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## Impact of Macro factors on BSE Bankex

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### KEYWORDS

Macro variables;  
Regression model;  
BSE Bankex

### A B S T R A C T

The purpose of this paper is to study the impact of macroeconomic factors on BSE Bankex. Macro economic climate here is comprised of GDP growth rate, Inflation, Gold Prices and Exchange rate. Data relating to all the factors is collected from [www.rbi.org](http://www.rbi.org). Using SPSS a multiple regression model is developed which shows the regression co-efficient between the share prices and various factors affecting the same. Regression results indicate that Exchange rate, Inflation, GDP growth rate affect banking index positively whereas Gold prices have negative impact on BSE Bankex but none of them have significant impact on Bankex.

## Introduction

Banks are a major part of any economic system. They provide a strong base to Indian economy too. Even in share markets, the performance of bank shares is of great importance. This is justified by the proof that in both BSE and NSE we have separate index for Banking Sector Shares. But for our study we have taken only BSE Bankex. Thus, the performance of share market, the rise and the fall of market is greatly affected by the performance of Banking Sector Shares and this paper revolves around some of those factors, their understanding and a theoretical and technical analysis of the same.

Internal or External conditions both are involved in measuring the sensitivity of

returns of stocks. Industrial Production, money Supply, Foreign exchange Rate, Interest rate, gold prices, GDP and oil prices in the world economy are involved in external conditions whereas dividend policy, earning per share etc are the contributors of internal factors. This paper studies the impact of Macro (External) factors on BSE Bankex. Macroeconomic indicators are already exhibiting signs of deterioration as Rupee is depreciating against dollar, inflation is mounting, interest rates and gold prices are increasing and industrial production has started to decline. The study which measures the impact of macroeconomic forces on various sectors of stock exchange index is rare in

the literature so this study provides a new way in the extending line of literature.

## **Institutional background**

### **BSE BANKEX**

Bombay Stock Exchange Limited launched "BSE BANKEX Index" on 23 June 2003. This index consists of major Public and Private Sector Banks listed on BSE. The BSE BANKEX Index is displayed online on the BOLT trading terminals nationwide.

### **Features of bankex**

A few important features of the BANKEX are given below:

Bankex tracks the performance of the leading banking sector stocks listed on the BSE.

Bankex is based on the free float methodology of index construction.

The base date for Bankex is 1st January 2002.

The base value for Bankex is 1000 points.

BSE has calculated the historical index values of Bankex since 1st January 2002.

14 stocks which represent 90 percent of the total market capitalization of all banking sector stocks listed on BSE were included in the index.

The index is disseminated on a real time basis through BSE online trading (BOLT) terminals.

Initially 12 stocks were included in the BSE Bankex. The stocks in the index were Andhra Bank (total market cap - Rs 1,226 crore and free float market cap Rs 490.40 crore), Bank of Baroda (Rs 3,062.12 crore and Rs 1,224.85 crore), Bank of India (Rs 2,283.44 crore and Rs 913.38 crore), Canara Bank (Rs 3,864.25 crore and Rs 1,159.28 crore), Corp Bank (Rs 2,353.13 crore and Rs 1,176.57 crore), HDFC Bank

(Rs 7,104.29 crore and Rs 5,683.43 crore). ICICI Bank Ltd (both total and free float cap are Rs 8,732.68 crore), ING Vysya Bank (Rs 638.44 crore and Rs 319.22 crore), Oriental Bank of Commerce (Rs 2419.26 crore and Rs 967.70 crore), Punjab National Bank (Rs 3,846.89 crore and Rs 769.38 crore), SBI (Rs 18,236.26 crore and Rs 9,118.13 crore) and Union Bank of India Ltd (Rs 1,516.09 crore and Rs 606.44 crore).<sup>1</sup>But later on a number of replacements took place and now finally these 14 stocks are a part of BSE Bankex.

Bank Ltd, Bank of Baroda, Bank of India Ltd, Canara Bank, Federal Bank Ltd, HDFC Bank Ltd, ICICI Bank Ltd, IDBI Bank Ltd, Indusind Bank Ltd Axis, Kotak Mahindra Bank Ltd, Punjab National Bank, State Bank of India, Union Bank of India, Yes bank.

### **Macro factors**

This paper studies the impact of Macro (External) factors on BSE Bankex and some of the factors that are considered are explained below:

#### **Inflation**

The control of inflation has become one of the dominant objectives of government economic policy in many countries. Monetary policy can control the growth of demand to tame inflation through an increase in interest rates and a contraction in the real money supply. This higher interest rates reduce aggregate demand by discouraging borrowing by both households and companies and by increasing the rate of saving (the opportunity cost of spending has increased) Inflation is usually measured based on certain indices. Broadly, there are two categories of indices for measuring inflation i.e. Wholesale Prices and

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Consumer Prices. In our study we are taking wholesale price index.

### **Exchange rate**

Exchange Rate is the price of one country's currency expressed in another country's currency. If there is depreciation in the exchange rate, this depreciation will cause cost-push inflation and demand pull inflation. Controlling inflation will lead to increase in interest rates by RBI thereby affecting the profitability of banks.

### **GDP**

GDP represents the total Rupee value of all goods and services produced over a specific time period. If the GDP growth rate is speeding up too fast, RBI may raise interest rates to stem inflation—or the rising of prices for goods and services. As GDP growth slows down, and, in particular, during recessions, credit quality deteriorates, and defaults increase, thus resulting into reduced bank returns. Unlike nominal GDP, real GDP can account for changes in the price level, and provide a more accurate figure. Thus real GDP is used in this analysis.

### **Gold prices**

Of all the precious metals, gold is the most popular as an investment. Investors generally buy gold as a hedge or harbour against economic, political, or social fiat currency crises (including investment market declines, burgeoning national debt, currency failure, inflation, war and social unrest). The gold market is subject to speculation as are other markets.

### **Literature review**

Rao(2006) investigates the impact of monetary policy on the profitability of

banks in the context of financial sector reforms in India using multiple regression analysis. The study indicates a greater impact of general credit control on the private sector banks however the regression coefficient is insignificant to explain the relationship between bank profitability and the monetary policy instrument in the case of public sector banks.

Chi, Jing; Tripe, David; and Young, Martin (2010) explores the impact of relative changes in the currency values of the foreign countries on stock performance of four major Australian banks. No significant relationships between Australian bank stock returns and foreign exchange rates are found.

Vong and Chan (2006) investigate the impact of internal and external factors of banks on the Macao Banking industry for 15-year period. Their results show that with greater capitalization, there is a low risk and high profitability for the bank. Moreover, the large banking network attains higher profitability than the smaller banking network. They find that loan-losses provisions affect banks profitability unfavourable.

Vanitha *et al.*, (2013) studies the impact of reverse repo rate and CRR on the price of Indian Banking Stocks during the period from 1st January 2006 to 30th April 2011 using regression analysis. The study reveals that reverse repo rate and cash reserve ratio influenced the price of Indian Banking Stocks, and Indian Stock Market is able to capture the RBI announcement information immediately.

Reddy and Prasad (2011) analyses the effect of announcements made by RBI and S&P ratings on public and private bank stocks and BANKEX respectively. After

the announcement of RBI's credit policy, the stock price of bankex is affected more, when compared to public or private sector banks individually. There is no impact of S&P ratings on public sector banks.

Ghosh et al. estimates the relationship between BSE Sensex and some important economical factors like Oil prices, Gold price, Cash Reserve Ratio, Food price inflation, Call money rate, Dollar price, FDI, Foreign Portfolio Investment and Foreign Exchange Reserve (Forex) using multiple regression model and Factor analysis.

Iang, G (2003) finds that both bank-specific as well as macroeconomic factors are important determinants in the profitability of banks. With regard to macroeconomic factors, real GDP growth, inflation and real interest rates have a positive impact. Among bank-specific variables, operational efficiency and business diversification contribute to higher returns on assets, after controlling for differences in the credit quality of loans.

Gay and Robert (2008) investigate the impact of macroeconomic factors on the returns of four emerging markets. The emerging stock markets included are India, Brazil, China and Russia. Their multifactor model comprises of exchange rate and oil prices. By employing ARIMA model on monthly data of March 1999 to July 2006, they conclude that these two macroeconomic variables has no significant relationship with the returns of emerging markets.

Saeed and Akhtar examine the impact of macroeconomic factors on banking index with in APT context. The banking index is affected negatively by Exchange rate and

Interest rate. The relationship Money Supply, Industrial Production and Oil prices have no significant impact on banking index. The relationship of Money Supply and Industrial Production is negative on banking index whereas Oil prices have positive relationship with banking index.

Hsing.Y (2012) This paper has examined the macroeconomic factors that are expected to influence the Argentine stock market index. These variables include real GDP, money policy, fiscal policy, the exchange rate, the world stock market as represented by the U.S. stock market index, and the inflation rate. The exponential GARCH model was employed in order to properly estimate the parameters in the variance equation and capture stock market movements. The Argentine stock market index is positively associated with real GDP, the ratio of M2 money supply to GDP, the peso/USD exchange rate and the U.S. stock market index. It is negatively influenced by the money market rate, government spending as a percent of GDP and the inflation rate.

Khan and Zaman. (2012) find the relationship between macroeconomic variables and stock prices in Karachi Stock Exchange (KSE), Pakistan. The study considers annual data of several macroeconomic variables from 1998 to 2009: gross domestic product, exports, consumer price index, money supply M2, exchange rate, foreign direct investment and oil prices. The stationarity of data is checked through Augmented Dickey Fuller test. All variables are stationary at zero lag. Multiple regression analysis with Fixed Effects Model is then used. Results show that gross domestic product and exchange rate positively affect stock prices while consumer price index negatively affects

stock prices. The results of export, money supply M2, foreign direct investment and oil prices are insignificant.

### **Research methodology**

#### **Objectives**

To investigate the impact of macroeconomic factors on Banking Index

To know the intensity of relationship between macro variables (inflation, GDP, exchange rate and gold prices) and BSE Bankex.

#### **Methodology**

##### **Sample selection**

The sample selection for this study will include all the banking companies listed on the BSE Bankex.

##### **Source and collection of the data**

The study will be using mainly secondary data. Information relating to the value of BSE Bankex has been obtained from [www.bseindia.com](http://www.bseindia.com). The data relating to GDP growth rate, exchange rate, gold prices and inflation has been collected from website [www.rbi.org](http://www.rbi.org).

##### **Period of the study**

The present study is an attempt to test the impact of various macro factors on the BSE Bankex during the period from 2002 to 2013.

##### **Tools used for analysis**

To test the impact of macro factors on BSE Bankex, the Multiple Regression has been used.

### **Hypothesis**

H0: There is a significant relationship between BSE Bankex and inflation, exchange rate, GDP growth rate and gold prices.

H1: There is no significant relationship between BSE Bankex and inflation, exchange rate, GDP growth rate and gold prices.

### **Analysis and Interpretation**

#### **Descriptive Statistics**

The temporal properties of data Mean, standard deviation, Skewness and Kurtosis of each independent and dependent variables has been analyzed through descriptive statistics. The values of Skewness and kurtosis determine the normality of the data. Skewness is a measure of asymmetry of the distribution of a series around its means. The Skewness of a symmetric distribution, such as the normal distribution, is zero (0). Kurtosis measures the peakedness or flatness of the distribution of a return series. The Kurtosis of a normal distribution is 3. As per the table given below no variable has skewness equal to 0 and kurtosis equal to 3 which implies data is not normal.

The impact of the determinants affecting bse bankex has been captured statistically by the multiple regression models. Here the value of  $r$  is .823. This shows that the predictors have 82.3% influences on the output. In this case the value of  $r^2$  is .678

**Table.1** The Kurtosis of a normal distribution

	Mean	Std. Deviation	Skewness	Kurtosis	N
<b>Bankex</b>	8527.5764	3944.24758	-.022	-1.378	11
<b>wpi base yr(1993-94)</b>	228.040900	48.0986120	.538	-.751	11
<b>GDP growth rate at constant prices</b>	7.5627	1.93942	-.659	-.761	11
<b>Gold Mumbai (Rs per 10 gms)</b>	13372.160000	8488.3005930	1.021	-.053	11
<b>Exchange rate</b>	46.24145791	3.136678799	1.013	2.057	11

**Table.2 Regression Variables Entered/Removed<sup>b</sup>**

Model	Variables Entered	Variables Removed	Method
1	Exchange rate, wpi base yr(1993-94), GDP growth rate at constant prices, Mumbai(Rs per 10 gms)	.	Enter

- a. All requested variables entered.  
 b. Dependent Variable: bankex

**Table.3 Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823 <sup>a</sup>	.678	.463	2890.62914

- a. Predictors: (Constant), Exchange rate, wpi base yr(1993-94), GDP growth rate at constant prices, Mumbai(Rs per 10 gms)

**ANOVA<sup>b</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.054E8	4	26359117.185	3.155	.102 <sup>a</sup>
	Residual	50134420.957	6	8355736.826		
	Total	1.556E8	10			

- a. Predictors: (Constant), Exchange rate, wpi base yr(1993-94), GDP growth rate at constant prices, Mumbai(Rs per 10 gms)  
 b. Dependent Variable: bankex

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	-33324.310	49977.238		-.667	.530
wpi base yr(1993-94)	151.753	208.932	1.851	.726	.495
GDP growth rate at constant prices	346.407	734.723	.170	.471	.654
Mumbai(Rs per 10 gms)	-.531	1.273	-1.143	-.417	.691
Exchange rate	253.607	570.770	.202	.444	.672

a. Dependent Variable: bankex

which means that the predictors account for 67.8% variation in the average price of the shares of all banks included in bse bankex. The value for the r-squared adjusted in the model is 0.463 which endorses that 46.3% of the variation in the dependent variable is explained by the independent variables of the model. The 53.7% variation in the dependent variable remains unexplained by the independent variables of the study.

The next table here shows the output, which contains an analysis of variance (ANOVA). The sum of squares here is 26359117.185; the value of residual sum of squares is 8355736.826 and represents the total difference between the model and observed data looking at the coefficients, we can see that inflation, GDP growth rate and exchange rate show positive relationship while gold prices show negative relationship. So, as inflation, GDP growth rate and the exchange rate increase the average price of banks share increases and as the gold prices increase, the average price decreases. These coefficients also tell us to what degree each predictor affects the outcome if the effects of all other predictors are held constant.

**Inflation (b=151.753):** this value indicates that as the inflation increases by 1 unit, the average price increases 151.753 units.

**GDP growth rate (b=346.407):** this value indicates that as the GDP growth rate increases by 1 unit, the average price increases by 346.407 units.

**Gold prices(b=-.531):** this value indicates that as the gold prices increase by 1 unit, the average price decreases by 0.531 units this interpretation is only true if the effect of other predictors is held constant.

**Exchange rate (b=253.607):** this value indicates that as the exchange rate increases by 1 point the average price increases by 253.607 units.

For this model the value of t-statistic for different variables and their sig. can be seen from the above table. From the magnitude of t-statistics we can see that the sig. value for inflation (.495>0.05), GDP growth rate (.654>0.05) and gold prices (.691>0.05) are more than 0.05, thus, they dont have significant contribution in the model.

The standardized beta values as shown in the above table can be interpreted as follows:

**Inflation ( $\beta = 1.851$ ):** this value indicates that as the inflation increases by 1 standard deviation (48.09), the average price increases by 1.851 standard deviation.

**GDP growth rate ( $\beta = .710$ ):** this value indicates that as the GDP growth rate increases by 1 standard deviation (1.93), the average price increases by .710 standard deviation.

**Gold prices ( $\beta = -1.143$ ):** this value indicates that as the gold prices increase by 1 standard deviation (8488.30), the average price increases by -1.143 standard deviation.

**Exchange rate ( $\beta = .202$ ):** this value indicates that as the exchange rate increases by 1 standard deviation (3.137), the average price increases by .202 standard deviation.

The objective of this research was to analyze the impact of macroeconomic factors on BSE Bankex. For the accomplishment of our purpose we used the macro economic factors Inflation, GDP growth rate, Exchange Rate and Gold Prices and we used regression model with these variables as independent variables and dependent variable was BSE Bankex. . After analyzing the results we came to the conclusion that Inflation, Exchange Rate and GDP growth rate affect the Bankex positively. However Gold Prices affect BSE Bankex negatively but none of these variables have a significant impact on the stock prices of banks.

## References

- Chi, Jing. Tripe, David; and Young, Martin. 2010. "Do exchange rates affect the stock performance of Australian banks?," *Inter. J. Banking.Finance.* 7(1):3.
- Ghosh., et al., 2011. Presented paper entitled "Determinants of BSE Sensex: A Factor Analysis Approach, for presentation at the BASAANA 2011 Conference held at Bloomsburg University of Pennsylvania during June 16-19.
- Gul, S., Irshad,F., and dan Zaman, K. 2011. Factors Affecting Bank Profitability in Pakistan. *The Romanian Economic J.*
- Iang, G., Tang, N., Law, E. and Sze, A. 2003. Determinants of bank profitability in Hong Kong. Hong Kong Monetary Authority Research Memorandum. [Online] Available:[http://www.info.gov.hk/hkma/eng/research/RM\\_on\\_Bank\\_Profitability.pdf](http://www.info.gov.hk/hkma/eng/research/RM_on_Bank_Profitability.pdf).
- Khan, N.M., and Zaman, S. 2012. "Impact of Macroeconomic Variables on Stock Prices: Empirical Evidence from Karachi Stock Exchange, Pakistan", *Business, Economics, Financial Sciences, and Management.*
- 1 [http://www.mid-day.com/news/2\\_003/jun/55974.htm](http://www.mid-day.com/news/2_003/jun/55974.htm)