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# WHY MONETARY POLICY ANNOUNCEMENT IS AN IMPORTANT EVENT TO A STOCK MARKET PARTICIPANT? : AN ANSWER FROM A PRACTITIONER

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## Introduction

I am a passionate Indian derivative trader. I am trading in Indian derivative market for the last Ten years. I have seen myself and my fellow trader friends to remain awake late at night what is coming from the desk of the Federal Reserve after the meeting of Federal Open Market Committee as the outcome of the meeting will decide the direction of the stock markets across the globe next morning.

There is a common saying that if you have your skin in the business then you will be more concerned with the revenue and profit of the business. Being a regular derivative trader I have observed the volatility of the Bank Nifty before and after the announcement of the monetary policy by the Reserve Bank of India or even by the Federal Reserve. This motivates me to know the dynamics between the financial sector and more strictly the banking sector performance in terms of stock return during a certain defined medium term perspective.

It is a common practice among the fund managers and stock market investors that avoid banking sector during the time of tight monetary policy. Monetary policy affects the banking business as it impacts the margin of the banking business directly. The basic assumption behind this statement is that all the variables affecting the banking sectors other than monetary policy are remained constant. But this assumption may be useful in an Economics or Finance text book. Obviously it is hardly true in this changing globalized world where almost all the financial markets are integrated. So measuring the impact of monetary policy on bank stocks in isolation is very difficult, perhaps impossible; it may be possible to measure relative impact of monetary policy on bank stocks with respect to other macroeconomic determinants. So we first declare here that we have taken into granted the possible channels through which the performance of the banking sectors is affected as per the basic explanation of a Finance text book. The basic explanation is provided here in the next section.

Our objective in this paper is to study the performance of bank stocks during the recent phase of tight monetary policy. We have identified our period of study from March, 2010 to October, 2011, twenty months duration during which Reserve Bank of India has increased the Repo rate in 13 instances (refer Table 1). We would try to justify the days old fund managers' bearish bet on the banking sector during monetary tightening. On the light of the foregoing discussion, the rest of the paper is structured as follows. Section II discusses the possible channels through which tight monetary policy can impact banking sectors and so the bank stocks. A very brief literature review is provided in Section III. The entire methodology to measure the relative performance of bank stocks is elaborated in Section IV. The results are provided and interpreted in Section V. Finally Section VI concludes the paper.

## II

## Monetary Policy and Banking Sector

Monetary Tightening impacts the liquidity of the banking sector negatively. The vigor of impact varies according to the choice of monetary instruments such as Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Bank Rate (BR), Repo Rate (RR), Reverse Repo Rate (RRR) and Marginal Standing Facility. The present study considers only the increase in the RR and so the RRR though there is some minor tightening in other measures such as CRR. RR and RRR are incorporated as monetary policy instruments under the Liquidity Adjustment Facility (LAF) in India since 2000. The two measures are basically meant to adjust the short-term liquidity of the banking system. RR is the rate at which Reserve Bank of India (RBI) lends its short term fund to the banks to meet up their short-term liquidity deficit. RRR is the borrowing rate at which RBI

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borrows or rather repurchase from the commercial banks. So increase in RR means increase in the borrowing cost of the banking system. It reduces directly the direct credit creation capacity of the banking sectors. As a result of this both the top line and bottom line growth of the banking business are affected. So Net Interest Income (NII) and Net Interest Margin (NIM) get reduced due to the tight monetary policy.

## III

## Survey of Literature

There are a number of studies on the performance of banking sectors considering several types of parameters such as efficiency, ownership pattern, profitability etc. But perhaps the beginning of the looking into the banking industry in terms of performance of bank stocks was the seminal work by Beebe (1985). The study has reported that the estimated values of beta, a measure of sensitivity of equity returns, of large US banks with assets over $1 billion, was unaffected because of financial deregulation and monetary uncertainty in the post 1979 period. Kolari et al (1988) has examined the tax burden effects of reserve requirements on bank profitability. The study has found that temporary changes in reserve requirements have little effect on security prices whereas more permanent changes have stronger influence on bank stock prices, reflecting a tax burden effect. Elyasiani and Mansur (1998) have found the direct impact of interest rate and interest rate volatility on the first and second moments of the bank stock returns distribution, respectively. While working on the European banks, Beccalli et al (2006) have come to the conclusion that the changes in efficiency are reflected in changes in stock prices and the stocks of cost efficient banks tend to outperform their inefficient counterparts. Using dynamic panel regression for 36 nations Cole et al (2008) have found a positive and significant relationship between bank stock returns and future economic growth. In India, we often debate about the impact of listing of the public sector banks in the browses. The seminal work by Mohan (2003) has come out with an interesting result that the long run performance of the public sector bank stocks on the average is not significantly different from the broader market index such as SENSEX or even from that of the private sector bank stocks.

## IV

## Methodology

We have estimated holding period returns for the 20 months period using daily data for 10 banks – 5 public sector banks (PSBs) and 5 private sector banks. Banks are chosen on the basis of market capitalization. Top five banks on the basis of market capitalization in their respective categories are chosen in our analysis. PSBs are State Bank of India (SBI), Punjab National Bank (PNB), Bank of Baroda (BoB), CANARA Bank and Bank of India (BoI). Private sector banks are ICICI Bank, HDFC Bank, Axis Bank, Kotak Mahindra Bank and IndusInd Bank. For the computation of holding period returns we have used the daily closing price of the stocks at the National Stock Exchange (NSE). Other than the bank stocks we have also used the broader banking sector index and CNX Bank Index for comparing the whole banking seector. For the measurement of relative return we have compared the absolute return with the return of broader market index of NSE i.e. CNX NIFTY. The bonus and split issues are taken into consideration for the bank stocks. However, the dividends are not adjusted because of short duration of our study.

### Risk Unadjusted Return

We have calculated the holding period risk unadjusted return for the stocks as follows:

$$R_t = \prod_{t=1}^{n}(1 + r_t)$$

Where, $R_t$ is the holding period return,

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$r_t$ is the return in a given trading day and 'n' is the total number of trading days. The value of 'n' in our case is 417.

Similarly, the holding period return for the broader market index CNX NIFTY is given by:

$$\boldsymbol{N_t = \prod_{t=1}^{n}(1 + n_t)}$$

Where, $N_t$ is the holding period return of NIFTY and $n_t$ is the return of NIFTY in a given trading day.

Thus, the risk unadjusted relative return for a stock or a sectoral index such as CNX Bank is equal to $\boldsymbol{R_t / N_t}$ .

The above formulations are used widely to calculate stock return. This is basically the amount of wealth created upon investment of one unit of wealth for the entire holding period.

**Risk-adjusted Return**

Risk-adjusted return for the bank stocks and the banking sector index are computed using the Capital Asset Pricing Model (CAPM). CAPM (Sharpe, 1963, 1967) is described as below:

$\boldsymbol{R_i = R_f + \beta_i (R_m - R_f)}$ , where

$R_i$ = predicted daily return on stock i,

$R_f$ = risk free rate of daily return,

$\beta_i$ = the measure of volatility of stock I and

$R_m$ = rate of return of market portfolio, here CNX NIFTY is used.

For risk free return, we have used the daily return on the government bond of 10 years maturity. The value of $\beta$ for each individual stock is calculated using the following formulae derived again from the assumption of the CAPM:

$\boldsymbol{\beta_i}$ **= Covariance (** $\boldsymbol{R_i, R_m}$**) / Variance** $\boldsymbol{R_m}$

Next, the predicted daily return for each bank stock is obtained using the value of $\beta_i$ . The daily margin of risk-adjusted return ($m_t$) is the difference between the actual daily return and the predicted daily return using the CAPM. We compute the risk-adjusted return relative to the NIFTY for the entire holding period 'n' as follows

$$\boldsymbol{\prod_{t=1}^{n}(1 + r_t)}$$

**V**

**Results**

The returns and the values of $\beta$ of bank stocks along with the NIFTY and CNX Bank are provided in Table 2. The $\beta$ values of the private sector banks are comparatively higher than the public sector banks during the period of our study. So private sector bank stocks were more volatile than the public sector bank stocks during the phase of recent monetary tightening.

In terms of risk-unadjusted absolute return, five out of the ten banks – HDFC Bank, Kotak Mahindra Bank (KMB), IndusInd Bank, Bank of Baroda and CANARA Bank – outperformed the NIFTY. The broader banking sector index CNX Bank has

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also beaten the NIFTY by 6 per cent. Punjab National Bank performed in line with the NIFTY. The four banks out of the ten banks – ICICI Bank, Axis Bank, SBI and BoI – underperformed the NIFTY not more than 10 per cent. The results remain more or less same in terms of risk-adjusted relative returns except for the CNX Bank. CNX Bank underperformed NIFTY by 1 per cent in terms of relative return.

Six out of ten banks, three private sector banks and three public sector banks – HDFC Bank, Kotak Mahindra Bank, IndusInd Bank, BoB, CANARA Bank and BoI – outperformed NIFTY on the basis of risk-adjusted return. But banking sector as a whole, as it is evident from CNX Bank index, underperformed the NIFTY by 2 per cent. The largest private sector bank, ICICI Bank underperformed the NIFTY by 34 per cent on the risk-adjusted basis. Similarly largest public sector bank, SBI also underperformed the NIFTY by 14 per cent during the same period. So the two largest banks in their respective categories failed to cheer of its shareholders during the period. The average returns of our selected five public sector banks remained lower than the NIFTY by 1 per cent whereas average returns for the private sector banks were higher by 14 per cent, though not significant difference for both the cases, on the risk-adjusted basis.

Now, if we compare the mean and median returns of the two categories of banks and also between the top 5 and the bottom 5 of our selected banks on the basis of their stock performance and also irrespective of categories, we get some interesting results. The comparisons of returns are provided in Table 3. When we compare between public and private sector banks, we do not get any significant difference both in terms of mean and median returns irrespective of method of measurement. But when we compare between the top 5 and bottom 5 performing banks we find highly significant difference both in terms of mean and median returns irrespective of method of measurements.

## VI

## Conclusion

So following the above results, we can conclude that bank as a sector outperformed the broader market in terms of risk unadjusted absolute measure. But this absolute measure is very unrealistic as it does not consider the inherent risk of the equity market. Rather bank as a sector failed to cope up with the pressure of tight monetary policy when we judge the performance of bank stocks in terms of risk-adjusted measure. As interest rate remains high during the period of tight monetary policy, so prospective yields of the debt instruments were high during that period. As a result of this equity and specially bank stocks go out of the favor of the investor. Fundamentally, the profitability of the banks suffer in general (see Table 4) because of accumulation of nonperforming loans, higher provisioning of debt restructure and also the inability to transfer higher cost of credit to the customers.

It is worth to mentioning from the point of view of portfolio designing that though bank as a sector failed to outperform market on risk-adjusted basis, but there were still opportunity of selecting outperformers. Even in terms of risk-adjusted basis, six out of ten selected banks have given return far more than the broader market. So there is opportunity to beat the market by selecting bank stocks even the central bank try hard to prune the credit growth. Needless to say that selecting individual scrip is more challenging than a sector.

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**Table – 1**
**Major Monetary Policy Changes**

| Effective Date of Policy Revise | Repo | Reverse Repo |
|---|---|---|
| 19-03-2010 | 5.00 | 3.50 |
| 20-04-2010 | 5.25 | 3.75 |
| 02-07-2010 | 5.50 | 4.00 |
| 27-07-2010 | 5.75 | 4.50 |
| 16-09-2010 | 6.00 | 5.00 |
| 02-11-2010 | 6.25 | 5.25 |
| 25-01-2011 | 6.50 | 5.50 |
| 17-03-2011 | 6.75 | 5.75 |
| 03-05-2011 | 7.25 | 6.25 |
| 16-06-2011 | 7.50 | 6.50 |
| 26-07-2011 | 8.00 | 7.00 |
| 16-09-2011 | 8.25 | 7.25 |
| 25-10-2011 | 8.50 | 7.50 |

Source: Handbook of Statistics on Indian Economy, RBI, 2011-1

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**Table-2**
**Returns of Bank Stocks**

| Different categories of Banks and Index | Banks | β | Risk Unadjusted Absolute Return | Risk Unadjusted Relative Return | Risk adjusted Return |
|---|---|---|---|---|---|
| Public Sector Banks | SBI | 1.13 | 0.96 | 0.90 | 0.92 |
| | PNB | 0.81 | 1.06 | 1.00 | 1.04 |
| | BoB | 0.74 | 1.26 | 1.19 | 1.09 |
| | CANARA | 0.91 | 1.15 | 1.09 | 1.15 |
| | BoI | 0.94 | 0.96 | 0.91 | 1.07 |
| Index | NIFTY | _ | 1.06 | _ | _ |
| | CNX Bank | 1.16 | 1.12 | 1.05 | 1.04 |
| Private Sector Banks | ICICI | -1.43 | 1.04 | 0.98 | 0.72 |
| | HDFC Bank | 0.96 | 1.40 | 1.32 | 1.18 |
| | Axis | 1.31 | 1.00 | 0.95 | 0.98 |
| | Kotak Mahindra | 1.14 | 1.37 | 1.29 | 1.31 |
| | IndusInd | 1.14 | 1.88 | 1.77 | 1.80 |

Source: Author's own calculation.

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**Table-3**
**Comparisons of Returns**

| Measures of Returns | Banks | Mean | Median | t-Statistics | z-Statistics |
|---|---|---|---|---|---|
| Risk Unadjusted Absolute Return | Public | 1.08 | 1.26 | -1.29 (0.268) | -0.944 (0.345) |
| | Private | 1.34 | 1.00 | | |
| | Top 5 | 1.41 | 1.37 | 2.87 (0.046) | - 2.023 (0.043) |
| | Bottom 5 | 1.01 | 1.00 | | |
| Risk Unadjusted Relative Return | Public | 1.02 | 1.19 | -1.29 (0.267) | -0.944 (0.345) |
| | Private | 1.26 | 0.95 | | |
| | Top 5 | 1.32 | 1.29 | 2.70 (0.054) | -2.023 (0.043) |
| | Bottom 5 | 0.95 | 0.95 | | |
| Risk Adjusted Return | Public | 1.05 | 1.09 | - 0.81 (0.465) | -0.674 (0.500) |
| | Private | 1.20 | 0.98 | | |
| | Top 5 | 1.31 | 1.18 | 1.89 (0.131) | -2.023 (0.043) |
| | Bottom 5 | 0.95 | 0.98 | | |

Source: Author's own calculations

**Table-4**
**Net Profit Margin of Banks (Quarterly)**

| Banks | Mar'10 | June'10 | Sep'10 | Dec'10 | Mar'11 | June'11 | Sep'11 | Dec'11 |
|---|---|---|---|---|---|---|---|---|
| SBI | 10.39 | 15.79 | 12.63 | 13.21 | 0.10 | 6.54 | 10.82 | 11.80 |
| PNB | 20.24 | 17.83 | 16.65 | 15.31 | 16.14 | 13.29 | 13.46 | 12.13 |
| ICICI | 17.26 | 17.65 | 19.60 | 21.46 | 20.29 | 17.49 | 18.43 | 20.11 |
| HDFC Bank | 20.64 | 18.36 | 18.96 | 20.80 | 20.38 | 18.15 | 17.85 | 19.85 |

Source: www.nse.com/results