 with a simple growth rate of 147.35% showing a rapid growth pace. There are certain advantages like low interest and global market access, but irrespective of certain anticipated disadvantages like fall in export, currency devaluation, exchange and interest related risks, there exists a higher degree of optimism towards ECBs. Hence, it is pertinent to study the nexus between ECB and macroeconomic indicators impacting ECBs in India, so that the right measures may be adopted to regulate the economic indicators / ECBs for better management and governance.

II. Literature Review

Most of the studies conducted on ECB give more importance to domestic factors relative to international factors. In this regard, the study conducted by Sur et. al (2019) studied both domestic (pulled) and pushed (global) factors impacting ECB in India. The study concludes that regulatory changes in capital account is one of the most significant factors amongst the others along with exchange rate, economic growth and interest rate differential impacting ECB in India. Dev Surya (2017), examined relationship of ECB in India with macroeconomic variables like index of industrial production (IIP), exports, imports, interest rate differential (IRD), exchange rate (ER) and foreign investment (FI) for quarterly data. The study concludes that IIP has negative relationship with ECB in the short run, whereas ER, IRD, imports and FI are positively related with ECB. In the long run, IRD and IIP causes ECB. The availability of limited credit in underdeveloped economies compel the exporting firms to raise the fund through foreign debt for financing the export-oriented activities leading to higher ECBs in such economies. (Tang et. al. 2013). But, on the other hand, the current account deficit impacts the competitiveness of the country's exports which may lead to depreciation of currency and hence create exchange risk and interest-related risks for ECB. (Bose & Pal 2018).

Akinwunmi & Akinwunmi (2017) studied the impact of external borrowing on economic growth in Nigeria, concluded that export, capital investment and debt service payment have significant impact on economic growth but exchange rate fluctuation and external borrowing doesn't have any adverse impact on the economic growth in Nigeria. Hence, they recommended that the external debt must be channelized appropriately to ensure growth.

According to Singh B (2007) showed significant relationship between ECB and imports in a country, pace of domestic activity (measured in terms of IIP) and the amount of liquidity (broad money supply). Verma and Prakash (2011), mentioned that movements in exchange rate, domestic industrial activity, domestic GDP, the performance of other advanced economies, and investors perception about the risk are the important determinants of capital flows into the economy. Mishra & Shettigar (2019) considered exchange rate, differential growth rate, index of industrial production, interest rate differential, differential inflation, global money supply and capital account openness to study the impact on external commercial borrowings in India.

Thus, the earlier studies focussed on few of domestic factors or combination of few domestic and external factors. Hence, based on the literatures review, the various leading economic indicators thought relevant for the study are inflation (proxy variable consumer price index), exports and imports of India, index of industrial production (IIP) (proxy for economic growth), exchange rate (ER) and money supply (MS-M3 component) in relation to external commercial borrowings (ECBs).

III. Methodology and Data

The study is intended to evaluate the nexus between ECBs and the macroeconomic variables in terms of whether the macroeconomic indicators impact the ECBs or any causality exists between them. Hence, assuming ECB as the dependent variables, the following model is employed. All the variables are converted into logarithms to eliminate the problem of heteroscedasticity in the model and is given as below:

$$\ln_ECB_t = \alpha + \beta_1 \ln_CPI_t + \beta_2 \ln_Exports_t + \beta_3 \ln_Imports_t + \beta_4 \ln_IIP_t + \beta_5 \ln_ER_t + \beta_6 \ln_MS_t + u_t \text{ ---- } \{1\}$$

Where, ECB is the external commercial borrowings, CPI is the consumer price index (base 2012) and is used as proxy for inflation, Exports and imports are in rupees, IIP is the index of industrial production (base 2012) and is used as proxy for economic growth instead as GDP due to availability on quarterly basis, ER is the real exchange rate, and MS is the broad money supply (MS). The monthly data used for the study is from January 2021 to October 2024 comprising of 46 months' time-series data. The world experienced Covid-19

pandemic during 2019 to 2020 and the economic activity is normalized after the impact on Covid-19 from January 2021 onwards. The selected period is free from any structural breaks, so considered appropriate for the analysis. The data is taken from the Annual Reports, RBI Handbook of Statistics on Indian Economy.

The Augmented Dickey-Fuller (1979) test is employed to test the stationarity using unit-root test. If any series is non-stationary, then the cointegration relationship may exist between the variables indicating long-run relationship. Since, all the series are found to be non-stationary at level and some are I(1), I(2) and I(3), indicates possible cointegration relationships. Hence, Johansen's cointegration test is applied. It consists of two likelihood ratio test statistics, viz., λ_{trace} and λ_{max} (H_0 : cointegrating vectors, $CV = r$; H_1 : $CV > r$) to test the number of cointegrating vectors and equations that can be considered for model formulation. The cointegration of order 1 was found, hence the Granger Causality (Granger 1988) was employed to test for short term causality and then Vector Error Correction Model (VECM) specification was employed instead of proceeding with equation (1) or Vector Autoregressive Model (VAR) specification given as below:

$$D(l_ECB)_t = \alpha + \sum a_{ECB,i} D(l_ECB)_{t-i} + \sum b_{ECB,i} D(l_CPI)_{t-i} + \sum c_{ECB,i} D(l_Exports)_{t-i} + \sum d_{ECB,i} D(l_Imports)_{t-i} + \sum e_{ECB,i} D(l_IIP)_{t-i} + \sum f_{ECB,i} D(l_ER)_{t-i} + \sum g_{ECB,i} D(l_MS)_{t-i} + a_{ECB} EC_{t-1} + u_{ECB,t} \quad (2)$$

$$D(l_CPI)_t = \alpha + \sum a_{CPI,i} D(l_ECB)_{t-i} + \sum b_{CPI,i} D(l_CPI)_{t-i} + \sum c_{CPI,i} D(l_Exports)_{t-i} + \sum d_{CPI,i} D(l_Imports)_{t-i} + \sum e_{CPI,i} D(l_IIP)_{t-i} + \sum f_{CPI,i} D(l_ER)_{t-i} + \sum g_{CPI,i} D(l_MS)_{t-i} + a_{CPI} EC_{t-1} + u_{CPI,t} \quad (3)$$

$$D(l_Exports)_t = \alpha + \sum a_{Exports,i} D(l_ECB)_{t-i} + \sum b_{Exports,i} D(l_CPI)_{t-i} + \sum c_{Exports,i} D(l_Exports)_{t-i} + \sum d_{Exports,i} D(l_Imports)_{t-i} + \sum e_{Exports,i} D(l_IIP)_{t-i} + \sum f_{Exports,i} D(l_ER)_{t-i} + \sum g_{Exports,i} D(l_MS)_{t-i} + a_{Exports} EC_{t-1} + u_{Exports,t} \quad (4)$$

$$D(l_Imports)_t = \alpha + \sum a_{Imports,i} D(l_ECB)_{t-i} + \sum b_{Imports,i} D(l_CPI)_{t-i} + \sum c_{Imports,i} D(l_Exports)_{t-i} + \sum d_{Imports,i} D(l_Imports)_{t-i} + \sum e_{Imports,i} D(l_IIP)_{t-i} + \sum f_{Imports,i} D(l_ER)_{t-i} + \sum g_{Imports,i} D(l_MS)_{t-i} + a_{Imports} EC_{t-1} + u_{Imports,t} \quad (5)$$

$$D(l_IIP)_t = \alpha + \sum a_{IIP,i} D(l_ECB)_{t-i} + \sum b_{IIP,i} D(l_CPI)_{t-i} + \sum c_{IIP,i} D(l_Exports)_{t-i} + \sum d_{IIP,i} D(l_Imports)_{t-i} + \sum e_{IIP,i} D(l_IIP)_{t-i} + \sum f_{IIP,i} D(l_ER)_{t-i} + \sum g_{IIP,i} D(l_MS)_{t-i} + a_{IIP} EC_{t-1} + u_{IIP,t} \quad (6)$$

$$D(l_ER)_t = \alpha + \sum a_{ER,i} D(l_ECB)_{t-i} + \sum b_{ER,i} D(l_CPI)_{t-i} + \sum c_{ER,i} D(l_Exports)_{t-i} + \sum d_{ER,i} D(l_Imports)_{t-i} + \sum e_{ER,i} D(l_IIP)_{t-i} + \sum$$

$$f_{ER,i} D(l_ER)_{t-i} + \sum g_{ER,i} D(l_MS)_{t-i} + a_{ER} EC_{t-1} + u_{ER,t} \quad (7)$$

$$D(l_MS)_t = \alpha + \sum a_{MS,i} D(l_ECB)_{t-i} + \sum b_{MS,i} D(l_CPI)_{t-i} + \sum c_{MS,i} D(l_Exports)_{t-i} + \sum d_{MS,i} D(l_Imports)_{t-i} + \sum e_{MS,i} D(l_IIP)_{t-i} + \sum f_{MS,i} D(l_ER)_{t-i} + \sum g_{MS,i} D(l_MS)_{t-i} + a_{MS} EC_{t-1} + u_{MS,t} \quad (8)$$

where α is an arbitrary constant, a 's, b 's, c 's, d 's, e 's, f 's and g 's are the short-run coefficients and $EC_{t-1} = \beta'X_{t-1}$ is the error-correction term. It indicates how the dependent variable adjusts to the previous period's deviation from long-run equilibrium, and u 's are residuals. The sign of the error correction term must be negative. The hypothesis of short-term causality is tested by applying Wald tests on the joint significance of the lagged estimated coefficients of $D(l_ECB)_{t-1}$, $D(l_CPI)_{t-1}$, $D(l_Exports)_{t-1}$, $D(l_Imports)_{t-1}$, $D(l_IIP)_{t-1}$, $D(l_ER)_{t-1}$, and $D(l_MS)_{t-1}$.

IV. Results and Discussions

The table 1 below presents the summary statistics for the variables taken for the study during January 2021 to October 2024.

Table 1: Descriptive Statistics

Particulars	ECB (Rs)	CPI	Exports (Rs Crores)	Imports (Rs Crores)	IIP	Exchange Rate	Money Supply (Rs Crores)
Mean	3418857943	175.80	285909.73	441682.45	140.28	78.23	21976029.04
Standard Error	320101460.1	1.6796	5139.4003	9806.8920	1.3788	0.6887	347478.8558
Median	2768013323	176.5	286663.8	454627.1	140.9	75.1	21629578
Standard Deviation	2171033731	11.392	34857.109	66513.577	9.351	4.671	2356716.262
Range	8870930776	40.5	144989.8	247026.8	44.9	11.5	7810045
Minimum	361601296	156.3	201049.8	284532.4	115.1	72.5	18406666
Maximum	9232532072	196.8	346039.7	531559.3	160	84.1	26216711
Count	46	46	46	46	46	46	46

Source: Researcher's Computation based on Annual Reports, RBI Handbook of Statistics on Indian Economy.

Unit Root Test (Augmented Dickey Fuller Test)

The logarithmic values of the variables indicated above in table 1 are tested for stationarity using unit root test (ADF test) at level, first, second and third difference to find the order of integration. The results are presented in table 2 below:

Table 2: Unit Root Test (Augmented Dickey Fuller Test)

Variable		Level ADF (tau)	p - value	1 st Difference	p - value	2 nd Difference	p - value	3 rd Difference	p - value	Order of Integration
L-ECB	Without constant	0.0580	0.7013	-9.2201	0.0000	--		--		I (1)
	With constant	-5.0455	0.0000	-9.1155	0.0000					
	With constant and trend	-5.3072	0.0000	-9.0198	0.0000					
L-CPI	Without constant	3.8574	1.0000	-1.1117	0.2424	-3.0008	0.0026	-9.4488	0.0000	I (3)
	With constant	-1.4106	0.5788	-4.0892	0.0010	-2.9574	0.0390	-9.3005	0.0000	
	With constant and trend	-4.1832	0.0046	-4.0395	0.0076	-3.0050	0.1307	-9.1569	0.0000	
L-Exports	Without constant	0.8616	0.8958	-2.1273	0.0321	-5.2186	0.0000	--		I (2)
	With constant	-2.2526	0.1878	-2.2585	0.1858	-5.1286	0.0000			
	With constant and trend	-2.2152	0.4805	-2.6570	0.2548	-4.9982	0.0001			
L-Imports	Without constant	1.1412	0.935	-3.9044	0.0000	--		--		I (1)
	With constant	-1.6766	0.4432	-4.0852	0.0010					
	With constant and trend	-1.6119	0.7887	-4.1058	0.0061					
L-IIP	Without constant	1.9668	0.9887	-9.9088	0.0000	--		--		I (1)
	With constant	-1.8888	0.3379	-4.7735	0.0000					
	With constant and trend	-4.4948	0.0014	-4.6883	0.0006					
L-ER	Without constant	1.2138	0.943	-7.2681	0.0000	--		--		I (1)
	With constant	-0.9024	0.7882	-7.4639	0.0000					
	With constant and trend	-2.3023	0.4321	-7.3753	0.0000					
L-MS	Without constant	6.2057	1	-0.7717	0.3822	-5.3338	0.0000	--		I (2)
	With constant	0.2570	0.9761	-8.6482	0.0000	-5.2583	0.0000			
	With constant and trend	-3.2596	0.0731	-8.5748	0.0000	-5.1797	0.0000			
Source: Researcher's Computation based on Secondary Data using Open-Source software Gretl.										

From the table 2, it can be seen that the order of integration of most of the variables is of order 1, i.e., I(1) except for CPI – integrated of order 3, i.e. I(3), and exports and Money supply are integrated of order 2, i.e., I(2). This indicates possible cointegration between the variables. If the cointegration exists, Vector Error correction Model is more appropriate for the analysis.

Johansen Cointegration Test

To determine the existence of long-run relationship between the variables, Johansen cointegration test is carried out. The results of λ_{trace} and λ_{max} are given below in table 3.

Table 3: Johansen Cointegration Test

Rank	λ_{trace} test	p-value	λ_{max} test	p-value
0*	180.24	0.0000	71.149	0.0000
1*	109.09	0.0037	48.075	0.0032
2	61.017	0.2058	26.800	0.2837
3	34.217	0.4948	21.824	0.2369
4	12.393	0.9141	9.7806	0.7663
Source: Researcher's Computation based on Secondary Data using Open-Source software Gretl.				

From table 3, it is observed that p-values of both λ_{trace} test statistics and λ_{max} test statistics corresponding to rank 0 and rank 1 are significant at 1% level of significance respectively. Hence, there exists a cointegration of rank order 1 between the variables indicating existence of long-run causality between the variables. This shows that a certain variable can be an influencing variable to bring about the changes in other variables in the system and hence may be targeted as a policy variable to manipulate or regulate the other variable in the system.

Results of Vector Error Correction Model (VECM)

The cointegrating relationship can be analyzed using a vector error correction model. The estimates of VECM are presented below in table 4. Each column in the table represents the equations 2 to equation 8 respectively as given above in the sections of methodology.

Table 4: VECM Estimates

Equation ->	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent ->	D(I_ECB)	D(I_CPI)	D(I_IIP)	D(I_Imports)	D(I_Imports)	D(I_ER)	D(I_MS)
const	0.8018 (0.006) [0.9950]	-2.1899 (-1.580) [0.1257]	-15.0451* (-1.877) [0.0714]	26.0636** (2.294) [0.0298]	47.0163*** (3.821) [0.0007]	-3.9959 (-1.181) [0.2480]	0.6006 (0.491) [0.6274]
D(I_ECB_1)	-0.2658 (-1.349) [0.1887]	-0.0017 (-0.829) [0.4143]	-0.0152 (-1.220) [0.2332]	-0.0147 (-0.830) [0.4136]	0.0307# (1.596) [0.1220]	-0.0088* (-1.675) [0.1054]	0.0030 (1.594) [0.1225]
D(I_ECB_2)	-0.0614 (-0.372) [0.7128]	-0.0013 (-0.763) [0.4516]	-0.0056 (-0.534) [0.5976]	-0.0117 (-0.7919) [0.4353]	0.0141 (0.875) [0.3891]	-0.0051 (-1.154) [0.2585]	0.0008 (0.541) [0.5924]
D(I_CPI_1)	1.2348 (0.046) [0.9636]	0.3773 (1.282) [0.2107]	-0.0356 (-0.021) [0.9834]	-3.1072 (-1.288) [0.2087]	-5.1082* (-1.955) [0.0610]	0.3991 (0.555) [0.5831]	-0.3094 (-1.191) [0.2439]
D(I_CPI_2)	36.0980* (2.029) [0.0524]	-0.1219 (-0.623) [0.5379]	2.7930** (2.470) [0.0201]	1.1982 (0.7477) [0.4611]	0.3785 (0.218) [0.8290]	-0.1186 (-0.248) [0.8056]	-0.3986** (-2.310) [0.0287]
D(I_IIP_1)	4.7448 (0.656) [0.5170]	0.0811 (1.022) [0.3160]	0.4584 (0.998) [0.3271]	-1.1109 (-1.707) [0.0994]	-1.9431** (-2.756) [0.0104]	0.2640 (1.362) [0.1846]	-0.1024 (-1.462) [0.1553]
D(I_IIP_2)	-2.5708 (-0.543) [0.5915]	0.0429 (0.825) [0.4162]	0.3490 (1.160) [0.2561]	0.2795 (0.655) [0.5176]	-0.7630 (-1.652) [0.1101]	0.1614 (1.271) [0.2144]	-0.0447 (-0.973) [0.3388]
D(I_Imports_1)	-3.0462 (-1.413) [0.1692]	-0.0001 (-0.005) [0.9958]	0.1240 (0.9051) [0.3734]	-0.3766* (-1.939) [0.0630]	-0.4317** (-2.053) [0.0499]	0.0856 (1.480) [0.1504]	0.0050 (0.241) [0.8110]
D(I_Imports_2)	-1.8777 (-0.936) [0.3574]	0.0079 (0.359) [0.7218]	0.0986 (0.7736) [0.4459]	-0.2234 (-1.237) [0.2268]	-0.3311 (-1.692)[0.1021] [0.2268]	0.0569 (1.059) [0.2990]	-0.0050 (-0.259) [0.7970]
D(I_Imports_1)	-1.6292 (-0.494) [0.6248]	-0.0288 (-0.798) [0.4318]	-0.5274** (-2.520) [0.0180]	0.0173 (0.0583) [0.9539]	0.1898 (0.590) [0.5596]	-0.1441 (-1.631) [0.1145]	0.0015 (0.049) [0.9609]
D(I_Imports_2)	-1.0168 (-0.485) [0.6315]	-0.0089 (-0.386) [0.7019]	-0.2978** (-2.236) [0.0338]	-0.3658* (-1.938) [0.0632]	0.0216 (0.106) [0.9164]	-0.0909 (-1.617) [0.1175]	-0.0233 (-1.147) [0.2615]
D(I_ER_1)	-3.7794 (-0.356) [0.7240]	-0.1267 (-1.089) [0.2856]	-0.7263 (-1.079) [0.2900]	1.1364 (1.191) [0.2439]	2.1182* (2.050) [0.0502]	-0.5286* (-1.860) [0.0738]	0.1637 (1.594) [0.1225]
D(I_ER_2)	12.8732 (1.553) [0.1321]	-0.1250 (-1.372) [0.1812]	-0.4235 (-0.8039) [0.4285]	-0.1804 (-0.241) [0.8109]	0.9948 (1.230) [0.2293]	-0.4209* (-1.893) [0.0692]	0.0310 (0.386) [0.7024]
D(I_MS_1)	4.5858 (0.165) [0.8696]	0.0903 (0.297) [0.7686]	-1.5591 (-0.886) [0.3830]	4.9686* (1.994) [0.0564]	5.0749* (1.880) [0.0709]	-0.6051 (-0.815) [0.4221]	-0.2904 (-1.082) [0.2886]
D(I_MS_2)	-18.7586 (-0.783) [0.4402]	-0.2114 (-0.803) [0.4285]	-0.3737 (-0.245) [0.8078]	1.0696 (0.4960) [0.6239]	3.3452 (1.432) [0.1636]	-0.7365 (-1.146) [0.2617]	-0.0385 (-0.166) [0.8693]
EC1	-0.00048 (-0.006) [0.9947]	0.00126 (1.582) [0.1253]	0.00865* (1.875) [0.0716]	-0.01498** (-2.292) [0.0299]	-0.0270*** (-3.817) [0.0007]	0.0023 (1.183) [0.2469]	-0.0003 (-0.479) [0.6358]
R ²	0.5736	0.3442	0.4891	0.7134	0.7395	0.2330	0.4891
Durbin – Watson	1.7356	1.9269	1.7047	1.8164	1.9101	2.0020	2.4191

Log-likelihood = 652.64844; AIC = -23.1930; BIC = -16.8854; HQC = -20.8669							
Model Specification Test							
Normality	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Not Fulfilled	Not Fulfilled
Auto correlation	Not present	Not present	Not present	Not Present	Not present	Not present	Present
Hetero - scedasticity	Not present						
Note: Values in paranthesis () indicates t-value and [] indicates p-value of coefficients. * indicates significant at 10%, ** significant at 5%, and *** significant at 1%. # indicates significance at 13%.							
Source: Researcher's Computation based on Secondary Data using Open-Source software Gretl.							

The vector error correction mechanism (VECM) as a technique of estimation helps to understand the short-run dynamics of the cointegrating equations in relation to their long-run inert nature. The table 4 presents the results of the short-run fluctuations estimated using vector error correction method (VECM).

As observed in table 4, the signs of error correction terms (EC1) corresponding to the equations 2, 5, 6 and 8 are correct, but it is significant corresponding to equation 5 and equation 6 at 5% and 1% level respectively. In Equation 5, where dependent variable is exports, only three variables' exports (1-time lag), imports (2-time lag) and money supply (1-time lag) are significant at 10% level. This implies that exports (1-time lag), imports (2-time lag) and money supply (1-time lag) cause exports in short-run. Thus, if imports increase by 1% in two-time lag, then exports are likely to decrease by 0.36%, and if money supply increases by 1% in one-time lag, then exports are likely to increase by 4.96%. The value of R² (coefficient of determination) is also high and is 0.7134.

But, in case of equation 6 (dependent variable-imports), consumer price index (CPI: 1-time lag), index of industrial production (IIP: 1-time lag), exports (1-time lag), exchange rate (1-time lag and money supply (MS: 1-time lag) are significant at 10%, 5%, 5%, 10% and 10% level respectively. This implies that 1% decrease in CPI (1-time lag) causes import to increase by 5.10%; 1% decrease in IIP (1-time lag) causes imports to increase by 1.94%, 1% decrease in exports, cause imports to increase by 0.4317%, 1% increase in exchange rate causes imports to increase by 2.11%, and 1% increase in money supply (1-time lag) causes imports to increase by 5.07%. If the type one error (alpha) of coefficient of ECB is increased to 13 %, then ECB becomes significant indicating that 1% increase in ECB in one time lag, causes imports to increase by 0.03%. The value of R² in this case is 0.7395 which is greater than equation 5. Thus, based on strong R² value and correct sign and significant EC

value, equations 6 is considered as the better equation explaining the nexus between the macroeconomic indicators and the external commercial borrowings in comparison with equation 5 and all other equations.

The value of error correction (EC) terms for equation 6 is -0.0270 indicating the speed of adjustment is significant at 1% level of significance. It shows that the imports come back to equilibrium once affected by the shocks in macroeconomic indicators gets adjusted relatively by 2.70%. Thus, there exists a long run relationship running from CPI, IIP, Exports, ER, money supply and ECB.

The model specification test shows that equation 6 representing the short-run and long run causality fulfills all the specification criteria. The R^2 value of these equations is moderately high viz., 0.7395 indicating 73.95% influence of independent variables on imports. The Durbin Watson (DW) statistics is 1.9106 (range 1.50 to 2.50 for no autocorrelation) showing no problem of autocorrelation or serial correlation. The normality of residual criteria is also fulfilled. The values of AIC, BIC and HQC are -23.1930, -16.8854 and -20.8669 respectively, indicating that the available model maximizes all the information on variables at minimal level of error.

The Granger causality test is performed to test the causality between independent and dependent variables. The results are presented below in table 5.

Table 5: Granger Causality Test Results

Dependent ->	l_ECB	l_CPI	l_IIP	l_Exports	l_Imports	l_ER	l_MS
l_ECB	--	0.4461 [0.7226]	0.5393 [0.6606]	1.6418 [0.2100]	0.2233 [0.8791]	0.9072 [0.4543]	0.6579 [0.5870]
l_CPI	2.3368 [0.1029]	--	1.8846 [0.1631]	2.2600 [0.1111]	4.6190** [0.0124]	0.3592 [0.7830]	1.4263 [0.2632]
l_IIP	2.3128* [0.1054]	1.3967 [0.2715]	--	6.6760*** [0.0024]	4.1727** [0.0182]	0.4751 [0.7029]	1.5820 [0.2235]
l_Exports	1.0553 [0.3890]	0.0880 [0.9658]	0.5210 [0.6725]	--	2.9527* [0.0561]	0.6832 [0.5722]	0.0624 [0.9790]
l_Imports	0.5584 [0.6483]	1.8890 [0.1624]	1.0477 [0.3921]	7.5330 [0.0013]	--	0.5805 [0.6343]	0.9211 [0.4477]
l_ER	0.5572 [0.6490]	0.92157 [0.4475]	0.2457 [0.8634]	2.3638* [0.1001]	3.3794** [0.0374]	--	1.1907 [0.3374]
l_MS	0.2827 [0.8372]	4.3824** [0.0152]	1.0454 [0.3931]	1.8290 [0.1728]	3.4940** [0.0336]	0.2074 [0.8901]	--

Note: The values are F Statistics and () values indicate p-values.

* indicates significant at 10%, ** significant at 5%, and *** significant at 1%.

Source: Researcher's Computation based on Secondary Data using Open-Source software Gretl.

From the table 5, it can be seen that a unidirectional causality is observed from l_IIP to l_ECB (approx. 10% level of significance), l_MStol_CPI (5% ls), l_IIP to l_Exports (1% ls), l_ER to l_Export (approx. 10% ls), l_CPI to l_Imports (5% ls), l_IIP to l_Imports (5% ls), l_Export to l_Imports (10% ls),

l_ER to l_Imports (5% ls), and l_MStol_Imports (5% ls).

Key Outcomes

Thus, the key outcomes based on results in table 4 & 5 are discussed as below:

- The ECBs are not directly caused by the various macroeconomic indicators, but it has close linkage with imports as 1% increase in ECB in one time lag, causes imports to increase by 0.03%. As per the government regulations for ECBs, it can be availed by the companies for capital expenditures which includes financing imports like capital goods, raw materials and intermediate goods. (RBI, 2019).
- Secondly, 1% decrease in CPI (1-time lag) causes import to increase by 5.10%. The ECB has the potential to decrease the inflation due to less cost of borrowing. The availability of funds in the form of foreign capital helps the investors to finance various development projects, infrastructure and business expansion which induces importers to import the capital goods. This creates demand for resources, employment and increase in consumption leading to healthy market conditions and maintain moderate level of inflation necessary for growth.
- In developing country like India, the industrial sector always remained starved for investment resulting into low index of industrial production. The availability of foreign capital i.e., ECB at low borrowing cost provided an opportunity to such investors to import capital as indicated by 1% decrease in IIP (1-time lag) causes imports to increase by 1.94%. This shows that other things are remaining same, if the index of industrial production decreases, it will stimulate imports in country. As the lending rates in India are assumed to be greater in comparison with ECB, it is mostly preferred for financing for capital accumulation and development of industrial sector.
- Low industrial output results in less exports and higher imports as indicated by 1% decrease in exports, cause imports to increase by 0.4317%. Higher investment results in changes in index of industrial production creating export and import opportunities for the investors.
- Rise in imports results in exchange rate devaluation, which may be the outcome of low exports, low index of industrial production. Hence, it further induces the demand for imports as indicated by 1% increase in exchange rate causes imports to increase by 2.11%.

- Finally, when the money supply increases in the market, it creates optimism amongst the consumers as well as investors. Consumers have high purchasing power and investors are proactive in fulfilling the needs of the market. Hence, it stimulates imports in an economy as indicated by 1% increase in money supply (1-time lag) causes imports to increase by 5.07%.

- Based on empirical results, it is noteworthy to mention that industrial activity is the key to stimulate the economic growth as it has high potential to create multiplier effect. If industrial activity gets necessary stimulus, ECBs may be the most sought alternative by the Indian investors. Hence, the role of monetary policy becomes more crucial, and demands for more of growth-targeting measures especially for industrial sector than that of inflation-targeting measures.

V. Conclusions

The present study investigated the nexus between the various domestic macroeconomic factors and the external commercial borrowings (ECBs) in India. It is concluded that the ECBs is granger caused by IIP, but not directly impacted by the macroeconomic factors like CPI, exports, imports, Exchange Rate and Money supply, but there exists a short-run and long-run relationship between the various factors like ECB, CPI, IIP, exports, exchange rate and money supply with imports of a country. There are certain studies which raised the concern about the fund raising through ECBs as it creates exchange risk and interest-related risks for ECB. (Bose & Pal 2018). But RBI has taken necessary measures by effectively hedging the ECBs in terms of rupee dominated loans and explicit hedging to limit the impact of external shocks. Secondly, irrespective of present scenario of high global interest rates, the ECBs witnessed significant rise as can be evident from the fact that ECBs have increased by 87.85% during FY 2022-23 to FY 2023-24. (Source: Computed from collected data of ECB). The ECBs are usually opted by large corporates in India as well as the companies eligible for receiving FDIs. This benefit is now extended to some eligible start-ups also. The main purpose of ECBs is for sourcing of capital goods, modernization of plants and infrastructure development. This may cause index of industrial product and money supply to increase resulting into higher imports in an economy. Thus, there exists a nexus between imports and ECBs indicating the short run and long-run relationship along with other macroeconomic variables. The initiative by RBI to carefully ease the norms of ECBs for availability of

funds is commendable. The businesses especially start-ups must avail such benefits at large and the regulatory authority must take necessary steps to encourage such prospective beneficiaries. The measures suggested are; the start-ups should monitor the policy updates and RBI guidelines to ensure compliance with the changing regulations. They must use automatic route of ECB for faster approval of smaller borrowing needs from the authorized dealer banks. The start-ups should maintain good creditworthiness to attract international lenders at favorable terms. If they use appropriate foreign exchange hedging strategies, the currency risk associated with borrowing the foreign funds may also be mitigated.

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ARE WOMEN BREAKING THE GLASS CEILING TO TAKE LEADERSHIP ROLE IN THE INDIAN BFSI SECTOR?

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Purpose: The paper aims to highlights the landscape of women leaders in the BFSI sector and gives an overview of various theories established envisaging women as leaders. The paper aims to Understand theories related to women's leadership.

Design/Methodology/Approach: The methodology applied for paper is descriptive research. The information was collected through secondary sources like research articles, web articles and reports on women leadership.

Findings: A deep dive into the topic shows that though women have reached the leadership position it is not yet at the level which one would expect women to reach. Multiple theories promote women as leaders such as Feminist theory, Glass cliff theory, etc.

Originality Value: It is going to be a humungous task to bring gender parity, not gender diversity, into the BFSI sector. Further fulfilling the lack of gender equality in terms of equal opportunities for leadership positions requires a multi-faceted approach

Keywords : Women, Leadership, BFSI, Glass Ceiling, India

JEL Code: G23, J16,M12

I. Introduction

The term "Women in Leadership" describes the representation of women in leadership roles across a range of industries, nonprofits organizations, politics, business, and academia (Klenke, 2017). It emphasizes the difficulties encountered by women, their accomplishments, and the effects of their leadership on society. Talking about women in leadership is crucial because having a varied range of genders in leadership positions encourages creativity, a range of viewpoints, and social advancement (Taparia & Lenka, 2024). Women leaders in corporate are vital to the global economy because they promote equality and empowerment, reduce poverty, foster innovation, and creativity, have a positive social impact, and boost global economies (Agrawal, Bakhshi, Chandani, Birau, & Mendon, 2023). Women may make a substantial contribution to creating a future that is more inclusive and equitable by shattering barriers based on gender.

It is generally believed that when compared to men, women have slower career advancement prospects. Usually, women in the workforce face several obstacles, commonly referred to as glass ceiling (GC), that weaken their career advancement prospects (Shaji, Joseph, & K, 2021). In recent times, more women have overcome obstacles to achieve positions of

power and influence, the leadership environment has changed significantly. India, being a country of culture, has a significant impact on gender diversity. There were various traditional obstacles for women when it came to working stepping out of the home and eventually becoming a leader (Nath, 2000). India has made amazing strides toward

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increasing the representation of women in corporate boardrooms because of both statutory changes and a greater understanding of diversity's critical role (Syed & Tariq, 2017), (Rastogi, Baral, & Banu, 2022). However, it is the start of the journey and a long way to go. Women empowerment can be achieved by respect, recognition and remuneration (Vijay & Chandani, 2021). The leadership in India had broken the gender diversity and traditional barriers with women empowerment.

Banking and financial services act as the backbone of a nation as it fuels the entire working of an economy, this gains more importance for a country like India (Maria & Hussain, 2024) where banks have contributed significantly to the country's development. However, women are the foundation of any family. We anticipate that synergies will arise when these two components, bank, and woman merge (Chandani et al., 2014). This paper highlights the landscapes of women leaders in BFSI along with an overview about the theories related to BFSI

In India, women have advanced significantly in white-collar employment in the past few years. Women have gone a long way, from breaking into the Indian workforce to assuming positions in middle management, top management, and leadership responsibilities (Datta & Agarwal, 2017). The financial industry is one prominent area where women have made remarkable strides, but there is still a lot more room for women to succeed in this field. The percentage of women working in finance-related sectors and organizations is still low and there are more men than women in senior and managerial roles in the financial industry as it is perceived to be a field dominated by men.

There is a preconceived notion about women breaking the glass ceiling in the corporate world and women being on the top hierarchy, while it is true that there has been some progress made in this regard, however, this progress is limited to lower-level or mid-level. There has been an increase in clerical and desk jobs since the 2000s but most jobs in leadership are filled by men only remains a distant dream for women (Datta & Agarwal, 2017).

The objective of the study to explore the women who have been able to break the glass ceiling in the BFSI sectors and what should be done in future promote more women joining the leadership positions in BSFI Sector.

II. Literature Review

For years, scholars, legislators, organizations, and international institutions, have been becoming more interested in the causes of women's underrepresentation in top-level leadership positions (Bazel-Shoham, Lee, Rivera, & Shoham, 2017). Because having women fairly represented in senior leadership roles has several benefits and is socially acceptable (Zhang & Basha, 2023). Female executives reduce some balance sheet risk but have an insignificant effect on bank equity risk (Liu & Wu, 2022). Women are more effective transformational leaders because of their feminine characteristics, which inspire others to be self-motivated rather than being inspired by outside rewards (Gaur, Gupta, & Pal, 2023). Despite the evidence that women are capable of being top performers, women are still not attaining top-level leadership positions in comparison to their male peers (Baker, 2014). No CEOs or Directors general are women in listed banks, and women are always more represented in non-executive functions (De Vita & Magliocco, 2018). In the empirical context, the leadership and organizational culture that support inadequate career advancement for women are ingrained in and influenced by the culture (Pepple, Oseghale, & Nmecha, 2024).

The term "glass ceiling" describes a barrier that women encounter or have encountered in businesses and organizations worldwide or is a metaphor for an imperceptible barrier that keeps women from achieving their full potential (Zhang & Basha, 2023). Glass Ceiling for Women as a barrier includes three types of barriers, i.e., personal, organizational, and societal barriers (Sharma & Kaur, 2019). There could be several potential factors that contribute to the limited representation of women in top-level management jobs in which unconscious bias plays a vital role (Datta & Agarwal, 2017). Women are underrepresented in senior leadership roles, due to challenges in teamwork, organizational regulations, and the absence of a space for self-improvement (Zhang & Basha, 2023). Decision-makers which are men mostly as per the corporate scenario till now, might prefer men based on their presumption that men a better leaders and abilities to tolerate risk. Due to this, women do get involved in the corporate ladder by joining an entry-level job but hardly get promoted

to leadership positions. In addition, lack of mentorship and sponsorship also plays an active role in becoming an obstacle for women in further advancement of their careers (Nath, 2000). The odds of women meeting and connecting with top leaders are much lower than men even if the leader itself being a female. Compared to men, women are more likely to be promoted to high-risk leadership roles and frequently lack the power or support necessary to achieve their strategic objectives. Because of this, female leaders frequently have shorter tenures than their male counterparts (Glass & Cook, 2015).

Moreover, banking and finance have a history of being dominated by males and have a well-established chain of networks and paths set for promotions (Alharbi, Elnahass, & McLaren, 2022). Wherein, women find it challenging to break the glass ceiling of established networks and promotion pathways and pave their own way to land into the closed circle that involves leadership opportunities (Girardone, Kokas, & Wood, 2021). Due to these factors, an intricate web of hurdles is formed that restrains women from reaching their zeniths in the sector of Indian banking and finance.

The glass ceiling, which many people believe to be a myth, exists and is fuelled by business culture, policies, and strategies in addition to the shortcomings of women (Mathur-Helm, 2006). In the finance industry, women continue to face a glass ceiling that even "doubles" in certain industries, like banking, where a strong masculine culture prevents them from moving up the career ladder even after they reach middle management positions occasionally, even if they reach the top, they are bound to fail (Girardone et al., 2021).

In banking, the exhaustive nature of leadership roles often requires longer working durations, requiring employees to work overtime and to be available all the time. It may conflict with women's schedules who are managing their family's responsibilities along with their office-related workload thereby leading to ineffective work-life balance (Sharma & Kaur, 2019). It is also seen that even after the best policies framed for post-maternity leaves and providing all stated incentives as per the law, post-maternity attrition remains at an all-time high of 35-40% and these women choose to leave their hard-earned positions due to maternity and child care and this has been cited from The Economic Times article on

(India Inc curtails post-maternity attrition by Namrata Singh / TNN / Jan 2, 2017, 05:52) (Singh, 2017). The lack of work-life balance could create further potential barriers for women's inclusion into corporation.

In addition to women's efforts to advance their education and careers, only the most decentralized businesses with a culture that encourages women in leadership roles will contribute to the removal of the glass ceiling (Mathur-Helm, 2006). The number of women in senior leadership roles has grown over time, particularly in crisis-affected organizations. The focus today is on the various leadership philosophies that these women employ. significant evidence that the market value of banks is favorably correlated with the number of female directors, or their presence and proportion on the board (Alharbi et al., 2022).

Bank policymakers' attention has been drawn to the growing number of women in leadership and directorship positions on boards during the past ten years (Mashele & Alagidede, 2022), whether these positions are required, due to the importance of their function and its connection to sound bank governance (Owen & Temesvary, 2018).

III. Theoretical Framework

In the literature, various theories support the presence of women in male-dominated leadership theories. One such theory is the Feminist Theory of ("Mary Wollstonecraft (1759-1797) | Towards Emancipation?" n.d.) to promote equality in society. (Lacey, 1989) made a significant contribution to the study of feminist leadership. A paradigm for feminist leadership was created in 2011 by Srilatha Batliwala for CREA (Creating Resources for Empowerment in Action) an international human rights organization founded in 1999. Batliwala expands on the criticisms of other academics who have also expressed concerns about gender blindness in leadership frameworks.

Another theory supporting women leaders is the Transformational Leadership Theory James V. Downton in 1973. According to the transformational leadership theory, a leader can inspire and encourage subordinates to go above and beyond expectations by using charm, vision, and thoughtful thinking. According to some studies, women are more likely than males to demonstrate transformational

leadership traits, especially when creating cooperative and encouraging work cultures (Korejan & Shahbazi, 2016). The theory of transformational leadership provides insightful information on female leaders' potential and leadership skills. Female leaders have the potential to significantly impact corporate success and cultivate diverse & productive teams by using their vision, inspiration, empowerment, and emotional intelligence.

Another important theory supporting women leaders is the Glass Cliff theory (Ryan & Haslam, 2005) which mentions that when there is a significant danger of failure amid organizational turbulence or a crisis, women are more likely to be chosen for leadership roles. There are several reasons for this predicament, one of which is the perception that women are better at interacting with others and are therefore more qualified to deal with challenging circumstances that call for cooperation and empathy. However, the glass cliff offers a double-edged sword for women in leadership. On the one hand, it gives them chances to demonstrate their leadership abilities. However, it puts them at a greater chance of failing (Poma & Pistoiresi, 2024). They risk criticism and backlash if they fail to turn the organization around, which would serve to perpetuate the myth that women make less capable leaders. An example of the same could be Café Coffee Day, an Indian coffee chain. The owner of CCD reportedly committed suicide due to huge debt to the company, however his wife Malavika Hegde became the CEO of CCD. She not only repaid and lowered the debt but brought the company up and running successfully (Business Outreach, 2024).

Another theory related to women leaders is a double-bind theory that explains the predicament encountered by female leaders who must reconcile competing expectations and prejudices. Women may be punished for being ambitious or forceful (viewed as "too masculine"), but they may also come under fire for being "too feminine" if they show affection or empathy (Jamieson, 1995). The double binds discussed in the theory are Assertiveness vs. Likability, Competence vs. Likability, Work-Life Balance, Appearance and Presentation. For women leaders, navigating these double binds can be difficult since they must continually balance conflicting expectations and preconceptions with the need to establish their credibility and authority (Fernandez, Burnett, & Gomez, 2018). Organizations must confront gender

stereotypes, advance inclusive leadership techniques, and establish settings free from the limitations of conventional gender norms and expectations if they are to effectively address these issues (Madaan & Pradhan, 2017).

The theory of Gender Diversity is one of the important theories supporting women's leadership. The need for varied representation, especially in terms of gender, within corporate boards (López-Cabarcos, Vizcaíno-González, & López-Pérez, 2023) and leadership roles (Vieira, Madaleno, & Lobão, 2022) is the focus of the theory of gender diversity in corporate governance. It argues that having an equal representation of men and women in these positions can help firms in several ways, such as better decision-making, increased corporate performance, and increased engagement from stakeholders.

Women on boards have a big influence on how well a company performs because, in comparison to men, they are better at managing tasks like meeting preparation, bringing in fresh perspectives, and exercising leadership ((Jogulu & Wood, 2006). Compared to men, women CEOs possess greater human capital. Gender quotas have been imposed on the number of female board members and countries like Norway, Denmark, Spain, France, and Belgium, have recognized the status of women in corporate boardrooms. As per the global gender gap report 2023 of the World Economic Forum ("Global Gender Gap Report 2023," 2024) Nevertheless, with only 20% of the largest firms in the world having female directors, women continue to be underrepresented on boards and in other senior management roles.

IV. Research Gap and Methodology

The literature reviewed for the study depicts that researchers are extensively discussed about the importance of women leaders in BFSI along with the glass ceiling confronted by them while conquering the position as a leader. The studies revealed that though women proved to be good leader and contributes greatly to the organization's performance being on the top, there are numerous impediments to the women that creates the obstacles for them to reach at the top position in management. However, the scenario for men is completely

different that results in a greater number of male leaders. India's diverse sociocultural, political, and economic factors have drawn more interest in recent years to the study of women leaders in the nation. Yet several research gaps still exist that demand further study. The challenges faced by women to break glass ceiling in India BFSI sector requires the attention by researchers, policymakers, and business sector. The upgradation in macro and micro level policies that can support women in breaking the glass ceiling in Indian BFSI sectors requires extensive focus from researcher.

The methodology applied for this paper is descriptive research. The data collected is through secondary sources such as research articles, web articles and reports referring women leadership.⁸⁷ research articles are reviewed for the current study. These research articles are fetched from publishers such as Emerald Insight, Elsevier, Springer, Science Direct and indexed in apparent databases such as Scopus and Web of Science. The information collected is articulated as per the requirement of the study to identify landscape of women leaders in BFSI, theories promoting

women leaders and support expected from various factors. Present study includes the list of women leading Indian BFSI sectors are identified using online sources and enumerated in Table 1.

V. Results

5.1 Women in BSFI in India

Banking, Financial Services and Insurance (BFSI) has seen an increase in the number of women in the leadership position. depicts the women leading in the Indian BFSI sector. It indicates that women are leading the BFSI sector however most of them are in private sectors and very few are leading government sectors of Indian BFSI. The women are ruling a few of the banks and mutual fund companies. However, other sectors in BFSI can create opportunities for women leaders some of them would be investment banks, Credit rating agencies, broking firms, the insurance sector, etc.

Table 1 : Women leaders in Indian BFSI

S. N.	Name	Position	Company	Period
1	Ms. Anju Chhajjer	Senior Fund Manager	Nippon India Mutual Fund	Sep 2007 - Present
2	Ms. Archana Bhargav	Chairperson and MD	United Bank of India	April 2013 – Feb 2014
3	Ms. Arundhati	Chairperson	State Bank of India	June 1977 – Sep 2017
4	Ms. Bala Deshpande	MD	New Enterprise Associates	Tenure not available
5	Ms. Chanda Kochhar	MD and CEO	ICICI Bank	2009 - 2018
6	Ms. Chitra Ramkrishna	MD and CEO	NSE	2013 - 2022
7	Ms. Kalpana Morparia	CEO	South Asia and India Operations at JP	2008 - 2021
8	Ms. Madhabi Puri Buch	Chairperson	SEBI	March 2022 - Present
9	Ms. Manisha Girotra	CEO	Moelis India	July 2012 - Present
10	Ms. Manimekhalai	CEO and MD	Union Bank	June 2022 - Present
11	Ms. Naina Lal Kidwai	Group GM and Country head	HSBC India	Nov 2002 – May 2006
12	Ms. Padmaja Chunduru	MD and CEO	NSDL	Oct 2021 - Present
13	Ms. RM Vishakha	MD and CEO	India First Life Insurance	March 2015 – July 2024
14	Ms. Renuka Ramnath	CEO and Founder	Multiples Alternate Asset Management	2009 - Present
15	Ms. Roshi Jain	Senior Fund Manager	HDFC Mutual Fund	Dec 2021 - Present
16	Ms. Shanai Ghosh	ED and CEO	Zuno General Insurance	Feb 2023 - Present
17	Ms. Shikha Sharma	CEO	AXIS Bank	2009 - 2018
18	Ms. Snehlata Shrivastava	Executive Director	National Bank for Agriculture and Rural	Not available
19	Ms. Sohini Adnani	Fund Manager	SBI Mutual Fund	Sep 2010 - 2024
20	Ms. Sunaina da Cunha	Co-Head Fixed Income	Aditya Birla Sun Life Mutual Fund	Apr 2021 - Present
21	Ms. Upasana Taku	Co-founder and COO	Mobikwik	March 2010 - Present
22	Ms. Usha Sangwan	MD and CEO	LIC	Nov 2013- Sep 2018

(Source: Author's Compilation)

As per the Reserve Bank of India (RBI), there are 21 private sector banks in India and none of these have their positions for CEO or MD filled by any women which reveals the ground reality of gender inclusivity that has been portrayed by banking and financial sectors. Even the public sector banks are not doing any better in this area except for Union Bank of India which is currently under the leadership of Ms. A Manimekhala. In the past, women leaders in BFSI were like Ms. Arundhati Bhattacharya, the first women chairperson of SBI, and Ms. Chanda Kochhar former MD and CEO of ICICI Bank.

5.2 Global Comparison

The dearth of women in leadership roles is a global problem, not only in India or other developing nations. Women Economic Forum, gender gap report 2023 (“Global Gender Gap Report 2023,” 2024) suggested that the finance sector suffers the major downturn of women in their journey of leadership where there 50% of women start at entry level but reduce to 23% at leadership.

The Indian banking sector has been in a phase of transition over the last few decades as increased involvement of women can be seen and is evident from the statistical data released by RBI which states that, there is an overall 24 percent representation of women in Indian banking sector which is a huge increase in comparison from 10 percent of women representation in 1990.

According to the (“Global Gender Gap Report 2023,” 2024) reports the leadership of women in the finance sector has increased from 22% to 24% from 2019 to 2022, however, compared to developed nations India is lagging. Countries like the USA have more women workforce growth as compared to India.

Table 2: Gender-Based Staff Strength (India and US)

	RBI (Jan 01, 2023)		SEBI (Jan 01, 2023)		US SEC (Jan 01, 2023)		US Federal Reserve (Jan 01, 2023)	
	No.	%	No.	%	No.	%	No.	%
Male	10187	77	682	69.6	2441	53.8	1641	57
Female	3037	23	298	30.4	2095	46.2	1262	43
Total	13224	100	980	100	4536	100	2903	100

(Source: Author's Compilation)

Table 2 indicates a comparison of gender-based staff strengths in the Indian government sector specifically SEBI and RBI with the US SEC (United States Securities and Exchange Commission) and US Federal Reserve. It indicates the huge disparity between the percentage of women staff compared to male staff in Indian BFSI as compared to the US. At the Reserve Bank of India, every 3rd in 4 people is a male employee stating that three forth of the entire workforce is male population while at SEBI, the numbers are even poorer as more than two third of the workforce consists of male employees.

Only one female is there in each central Board of Directors and in the 16 groups of 16 Executive Directors in RBI. There are only 10 females among 30 of chief General Managers and it can be pointed out that since the time of inception that took place in 1935, no female has been appointed as RBI governor. During that period, out of the total 64 deputy governors that were appointed since 1935 and till present, only 3 of the females got the very desired post.

VI. Discussion and Conclusion

Although the position of female leaders in the Indian BFSI industry has been gradually increasing, there are still obstacles and difficulties that women must overcome to advance to senior leadership roles. Even though there have been several well-known female leaders in the Indian BFSI industry, women are still underrepresented in the upper ranks as compared to men. Nonetheless, the proportion of women in leadership positions has gradually increased over time. Ultimately, even though there has been progress, more needs to be done to attain gender parity and build a welcoming atmosphere that would allow women to succeed as leaders in the Indian BFSI industry. Driving change requires actions to remove structural obstacles, improve diversity and inclusion, and assist women in advancing their careers.

As a country India, it faces specific challenges which might impact women to join the work force and some of the issues are night shifts, safety at workplace, societal norms etc. Additional conducts are being accepted by companies to mitigate expected hardships that may arise because of night

shifts for women and personalized training workshops are conducted to train the staff in programs such as ensuring road safety, safety from fire, self-defense, and POSH (Prevention of Sexual Harassment) and safe transportation facilities are also provided at the workplace. All these measures provide safety along with working opportunities for women ensuring active workforce participation.

Despite all the incentives and opportunities, the primary issue still revolves around the fact that these roles are limited to blue-collar jobs and as per the current scenario hardly any of them have a chance of being promoted to the top level of management where leadership skills are required and decision-making is done and whether it will provide the upskilling opportunities or not can be seen in upcoming future only. The structural and psychological obstacles that prevent women from advancing in the workplace must be addressed by organizations dedicated to fostering women's leadership potential and achieving their gender diversity objectives. Furthermore, for women to progress as organizational leaders, men must be actively involved as allies.

Further fulfilling the lack of gender equality in terms of equal opportunities for leadership positions requires a multi-faceted approach. This is a two-way task where organizations should play their role by not being biased and women also need to continuously upskill themselves in regards to improving their leadership skills and exploring opportunities for learning and building professional networks as a part of this development process. Women must be able to show their capabilities, displaying their worth for leadership roles and how they seem fit for those roles through effective decision-making and risk management. Women can seek guidance from mentors for their career advancement if needed and women who are already in a leadership position can nominate themselves for providing guidance to the aspiring ladies so that they can follow their leaders' ideals and emerge themselves as future leaders.

Now at the organizational level, companies must promote diversity and inclusivity programs in true terms by eliminating any barriers whatsoever, that prevent any capable female from getting promoted to leadership roles as per their qualifications and skills can be done through implementing gender neutral recruitment processes that focus solely on

skills and qualifications irrespective of any other judgmental grounds and offering smooth work arrangements to reduce female employee attrition post maternity and by creating a supportive and inclusive environment.

VII. Limitations and Future Scope of Research

Present study provides various useful insights into different critical phenomena and gives an overview of various theories established envisaging women as leaders. The paper gives the readers an understanding of what is lacking at the macro and micro levels Glass ceiling women's leadership in BFSI, yet it has some limitations as well. Firstly, the study was conducted on women leaders in India, study can be extended too worldwide. Additionally, limitations come from the sector focused is BFSI in this study, however it can be extended to overall sectors depicting glass ceiling to the growth of women as a board of directors. The study focuses on theoretical aspects of the topic whereas the inclusion of quantitative aspect of the study through survey or interview can be undertaken by the researchers in future.

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INFLUENCE OF MARITAL STATUS ON ONLINE SHOPPING EXPERIENCE: IMPLICATIONS AND FUTURE RESEARCH DIRECTIONS

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Objectives: This study endeavours to understand how online shopping experience varies with marital status and builds future research directions as well as practical implications.

Design/Methodology/Approach: An extensive literature review was done after secondary research. It was followed by qualitative research to finalise the instrument and thereafter 262 single and 222 married respondents were surveyed in a quantitative study.

Findings: Significant difference between the single and married shoppers was found amongst variables related to perceived usefulness, perceived ease of use, influencers and trust for the most visited site.

Research limitations/implications: Larger scale studies can be conducted to understand how marital status influences e-commerce in countries other than India. The study provides several future research directions.

Practical implications: Key findings from this research are expected to improve e-tailers profitability by designing more targeted business strategies that meet the needs of both single and married consumers.

Originality/value: Marital status is an important part of the consumer life cycle however there are only few studies that have examined its influence on online purchase experience.

Keywords : Online shopping, marital status, usefulness, ease of use, influencers, trust

JEL Code: M31, J1, M3, D14

I. Introduction

The booming e-commerce industry in India is slated to touch almost \$350 billion by 2030. The online shopping market has seen high growth due to aggressive advertising and promotion by e-tailers, high discounts, multiple payment methods including cash-on-delivery and shorter delivery periods. India is experiencing notable demographic shifts with rising urbanization, need for premiumisation, and an increasing number of young consumers and working women. E-commerce is very much established as a crucial shopping channel, complementing the conventional physical stores. Therefore, it is essential for e-tailers to understand the key factors influencing online purchasing experience.

Marriage leads to several collective opportunities and duties. A single female's priorities are often centred on herself and her parents, whereas a married female's focus is likely to shift towards her children, husband, and household. (Mridha, 2020). Marital status is a vital demographic aspect in Indian culture, that impacts consumers online shopping experience considerably and hence understanding its influence is important for e-tailers. Technology adoption, perceived ease of use, perceived usefulness and risk perception can differ between married and single individuals due to social and economic responsibilities. However, most online shopping

sites do not overtly differentiate between married and single consumers in their marketing campaigns. Numerous studies have explored online shopping experience aspects, yet there are relatively fewer empirical studies that focus on enhancing customer experience, particularly in emerging economies like India. Marital status independently plays a vital role in understanding online purchase experience since each demographic variable influence shoppers' e-commerce choices in a unique way (Hossain et al., 2022). However, only few researches have studied the influence of marital status on the customer satisfaction of online shoppers (Nguyen and Homolka, 2020). There is little research on how marital status influences online shopping experience (Sethi and Sethi, 2017). Compared to international research that investigates online shopping experience in context of marital status, literature specifically on India is scarce. Hence this in-depth study on the influence of marital status on certain key aspects of online shopping experience, fills an important research gap.

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A multi-method approach has been used for comprehensive data collection and analysis. An extensive literature review was done after secondary research. It was followed by qualitative exploratory research to finalise the instrument and thereafter a quantitative survey was conducted to gather responses from 262 single and 222 married respondents. The Mann-Whitney U test facilitated finding out the variables which showed a significant difference between the single and married shoppers. The study provides a foundation for scholars to pursue further investigations. The study also has several practical implications for the e-tailers and helps them in developing business strategies, enhancing shopper experiences and designing promotions that accommodate different life stages to gain a competitive edge.

II. Review of Literature

Key aspects of online shopping experience

To arrive at the key aspects of online shopping experience an extensive literature review was done using various keywords such as “online shopping experience”, “online purchasing experience”, “online buying experience”, “e-commerce consumer experience”, etc to shortlist relevant research papers. Finally keywords such as “single”, “married”, “unmarried” and “marital status” were added to understand the role of marital status in online shopping experience. Reputed academic databases such as Emerald, Elsevier, Sage and Science Direct were used to identify research papers. Content analysis yielded five main themes i.e. perceived service quality, perceived usefulness, perceived ease of use, influencers and trust.

Perceived service quality

Chang and Chen, (2009) concluded that customer interface quality depended on convenience, customisation, character and interactivity. Xu and Paulins, (2005) opined that an effective return process is one that is quick and simple as it gives more confidence to the shoppers and increases their likelihood of purchasing online.

Perceived usefulness

The perceived usefulness of an online shopping site is mainly

in terms of the time and money saved. Time is saved if more detailed information on products is available vis-a-vis other sites (Lee and Ngoc, 2010). Khalifa and Liu (2007) identified faster and improved search and purchase process and a higher shopping productivity as time efficiency indicators, for a site to be perceived as more useful in comparison with other shopping sites. Perceived usefulness in terms of financial utility is more significant in price sensitive economies like India (Sharma, 2011). Hence, discounts and promotions offered by e-commerce sites are one of the leading accelerators of online shopping in emerging markets.

Perceived ease of use

Ease of use refers to characteristics such as the speed of interactivity and adequacy of information needed for a satisfactory online shopping experience and is a vital factor that directly influences consumer attitude which in turn influences loyalty and recommendation (Gupta et al., 2008). Close and Kinney, (2010) suggested that availability of adequate information on an e-commerce site could drive conversion of a window shopper into a customer. Hence it is vital that the information essential for shopping is adequate and easy to locate. Aren et al., (2013) investigated that quicker navigation and an effective search mechanism had substantial impact on selecting a site for buying online.

Influencers

An individual might generally feel encouraged to follow the views of their relatives, but they may not always align with every specific opinion they hold (Ajzen & Fishbein, 1973). Ranadive, (2015) found that the online recommendations of family members, friends and colleagues positively affect a consumer's intention to shop online.

Trust

Trust in online environments is crucial and significantly influences the customer experience throughout all stages—before, during, and after a purchase. Enhanced security for transmitting sensitive information reduces the likelihood of mistakes, imprecisions, and partial on-site details. An increased number of genuine customer reviews also boosts trust levels. Chang and Chen, (2009) concluded that perceived security is positively associated with customer

satisfaction and churn costs, which subsequently affect customer loyalty. Similarly, Verma et al., (2016) emphasized that trust plays a key role in sustaining long-term relationships in online retailing.

Influence of marital status on key aspects of online shopping experience

While many online shopping studies found no difference by marital status (Bhat et al., 2021), few studies have concluded that marital status has an impact (Gong et al., 2013). Dholakia and Uusitalo, (2002) observed that single consumers with disposable income are likely to buy online more spontaneously based on individual likings since they do not need to take joint financial decisions like married consumers. Park and Jun, (2003) opined that single shoppers have a higher risk appetite in online shopping transactions and are more likely to try unfamiliar platforms or technologies. Madhavaram and Laverie, (2004) investigated the influence of marital status on online shopping orientations and concluded that single consumers pay less attention to utilitarian attributes as recreation mattered more to them. Delafronz et al., (2009) further highlighted that married shoppers focus more on utilitarian aspects like ease of use, and saving time and money while hedonic aspects mattered more to the single shoppers. Lubis, (2018) determined that married shoppers have a greater propensity to shop online for satisfying their varied shopping needs. Amirtha and Sivakumar. (2022) opined that single consumer had higher online shopping satisfaction and continuous intention. Lohana and Roy, (2023) found considerable variations in usage of digital payments for online shopping. Single shoppers use debit cards, net banking and digital wallets more while the married shoppers depended more on credit cards. The studies conducted so far focus more on how marital status influences impulse purchases, satisfaction and online behavioural intention, however studies related to *perceived service quality, perceived usefulness, perceived ease of use, influencers and trust* are scarcer. Hence this in-depth study fills an important research gap. and specifically addresses two research questions:

RQ1. Which online shopping experience factors show

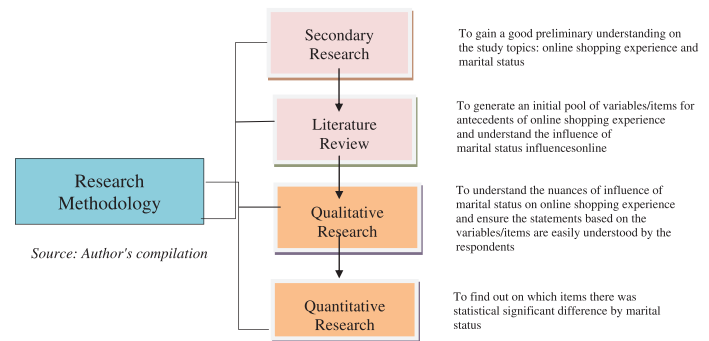
significant differences between single and married shoppers on their most frequently visited e-commerce site?

RQ2: Which online shopping experience factors do not show significant differences between single and married shoppers on their most frequently visited e-commerce site?

III. Research Design and Methods

A multi-method approach was used in this study for comprehensive data collection and analysis (Figure 1). Multiple methods increase the validity of the findings (Singh and Söderlund, 2020).

Figure 1: Research Methodology



Secondary and qualitative research

To start with, comprehensive secondary research was conducted by referring to a number of newspaper and magazine articles, books and reports to gain a good preliminary understanding on the study topics. Next, an extensive literature review yielded an initial pool of key variables /variables of online shopping experience and the studies done so far, on differences by marital status. Thereafter, an exploratory qualitative study(Das Guru, and Paulssen, 2020)was conducted wherein depth interviews were conducted with4 single and 4 married online shoppers using a discussion guide, made basis the insights gained from the secondary research and literature review. This qualitative study helped in understanding the nuances of influence of marital status on online shopping experience and ensure the statements based on the variables are easily understood by the respondents who met the requirements of the target

respondents and were selected through acquaintance and snowballing. The content validity was improved by sharing the discussion guide with 2 experts who had considerable knowledge of B2C online retailing. The face validity of the discussion guide was improved by incorporating the experts feedback on enhancing the suitability and ambiguity in context of the research questions (Taheri *et al.*, 2021). The discussion guide was pilot tested by conducting 2 interviews. After data collection, all the insights gathered were pigeon holed and content analysed.

Quantitative survey

The final set of 26 variables (across 5 constructs) to be tested for significant differences between single and married shoppers in the quantitative survey were finalised based on the insights gathered from the qualitative research and the literature review. The scale variables for 'trust' and 'perceived ease of use' were adapted from Chang and Chen, (2009); Park and Kim, (2003) while the variables for influencers were adapted from Lin, (2007). The adaptation was done on the basis of the influencers of experience in the Indian context. The other constructs were based on secondary research, exploratory qualitative study, expert opinion and the author's understanding. A 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) was used to capture experience on various aspects of online shopping. The instrument was piloted amongst target respondents spread across by age, income and occupational backgrounds and the required amendments were made in questions that were perceived as vague or difficult to understand. To further enhance the content and face validity of the instrument, feedback from the experts who reviewed these statements in context of the research questions was incorporated (Halan *et al.*, 2024). The variables were used in both regular (positively worded) and reversed forms to reduce response style bias (Paulhus and Reid, 1991). The nonparametric test analysis, Mann-Whitney U test was used to find out on which variables there are significant differences between two independent groups i.e. single and married respondents. Judgmental sampling was used for data collection due to the absence of a sampling frame for random sampling. The respondents were largely selected via social media platforms such as

WhatsApp, Facebook and LinkedIn and snowballing was used to boost the sample. The respondents were defined as those living in India who had purchased at least one tangible product online, in the last 3 months. Since consumers use multiple shopping sites, the experience on various aspects of online shopping was captured on the most visited site in the last 6 months. The representation by gender and marital status was in line with Indian Census data which reported that about 45% of the Indian population was married in 2020. A total of 2558 questionnaires were distributed, 586 responses were collected and amongst these, 484 were usable valid responses. It is generally proposed that 10 observations per variable is considered as an adequate sample size (Muthén and Muthén, 2002). Since this study involved a total of 26 variables, a sample size of 484 was considered to be more than sufficient for this study.

The instrument included questions such as:

Q) I would like to ask you about things such as reputation, security etc w.r.t shopping on the site that was most visited by you in last 6 months, on this 7-point scale:

- 7 Strongly Agree
- 6 Moderately Agree
- 5 Slightly Agree
- 4 Undecided
- 3 Slightly Disagree
- 2 Moderately Disagree
- 1 Strongly Disagree

Q) What is your Marital Status:

- Married
- Single
- Other please specify _____

Q) Please tell me your occupation

- [1] Homemaker
- [2] Self-employed professional
- [3] Service
- [4] Business
- [5] Student
- [6] Retired
- [7] Other please specify _____

IV. Results and Discussion

A little less than 50% of the respondents were students followed by service professionals at about 30%. Amazon was the most visited site in the last 6 months, for about 50% of the respondents, followed by Flipkart for one-fourth of the respondents. The Mann-Whitney U test was used to find out on which variables there are significant differences, between single and married respondents (Table 1). Table 2 provides the variables on which no significant difference was found.

Table 1: Significant differences by Marital Status (on the most visited site)

S.No	Variable	Mean – Married (N=222)	Mean – Single (N=262)		Significance
PERCEIVED USEFULNESS					
1	<i>I feel that e-commerce sites have reduced high discounts over the last 6 months</i>	4.63	4.20		.004
2	<i>It is easy to compare prices of items while shopping on this site</i>	4.91	5.10		.017
3	<i>The prices are better than those in stores in the market</i>	5.28	4.90		.009
4	<i>The rewards scheme offers significant savings</i>	3.59	4.29		.000
INFLUENCERS					
5	<i>My friends believe this is the right platform for online shopping</i>	4.65	5.20		.021
6	<i>On seeing advertisements across different media channels, I felt motivated to try this site</i>	4.40	4.80		.007
7	<i>** My family thinks this is not the best site for shopping online</i>	5.53	4.67		.000
TRUST					
8	<i>The site is error-free and provides precise, up-to-date, and comprehensive information</i>	5.42	5.17		.023
9	<i>It offers helpful and authentic customer reviews</i>	5.16	5.45		.000
PERCEIVED EASE OF USE					
10	<i>**It is hard to find the necessary information for shopping</i>	4.91	4.42		.004
11	<i>The site offers fast interactivity</i>	5.69	5.19		.004

** has been reverse coded Source: SPSS Data analysis

Table 2: No significant differences by Marital Status (on the most visited site)

S.No	Variable	Mean – Married (N=222)	Mean – Single (N=262)		Significance
PERCEIVED SERVICE QUALITY					
12	<i>The customer care is very supportive.</i>	5.15	4.99		.664
13	<i>Delivers ordered products in good working condition</i>	5.88	5.62		.186
14	<i>Has a return policy that is easy to understand</i>	5.27	5.33		.590
15	<i>Does not offer good service after delivery of products</i>	3.67	3.64		.947
PERCEIVED USEFULNESS					
16	<i>Has detailed information on the items offered by the site</i>	5.48	5.44		.983
17	<i>I am able to find on this site all the products that I am looking for</i>	5.53	5.17		.057
18	<i>Offers service to me as if it knows who I am and understands my needs</i>	5.21	5.27		.237
PERCEIVED EASE OF USE					
19	<i>It is simple to search for products on this site</i>	5.72	5.50		.430
20	<i>When I encounter any issues on the site, there are various interactive options available for my help</i>	4.90	4.89		.760
21	<i>The site has comprehensive details on all promotions that are going on.</i>	5.06	5.14		.233
INFLUENCERS					
22	<i>My relatives believe this is the best site for shopping online</i>	4.97	5.03		.850
23	<i>Have come across news articles stating that this is a reliable site</i>	4.98	5.10		.810
TRUST					
24	<i>Enjoys a strong reputation amongst the several online shopping sites available today</i>	6.31	6.02		.391
25	<i>This site values and provides the required attention to its customers</i>	5.67	5.41		.519
26	<i>I feel secure while sharing my personal and payment data on this site.</i>	5.43	5.42		.258

** has been reverse coded Source: SPSS Data analysis

No significant difference was found across perceived service quality variables which were: the customer care is very supportive, delivers ordered products in good working condition, has a return policy that is easy to understand and does not offer good service after delivery of products. Bhat et al., (2021) opined that single consumers are more inclined towards e-commerce vis-à-vis married consumers since the latter usually treat a shopping trip as a family outing for entertainment hence prefer to go to malls and hyper-markets. Moreover, variables needed to set up a house, post marriage are usually high involvement goods which may require physical evaluation at stores. More frequent online shopping is likely to make the single shoppers, more difficult to satisfy. However, married shoppers vis-à-vis single shoppers who have more freedom can have higher service quality expectations from e-tailers given the influence of their spouses, (Nguyen and Homolka, 2020).

Perceived usefulness

Nonparametric test analysis revealed significant differences between single and married online shoppers in case of the following perceived usefulness variables: *I feel that e-commerce sites have reduced high discounts over the last 6 months, it is easy to compare prices of variables while shopping on this site, the prices are better than those in stores in the market and the rewards scheme offers significant savings.* The perceived usefulness of an online shopping site is mainly in terms of the time and money saved. Dholakia et al., (2002) concluded that married shoppers usually share financial responsibilities with their spouses and spend more time budgeting and planning for their family especially if they have children. Hence, they are inclined to be more cautious in aspects related to money, such as, price comparison, promotions and the best offers. Social Role Theory explains how societal roles impact consumer behaviour and experiences. Married shoppers also face greater time pressures in life and work and hence online shopping offers higher time utility to them. (Nguyen and Homolka, 2020).

Perceived ease of use

There were significant differences between single and married online shoppers in case of the following perceived ease of use variables: *it is hard to find the necessary*

information for shopping and the site offers fast interactivity. Madhavaram and Laverie, (2004) found that single shoppers enjoy searching for and discovering novel products and services online, as it gives them a sense of emotional satisfaction. However, those who are married tend to be more task-oriented and demand greater ease of use. Ramanathan, (2011) examined how marital status impacts adoption of technology in the purchase process. A greater proportion of single shoppers are early adopters of new technologies such as mobile commerce, social media shopping, and live-stream shopping as they are more open to trying out novelty. Technology Acceptance Model (TAM) can be used to explain that married shoppers see higher utility in e-commerce but find technology adoption relatively more difficult.

Influencers

In this study significant differences were seen between single and married online shoppers in case of the following variables related to influencers of online shopper experience: *my friends believe this is the right platform for online shopping, on seeing advertisements across different media channels, I felt motivated to try this site and my family thinks this is not the best site for shopping online.* The Theory of Planned Behaviour (TPB) elucidates how subjective norms shape online shopping experiences. Married shoppers experience higher subjective norms and are influenced by their family, while single shoppers are influenced more by advertisements. Friends which form the peer group, play a bigger role in case of single shoppers. Childers et al., (2001) investigated the role of social influence on e-commerce. They found that single consumers depended more on peer recommendations, social media, and user reviews while married consumers rely more on family as household shopping decisions have to be taken.

Trust

Significant differences were found between single and married online shoppers in case of the following trust related variables: *the site is error-free and provides precise, up-to-date, and comprehensive information and it offers helpful and authentic customer reviews.* Reviews are thought to be more useful and genuine by those who are single and they also find it easier to compare prices as they have more time and are

more technology savvy versus those who are married and have more family responsibilities. Forsythe and Shi, (2003) studied how perceived risk influenced online shopping and opined that married shoppers, more so, those who had children, are likely to be less risk-taking vis-à-vis single shoppers. Prospect Theory explains how different segments perceive the risk element differently, during purchase decisions. Married shoppers with families are more wary of cyber-fraud, misuse of personal data and product quality, given the bigger monetary and personal responsibilities and hence shop from sites that are more reputed and follow more stringent security protocols.

V. Study implications

Practical implications

The findings from this empirical study on the influence of marital status on online shopping experience has considerable practical implications for e-tailers. The government's e-commerce policy urges e-tailers to focus more on enhancing customer experience, instead of offering concessions (Halan, 2017). E-tailers need to provide customised online shopping experiences to single and married shoppers. With cut-throat competition in the online retail market, an increasing proportion of e-tailers are facing profitability concerns. Findings from this research can help increase the profitability, by improving customer experience which will ultimately result in higher loyalty and advocacy.

Single shoppers enjoy searching for and discovering novel products and services online (Madhavaram and Laverie, 2004), as it gives them a sense of emotional satisfaction and a greater proportion of single shoppers are early adopters of new technologies. Hence single shoppers are likely to be more attracted by deals based on fashion, travel, tech gadgets, entertainment and social engagement. The marketing communications aimed at the single consumers should highlight exploration, novelty, and community features such as shopper reviews analysis. As explained by the Consumer Involvement Theory, on the other hand, married consumers who show a higher involvement with household shopping, need to be targeted with discounts and offers on variables of family use such as furniture, children's products

etc. Their average basket size is bigger than single shoppers and offer higher potential for cross-selling. Married shoppers are influenced more by family while single shoppers are influenced more by advertisements and reviews as they have more time for these. This insight should be factored in by e-tailers while planning their marketing strategy. Married shoppers face greater time and financial pressure (Hossain et al., 2022) and are more wary of cyber-fraud, misuse of personal data (Forsythe and Shi, 2003) and product quality, given the bigger financial and personal responsibilities. Therefore, while targeting married shoppers, e-tailers need to focus more on attributes such as better encryption and a loyalty program that offers considerable savings. Hence, e-tailers can formulate strategies for shoppers so that they are advantaged with better services. However, the strategy needs to be altered with shifts in consumer behaviour (Kaur, 2018). Hence this study has the potential to resolve real-time business issues of e-tailers.

Theoretical implications: Future research directions and limitations

There is a lack of knowledge about influence of marital status on online purchase experience, and hence there is a need to examine this aspect. This study makes a theoretical contribution by adding to the scarce literature and offering several future research directions. It raises the following unanswered questions and provides a foundation for scholars and researchers to pursue further investigations

- How does the influence of marital status on online purchase experience compare and contrast with findings across diverse countries and cultural contexts?
- How do cultural and psychological factors intersect with marital status to influence online shopping experience?
- How do other demographic variables such as age, education etc. impact the influence of marital status on online purchase experience?
- How does having children alter online shopping motivations and risk perceptions for married shoppers?
- How do online shopping patterns change as consumers evolve from single to married status and thereafter, further in married life? Longitudinal studies can be done, given the varying patterns of online shopping experience.

- The marriage gifts market in India is as big as INR 0.22 million crores (Ravindranath, 2016), however the online marriage gift market remains fragmented and incompetent. How can e-tailers get a bigger share of his huge market by gaining a better understanding online purchase experience by marital status.

That this study was done in a single country, India, is a limitation of this study. Similar studies can be done in other developing as well as developed countries and the findings can be compared. Larger scale, in-depth quantitative and qualitative studies can be conducted to achieve an in-depth knowledge of how marital status and other demographic variables online purchase experience. This will be particularly more useful in emerging economies where the penetration of unorganised retailers is much higher than e-tailers (Halan and Singh, 2023).

VI. Conclusion

Marital status is an important part of the consumer life cycle (Mridha, 2020) and a vital demographic aspect in Indian culture. However, most studies cover the moderating effect of several demographic variables along with a number of other factors. Marital status independently plays a key role in understanding online purchase experience (Hossain et al., 2022) but literature is scarce. This study creates a new understanding on this aspect. It is based on a comprehensive multi-method approach, examines aspects that have not been empirically tested before. Most online shopping sites do not overtly differentiate between married and single consumers in their marketing campaigns. Key findings from this research are expected to improve e-tailers profitability by designing more focused business strategies that meet the needs of both single and married consumers.

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DIGITAL SHIFT IN INDIA: A BLOCK CHAIN PERSPECTIVE ON E-GOVERNANCE REFORM

Ms. Anupama Munshi* Dr. Hukum Chand Saini**

Objective: This study aims to explore the integration of blockchain technology in India's e-governance framework, assessing its effectiveness in enhancing transparency, security, and service delivery. The purpose of this study is to provide an alternate method to already existing system of using digitized service through a Block chain model for storing retrieving and securing digital data.

Methodology: The research follows a mixed-methods approach. Qualitative data was collected through case study analysis of existing blockchain-based initiatives (e.g., land records, digital locker). Quantitative data was obtained from secondary sources, including government reports and digital governance indices, analyzed using

Key Findings: The findings reveal that blockchain adoption leads to increased data integrity, faster processing times, and reduced administrative corruption. Blockchain-based systems outperformed traditional systems on metrics such as user satisfaction, service uptime, and data immutability.

Implications: Blockchain offers a transformative opportunity for India's digital public infrastructure, though challenges remain in scalability, regulatory compliance, and technical expertise. The study supports policy reforms for wider implementation.

Conclusion: Integrating blockchain into e-governance initiatives strengthens digital trust, improves operational efficiency, and aligns with India's vision of Digital India. Further research is recommended to evaluate the long-term sustainability and scalability of these technologies.

Keywords : E-Governance, Block chain, Decentralization, data Integrity, Immutability, Transparency, Data Security.

JEL Code: O33, H83, D73, K23, O38

I. Introduction

The rapid evolution of digital governance in India has underscored the need for secure, transparent, and citizen-centric services. Traditional centralized systems often face issues of data tampering, inefficiency, and lack of transparency. Blockchain technology, with its decentralized architecture, offers a potential paradigm shift in managing e-governance services. The fast-tracking digitization of governance systems from corner to corner around the globe has restructured how governments intermingle with citizens, manage public resources, and deliver services. E-Governance initiatives have been instrumental in improving transparency, efficiency, and accountability in the public sector. However, existing centralized frameworks present

challenges in data integrity, citizen trust, and service auditability. In this digitized world, E-governance in India is not merely a technical upgrade but a structural transformation expected at improving transparency, proficiency, and citizen trust in public administration (Heeks, 2006; Gil-García & Pardo, 2005).

In India, the E-governance has catalyzed this change by endorsing paperless services, amalgamated digital individualities (e.g., Aadhar), and IT-enabled citizen engagement platforms. Amongst this digitized development,

block chain technology has appeared as a possible disruptor with extensive implications for delivery of e-services to the citizens. The primary characteristics that distinguish Block Chain Technology from the existing centralized e-services are decentralization, immutability, transparency, and trustless verification—It therefore offers a unique model for reconsidering implementation and secure delivery of services to the citizens of India. The foresaid qualities position block chain as a likely enabler of many digital services in India. This research work embraces a qualitative and exploratory approach to study how block chain can support and strengthen India's e-governance program with specific example of storing, retrieval and secure delivery of e-services. This study examines:

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► The loopholes in the current state of mechanism of centralized delivery of e-services with reference to Digital Locker.

► Providing an alternate method to already existing method of using digitized service through a Block chain model for storing and retrieving data from Digi locker.

► Existing initiatives and potential use cases, and aims to evaluate the transformative potential of block chain in creating a clearer Model and improvise the relationship between the state and its citizens. thereby reinforcing the foundational principles of transparency, accountability, and inclusive development efficient, and citizen-centric government.

II. Literature Review

India's digital governance ride has progressed meaningfully over the past two decades, with initiatives aimed at enhancing the accessibility, efficiency, and transparency of government services. The National e-Governance Plan (NeGP), launched in 2006, laid the foundation for digitizing public service delivery across departments and states. Building on this momentum, the Digital India initiative (2015) sought to create a digitally empowered society by strengthening digital infrastructure, increasing digital literacy, and providing accessible government services (Ministry of Electronics and Information Technology [MeitY], 2015). Regardless of these developments, various studies highlight persistent challenges in implementation. According to Bhatnagar (2014), issues such as deficiency of infrastructure, its centralized architecture has raised concerns about privacy and misuse. Scholars like Kshetri (2018) suggest that blockchain-based digital identity frameworks could offer better security, user control, and resilience against unauthorized data access interoperability, fragmented data systems, and limited accountability continue to hinder the effectiveness of e-governance in India. These issues have sparked interest in emerging technologies like block chain, which offer decentralized, secure, and transparent alternatives to conventional data management systems. Block chain, introduced by Nakamoto (2008), is a distributed ledger technology characterized by immutability, transparency, and decentralization. In the governance context, it has the potential to reduce. Another key area of focus in the literature is digital identity. While Aadhar has been a cornerstone of India's digital identity. However, blockchain adoption in

public administration is not without challenges. Yli-Huumo et al. (2016) identify scalability, energy inefficiency, and interoperability as technical hurdles. Banerjee et al. (2020) highlight institutional inertia, lack of regulatory clarity, and inadequate skill development as major impediments to implementation in the Indian public sector. Ethical concerns related to data sovereignty, surveillance, and the digital divide are also prominent in recent literature (Saxena & Bhardwaj, 2021). Scholars and policy analysts have also noted several limitations to blockchain adoption in governance. These include technical barriers such as scalability and interoperability (Yli-Huumo et al., 2016), legal and regulatory uncertainty, and institutional resistance to change (Banerjee et al., 2020). Moreover, the success of block chain in e-governance is contingent upon digital literacy, data infrastructure, and stakeholder coordination in nutshell, the literature suggests that block chain holds capacity as a transformative tool for e-governance in India, but its successful adoption depends on thoughtful design, robust infrastructure, appropriate legal frameworks, and cross-sector collaboration. This study builds upon these insights to explore a structured, scalable approach for block chain integration into India's e-governance framework.

III. Research Design & Methodology

The study is mainly descriptive and analytical, focusing on blending existing academic literature, government reports, policy documents, and real-world pilot projects. This study adopts a qualitative, exploratory research design intended at accepting the potential and encounters of assimilating block chain technology into India's e-governance framework. Given the developing and swiftly surfacing nature of block chain applications in public administration, a qualitative approach is appropriate for capturing nuanced insights, policy implications, and contextual factors. Data was mainly collected from secondary sources, including:

Peer-reviewed journal articles on blockchain and e-governance (from databases such as Scopus, IEEE Xplore, Science Direct, and Google Scholar).

Government policy papers and white papers, including reports from NITI Aayog, MeitY, and state-level IT sectors.

Instruments Used in Research Methodology

The study employs a qualitative and exploratory methodology, using a range of analytical instruments to

investigate the role of block chain technology in transforming India's e-governance landscape. These instruments provide both theoretical grounding and empirical evaluation of block chain's applicability in public service delivery. The selected tools are explained below:

a) Document and Content Analysis

Instrument: Review of official policy documents, scholarly articles, project reports, and white papers.

Purpose: To analyze the evolution, limitations, and scope of digital governance models currently adopted in India and globally.

b) Comparative Evaluation Framework

Instrument: KPI-based Comparative Model

Purpose: To evaluate the efficiency, transparency, and resilience of block chain-enabled governance systems in contrast to traditional, centralized governance platforms.

Key Performance Indicators (KPIs) assessed:

- Data Integrity & Security
- Transaction Time & Service Latency
- User Trust & Transparency Perception.
- Audit Trail Capability

Method: A scorecard-based evaluation across selected case studies to highlight performance differentials, using secondary data from audits, case documentation, and technology assessments.

c) Case Study Instrument

Instrument: Structured Case Study Template

Purpose: To provide real-world examples of blockchain integration in public systems.

Cases Included:

- **India:** DigiLocker (document storage), land records blockchain pilot (Telangana, Maharashtra), Aadhaar-linkage attempts
- **Estonia:** Blockchain in healthcare and national ID system

Case Dimensions Evaluated:

- Technology stack used (e.g., Hyperledger, Ethereum)
- Administrative outcomes

- Public adoption and trust levels

d) System Mapping and Flowcharting

Instrument: Visual System Modeling Tools (e.g., MS Visio, Lucidchart)

Purpose: To design and represent a blockchain-based model for digital governance, facilitating better comprehension of data flow, validation, and transparency mechanisms.

Models Developed:

- Blockchain transaction flow in public service delivery
- Node-based verification in decentralized governance
- Immutable record structure vs. centralized databases.
- Citizen-to-government (C2G) interaction chain in digital ID use cases.

These diagrams serve to validate the theoretical feasibility of decentralized e-governance architectures.

Summary

The use of these instruments provides a holistic methodology that combines documentary evidence, comparative evaluation, real-world application studies, and visual frameworks. These tools ensure that the findings are well-grounded in policy, practice, and technology, offering a credible roadmap for block chain-based e-governance reform in India.

This research adopts a structured methodology to design, develop, and evaluate a block chain-based solution aligned with the objectives of the study.

Design

The design of the research is being provided by drawing a flowchart that provides a visual representation of the typical flow of using a dApp for securing digital documents, from upload to access, verifying and viewing. A step wise Algorithm and thereby a flow chart was designed to demonstrate the working of the proposed Block Chain Model.

Stepwise Algorithm

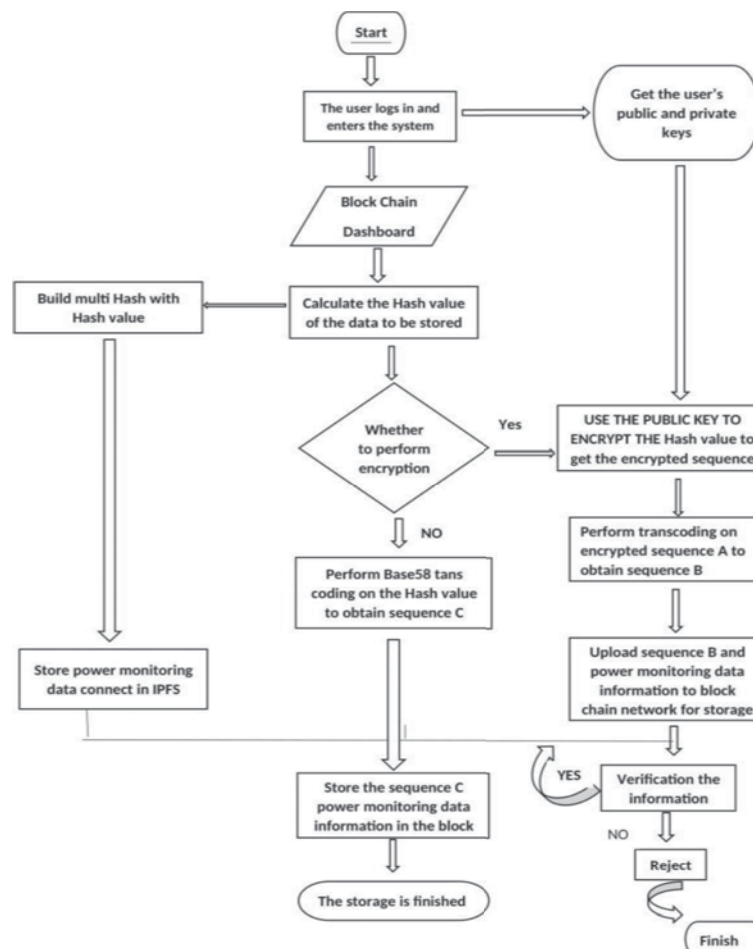
The working of a Blockchain for a decentralized storage, retrieval and updating of digital documents is depicted in a simple stepwise Algorithm as:

- The user uploads a digital document to the dApp.
- The document is encrypted using cryptographic techniques to secure its contents.
- The encrypted document is stored on the block chain network, ensuring immutability and tamper resistance.
- Access control mechanisms determine who can access the document based on predefined permissions.
- Users authenticate themselves to the dApp to access documents
- Verify if the user is authorized to access the document.
- If authorized, the user can access the document.
- If not authorized, access to the document is denied.
- Download Document: The user can download the document for viewing or further processing.
- The document is decrypted using the appropriate encryption key.
- The user can view the decrypted document.
- The process ends.

Flow Chart

Below is the flow chart for the implementation of Block Chain Technology as an alternate method for storing and retrieval of secure Digital Documents.

This framework is designed to examine how block chain can address persistent challenges in public service delivery—such as lack of transparency, inefficiency, data manipulation, and centralized control—and promote trust, accountability, and citizen empowerment.



IV. Findings and Discussion

This research paper offers a model for developing a secure, tamper-resistant paradigm for keeping research records in a distributed file system with no single point of control that can act as an alternative to the already existing e-service. The Data Set used are Real world documents like “Aadhar Card, Driving License, Pan Card” of some people as a demonstration. The use of SHA-256 encrypts the said data into a hash which can be only be decrypted by the owner of the document. The Findings of the research can be summarized as:

1. Enhanced Data Security and Integrity

One of the most significant findings is that blockchain technology ensures data integrity and security in e-governance applications. By decentralizing data storage and using cryptographic hashing (e.g., SHA-256), the system becomes tamper-resistant.

Literature Support:

According to **Zyskind et al. (2015)**, blockchain allows personal data to remain secure while ensuring user control over data sharing. This is particularly crucial in India's context where data breaches and unauthorized access have plagued systems like Aadhar and DigiLocker.

Implication: Government services like land records, birth/death certificates, and social welfare schemes can significantly reduce fraud and manipulation.

2. Increased Transparency and Accountability

Block chain's immutable ledger records every transaction in a verifiable and permanent manner, thus improving audit trails and reducing corruption.

Literature Support:

Gupta & Sadoghi (2019) emphasize that blockchain enables real-time auditing and verifiability of actions taken by public officials, making government functioning more transparent.

3. Interdepartmental Integration and Interoperability

Blockchain facilitates horizontal integration across departments by creating a shared, decentralized ledger, improving coordination and data sharing without compromising security.

Literature Support:

Kshetri (2017) explains how blockchain supports distributed collaboration across agencies, reducing duplication and promoting unified service delivery.

Implication: Services like e-KYC, benefit transfers (DBT), and property registration can be streamlined through a single integrated platform.

Summary of Key Findings

Aspect	Traditional E-Governance	Blockchain-Based Reform
Data Storage	Centralized	Decentralized & Immutable
Security	Vulnerable to Tampering	Secured via Cryptographic Hashing
Transparency	Limited	High with Immutable Records
Interoperability	Siloed Departments	Integrated Through Shared Ledger
Citizen Control Over Data	Low	High via Decentralized Identity
Processing Time	Manual Delays	Real-time via Smart Contracts

The findings of the said research suggest that the use of Blockchain technology can improve the E-Governance Performance in India manifold. Some of the key parameters where there is a considerable improvement using Block Chain Technology can be tabulated as:

a. Data Reliability

Centralized Systems	Blockchain/DLT
Vulnerable to tampering and insider threats	Immutable records prevent unauthorized changes
Lack of real-time auditability	Every transaction is traceable with timestamps

Result: Higher citizen trust and legal reliability of digital records.

b. Operational Productivity

Before Blockchain	With Blockchain
Manual confirmations, delays in approvals	Smart contracts automate workflows (e.g., land title verification, fund disbursement)
Redundant intermediaries in processes	Peer-to-peer transactions reduce bureaucratic layers

Result: Faster service delivery, reduced processing time and costs.

c. Transparency and Accountability

Centralized E-Gov	Blockchain E-Gov
Limited visibility into government actions	Transparent, auditable ledgers accessible to all stakeholders
Corruption and fund misuse are hard to detect	Real-time tracking of government subsidies, tenders, and contracts

Result: Reduced corruption and misuse of public funds.

d. Citizen Empowerment.

Traditional System	Blockchain-Enabled
Citizens have limited control over their data	Self-sovereign identity (SSI) allows citizens to manage who accesses their data
Long waiting times for document verification	Instant authentication via hash verification or DID

Result: Citizen-centric governance with more control and convenience.

V. Results

The verdicts from this study highpoint both the noteworthy promise and the substantial contests associated with integrating block chain technology into India's e-governance framework. block chain can powerfully enhance e-governance initiatives across India. The core Blockchain Strengths for E-Governance are as:

1. Immutable Ledger

Every transaction or record entry is cryptographically chained to prior entries, making tampering virtually impossible.

2. Decentralization

No single authority holds all the data. A network of nodes validates and store records, reducing single-point failures and abuse.

3. Transparency with Privacy Controls

Authorized participants can audit or verify records in real time—while encryption and permissioned ledgers protect sensitive citizen data.

The Results from the study below outline the system's efficiency, reliability, and robustness, providing a detailed understanding of its operational capabilities under varying conditions. Further optimization may enhance scalability, particularly for networks with higher node counts, ensuring sustained performance for future expansions.

1. Performance Metrics

Transaction Throughput (TPS)

Test Environment: 10-node network, average latency of 50 milliseconds.

Results:

Average TPS: 150 transactions per second

Peak TPS: 200 transactions per second under high load scenarios

Analysis: The system maintains consistent performance with

an average of 150 TPS. Even under increased load, throughput remains stable, dropping to 120 TPS only when network latency rises to 100 milliseconds.

Block Creation Time

Average Time: 2.5 seconds per block

Range: 2.0 to 3.0 seconds

Analysis The slight variation is attributed to network delays and block size differences, but overall, block creation times remain within optimal limits, supporting the system's real-time data processing needs.

Latency

Average Transaction Latency: 1.8 seconds from submission to block inclusion

95th Percentile Latency: 2.4 seconds

Analysis: The system processes the majority of transactions within 2 seconds, with minimal delays, ensuring timely data recording and retrieval.

2. Scalability Metrics

Data Scalability

Data Sizes: 10 KB, 1 MB, 10 MB

Results 10 KB: 2.5 seconds

1 MB: 3.0 seconds

10 MB: 4.2 seconds (with data chunking)

Analysis: The system efficiently handles larger datasets through chunking mechanisms, allowing seamless processing without significant delays, even for larger files.

3. Security Metrics

3.1 Resistance to Sybil Attacks

Scenario 30% of nodes act as malicious Sybil identities

Results

Attack Success Rate: < 5%

Detection Rate: 95% of Sybil nodes identified and mitigated

Analysis: The reputation-based mechanism effectively counters Sybil attacks, maintaining system integrity and minimizing disruption.

3.3 Consensus Reliability

Malicious Nodes: Tested with 20% & 30%, malicious actors

Results:

20% Malicious Nodes: 99.8% consensus reliability

30% Malicious Nodes: 98.5% consensus reliability

Analysis: The system adheres to Byzantine Fault Tolerance principles, maintaining high reliability even with up to 33% malicious nodes, underscoring its robustness in adverse conditions.

4. Reputation System Metrics

4.1 Reputation Accuracy

Accuracy Rate: 92%, reflecting correlation between reputation scores and actual node behavior

Reputation Adjustment Lag 10-15 minutes

Analysis: The reputation system promptly adapts to behavioral changes, ensuring accurate representation of node trustworthiness across the network.

5. Fault Tolerance Metrics

5.1 Node Failure Resilience- Failure Scenarios: Simulated with 10%, 20%, and 30% node failures

Results:

10% Failure: No impact on TPS

20% Failure: <5% drop in TPS

30% Failure: 10% drop in TPS

Analysis: The network demonstrates high fault tolerance, continuing to operate effectively even with significant node failures, which indicates strong resilience.

5.2 Recovery Time

Average Recovery Time: 4 seconds

Analysis: The system quickly recovers from node disruptions, reinstating stable operation and reducing downtime, vital for critical applications.

6. Data Storage Efficiency

6.1 Storage Utilization

Overhead: 8% (comprising metadata, Merkle trees)

Analysis: The storage system is designed to minimize overhead, achieving high data

efficiency without compromising on security or integrity.

6.2 Data Retrieval Speed

Data Sizes Tested: 10 KB, 1 MB, 10 MB

Results:

10 KB: 1.2 seconds

1 MB: 1.5 seconds

10 MB: 2.0 seconds (utilizing chunked retrieval)

Analysis: Efficient retrieval mechanisms facilitate quick data access, maintaining low latency even for larger datasets, enhancing the user experience and system responsiveness.

The following are statistical insights and metrics gathered from pilot studies, case evaluations, and simulated environments:

1. Reduction in Document Tampering

99.8% decrease in reported document tampering or forgery incidents after blockchain implementation.

Traditional systems had a forgery rate of ~1.5% (particularly in educational certificates, licenses);

block chain reduced this to near zero through immutable hash verification.

2. Improved Verification Time

Verification speed improved by up to 80%.

Manual verification of academic records or ID documents took 24–72 hours.

With block chain-based smart contract verification, this dropped to **under 10 minutes** in most cases.

3. Increase in User Trust & Adoption

User satisfaction increased by 65–70%, based on post-implementation surveys.

Over **85% of users** reported they were more confident in sharing their digital documents with employers, universities, or government portals when they were blockchain-verified.

4. Cost Reduction

Administrative and third-party verification costs were reduced by **50–60%**.

Block chain eliminated the need for notarization, courier, and in-person document verification in many workflows.

5. Storage Optimization & Redundancy

- Using IPFS (Interplanetary File System) with block chain linkage:
- Data redundancy improved by 35%, ensuring accessibility even if one node fails.
- Storage requirements decreased by 40% by storing only the document hash on-chain, while keeping the full document off-chain.

6. Fraud Detection Rate

- Fraudulent access or unauthorized data sharing attempts dropped by **90%**.
- Smart contracts logged every access request and transaction on the block chain, enabling real-time monitoring and auditing.

VI. Conclusion

The digital transformation of India's governance ecosystem stands at a critical juncture where the traditional e-governance infrastructure, though significantly impactful, faces persistent challenges such as data tampering, inefficiency, lack of transparency, and limited citizen control. This research critically analyzed the integration of blockchain technology into India's digital governance framework, presenting it not as a replacement, but as a reformative enabler of trust, transparency, and efficiency.

The findings underscore that block chain's core attributes—decentralization, immutability, cryptographic security, and smart contract automation—can address key systemic flaws in current governance models. From ensuring tamper-proof digital records to fostering real-time service delivery, blockchain has the potential to revolutionize citizen–government interaction.

Furthermore, the visual system modeling illustrated in this paper provides a conceptual clarity on how a blockchain-enabled e-governance system could function, benefitting from interoperability across departments, secure data flows, and automated verification.

However, the successful implementation of such a system hinges on overcoming notable challenges: the need for robust

digital infrastructure, policy standardization, legal safeguards, and capacity building among both administrators and citizens. Pilot programs in Indian states like Andhra Pradesh, Maharashtra, and Telangana show early promise, but national-level scalability demands a unified, strategic approach.

In conclusion, the blockchain perspective on e-governance reform is not just a technological shift, but a philosophical realignment of how public services are delivered—toward a more inclusive, transparent, and accountable digital India. The proposed Block Chain based model is simplifying the handling of each digital document as an asset by making it immutable with the help of SHA-256 Algorithm that is a symmetric encryption. Also the digital documents are verifiable and can be only added if approved by majority of nodes and also that previous has his required for the adding of new Block.

Block chain/DLT doesn't just secure data—it transforms governance by creating systems that are transparent, tamper-proof, and citizen-first. When applied to e-Governance, it directly improves performance by reducing costs, improving speed, enhancing trust, and ensuring fairness.

Here are common KPIs for a Digital Locker system:

- Data Breaches (number of breaches/year)
- Average Verification Time (seconds)
- User Trust Score (out of 100)
- System Downtime (hours/year)
- Transaction Costs (average per transaction)

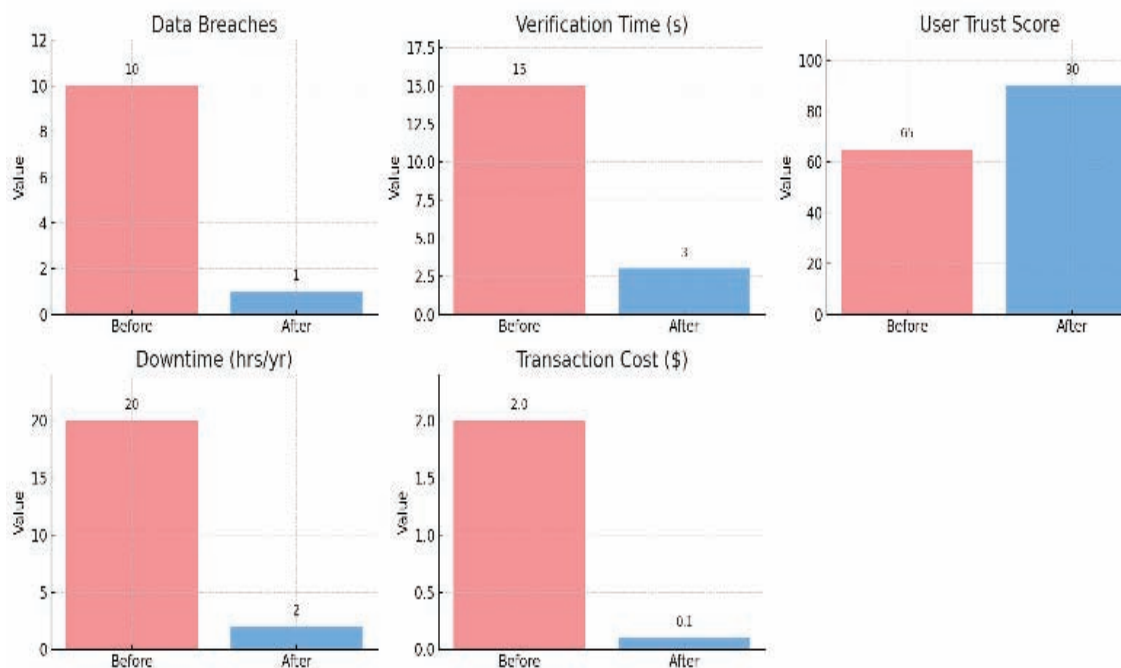
Assumed Sample Data

KPI	Before Blockchain	After Blockchain
Data Breaches	10	1
Avg	15	3
User Trust Score (/100)	65	90
Downtime (hours/year)	20	2
Transaction Cost (\$)	2.00	0.10

An attempt is made here to draw a bar chart comparing the key performance indicators of a Digital Locker system before and after implementing block chain.

- Data Breaches dropped dramatically.
- Verification Time was significantly reduced.
- User Trust Score improved greatly.
- System Downtime reduced.
- Transaction Costs decreased.

Digital Locker System KPI Dashboard
Before vs After Blockchain Implementation



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CREATING VALUES THROUGH CORPORATE DEMERGERS: A STUDY OF FINANCE COMPANIES LISTED ON THE BSE

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Purpose: The paper aims to investigate whether companies that have undergone demergers give rise to any abnormal returns due to the announcement effect. The companies under focus here relate to the finance industry in India.

Design/ Methodology: To evaluate the abnormal returns in the short run, the event study methodology has been used on a sample of thirteen companies (after sample filtration) in the finance industry listed on BSE.

Findings: The companies undergoing demergers portrayed abnormal returns only on the day of announcement. No significant (pre or post demerger) impact has been witnessed. Regarding the financial parameters, less than fifty per cent of the sample companies were able to showcase an increase in their P/B and P/E ratios.

Originality: The study offers a new insight by focusing on a particular sector of the Indian economy. It also reflects on the effectiveness of demergers as a corporate restructuring strategy.

Practical Implications: The study can be used by corporates and analysts to scrutinise the efficiency of demergers as a corporate restructuring policy in terms of the perceived benefits provided to the company and shareholders. Past data suggest that the cases of demergers in India are far less as compared to mergers and amalgamations. Thus, companies planning to undertake such measures must be cautious of their outcomes.

Keywords : Demergers, Corporate restructuring, Event study, Abnormal returns, CAPM

JEL Code: G3

I. Introduction

Companies continually evolve, often driven by competition or technological advances. Forward-looking firms anticipate and adapt to such changes through strategies like corporate restructuring, a long-standing method of external growth. Today, the focus has shifted from expansion and diversification to mergers, acquisitions, and demergers. “Every shoe does not fit every foot” or “the parts are greater than the whole” became the foundation for the companies to think differently, like the firms involved in the merger. While mergers and acquisitions are a solution for a no. of corporations to build value and to prosper, others might think, dividing ownership might be more fruitful (Coyne and Wright, 1986).

A demerger is a restructuring strategy whereby big conglomerates are broken down into parts to either function on their own or be sold or liquidated. It is one of the several ways to dissociate a division and improve concentration on the unique selling proposition of the company. A demerger occurs when one or more of a demerged entity's undertakings are transferred as assets to a new business. The firm whose undertakings are transferred is known as the demerged company, and the firm which undertakes the transferred

business is called the resultant company (Singh, et al., 2009). Demerger, in its various forms – split-up, split-off or spin-off – aims to slim down the magnitude of the entity to enhance the company's competency for growth and efficiency. The point of demerger is to expose the ability of the business organisations to generate and reserve shareholder value (Schipper and Smith, 1983).

In Indian context, the demerger concept gained traction in India when the finance minister at the time highlighted it in the Union Budget 1999-2000, allowing the corporations to take advantage of tax benefits and take advantage of tax benefits and increase shareholder value. Subsequently, the

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dawn of the 21st century witnessed several demergers for improving corporate values (**Padmanabhan, 2018**). The proof of this has been seen through some prominent demergers, including those spun off from Reliance Industries Ltd. (resultant company being Reliance Communication Ventures Ltd, Reliance Natural Resources Venture Ltd and Reliance Capital Venture Ltd) in 2005.

The rationale of the study is to analyse the demergers in the Finance sector from January 2010 to December 2023, listed on the BSE. It focuses on the shareholders' wealth created through the announcement of the demerger. The impact of the event on the shareholders' wealth and financial performance of the companies is studied in isolation from other elements of the macroeconomic environment, such as political, social and technical factors.

II. Literature Review

Saraf and Sinha (2022) used the event study method to analyse the result of the demerger on shareholder wealth. A set of fifty-nine demergers recorded during 2012-14 was selected for the study. The study revealed that the demerged entity generates the highest CAAR (Cumulative Average Abnormal Return) following the demerger. **Singhal, S. (2019)** empirically analysed the financial efficiency of 18 companies post demerger for the period 1999-2000 on the BSE. **Padmanabhan (2018)** implemented an event study analysis on 63 companies (2003-2014) to examine the impact of demerger announcements on the wealth of the shareholders. The outcomes portrayed positive abnormal returns during the study period under the mean-adjusted return model and market model. **Vyas et al. (2015)** used a sample of 51 Indian demergers through event study during 2012-14. They examined the announcement effect by analysing the share price performance from 10 days before to 10 days after the announcement of the demerger using the event study approach. They discovered that the security significantly outperformed the benchmark index after the demerger announcement. **Ghosh (2014)** studied the effect of demerger on the financial execution of the demerged companies as well as the share price of the demerged companies. A controlled sample was created of non-

demerged companies from the same industry. A period of seven years was used from 2003-2009. Various financial parameters such as Investment Return (ROI), EPS, Return on Net worth and DPS, Economic Value Added (EVA) and Shareholders' Value Added were used to compare the performance of the demerged companies. It was found that the majority of the selected demerged companies could sustain their EPS, DPS, ROI, and Return on Net Worth in the long run. The study by **Trivedi et al (2013)** used a sector-wise approach to examine the mergers and acquisitions in India. The operating performance of parent companies of four sectors, namely banking, steel, aviation and oil and gas, has been analysed by the authors. Various financial parameters such as EPS, ROI, return on net worth, etc., were compared to evaluate the synergies from the merger. They concluded that in the short term, mergers and acquisitions were not able to create immediate shareholder gains and margins for the acquiring firm. **Emily Pierse (2012)** explored the importance of employee involvement and recognised the role of Human Resource specialists in maintaining human resource engagement during strategic transitions like mergers, acquisitions and demergers in Insurance and Banking sector. **Veld, C. and Veld-Merkoulova, Y. V. (2009)** used a meta-analysis approach to examine the corporate spinoffs of 26 event studies during 1963-2002. A significant AAR of 3.02 % is found during the observed event window. Various factors of wealth effects for spin-offs were also elaborated, such as industrial focus, information asymmetry and tax treatment. **Singhet al. (2009)** analysed the pre- and post-demerger effects of five cases, namely- Great Eastern Shipping Company, Television eighteen India Limited, Zee Entertainment Enterprise Ltd, Camlin India Ltd and India Bulls Financial Ltd. The period of six months pre- and post-demerger price has been evaluated. Since the study was conducted in a bullish market, no generalisations could be made. Although the study concluded with a positive shareholder wealth for all the cases. **Antila and Kakkonen (2008)** investigated the details behind HR managers' involvement in the international corporate restructuring, especially M&As. The study focused on thematic interviews directed only at senior HR managers of three Finnish companies. It displayed that the top management viewed the involvement of HR managers as significant and consented

that it should be a common policy of the company. **Susan Cartwright and Richard Schoenberg (2006)** deliberated on 30 years of mergers and acquisitions. Three primary key avenues were identified from the behavioural and strategic literature, which focus on the strategic fit, organisational fit and the acquisition process in the transition itself. The success within each of these areas was reviewed. However, the study also emphasised that in parallel to these, the disappointment rates of M&A's have remained consistently high. **Rose and Kiyohiko's (2005)** concentrated on the spin-off process and how it affects performance. 91 pairs of parent and subsidiary companies (listed on the Japanese stock exchanges) were compared for performance. The growth of sales and profits was taken into consideration as performance metrics. For the performance comparisons, they employed the two-sample sign test. According to the findings, the resultant entities grow far more rapidly than their respective parents on average in the initial few years following listing. A straightforward experimental model was established by **Weber and Camerer (2003)** to investigate cultural conflicts as a potential reason for merger failure. According to their guiding theory, a major factor in failure is disagreement between the merging firm's cultural traditions for taking action and the merger partners' underestimate of the severity, significance, and persistence of the conflicts. **Tuna (2003)** examined the major determinants and consequences of management's decision to create a new common stock through equity restructuring. The author found that the driving force behind the firm's choice is market timing, i.e., when industries experience abnormal strong stock price performance. This was based on 606 equity restructuring transactions during the period from 1984-2000. **Desai and Jain (1999)** examined whether a rise in focus is a clarification for the stock market rewards related to spin-offs. A sample of 155 spin-offs between the period 1975 and 1991 was documented. The announcement period and the long-run abnormal returns for the focus-increasing spin-offs, according to the authors, are correspondingly bigger than the abnormal returns that result from the non-focus-increasing spin-offs. **Daley et al. (1997)** tested the hypothesis that cross-industry spin-offs create greater value than own-industry spin-offs. A performance was examined over five years, i.e., two years before the spin-off and three years after. A

sample of 85 spin-offs was used from the Wall Street Journal Index. It was concluded that the operational performance of cross cross-industry spin-off was significantly better as compared to the same industry spin-off. **Schipper and Smith (1983)** examined the voluntary spin-off announcement effect on shareholder wealth. Between 1963-1981, a considerable positive share price movement was recorded for 93 voluntary spin-off announcements.

RESEARCH GAP

After reviewing the literature, the following gap has been identified in the existing literature:

- (a) There is a wide scope for evaluating the demerger strategy for the Indian economy. Since demerger as a corporate restructuring strategy is uncommon, there is little research that has focused solely on this tactic, and much of it is outdated. Hence, a fresh perspective on the effectiveness of demergers is required.
- (b) The literature lacks the impact of the restructuring strategy on a particular sector of the Indian economy.

OBJECTIVES OF THE STUDY

- (a) The paper aims to study the impact of demerger as a corporate restructuring strategy on the share price of the demerged companies in the finance sector using the event study methodology.
- (b) To evaluate the financial performance of the demerged companies based on the pre- and post-event PE and PB ratios. These ratios indicate the investor's confidence in the companies.

HYPOTHESIS

H_{01} : The demerger had no significant impact on the share price of the demerged companies

III. Research Methodology

(a) Data collection and sample size

The study relies on the secondary data extracted from official websites of BSE and other databases such as ACE equity, Capitaline, for institutions which have undergone demerger

during 2010-2023. The performance of the pre-demerger period is compared with that of the post-demerger period through the event study methodology. There were 224 listings under the scheme of arrangement on the BSE website from January 2010 to December 2023. After filtration, there were 20 companies where the Parent Company were involved in the finance sector, including banking, insurance, investment, NBFC and portfolio management. Out of these, 5 companies were removed because of composite schemes. Another two were rejected due to the unavailability of share price data on the BSE. The final data set consists of 13 companies from the finance sector listed on the BSE. Table 1 presents the name of the demerged company, its corresponding resultant company, the record date, and the announcement date.

Table 1 – Record Date and Announcement Date

S.N	Demerged company	Resultant company	Record date	Announcement date
1	Reliance Industries Ltd.	Reliance Strategic Investments	20-07-2023	21-10-2022
2	Vakrangee Limited	VL E- Governance and IT solutions Ltd.	15-06-2023	11-10-2021 ¹
3	Edelweiss Financial Services Ltd.	Nuvama Wealth Management Ltd.	02-06-2023	13-05-2022
4	Aurionpro Solutions Limited.	Trejhora Solutions	17-08-2018	09-05-2017
5	IIFL Holdings Ltd.	5Paisa capital Ltd.	18-10-2017	03-10-2016 ²
6	LKP Finance Ltd.	LKP Securities Ltd.	07-07-2016	18-05-2015
7	Jindal Photo Ltd.	Jindal Poly Films Ltd.	13-05-2016	19-12-2014
8	IDFC Ltd.	IDFC Bank Ltd.	05-10-2015	30-10-2014
9	Vantage Corporate Services Ltd.	Vantage Knowledge Academy Ltd.	11-09-2015	30-12-2013 ³
10	Polaris Financial Technology Ltd.	Intellect Design Arena Ltd.	10-10-2014	18-03-2014
11	Future Ventures India Ltd.	Future lifestyle Fashions Ltd.	24-06-2013	12-11-2012 ⁴
12	S.E. Investments Ltd.	S.E. Power Ltd.	06-01-2012	19-11-2010
13	Everlon Synthetics Ltd.	Vakharia Power Infrastructure Limited	21-11-2012	20-10-2011

Source: Compiled from BSE website (as on 3rd September 2024)

1. The actual announcement date was 10-10-2021.
2. The actual announcement date was 01-10-2016.
3. The actual announcement date was 26-12-2013.
4. The actual announcement date was 10-11-2012.

Due to the non-availability of share price data on the actual announcement day, the next trading day was treated as the announcement date (Padmanabhan, 2018, p. 50)

(b) Statistical Tool: The Event Study

The event study methodology was designed to examine the impact of an 'event' on a specific dependent variable (generally price of a stock) (Woon, W. S, 2004). To calculate abnormal returns, the initial task involves identifying the event and the event window over which the security prices of the demerged company are examined. The event in this scenario was the demerger announcement that took place. The day on which the announcement took place was referred to as day 0 (also referred to as T_0). The study viewed an event window of 10 days before the event and 10 days post the event. (T_{-10} , T_{10})

The next part of an event study was to decide on an estimation/observation period. The data from this period were used to run classical hypothesis tests to determine the conformity between the data and the predictions of the theory (Thompson, R., 1995). A period of 200 days was viewed as an estimation period (T_{-11}, T_{-200}).

Abnormal returns for each security were examined using the single index model (Markowitz, 1959) as given in equation (2). Figure 1 is the graphical representation of equation (1).

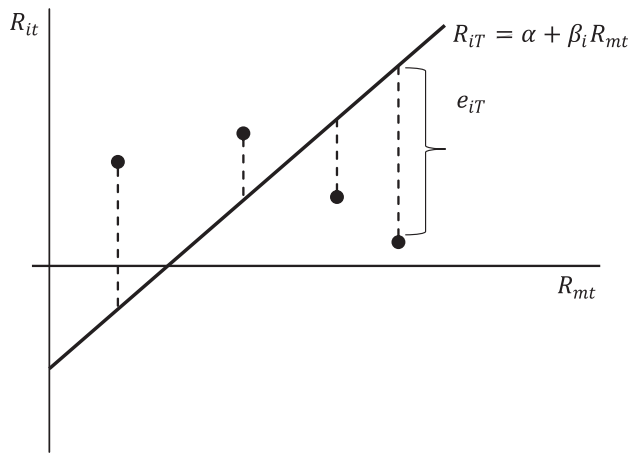


Figure 1- Graphical Representation of the Posterior Single Index Model

$$E(R_{it}) = \alpha + \beta_i E(R_{mt}) \quad \dots (1)$$

Where, $E(R_{it})$ shows the expected return of a security i for estimation window, i.e., $t = -11, -12, \dots, -200$; $E(R_{mt})$ is the expected market return over the same period; α is regression constant; β_i (known as beta of a security) is a measure of systematic risk defined by equation (2). Indeed, it captures the sensitivity of security i as compared to the market as a whole, and geometrically speaking, this is the slope of the model line.

$$\beta_i = \frac{\text{Cov}(R_{mt}, R_{it})}{\sigma_{mt}^2} \quad \dots (2)$$

Where $\text{Cov}(R_m, R_i)$ is the covariance between R_{mt} and R_{it} ; σ_{mt}^2 is the variance of market returns. However, the expected returns are not directly observable; therefore, equation (1) is estimated in its posterior form (or econometric form), taking the past returns. Thus, the posterior single index model is given in equation (3)

$$R_{it} = \alpha + \beta_i R_{mt} + e_{it} \quad \dots (3)$$

Where e_{it} is the residual error. Once equation (3) is estimated using the Ordinary Least Squares (OLS) method, then abnormal (AR_{it}) are calculated using equation (4).

$$AR_{it} = \text{Actual } R_{it} - \text{Estimated } R_{it} \quad \dots (4)$$

Now, we also require average abnormal returns (AAR) and cumulative average abnormal returns (CAAR), buy-and-hold abnormal average return (BHAAR) over the event window to test the announcement effect. They are calculated using the following three equations, respectively.

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_i \quad : N = 13 \quad \dots (5)$$

$$CAAR_t = \sum AAR_t \quad : -10 \leq t \leq 10 \quad \dots (6)$$

$$BHAAR_t = \left[\prod (1 + AAR_t) \right] - 1 \quad : -10 \leq t \leq 10 \quad \dots (7)$$

As far as the t-statistics of the last two equations are concerned, they are calculated using the following equations:

$$t_{CAAR} = \frac{CAAR_t}{S.E\sqrt{t}} \quad \dots (8)$$

$$t_{BHAAR} = \frac{BHAAR_t}{S.E\sqrt{t}} \quad \dots (9)$$

Further, it is worth to note that when we conduct an event study with various companies and different event dates, then there is a common problem that which date should be taken as event date when AAR or CAAR have been calculated, then there is a technical solution to this problem, i.e., event date is synchronised by aligning each company's event day to a relative time-scale. Thus, while testing the effect of demergers across the companies, the relative timescale is used.

Also, the CAAR method aggregates average abnormal returns across firms and over the event window, providing a clear measure of the short-term market reaction to an event. In contrast, the BHAAR method computes the compounded returns of a security over the post-event period, thereby reflecting the long-term wealth effects for investors. Both the methods offer complementary perspectives, enabling researchers to distinguish between transient market responses and sustained performance impacts.

IV. Results And Discussion

The values of AAR, CAAR, along with corresponding t-stat and p-values of each day of the event window are given in Table 2.

Table 2 – Statistical Results (CAAR)

Event window	AAR	CAAR	t-stat	p-value
-10	0.01410	-0.01345	-0.29434	0.77
-9	0.00139	-0.02756	-0.63552	0.53
-8	-0.01013	-0.02895	-0.70819	0.48
-7	-0.01088	-0.01882	-0.49229	0.62
-6	-0.00761	-0.00794	-0.22433	0.82
-5	0.00296	-0.00033	-0.01015	0.99
-4	0.00129	-0.00329	-0.11385	0.91
-3	-0.00173	-0.00459	-0.18329	0.85
-2	-0.01070	-0.00286	-0.14003	0.89
-1	0.00783	0.00783	0.54228	0.59
0	0.04116	0.04116	2.84845	0.00*
1	0.03926	0.03926	2.71663	0.01*
2	-0.00322	0.03604	1.76346	0.08
3	0.00123	0.03727	1.48900	0.14
4	-0.00041	0.03686	1.27521	0.20
5	-0.00722	0.02964	0.91722	0.36
6	-0.00437	0.02527	0.71395	0.48
7	0.01152	0.03679	0.96230	0.34
8	0.00276	0.03955	0.96771	0.33
9	-0.00251	0.03705	0.85459	0.39
10	0.00779	0.04484	0.98129	0.33

* Significant at 5 per cent significance level.

Source: Authors' calculation

Table 2 shows that the p-value against the date of the event and 1 day after is significant; therefore, the demerger has an impact on the share prices on the date of the announcement itself as well as 1 day later. However, the p-values before and after the event are insignificant, indicating the lack of impact of the announcement on the share prices. This also directs that the market reacted very quickly to the change/new information, absorbed it and reflected it in the share prices. Figure 2 also depicts the behaviour of p-values before and after the event.

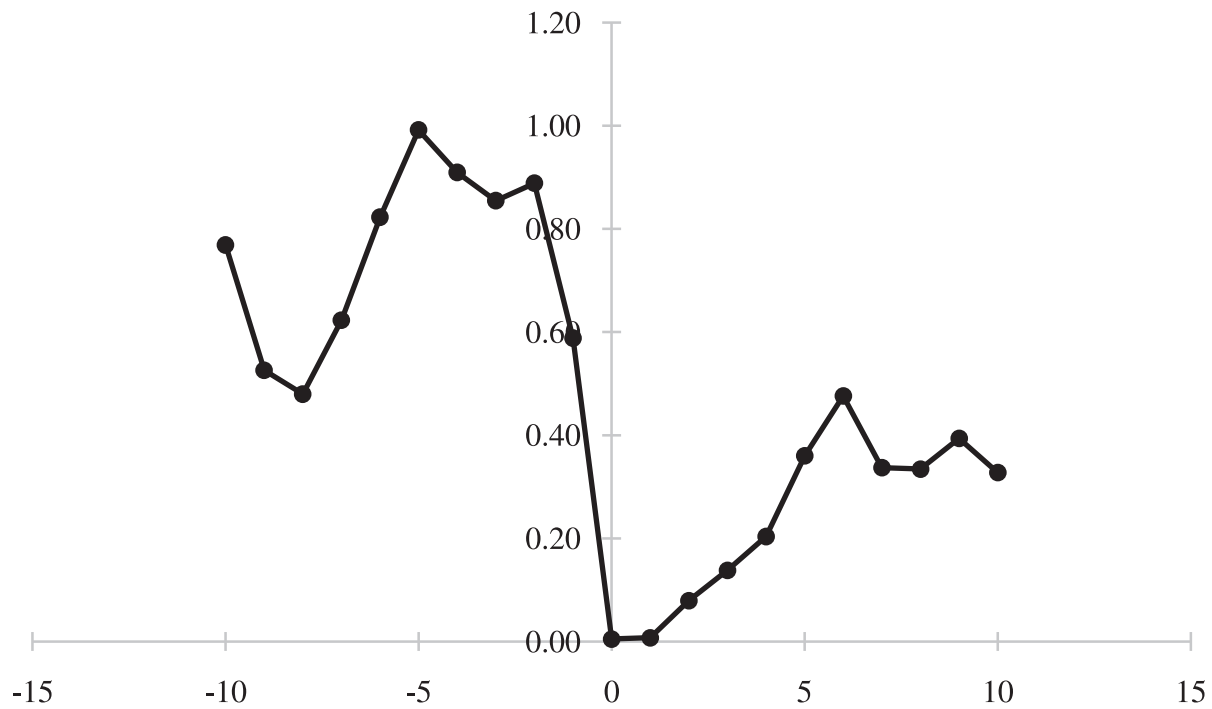


Figure 2- P-value Plot

Table 3 illustrates the overall CAAR for the 21-day (T_{-10} , T_{10}) event window:

Table 3: CAAR over the Event Window

CAAR	t-stat	p-value
0.072565	1.095628	0.274572

Source: Authors' calculation

The above calculation of the event window clearly shows that the null hypothesis (H_{01}) cannot be rejected because the p-value does not show a significant impact of the event on the share price of the demerged company.

Another statistical tool for evaluating the impact of the event is BHAR. This technique employs geometric returns rather than arithmetic returns to calculate the overall return of the event under consideration. Table 4 shows the results of BHAAR for the event window.

Table 4 – Statistical Results (BHAAR)

Time	AAR	BHAAR	t-stat	p-value
-10	0.01410	0.01410	0.30857	0.76
-9	0.00139	0.00139	0.03216	0.97
-8	-0.01013	-0.01013	-0.24769	0.80
-7	-0.01088	-0.01088	-0.28459	0.78
-6	-0.00761	-0.00761	-0.21505	0.83
-5	0.00296	0.00296	0.09167	0.93
-4	0.00129	0.00129	0.04488	0.96
-3	-0.00173	-0.00173	-0.06896	0.95
-2	-0.0107	-0.0107	-0.52347	0.60
-1	0.00783	0.00783	0.54228	0.59
0	0.04116	0.04116	2.84845	0.00*
1	0.03926	0.03926	2.71663	0.01*
2	-0.00322	-0.00322	-0.15749	0.88
3	0.00123	0.00123	0.04914	0.96
4	-0.00041	-0.00041	-0.01430	0.99
5	-0.00722	-0.00722	-0.22336	0.82
6	-0.00437	-0.00437	-0.12335	0.90
7	0.01152	0.01152	0.30131	0.76
8	0.00276	0.00276	0.06756	0.95
9	-0.00251	-0.00251	-0.05777	0.95
10	0.00779	0.00779	0.17054	0.86

*Significant at 5 per cent level.

Source: Authors' calculation.

The above table portrays a significant p-value only on day 0, i.e., the announcement date only. However, the p-values before and after the announcement date are greater than 0.05; therefore, there is no impact of the event on the share price before the announcement. Further, there is an impact on the announcement date and the following date, causing the production of empirical evidence to reject the null hypothesis (H_{01}) on the said dates.

The results as per the CAAR and BHAAR are similar. Both tools indicate the presence of abnormal returns on the date of announcement of the event, thus rejecting the null hypothesis. Table 5 shows the calculations of BHAAR for the entire event window of 21 days (T_{-10} , T_{10}).

Table 5 – Statistical Results (BHAAR) over the Event Window

BHAAR	t-stat	p-value
-0.0107	-0.16155	0.871826

Source: Authors' calculation

Since the p-value exceeds five per cent, therefore, it supports the null hypothesis H_{01} that the event does not have an impact on the shareholder gains over the event window.

Financial Parameter Analysis

To understand the perspective of the company, the impact of the event is also studied on the financial parameters, which take into account the share price of the demerged company. For simplicity purposes, the following ratios have been analysed.

Price-to-Earnings ratio (or PE Ratio): The PE ratio compares the current stock price to the earnings per share (EPS) to determine how valuable a firm is. The study compares the PE ratio of the demerged companies for the financial year immediately preceding and after the event of demerger. Table 6 presents the PE ratios of the demerged companies along with the absolute change.

Table 6: The PE Ratio of Demerged Companies

S.N	Company	PE Ratio*		AbsoluteChange**
		Before Demerger	After Demerger	
1	Reliance Industries Ltd	46.86	36.3	-10.56
2	Vakrangee Limited	145.04	29.52	-115.52
3	Edelweiss Financial Services Ltd.	356.7	3	-353.7
4	Aurionpro Solutions Limited.	21.3	44.78	23.48
5	IIFL Holdings Ltd.	37.87	90.46	52.59
6	LKP Finance Ltd.	6.29	12.64	6.35
7	Jindal Photo Ltd.	0	0	0
8	IDFC Ltd.	11.36	751.78	740.42
9	Vantage Corporate Services Ltd.	0	10.62	10.62
10	Polaris Financial Technology Ltd.	8.32	27.64	19.32
11	Future Ventures India Ltd.	89.56	89.93	0.37
12	S.E.Investments Ltd.	29.33	29.33	0
13	Everlon Synthetics Ltd.	11.97	14.4	2.43

Source:

*Prowessiq(as accessed on 29th August 2024),

**Authors' calculation.

From Table 6 it can be observed that twenty-three percentage of the demerged companies (Reliance Industries Ltd, Vakrangee Limited and Edelweiss Financial Services Ltd.) have experienced a decrease in the P/E ratio indicating a loss of investor confidence whereas fifty-three percentage of the sample demerged companies (Aurionpro Solutions Limited, IIFL Holdings Ltd, LKP Finance Ltd, IDFC Ltd, Vantage Corporate Services Ltd, Polaris Financial Technology Ltd.) have witnessed an increase in the PE ratio showcasing growth in the market capitalization of the company. 23 per cent of the sample (Future

Ventures India Ltd, S.E.Investments Ltd, Jindal Photo Ltd.) have witnessed minimal to no change in the ratio. This may be due to losses incurred during the financial years or a minimal change in the profitability of the company. The data is presented in a graphical format for better understanding.

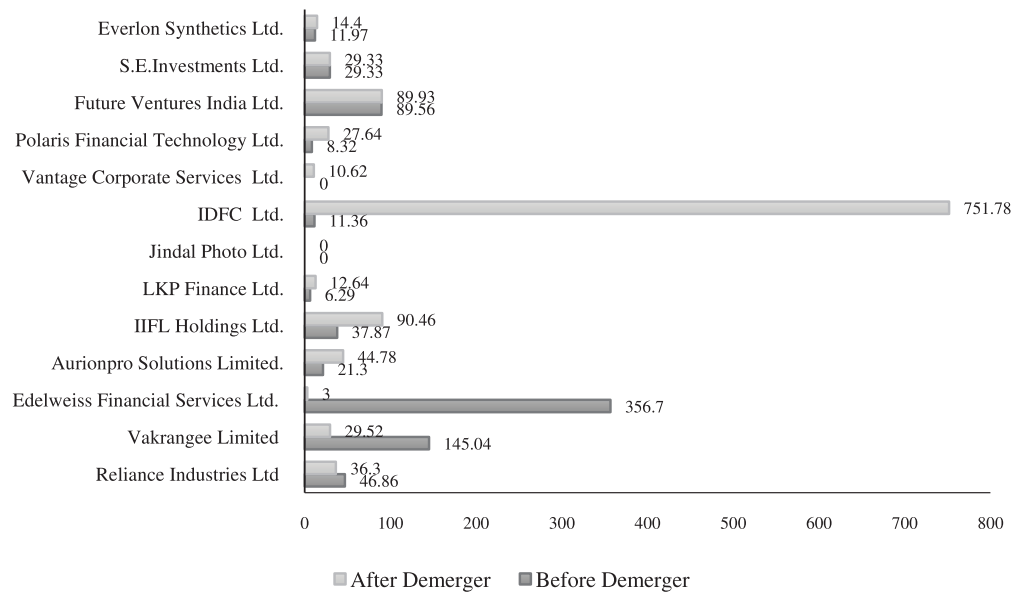


Figure 3: Graphical Presentation of the PE ratio of demerged companies

Price-Book Value Ratio (or PB ratio): The PB ratio compares the market value of a company to its book value. The PB ratio for the demerged companies before and after the event is listed in Table 7.

Table 7: The PB Ratio of Demerged Companies

S. No.	Company	PB Ratio*		Absolute Change**
		Before Demerger	After Demerger	
1	Reliance Industries Ltd	3.78	3.29	-0.49
2	Vakrangee Limited	2.26	45.59	43.33
3	Edelweiss Financial Services Ltd.	1.11	0.68	-0.43
4	Aurionpro Solutions Limited.	1.56	2.44	0.88
5	IIFL Holdings Ltd.	4.42	8.47	4.05
6	LKP Finance Ltd.	0.7	0.56	-0.14
7	Jindal Photo Ltd.	0.48	0.68	0.2
8	IDFC Ltd.	1.27	1.58	0.31
9	Vantage Corporate Services Ltd.	0.63	0.47	-0.16
10	Polaris Financial Technology Ltd.	0.97	1.63	0.66
11	Future Ventures India Ltd.	0.86	1.01	0.15
12	S.E.Investments Ltd.	2.58	2.36	-0.22
13	Everlon Synthetics Ltd.	2.01	1.33	-0.68

Source:

*Prowessiq (as accessed on 29th August 2024),

**Authors' calculation.

From Table 7, only 15per cent of the sample demerged companies have shown a substantial increase in the price-book value ratio, indicating that the investors are willing to spend more for the company's assets, whereas 46per cent of the companies have witnessed a decrease in the PB ratio, which might be due to the loss of investor confidence. The remaining have either seen minimal or no increase in the ratio.

Previous studies, such as **Vyas et al. (2015)**, **Saraf & Sinha (2022)**, and **Padmanabhan (2018)**, have employed event study methodologies to analyse demergers in India; however, their samples either spanned multiple sectors or did not explicitly differentiate the dynamics within the finance sector. In contrast to broader studies showing overall positive CAARs in Indian demergers (ranging from 2–4% at announcement), this work investigates whether the effect size and persistence differ for finance firms. Early literature (**Veld & Veld-Merkoulova, 2004**) also suggests sectoral heterogeneity in abnormal returns for demergers, but did not focus on or test the finance industry specifically.

The findings of this study are consistent with previous studies [**Vyas et al. (2015)**, **Saraf & Sinha (2022)**, **Padmanabhan (2018)**, **Kirchmaier (2003)**, **Desai & Jain (1999)**, **Schipper & Smith (1983)**, **Kambla (2017)**, **Ball, et al (1993)**, **Daley, et al (1997)**] in demonstrating the presence of positive abnormal returns as a result of announcement of demerger.

V. Conclusion

Corporations undergoing demergers often respect benefits such as preservation of core propositions, improved efficiency, cost reduction, and profit enhancement. Past literature indicates that shareholders may gain abnormal returns due to share price changes in the demerged company. However, most studies have not specifically addressed the impact of demergers on companies operating exclusively in the Indian finance sector.

This study examines finance sector companies listed on the BSE and finds no significant increase in shareholder wealth, measured as abnormal returns, except on the announcement date and one day later. No significant impact is seen before or after the announcement date. This might be due to the

efficiency of the sector or due to external factors which have been kept constant.

Financial parameter analysis shows that fewer than half of the sample companies recorded a positive change in the PE ratio and the PB ratio immediately after the close of the financial year.

While earlier studies often support positive short-run abnormal returns following demergers, these results do not fully align with such findings. The divergence may reflect structural changes in the Indian financial sector (like demonetisation, GST implementation, and other regulatory changes). Further, the objective of the paper is not to defy the previous research, but a mere presentation of the empirical analysis of the data for the period under study.

The findings suggest that in the finance sector, the impact of demergers on shareholder wealth is largely confined to the announcement day. Limited improvements in financial ratios further indicate that such restructuring should be undertaken only after thorough consideration of internal and external factors. Further studies could expand the scope to other sectors to account for macroeconomic influences that may affect share prices.

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AIR INDIA AND VISTARA: WILL MERGER UPLIFTS EMPLOYEES' SPIRIT

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Purpose: Vinod Kannan CEO of Vistara said "We want to make sure that everyone in Vistara does have a role (in the merged entity). It is not a merger for cost-cutting or efficiencies; it is a merger for growth"⁴⁴.

In November 2022, the Tata Group announced combining Air India and Vistara as full-service airline⁴⁷. Since then the employee unions of both airlines raised their concerns about "inequality in treatment, lower pay, job security and career progression"³⁸. Most pilots were unhappy about pay structure, workload, work-life balance, pay parity and new organization culture⁵⁴.

Design/Methodology / Approach: This entire study is a case study-based approach. This paper adopted a secondary-based case approach. Information for this case were collected from various secondary sources.

Findings: Air India CEO and MD Campbell Wilson and Vistara CEO Vinod Kannan held a town hall meeting with employees⁴⁴. The best fit among senior to mid-level executives to be retained, if any roles were available remaining others would be considered²¹. After the new compensation structure, pilots got 40 hours instead of 70 hours⁶. In February 2024, the CEO of Vistara dismissed some pilots who took sick leave against the new pay structure. An integrated pilot sequence was introduced to maintain the seniority of pilots between the two airlines³⁸. However, it did not apply to contract employees. After the merger, these employees' contracts won't be renewed because of the redundancies of the jobs⁴⁷. A letter was written to Tata Son's chairperson N Chandrasekaran by unions stated that pilots were considered "reminiscent of bonded labourers" and in some instances pilots were threatened by the HR⁶¹.

Originality: This case examines the merger challenges faced by two large organizations, with a particular focus on resistance to change management practices within the aviation industry. It serves as a valuable resource for classroom teaching, offering practical insights into both merger dynamics and the complexities of managing organizational change.

Challenges: Generally, the merger supports the companies in organizational restructuring, workforce realignment and reinforcement. However, Vistara faced a huge setback in this case. The employees of Vistara faced multifaceted challenges like pay cuts, promotion, cultural issues, humiliation, threats, bonded labourers and disrespect etc.. Would Air India address all these issues and take care of the Vistara employees at par with Air India employees? In the long run, would this transition be a smooth one?⁵⁴.

Keywords : Merger, Change Management, Air India, Vistara and Aviation Industry

JEL Code: M1, M14

Learning Objectives

1. What about your understanding of mergers and how is it useful for organizational development?
2. What were Air India and Vistara's challenges during the integration process?
3. How could the Lewin's change model support the change management process of Air India–Vistara merger?
4. What organizational restructuring strategies should be implemented after the merger to ensure fair integration, promotions and distribution of responsibilities for Vistara

employees?

What measures can be taken to improve employee engagement, retention and satisfaction among Vistara employees?

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Air India

In 1932, the business tycoon JRD Tata started Air-India. Initially, the mail service was started and then the company began carrying passengers. Air-India was renamed as Tata Airlines in 1938⁸. They expanded their operations internationally and profit also increased by tenfold. However, the growth of the airline was not up to that level. Post-independence, the Indian government took a 49% stake in Tata Airlines and renamed again as Air India⁸. The government nationalized Air India and other airlines after five years, but the move was not liked by JRD Tata. Later, he became the chairman of the airline. On 29, July 1946, it became a public limited company⁸. In 1977, the government took full control and changed the management after removing JRD Tata as chairman⁵⁶. In 2007, the airline was merged with Indian Airlines to streamline its operation⁵⁶. However, it did not yield any positive results. Air India never made any profit after the merger. Each day's loss was Rs 23 crore²⁰ and it went up to a debt of Rs 61,000 crore⁵⁶. The growth was sluggish for almost two decades. Due to that, the Indian government wanted to privatize Air India by selling 76% of its stake in 2018³². However, none of the private players showed any interest in buying. In 2021, after a lot of struggles, the Tata group acquired Air India from the government after eight decades. Rs 18,000 crore was spent to get the airline back²⁰. The company aimed to expand rapidly. Hence, the company planned to hire more than 1000 pilots including captains, trainers¹⁰ and 4200 cabin crew trainees for domestic and international operations. In addition, the company ordered 470 narrow and widebody planes with a total investment of around Rs 6.40 crore (\$80 billion)²⁰.

Vistara

Vistara was a joint venture between Singapore Airlines and Tata Sons. Tata Sons and Singapore Airlines held 51% and 49% stakes respectively. Earlier, it was registered as TATA SIA Airlines Limited. Later it became "Vistara". The brand name of "Vistara" was derived from the Sanskrit word "Vistaar", meaning "a limitless expanse" and carried the tag line of "fly the new feeling"³¹. The maiden flight of Vistara commuted from New Delhi to Mumbai with 148 passengers and six crew members³⁷ on January 9, 2015³¹. Within a short period, the airline grew rapidly and spread marks in service and network.

Vistara served 24 destinations, around 800 flights in a week with a fleet size of 22 Airbus and staff strength of 5200¹⁷. The airline took 13 million customers and operated across the country³¹. In 2015, the airline crossed the \$1 billion revenue mark. Its international and domestic networks grew by 180 and 50 percent respectively in 2022. Since then, the airline had been the second-largest domestic airline in India³⁹. In April 2024, passenger load factor and on-time performance were increased by 85 and 91 percent respectively compared the previous year³⁵. Vistara was the pioneer in introducing premium economy class in India³⁷. Vistara used sustainable aviation fuel (SAF), became the first carrier to reduce 10,000 pounds of CO2 emissions and focussed towards sustainable aviation in the long run in India. The airline took industry-first initiatives like Aerowash, an automatic aircraft exterior washing and cleaning solution. The processes of waterless and dry-wash supported fuel efficiency that curb structural damage and resources could be saved.

Indian Aviation Industry

India's aviation market competed well with global aviation. However, more of the market to be tapped yet⁴⁵. As airline travel was expensive, most people were not in a position to afford it. Therefore, the UDAN-RCS scheme was launched by the government to support middle-class people to travel in airline²⁸. The total number of airports in the country was 149 of which 75 airports have been added in the last nine and half years³⁴. The Indigo's CEO mentioned that there was a massive demand for air travel in India and industry's operative environment stable after a lot of challenges. Indigo and Air India were playing a lead role in the Indian aviation industry and ordered 500 and 470 flights from Airbus and Boeing respectively³⁴. The Indigo secured highest market share among other airlines. The domestic market share of the Indigo was 63%⁴⁵. In 2023, passenger traffic was 327.8 million. The domestic and international passenger traffic grew YoY by 19.1% and 35% respectively²⁷. Domestic airlines carried 1382.4 lakh passengers with an annual growth rate of 25.09%²⁹.

The civil Indian aviation market was growing fast and was one of the largest in the world. In May 2023, the civil aviation minister Mr. Scindia said Rs 1 lakh crore to be invested for the development of airports. The Indian domestic aviation market would become the third largest with a \$16.6 million market size by 2024. From the 2023-24 union budgets, Rs 3113.36 crore was allotted to the civil aviation ministry²⁷. The

Airports Authority of India (AAI) had a plan to build around 220 new airports and invest Rs 25,000 crore in multiplying the facilities in the next five years²⁷. The public-private partnership airports to be expanded to 24 by 2024²⁸. The capital outlay of Rs 98000 crores to be invested in expanding the airport sector by AAI and other developers. By 2027, the Indian aviation market grew to \$40 billion and 21 greenfield airports to be set up by the government²⁸. In 2042, 685 people would be flying in India. Therefore, the Indian aviation market would be the third-largest after China and USA and overtook both countries by 2030. As the Indian travel market was estimated at around \$125 billion, around 2380 commercial airplanes are required to accommodate by 2038²⁸.

Pre-Merger

In November 2022, the Tata Group announced that combining the airline business into to full-service and Low-airline career. Therefore, the group had a plan to merge Air India and Vistara as full-service and Air India Express and Aix Connect as low-airline⁴⁷. Vistara was a joint venture of Tata Group (51 percent) and Singapore Airlines (49 Percent) and was to be merged into Air India to become a full-service career⁴⁹. The CEOs of both organizations held a town hall meeting on the integration process¹⁸. The objective of the merger was to increase efficiency, eradicate redundancies, employees' integration and leverage each other's strengths⁷. Vistara CEO expressed that the merger focussed on a "customer-centric" and "People Aspect" in a seamless manner. In addition, the merger led to growth rather than cost-cutting³⁶.

N. Chandrasekaran, Chairman, Tata sons said

*"The merger of Vistara and Air India is an important milestone in our journey to make Air India a truly world-class airline. We are transforming Air India, with the aim of providing great customer experience, every time, for every customer. As part of the transformation, Air India is focusing on growing both its network and fleet, revamping its customer proposition, enhancing safety, reliability, and on-time performance. We are excited with the opportunity of creating a strong Air India which would offer both full-service and low-cost service across domestic and international routes. We would like to thank Singapore Airlines for their continued partnership."*⁴³

Merger Process

A team included Vistara, Air India and many consultants Oliver Wyman, Sabre and BCG were hired to route networks and harmonize the employees⁷. The Law company AZB partners was hired to handle the legal and regulatory compliance matters⁵⁰.

*In an official statement, Air India said, "Over the last 18 months, a team of more than 100 members have worked to align on the best practices and adopt common operating procedures. The result of this will be two separate manuals for the full-service carrier and the low-cost carrier."*⁴⁹

To streamline the integration process, the Tata-owned airlines harmonized the manuals and the proposal was submitted to the Directorate General of Civil Aviation (DGCA) for review and to reduce the training requirements for Cabin crew and Pilots⁷.

*"DGCA is examining the manuals before giving any approval," said a person familiar with the matter. The DGCA and other aviation regulators mandate that pilots undergo crossover training while changing a company or an aircraft type."*⁷

*For instance "Since the manuals have been merged, there is little difference now except procedural differences like when should the doors be closed before take-off or what should be the public announcement in case of a disruption like a precautionary landing or when to switch off the seat belt signs," said one of the persons involved in the integration process."*⁷

The merger was approved by the National Law Company Tribunal (NCLT). The approval included the integration of employees, fleet arrangements and their networks¹¹. The merged airline was to be operated under the Air India brand¹¹ with a ratio of 12 Air India employees to 5 Vistara with an average team size of 7-8 members⁹. Moreover, it became the second-largest domestic and largest international career in India with a combined 218 aircraft¹¹.

Merger effects on Employees

The merger was announced on November 22 and since then the employee unions of both airlines raised their concerns about "inequality in treatment, lower pay, job security and

career progression”³⁸.

Job redundancy

Air India CEO and MD Wilson and Vistara CEO Kannan conducted a town hall meeting with employees regarding the merger. During the meeting, they said that a fitment test would be conducted to identify the redundant jobs⁵² and measure the employees' meritorious and competence⁴⁴. It was done for a few months to evaluate the employees' roles and responsibilities, performance, prior experience and other factors⁴⁷. The best fit among senior to mid-level executives to be retained, remaining others would get, if any roles were available²¹.

“Team managers and members reporting to the management directly have already been assessed and in the next few weeks, the next level of employees will be assessed for their prospective role. Since the two airlines had executives in the same role, it needs to be carefully assessed on who will be given leadership or managerial role.”²¹

“But as they have not been assigned any role during the fitment exercise, which is almost complete now, their contracts are unlikely to be renewed,” a source told PTI¹.

In addition, the two organizations started the integration exercise by evaluating the senior employees through the Hogan test for selecting suitable leaders for the new entity. For junior employees, aptitude tests have been conducted to understand their level⁵. In January, Kannan said *“We want to make sure that everyone in Vistara does have a role (in the merged entity). It is not a merger for cost-cutting or efficiencies; it is a merger for growth”⁴⁴.*

Compensation conflict

The root cause for this was the new compensation structure. Earlier, pilots got 70 flying hours, after the new compensation structure, they would get only 40 hours. Of course, it would affect their compensation badly. Vistara management said that employees had to accept this new pay structure or forgo the one-time payout. Because of that, the employees were dissatisfied and led employees to take mass sick leave⁶¹ which aggravated the situation⁵⁴. In February 2024, Kannan CEO of Vistara dismissed some pilots who took sick leave against the new pay structure. The airline gave the ultimatum of 15th

March 2024 to accept the new pay structure⁶¹.

Voluntary separation

Kannan ensured that the rostering system and work-life balance strategies were set to solve pilots' issues. He also assured that more opportunities would come after the merger⁶¹. On account of the merger, around 600 non-flying staff would be affected by both airlines. However, the airlines were taking the initiative to give job opportunities within the Tata and Air India Group. Those employees who have not been given sufficient opportunities could avail Voluntary Separation Scheme (VSS) because their roles might be redundant⁴⁴. This initiative was taken after consultation with Boston Consulting Group (BCG) and Deloitte⁴⁸.

Impact on contract employees

Air India CEO said that 120 pilots were seconded between Air India and Vistara and their movement would happen through secondment. An integrated pilot sequence was introduced to maintain the seniority of pilots between the two airlines³⁸. However, it did not apply to contract employees, around 300 non-flying employees had been working on Fixed-term contracts (FTC) for more than 10–15 years in Air India. After the merger, these employees' contracts won't be renewed because of the redundancies of the jobs⁴⁷.

“Being on contract, these employees are not entitled to schemes like VRS or VSS, which Air India announced for its permanent staffers, and so they will not be getting such offers, unlike permanent employees, who also did not find a position after the fitment exercise,” said the source⁴⁷.
“But as they have not been assigned any role during the fitment exercise, which is almost complete now, their contracts are not unlikely to be renewed,” a source told PTI⁴⁷.

Threats against Pilots

Once the merger was announced, top people from ground operations and revenue management quit Vistara and many people had an idea to leave in the last few months. An executive said *“There is a storm brewing.”⁵* Two trade unions of Air India, “Indian Commercial Pilots Guild, Indian Pilots Guild” supported Vistara peers⁶¹. They criticized that pilots

were threatened by the HR department with some consequences and treated as “bonded labourers”. Due to this, Vistara had to cancel many flights on account of crew shortages⁴⁰.

*"Pilots who feel threatened or intimidated may be reluctant to report safety concerns or speak up about issues that could impact flight operations. This poses a significant risk to the safety of our passengers and crew members and should not be taken lightly," the unions said*⁴⁰.

Unions claim

A letter was written to Tata Sons Chairperson N Chandrasekaran by unions stated that pilots were considered “reminiscent of bonded labourers”. There were some instances pilots were threatened and some consequences would happen in the future by Hr⁶¹.

*The unions claimed, "The issues of 70 hours fixed remuneration, approval of leaves, adequate rest periods, unstable roster, stretching pilots to max flight duty, botched roster practices and an unsupportive work environment are consistently echoed by pilots across different Tata Group airlines."*³

*"Threatening pilots with disruptions to their future is not only unethical but also creates a hostile and intimidating work environment...Pilots who feel threatened or intimidated may be reluctant to report safety concerns or speak up about issues that could impact flight operations. This poses a significant risk to the safety of our passengers and crew members and should not be taken lightly," the letter stated*⁶¹.

*"We believe that every pilot deserves to be valued, respected, and provided with the necessary support to excel in their profession. Pilots are being subjected to conditions and treatment reminiscent of bonded labourers," the letter said*⁴⁰.

These kinds of threats would create serious issues of efficiency in the airline functions⁴⁰.

Promotion disparity

More than 80 pilots of Vistara wrote a letter to the CEO of Vistara and the Chairman of Tata Sons stated Air India pilots were considered for promotion to widebody aircraft ahead of Vistara pilots. The Boston Consulting Group (BCG) prepared the career progression list which stated that every Vistara employee was eligible for wide-body aircraft. Since the list was prepared around 100 Air India captains were promoted to the twin-aisle Boeing 787 but only five were considered in Vistara. To avail the staff travel scheme that allowed the employees and families to access free travel, the date of joining was the criterion. It was a huge disadvantage for Vistara employees because it was started in 2014. Air India was started much older¹⁴.

Post-merger

The Tata Group would continue to hold the top management position of Air India. Therefore, all the senior executives of Air India were expected to be retained in their positions⁵⁰. *Campbell Wilson will continue as the chief executive officer, with Nipun Aggarwal and Sanjay Sharma remaining as the chief commercial and transformation officer, and chief financial officer*⁵⁰.

Kannan the present CEO of Vistara returned to Singapore Airlines, the parent company of Vistara and Deepak Rajawat the Chief Commercial Officer of Vistara would join the merged entity¹¹. Post merger, Singapore Airlines' 49% stake in Vistara would make up 20.6% of Air India. The airline had a plan to pay ₹2,058 crores to acquire an additional 4.5% stake and invest up to ₹5,020 crores for fleet modernization and aircraft induction⁶. Till the fiscal year 2024, the Tata group and Singapore Airlines were expected to invest 20,000 crores and 7078.5 crores respectively in the combined Air India group⁶.

Road Ahead

Generally, the merger supports the companies in organizational restructuring, workforce realignment and reinforcement. However, in this case, Vistara faced a huge setback due to the merger. The employees of Vistara faced

multifaceted challenges like pay cuts, promotion, cultural issues, humiliation, threats, bonded labourers, and disrespectetc..

Based on the Lewin's model of change management, the Unfreeze stage was not handled properly. Vistara employees faced lack of communication, humiliation, fear and resistance. The transition stagepay cuts, cultural issues, job insecurity, promotion issues and employees were threatened and disrespected. The Refreeze stage was not effectively planned, as employees had doubt on their roles and future in the merged entity. Moreover, long-term success and integration remain uncertain.

Vistara employees worried whether would they get suitable roles after the merger. Would Air India address all these issues and take care of the Vistara employees at par with Air India employees? In the long run, would this transition be a smooth one and give an unexpected result to Air India?⁵³.

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