Effect of Indian Equity Market Investments on Bank Savings: A Study

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ABSTRACT

Investments in the capital market are significantly affected by bank interest rates. Recently, global markets have been particularly influenced by changes in the Federal Reserve's interest rates, as the flow of funds is heavily dependent on the perceived risk level of investments. This study focuses on the impact of key monetary policy rates and inflation on bank deposits and equity market movements, analyzing data from 2000 to 2015. The results from a bivariate correlation analysis indicate a negative relationship between liquidity, deposits, and the equity market in relation to inflation. Using a weighted least squares model, it was found that interest rates do not significantly affect liquidity or bank deposits. Additionally, a Granger causality test showed that inflation influences the repo rate, but does not have a direct impact on equity markets. The T-test results led to the rejection of the hypothesis suggesting a substantial influence of interest rates on bank deposits and equity market capitalization. A VAR model suggests that bank deposits are likely to increase in the near future. This analysis serves as a valuable resource for investors in the capital market, including mutual funds, pension funds, and foreign investors. While numerous research papers have examined the influence of bank deposits on the economy, there is a lack of research exploring how savings bank deposits affect equity market investments in India. Investors are typically drawn to the higher interest rates offered by banks, but it is important to understand how market capitalization fluctuates with the changes in interest rates. My study will focus on measuring the structural movements within equity capital as interest rates change. **Keywords:** Bank Savings, Equity, Investment

Introduction

The equity market, also known as the share market, serves as a primary avenue for companies to raise capital from the public. It is a well-organized platform that facilitates the issuance and redemption of securities. Despite this, many Indian retail investors still prefer traditional investment avenues such as banks, post offices, and insurance products, as they are seen as safer options. Our spending choices are often shaped by the burden of interest rates we must bear. Many individuals tend to favor bank deposits over stock investments, as they can earn higher returns with lower risk. This tendency can lead to funds being pulled from the stock market, negatively impacting its performance. Here are some key points to consider: - There is an inverse relationship between interest rates and stock market performance; as interest rates rise, stock market activity tends to decline. - Capital-intensive industries are particularly vulnerable to high interest rates, while lower rates can significantly benefit them. Sectors such as real estate and automobiles are often less attractive when interest rates are increasing.

- Companies burdened with substantial debt will be heavily impacted by rising interest rates, as the cost of servicing existing debt increases, which negatively affects their earnings per share (EPS) and stock prices. Conversely, these companies can benefit from lower interest rates. - Sectors like pharmaceuticals and information technology (IT) are less sensitive to interest rate fluctuations. The IT sector is more influenced by factors such as currency fluctuations, attrition rates, visa restrictions, competitive pressures, and margin challenges, making it less dependent on interest rates. Pharma, being a defensive sector, tends to attract investors during uncertain and volatile market conditions. - In a high-interest-rate environment, companies with little to no debt will thrive. The fast-moving consumer goods (FMCG) sector is considered defensive due to its generally low debt levels. - The banking sector is likely to benefit significantly from higher interest rates, as the Net Interest Margins (the difference between the interest earned on loans and the interest paid on deposits) are expected to widen, leading to increased profits and stock prices. A bank functions as a financial institution that accepts deposits from the public and creates credit, engaging in lending activities either directly or through capital markets. Given their vital role in the financial system and their impact on national economies, banks are subject to rigorous regulation in most countries. Most nations employ a fractional reserve banking system, where banks maintain liquid assets equal to only a fraction of their liabilities. Additionally, banks must meet minimum capital requirements based on internationally recognized standards, such as the Basel Accords. Bank deposits involve money placed into a banking institution for safekeeping and are typically made to deposit accounts like savings, checking, and money market accounts. The account holder has the right to withdraw funds according to the account's terms and conditions. In this context, a deposit is a liability the bank owes to the depositor, rather than a reflection of the funds deposited. A savings account is a type of deposit account that offers principal security and modest interest rates. Depending on the savings account's type, the account holder might face restrictions on writing checks or limited free transactions. Compared to demand accounts and cash, savings account funds are among the most liquid investments. On the other hand, checking accounts allow check writing and electronic debits, making them more suitable for daily expenses. To open a savings account, one simply needs to visit a local bank with proper identification. The stock market, or equity market, comprises buyers and sellers of shares or stocks, including securities listed on stock exchanges and those traded privately. It is a critical mechanism for companies to raise capital, allowing them to publicly trade shares and secure additional funding for expansion. The liquidity provided by exchanges facilitates quick and easy sales of securities, making stock investments more appealing compared to less liquid assets like real estate. Historically, stock prices and asset values have significantly influenced economic activity and can serve as indicators of societal mood. A rising stock market is often viewed as a sign of a thriving economy, correlating with increased investment and household wealth. Consequently, central banks closely monitor the stock market as part of their mandate to ensure financial stability. Exchanges act as clearinghouses for transactions, ensuring the delivery of shares and guaranteeing payment to sellers, which mitigates the risk of default. The effective functioning of the financial system promotes economic growth by lowering costs and risks associated with enterprises, ultimately leading to increased production and employment. While there is ongoing debate about whether a bank-based or market-based financial system is optimal, it is widely recognized that both play critical roles in fostering economic prosperity. Recent events, including the Global Financial Crisis, have heightened scrutiny of stock market

structures and their impact on financial stability and systemic risk transmission. Market participants include individual retail investors, institutional investors (such as mutual funds, banks, insurance companies, and hedge funds), and publicly traded companies that may trade their own shares. Research indicates that institutional investors and companies trading in their shares often achieve superior risk-adjusted returns compared to retail investors. In the past, individual investors—often wealthy businessmen with long-standing ties to specific corporations—dominated markets. However, over time, markets have become increasingly institutionalized, with major buyers and sellers being large institutions such as pension funds and mutual funds. The rise of institutional investors has led to improvements in market operations, including a gradual reduction in fixed and excessive fees, driven by falling administration costs and competition challenging brokers' traditional fee structures.

Stock market index

Price movements within a market or a specific segment are represented by stock market indices, which include various examples such as the S&P, FTSE, and Euronext indices. These indices are typically weighted by market capitalization, meaning that the weights correspond to each stock's contribution to the overall index. The constituents of these indices are regularly reviewed to add or remove stocks, ensuring that they accurately reflect the evolving business landscape.

Objectives of the Study

1) To analyze the relationship between the Repo Rate and liquidity, bank deposits, equity market capitalization, and inflation.

2) To examine the impact of interest rates on liquidity and bank deposits.

3) To assess how inflation affects interest rates and the growth of equity market capitalization.

4) To evaluate the influence of fluctuations in interest rates on the growth rate of bank deposits and equity market capital.

5) To project the future trends of bank deposits and equity market capital in relation to the Repo Rate.

Hypothesis:

- Null Hypothesis (H_0): The Repo Rate does not have an effect on liquidity. - Null Hypothesis (H_0): The Repo Rate does not affect bank deposits. - Null Hypothesis (H_0): Inflation does not impact equity market capitalization.

Need for the Study:

In India, approximately 75% of citizens choose to save their money within the banking sector, while only 25% is allocated to other investment avenues. Although numerous research papers have explored various aspects of this subject, there is a noticeable gap in understanding how savings bank deposits influence the growth of Indian equity markets and the appreciation of its market capitalization. The purpose of this study, titled "The Impact of Bank Savings Deposits on Equity Investment Markets," is to investigate how investment decisions are shaped by the behavior of equity markets. Additionally, it aims to analyze the

influence of monetary policy on bank deposits and the consequent effects of these deposits on equity markets. The study will also explore how key monetary policy rates can benefit retail investors, mutual fund investors, and others in the investment landscape.

Scope of the Study

The current study focuses on assessing the impact of bank savings interest rates on capital markets. The data considered for analysis spans the period from 2000 to 2015 and includes the following variables: - Repo Rate - Liquidity in the system - Bank Deposits - Equity Market Capitalization - Inflation - Gold Prices - GDP - Nifty Data **Limitations:** 1. The study takes into account only the data from commercial banks for bank deposits. 2. Equity market capitalization data is solely sourced from NSE India.

Research Methodology

This analysis was conducted using secondary data and descriptive statistical tools. The following formulas were employed for the analysis:

1) **Correlation:** A correlation study is a research approach that seeks to relate one event to another or to sets of causality that precipitate the event. Bivariate correlation tests whether the relationship between two variables is linear—meaning that as one variable increases, the other may also increase or decrease.

2) **Weighted Least Squares (WLS):** Weighted least squares regression is advantageous for estimating model parameters when the response values exhibit varying degrees of variability across different predictor values. As indicated by its name, parameter estimation via the method of weighted least squares is closely linked to parameter estimation through "ordinary," "regular," "unweighted," or "equally-weighted" least squares.

3) **Johansen Co-integration:** Co-integration is a statistical property of time series variables. Two or more time series are considered co-integrated if they share a common stochastic drift. If two time series, x and y, are co-integrated, then a linear combination of them must be stationary, expressed as Y - Bx = u, where u is stationary.

4) **Granger Causality Test:** The Granger causality test is a statistical hypothesis test aimed at determining whether one time series can be useful in forecasting another. Time series X is said to Granger-cause Y if it can be shown, usually through a series of t-tests and F-tests on lagged values of X, that these values provide statistically significant information regarding future values of Y.

5) **T-Test:** The statistical significance of a t-test indicates whether the difference between the averages of two groups likely reflects a "real" difference in the population from which the groups were sampled.

6) **Jarque-Bera Test:** In statistics, the Jarque-Bera test is a goodness-of-fit test designed to assess whether sample data exhibit skewness and kurtosis that align with a normal distribution.

7) **Vector Auto Regression (VAR):** The Vector Auto Regression (VAR) model is an econometric framework used to capture linear interdependencies among multiple time series. VAR models generalize the univariate autoregressive model (AR model) by allowing for more than one evolving variable. All variables in a VAR are treated symmetrically in a

structural sense, although the estimated response coefficients will typically differ; each variable is explained by its own lags and the lags of the other model variables..

VAR: Vector Autoregression

$$y_t = v + \sum_{j=1}^{p} A_j y_{t-j} + u_t,$$
$$t = 1,\ldots, T$$

- Assumptions:
  - y_t: Stationary K-variable vector
  - v: K constant parameters vector
  - A_j: K by K parameters matrix, $j=1,\ldots,p$
  - u_t: i.i.d.$(0, \Sigma)$
- Trend may be included: δt, where δ is K by 1
- Exogenous variables X may be added

Data Analysis and Interpretation:

1. To assess the relationship between the Repo Rate and Liquidity, Bank Deposits, Equity Market Capitalization, and Inflation..

Correlation

		Repo	Liquidity	Deposits	Equity Market cap	Inflation
Repo	Pearson Correlation	1	-0.05	-0.009	-0.068	-0.313
	Sig. (2-tailed)		0.786	0.96	0.713	0.081
	N	32	32	32	32	32
Liquidity	Pearson Correlation	-0.05	1	.574**	.542**	.465**
	Sig. (2-tailed)	0.786		0.001	0.001	0.007
	N	32	32	32	32	32
Deposits	Pearson Correlation	-0.009	.574**	1	.958**	.376*
	Sig. (2-tailed)	0.96	0.001		0	0.034
	N	32	32	32	32	32
EquityMar	Pearson Correlation	-0.068	.542**	.958**	1	.420*
	Sig. (2-tailed)	0.713	0.001	0		0.017
	N	32	32	32	32	32
Inflation	Pearson Correlation	-0.313	.465**	.376*	.420*	1
	Sig. (2-tailed)	0.081	0.007	0.034	0.017	
	N	32	32	32	32	32

Interpretation: The table above illustrates the relationship between the Repo Rate and selected variables. The analysis indicates a slight negative correlation between liquidity, deposits, equity, and inflation. Additionally, a two-tailed significance probability has been observed regarding inflation in relation to the Repo Rate.

2. To examine the influence of interest rates on liquidity and bank deposits:

Weighted Least Squares Analysis

	Sum of Squares	df	Mean Square	F	Sig.
Regressio	16.178	2	8.089	0.131	0.878
Residual	1791.459	29	61.774		
Total	1807.637	31			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	Beta	Std. Error	Beta	Std. Error		
(Constant)	7.73	0.357			21.653	0
Liquidity	-1.74E-06	0	-0.008	0.238	-0.034	0.973
Deposits	-3.43E-06	0	-0.089	0.238	-0.376	0.71

ANOVA

				Sum of Squares	df	Mean Square	F	Sig.
Liquidity	Between Groups	(Combined)		6.16E+08	25	2.46E+07	3.329	0.069
		Linear Term	Weighted	1653836.499	1	1653836.499	0.224	0.653
			Deviation	6.14E+08	24	2.56E+07	3.458	0.064
	Within Groups			4.44E+07	6	7395610.238		
	Total			6.60E+08	31			
Deposits	Between Groups	(Combined)		1.97E+10	25	7.88E+08	4.47	0.035
		Linear Term	Weighted	1806027.919	1	1806027.919	0.01	0.923
			Deviation	1.97E+10	24	8.21E+08	4.656	0.032
	Within Groups			1.06E+09	6	1.76E+08		
	Total			2.08E+10	31			

Interpretation: The weighted least squares analysis indicates that the Repo Rate does not influence liquidity and bank deposits. The analysis of variance for the regression shows a non-significant probability value of 0.878, which is greater than 0.05. Additionally, the coefficients for liquidity and deposits are also non-significant, as both probability values fall within the non-significant range. 3. **To assess the impact of inflation on interest rates and the growth of equity market capitalization:** **Johansen Co-integration Test**:

Selected (0.05 level*) Number of Cointegrating Relations by Model

Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept No Trend	Intercept No Trend	Intercept No Trend	Intercept Trend	Intercept Trend
Trace	2	2	3	2	3
Max-Eig	2	2	3	2	3

*Critical values based on MacKinnon-Haug-Michelis (1999)

Information Criteria by Rank and Model

Data Trend:	None	None	Linear	Linear	Quadratic
Rank or No. of CEs	No Intercept No Trend	Intercept No Trend	Intercept No Trend	Intercept Trend	Intercept Trend

Log Likelihood by Rank (rows) and Model (columns)

0	-458.0249	-458.0249	-457.8652	-457.8652	-457.7190
1	-445.5211	-443.9268	-443.7694	-442.8013	-442.6786
2	-433.9260	-431.4230	-431.2700	-430.2479	-430.2367
3	-433.4932	-427.6048	-427.6048	-426.5827	-426.5827

Akaike Information Criteria by Rank (rows) and Model (columns)

0	33.35892	33.35892	33.56180	33.56180	33.76564
1	32.89436	32.85191	32.98353	32.98580	33.11990
2	32.49477	32.45884*	32.51928	32.58913	32.65976
3	32.89237	32.68606	32.68606	32.82734	32.82734

Schwarz Criteria by Rank (rows) and Model (columns)

|					
0	33.78713	33.78713	34.13274	34.13274	34.47932
1	33.60804	33.61317	33.83995	33.88980	34.11906
2	33.49393*	33.55315	33.66117	33.82618	33.94439
3	34.17700	34.11342	34.11342	34.39743	34.39743

Interpretation: The Johansen co-integration analysis applied to inflation, interest rates, and equity market capitalization indicates that the log-likelihood rank values for both non-linear and linear quadratic intercept trends are observed to be in a decreasing mode. This suggests that the data is co-integrated among the analyzed variables during the study period. **Pairwise Granger Causality Test**

| Null Hypothesis:	Obs	F-Statistic	Prob.
REPO does not Granger Cause DINFLATION	29	2.40919	0.1059
DINFLATION does not Granger Cause REPO		0.97525	0.3915
DEQUITY does not Granger Cause DINFLATION	28	1.74640	0.1967
DINFLATION does not Granger Cause DEQUITY		4.10572	0.0299

Interpretation: According to the Granger causality test analysis above, the alternative hypothesis H1 has been accepted and the null hypothesis HO has been rejected in light of inflation with the repo rate. When the observed probability value is higher than 0.05, or 0.3915, it is considered non-significant. Since the computed probability value is less than 0.05, or 0.0299, the Granger null hypothesis to equity has been accepted and the alternative hypothesis H1 has been rejected.
4. To quantify the impact of interest rate changes on bank deposits and the expansion of equity market capital
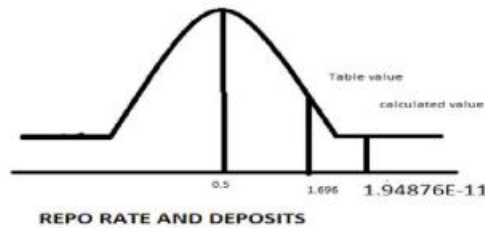
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REPO RATE AND DEPOSITS

Interpretation: The T-test result above indicates that the alternative hypothesis, H1, has been accepted and the null hypothesis, that the repo rate should be based on bank deposits, has been rejected.1.9487>1.696 is the T-test calculated value that is observed to be greater than the table value.
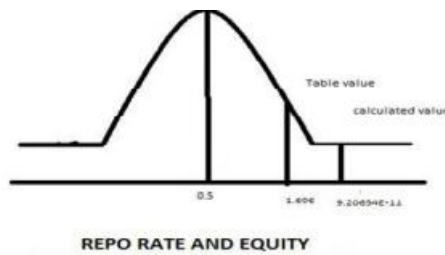
REPO RATE AND EQUITY

Interpretation: The T-test result above indicates that the alternative hypothesis, H1, has been accepted and the null hypothesis, the repo rate with equity, has been rejected.The estimated T-test value, 9.2065>1.696, is found to be higher than the table value.

5) To predict, using the repo rate, the future pace of bank deposits and equities market capital:
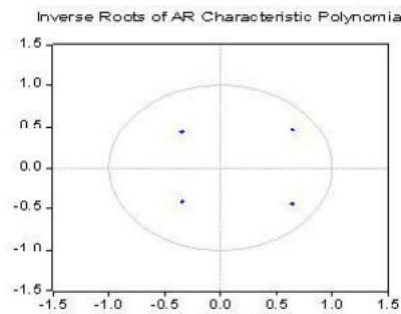
Interpretation: The data is said to be regularly distributed among the dependent and independent variables, as seen by the polynominal graph above, where the inverse roots fell inside the circle.

Component	Skewness	Chi-sq	df	Prob.
1	-1.761607	14.48187	1	0.0001
2	-0.293997	0.403359	1	0.5254
Joint		14.88523	2	0.0006

Component	Kurtosis	Chi-sq	df	Prob.
1	8.226490	31.86890	1	0.0000
2	3.426765	0.212483	1	0.6448
Joint		32.08138	2	0.0000

Component	Jarque-Bera	df	Prob.
1	46.35077	2	0.0000
2	0.615842	2	0.7350
Joint	46.96661	4	0.0000

Interpretation: Skewness and kurtosis probability values in the Jarque-Bera table above are found to be significant, indicating that the data is normally distributed among the variables that were chosen.

	REPO	DDDEPOSITS
REPO(-1)	1.098614 (0.17882) [6.14353]	161.5062 (123.878) [1.30375]
REPO(-2)	-0.438247 (0.17165) [-2.55318]	-223.9443 (118.907) [-1.88336]
DDDEPOSITS(-1)	0.000655 (0.00028) [2.32698]	-0.487765 (0.19511) [-2.49989]
DDDEPOSITS(-2)	0.000352 (0.00029) [1.21709]	-0.241135 (0.20020) [-1.20449]
C	2.242932 (0.84599) [2.65126]	666.1426 (586.047) [1.13667]
R-squared	0.699751	0.323193
Adj. R-squared	0.647534	0.205488
Sum sq. resids	9.140759	4386503.
S.E. equation	0.630416	436.7122
F-statistic	13.40077	2.745777
Log likelihood	-24.05782	-207.1960
Akaike AIC	2.075559	15.15686
Schwarz SC	2.313452	15.39475
Mean dependent	7.022024	122.9246
S.D. dependent	1.061863	489.9423

Determinant resid covariance (dof adj.)	67086.40
Determinant resid covariance	45266.21
Log likelihood	-229.5450
Akaike information criterion	17.11036
Schwarz criterion	17.58614

Interpretation: According to the vector auto regression results in the above table, bank deposits should fluctuate in tandem with the repo rate.
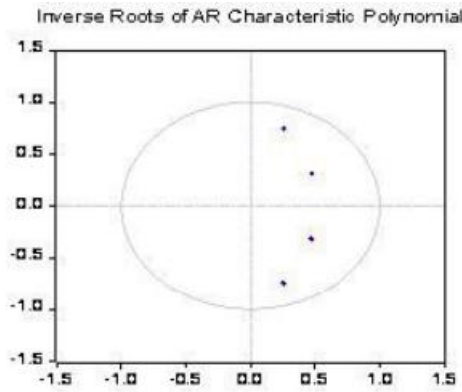
Inverse Roots of AR Characteristic Polynomial

Interpretation: The data is said to be regularly distributed among the dependent and independent variables, as seen by the polynominal graph above, where the inverse roots fell inside the circle.

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Component	Skewness	Chi-sq	df	Prob.
1	-0.912229	3.883420	1	0.0488
2	0.791095	2.920547	1	0.0875
Joint		6.803967	2	0.0333

Component	Kurtosis	Chi-sq	df	Prob.
1	5.118186	5.234497	1	0.0221
2	3.119334	0.016614	1	0.8974
Joint		5.251111	2	0.0724

Component	Jarque-Bera	df	Prob.
1	9.117916	2	0.0105
2	2.937161	2	0.2303
Joint	12.05508	4	0.0169

Interpretation: Skewness and kurtosis probability values in the Jarque-Bera table above are found to be significant, indicating that the data is normally distributed among the variables that were chosen.

	REPO	DEQUITY
REPO(-1)	1.077282 (0.20035) [5.37704]	77582.88 (174921.) [0.44353]
REPO(-2)	-0.421471 (0.19494) [-2.16202]	-198629.8 (170201.) [-1.16703]
DEQUITY(-1)	2.10E-07 (2.0E-07) [1.05839]	0.396387 (0.17808) [2.22592]
DEQUITY(-2)	-2.76E-07 (2.2E-07) [-1.23776]	-0.613322 (0.19490) [-3.14690]
C	2.398524 (0.90258) [2.65742]	1220868. (788025.) [1.54928]

R-squared	0.660257	0.406798
Adj. R-squared	0.601172	0.303633
Sum sq. resids	10.34309	7.88E+12
S.E. equation	0.670597	585486.1
F-statistic	11.17458	3.943159
Log likelihood	-25.78788	-408.8219
Akaike AIC	2.199135	29.55871
Schwarz SC	2.437028	29.79660
Mean dependent	7.022024	331714.1
S.D. dependent	1.061863	701612.6
Determinant resid covariance (dof adj.)		1.53E+11
Determinant resid covariance		1.03E+11
Log likelihood		-434.5198
Akaike information criterion		31.75142
Schwarz criterion		32.22720

Interpretation: The above table of vector auto regression result indicate that equity is expected to move along with the repo rate.

Findings

1. This study discovered a relationship between inflation and the equities market, bank deposits, and liquidity.
2. This research demonstrates that the repo rate had no effect on system liquidity or bank deposits.
3. Inflation had influenced interest rate bur during the same period inflation failed to influence equity market benchmarks.

4. The analysis had proved that bank deposits and equity markets got influenced by interest rate fluctuations
5. The future momentum of bank deposits is expected to move upside based on repo rate growth.
6. Equity markets are expected to move along with repo rate because the VAR model has shown neutral effect

Suggestions

1. When the repo rate is rising, investors are advised to shift their investments to equities segments.
2. According to the study, bank deposits will have to decline as equity market capital increases, but the nifty is predicted to rise within the same time frame.
3. The RBI is pushing repo and reverse repo higher due to rising inflation; equities investors are cautioned to exercise caution while repo and reverse repo are rising.

4. While central banks in many nations give interest rates on CRR, the RBI in India does not issue interest rates, but banks do pay interest to depositors. According to the analysis, banks should be given interest rates on CRR.

Conclusion

The study "Bank savings deposits impact on the equity market investment" for the years 2000–2015 is now complete. According to the analysis's findings, interest rates have an impact on bank deposits and the momentum of the equity market, and inflation directly affects interest rates. According to this study, bank deposits and market movements are not directly impacted by inflation. Therefore, there is need for future research in this field that

takes into account different microeconomic parameters that are impacted by inflation in order to determine the direction of equities markets and bank deposits.

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