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IMPACT OF MACRO ECONOMIC VARIABLES ON CALL MONEY MARKET RATE IN INDIA

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Abstract

The objective of the paper is to study the impact of Wholesale Price Index (WPI), Index of Industrial Production (IIP), Oil price, Gold price, Balance of Trade (BOT), Foreign investments in India (FII in Equity), Purchasing Manager Index (PMI), Money Supply and USDINR currency prices on Call Money Market. Another objective is to build a predictive model using regression techniques based on these macroeconomic indicators. The analysis has been carried out based on the monthly time series data for the period April 2005 to December 2013.

The results of granger causality shows that Money Supply causes movements in Call Money Market rate. Based on regression model it was determined that USDINR exchange rate, Balance of Trade, Brent Crude Oil Prices and Gold Price impacts monthly call rate. The paper concludes that more than 90% of the movements in call money rate can be explained by modelling the key economic factors through VAR.

Key words: *Call Money Market, Macro Economic Variables, Forecasting, VAR, Causality Test.*

1. Introduction

The call/notice/term money market is a market for trading very short term liquid financial assets that are readily convertible into cash at low cost. The money market primarily facilitates lending and borrowing of funds between banks and entities like Primary Dealers. An institution which has surplus funds may lend them on an uncollateralized basis to an institution which is short of funds. The period of lending may be for a period of 1 day which is known as call money and between 2 days and 14 days which is known as notice money. Term money refers to borrowing/lending of funds for a period exceeding 14 days.

This market is governed by the Reserve Bank of India which issues guidelines for the various participants in the call/notice money market. The entities permitted to participate both as lender and borrower in the call/notice money market are Scheduled Commercial Banks (excluding RRBs), Co-operative Banks other than Land Development Banks and Primary Dealers.

The average daily turnover in the call money market is around Rs. 12,000-16,000 Cr every day and trading occurs between 9 am to 5 pm on Monday to Friday and 9 am to 2 pm on

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Saturday. The trades are conducted both on telephone as well as on the NDS Call system, which is an electronic screen based system set up by the RBI for negotiating money market deals between entities permitted to operate in the money market. The settlement of money market deals is by electronic funds transfer on the Real Time Gross Settlement (RTGS) system operated by the RBI. The repayment of the borrowed money also takes place through the RTGS system on the due date of repayment.

In India, money and credit situation is subject to seasonal fluctuation every year. The volume of call money transactions and the amount as well as call rate levels characterize seasonal fluctuation/volatility. A decrease in the call/notice money requirements is greater in the slack season (mid-April to mid-October) than in the buy season (mid-October to mid-April).

Conventionally call money market rate depends upon certain factors such as Liquidity conditions, Reserve requirement A cut in CRR reduces call rates while an increase in CRR increases call rates. Structural factors such as government legislation, conditions of the stock markets and so on which affect the volatility of the call money rate and Liquidity changes and gaps in the foreign exchange market.

The present paper is attempt to explain that call money rate besides the traditional factors also governed by macroeconomic factors such as Wholesale Price Index (WPI), Index of Industrial Production (IIP), Oil price, Gold price, Balance of Trade (BOT), Foreign investments in India (FII in Equity), Purchasing Manager Index (PMI), Money Supply and USDINR currency prices.

The paper is divided into following sections section 2 is about the Literature Review, section 3 is about Objective and Methodology, section 4 talks about Analysis and Interpretation and section 5 finally concludes.

2. Literature review

Regardless of the argument that federal funds rate and T-bill rate move together because they are linked as the expectations hypothesis holds there is a strong evidence of a co-integrating relationship between the federal funds rate and the T-bill rate (Sarno and Thornton, 2002). The higher spreads between the two-week market rate and the official repo rate result in lower money market volatility and rate dynamics at the short end of the money market curve, and hence, the effects at the longer end are much weaker (Wetherilt, 2002). In the Italian interbank market, largest increase in volatility and the most notable variations of its intraday pattern occur at the last working day of reserve maintenance period and at the end of each quarter. Furthermore, the overnight interest rate volatility is not influenced by trading volume. This finding by Palombini (2003) indicates the difference between a financial market, where interest rate level is determined by information arrival and the market for overnight liquidity, where the volume of trading is more influenced by institutional factors like the functioning of the payment system. While the call money rate is tracked reasonably accurately during surplus

liquidity conditions, the predictive power suffers a loss when liquidity shortage suddenly emerges. In addition, it argues that introducing a wider range of eligible collateral in the repo market could help in improving the efficiency of interest rate targeting (Palombini, 2003).

(Parmar,2002)The inter-linkages, which have been studied under a co-integration framework, suggest the existence of one co-integrating vector among them. Furthermore, this long-term relation implies that the volatility in one of the markets possibly gets transferred to the other markets. So, players in these markets keep shifting their funds in the expectation of earning higher returns and to reduce their exposure to risk. Bhatt and Virmani (2005) talk about cross border market integration that is between Indian Money Market and USA money market.The motivation of the paper arises out of capital mobility precipitated by globalization. Here it needs to be pointed out that the money market deals in short term instruments and is essentially about liquidity rather than capital funds. Our approach is to observe the Indian Money Market with respect to domestic market integration especially because short term funds are not likely to be sought from international markets . There may be an exception to this which is about the foreign exchange market since banks may need liquidity in foreign exchange. However, the foreign exchange market is not similar to the short term credit market, in as much as foreign exchange as an asset is not interest bearing. While in the money market, all other instruments are fixed interest bearing instruments. The short-term (up to 3 month) money markets in India are getting progressively integrated with those in the USA even though the degree of integration is far from perfect. Covered interest parity was found to hold for while uncovered interest parity fails to hold. (Jain and Bhanumurthy, 2005).

There are various issues related to integration of financial markets in India. Given the growing movement of capital flows, particularly short-term capital, into the domestic financial markets, it is necessary to examine this issue so as to reap the positive benefits with having stable markets. There study found that there is a strong integration of the domestic call money market with the LIBOR. Though there is a long-term co-movement between domestic foreign exchange market and LIBOR this may be due to frequent intervention by the Central Bank in the foreign exchange market. As the Government securities market in India is still in the developing stage, it was not found to be integrated with the international market. Policy measures (or reforms) are necessary to increase integration of financial markets. This would help in reducing the arbitrage advantage in some specific segment of the financial markets. Similarly Porter and Xu (2012) examine interest rates in China which are composed of a mix of both market-determined interest rates (interbank rates and bond yields), and regulated interest rates (retail lending and deposit rates), reflecting China's gradual process of interest rate liberalization. The movements in administered interest rates are important determinants of market-determined interbank rates, in both levels and volatility. The announcement effects of reserve requirement changes also influence interbank rates, as well as liquidity injections from open market operations in recent years. Also the regulation of key retail interest rates influences the behaviour of market

determined interbank rates, which may have limited their independence as price signals. Further deposit rate liberalization should allow short-term interbank rates to play a more effective role as the primary indirect monetary policy tool.

The important link between the federal funds and repo markets, before, during, and emerging from the financial crisis that began in August 2007 has been evaluated byBech, Klee and Stebunovs (2011). In particular the initial transmission of monetary policy is closely related money markets, pricing of risk, and liquidity effects, and then how they interact if the Federal Reserve removes the substantial amount of liquidity currently in the federal funds market. The results suggest that pass-through from the federal funds rate to the repo deteriorated somewhat during the zero lower bound period, likely due to limits to arbitrage and idiosyncratic market factors. In addition, during the early part of the crisis, the pricing of federal funds, which are unsecured loans, indicated a marked jump in perceived credit risk. Moreover, the liquidity effect for the federal funds rate, or the change in the federal funds rate associated with an exogenous change in reserve balances, weakened greatly with the increase in supply of these balances over the crisis, implying a non-linear demand for federal funds. They also show simulations of the dynamic effects and balance sheet mechanics of liquidity draining on the federal funds and repo rates – a tool that might be used in an exit strategy to tighten monetary policy.

3. Objective and Methodology

3.1 Objective and Hypothesis:

The objective of the papers is to understand the impact of key macroeconomic variables namely Wholesale Price Index (WPI), Index of Industrial Production (IIP), Oil price, Gold price, Balance of Trade (BOT), Foreign investments in India (FII in Equity), Purchasing Manager Index (PMI), Money Supply and USDINR currency prices on Call Money Market. The analysis has been carried out based on the monthly time series data gathered from the website of RBI, SEBI and Bloomberg database for the period January 2009 to December 2013.

Reporting- Lag and Adjustment

Many of the variables included in the study are reported with a time lag. For example, the monthly WPI data is reported with a time lag of approximately two weeks from the reference month. This means that the WPI data of the previous month will affect the stock market of the current month. So while considering the monthly impact of WPI on Nifty, we need to adjust this by considering a one month lag in the WPI data. Similarly, IIP is reported with a lag of six weeks, Balance of trade is reported with a time lag of two weeks, and the PMI of the month is usually released at the start of the next month. Hence the lag of these variables is suitably adjusted using E-VIEWS.

Table 1 : Lag Adjustement

Variable	Lag Adjustment (in months)
WPI	1
Exchange Rate	Nil
IIP	2
Oil Price	Nil
Gold Price	Nil
Call Money Rate	Nil
Balance of Trade	1
FII in Equity	Nil
PMI	1

Source : Author's calculation

3.2 Methodology

3.2.1 Correlation Matrix

Multicollinearity is the undesirable situation where the correlations among the independent variables are strong. So before we proceed, it is utmost important to figure out that the variables are not mutually correlated amongst themselves. Logic behind assumption of no multicollinearity is simple that if two or more independent variables are linearly dependent on each other, one of them should be included instead of both, otherwise it will increase standard error thereby making our results biased. In order to check multicollinearity among independent variables, a Pearson's correlation analysis has been performed. A suggested rule of thumb is that if the pair wise correlation between two regressors is very high, in excess of 0.8, a strong multicollinearity exists and may pose serious problem.

3.2.2 Time series properties of the Variables : ADF Unit Root test

By already incorporating the percentage change (first difference) of the original time series data set, endeavour has been made to eliminate the trend line exhibited by the variables arising due to non- stationary time series data. If a further non-stationarity of data is observed, the same has to be eliminated by using a suitable statistical method, before conducting the regression.

One of the common methods to find whether a time series is stationary or not, is the Unit Root test. There are numerous unit root tests. One of the most popular among them is the Augmented Dickey-Fuller (ADF) test. Augmented Dickey -Fuller (ADF) is an extension of Dickey -

Fuller test. Therefore before we proceed to the multiple linear regression, the ADF test is computed using E-VIEWS to ensure the stationarity of the data set.

For ADF Test

Null Hypothesis H_0: The data set has a Unit-Root, data set is non-stationary

Alternate Hypothesis H_1: The data set doesn't have a Unit-Root, data set is stationary

3.2.3 Granger Causality:

Granger Causality test was applied to understand the impact of key macroeconomic variables such as Wholesale Price Index, Industrial Production Index, Oil Price, Gold Prices, Call Money Rate, Balance of Trade, FII investment in Equity and Nifty on USDINR currency prices. According to Granger (1969), this test will answer the question of whether X causes Y. Y is said to be Granger-caused by X if X helps in the prediction of Y, or equivalently if the coefficient on the lagged X are statistically significant. To show that X Granger cause Y, first step is to consider an autoregression for Y. Next, lagged values of X are added as the extra independent variables. Granger Causality test results are very sensitive to the number of lags used in the analysis. There are four different criteria for specifying the lag length. This study will adopt Akaike information criterion (AIC) suggested by Akaike (1974). The equation for the pairwise Granger causality tests are as follow:

$$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + ... + \alpha_i Y_{t-1} + \beta_1 X_{t-1} + ... + \beta_i X_{t-1} + \mu_t \quad (4)$$

Where, *Xt* and *Yt* = Monthly time series data of Wholesale Price Index, Industrial Production Index, Oil Price, Gold Prices, Call Money Rate, Balance of Trade, FII investment in Equity Nifty and USDINR currency prices. The null hypothesis is rejected if the computed F-value exceeds the critical F value at the chosen level of significance (0.05). This implies that *X* does Granger cause *Y*. The test is performed in pair-form.

μ_t = error term at time *t*

The F test is used to test the hypotheses of the Granger Causality as follow:

H_0: $\beta 1 = \beta 2 = 0$ (*X* does not Granger cause *Y*)

H_1: At least one of the $\beta_1 \# 0$

3.2.4 Regression Analysis:

$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \varepsilon_i$

Where:

Y Monthly change in the weighted average Call money rate (CMR)

X_1 Monthly percentage change in the average Gold Price (G): Rs per 10 gram

X_2 Monthly percentage change in the average Oil Price (OP): Brent Crude in USD per Barrel

X_3 Monthly FII investments in Equity Market (FII_Equity): USD billion

X_4 Monthly percentage change in the Index of Industrial Production (IIP)

X_5 Monthly Money Supply: USD billion

X_6 Monthly percentage change in the Balance of Trade (BoT): USD million

X_7 Monthly percentage change in the Purchasing Manger Index(PMI)

X_8 Monthly percentage change in the Wholesale Price Index (WPI)

X_9 Monthly percentage change in the USDINR

ε_i Error Term

βi Co-efficient of the corresponding Regression variable

β_0 Constant term

3.2.5 Vector Autoregressive Regression

Vector Autoregressive Model (VAR model)

Vector autoregression (VAR) is an econometric model used to capture the linear interdependencies among multiple time series. VAR models generalize the univariate auto regression (AR) models by allowing for more than one evolving variable. All variables in a VAR are treated symmetrically in a structural sense (although the estimated quantitative response coefficients will not in general be the same); each variable has an equation explaining its evolution based on its own lags and the lags of the other model variables.

$y_{i,t} = A(L)y_{i,t} + B(L)x_{i,t} + \varepsilon_{i,t}$

where : y and x are two variables of interest;

L is lag operator;

A and B are vectors of coefficients;

$\varepsilon_{i,ti}$, t is regression residuals.

The subscript t denote time.

A VAR model describes the evolution of a set of k variables (called endogenous variables) over the same sample period (t = 1, ..., T) as a linear function of only their past values. The variables are collected in a k × 1 vector yt, which has as the i th element, yi,t, the time t observation of the i th variable. For example, if the i th variable is USDINR, then yi,t is the value of USDINR at time t. In the paper lag values of upto 4 was considered for VAR analysis

An estimated VAR model can be used for forecasting, and the quality of the forecasts can be judged, in ways that are completely analogous to the methods used in univariate autoregressive modelling.

4. Results and Analysis

4.1 Correlation Analysis

Before proceeding to analysis following corrections were applied to data points to make sure that errors do not creep in the regression analysis. The correlation results values among the independent variables were shown in Table 1 below.

Table 2: Correlation values among variables

	CMR
USD INRExchange rate	0.58
PMI	-0.29
BoT USD	-0.52
MS	0.87
IIP	0.68
FII_Equity	-0.04
Brent_crude	0.87
Gold price	0.92
WPI	0.71

Source : Author's calculation

Above table 2 indicates that there is a negative correlation between CMR and purchasing manager index (PMI), balance of trade BOT, and FII Equity. None of these negative correlation were high. Positive and high correlation exists between CMR and money supply (MS), gold price, WPI and Brent crude oil.

4.2 Stationarity Analysis

The Augmented Dickey-Fuller (ADF) test shows for all the ten variables the level data was non-stationary except for FII Equity ; however stationarity was reached after the first difference. Since data at Level is not stationary we take 1st difference. The paper finds that 1st differenced data is stationary as absolute value of the ADF test statistics is larger than test critical values 5% level of significance. The results of Unit root test was shown in Table 3 below:

Table 3 : Results of Stationarity at levels and first differences

	LEVEL			FIRST DIFFERENCE		
	Intercept	**Trend+Intercept**	**None**	**Intercept**	**Trend+Intercept**	**None**
USD Exchng rate_avg mnth	0.349607	-2.026943	1.380326	-5.730352*	-5.597674*	-5.656542*
PMI	-2.638414***	-3.585422**	0.199348	-6.720221*		
Monthly BoT USD mny supply	-2.465798	-1.808609	-0.146217	-9.899097*	-10.1713*	-9.949796*
IIP	0.847549	-2.447715	10.25342	-8.381416*	-8.504337*	-2.058284**
FII_Equity	-3.786811*	-5.214117*	0.626797	-5.590395*	-8.820004*	-13.42606*
Brent_crude_daily	-5.25378*	-5.205255*	-3.759249*			
Avg gold prc	-2.269813	-2.377305	0.652097	-34.99847*	-35.01355*	-34.97641*
WPI	-1.192566	-1.35683	2.004529	-6.972322*	-6.944941*	-6.545907*
Wt Avg Monthly CMR	-8.324109	-84.76179*	0.559304	-120.895*	-117.9683*	-84.0144*
	-0.989202	-1.49051	0.742683	-5.948911*	-5.899839*	-5.791742*

Source : Author's Calculation

*1% level of significance

**5% level of significance

***10% level of significance

4.3 Results of Granger Causality

The results of granger causality was shown in Table 4 below. The results of granger causality was shows that Money Supply causes movements in Call Money Market rate as it is evident from p value.

Table 4 : Results of Granger Causality

Equations	No. of variables	*t Stat*	*P-value*	Results
WT_AVG_MONTHLY_CMR does not Granger Cause FII_EQUITY	56	0.20245	0.9358	Accepted
FII_EQUITY does not Granger Cause WT_AVG_MONTHLY_CMR		1.68542	0.1692	Accepted
WT_AVG_MONTHLY_CMR does not Granger Cause IIP	56	1.62181	0.1845	Accepted
IIP does not Granger Cause WT_AVG_MONTHLY_CMR		1.14071	0.349	Accepted
WT_AVG_MONTHLY_CMR does not Granger Cause MNY_SUPLY	56	0.51691	0.7236	Accepted
MNY_SUPLY does not Granger Cause WT_AVG_MONTHLY_CMR		2.09563	0.0963	**Rejected**
WT_AVG_MONTHLY_CMR does not Granger Cause MONTHLY_BOT_USD	56	1.29124	0.287	Accepted
MONTHLY_BOT_USD does not Granger Cause WT_AVG_MONTHLY_CMR		1.42282	0.2411	Accepted
WT_AVG_MONTHLY_CMR does not Granger Cause PMI	56	0.77415	0.5476	Accepted
PMI does not Granger Cause WT_AVG_MONTHLY_CMR		0.66439	0.6199	Accepted
WT_AVG_MONTHLY_CMR does not Granger Cause USD_EXCHNG_RATE_AVG_MNTH	56	1.07982	0.3772	Accepted
USD_EXCHNG_RATE_AVG_MNTH does not Granger Cause WT_AVG_MONTHLY_CMR		1.3591	0.2624	Accepted
WT_AVG_MONTHLY_CMR does not Granger Cause WPI	56	1.3862	0.2532	Accepted
WPI does not Granger Cause WT_AVG_MONTHLY_CMR		0.51559	0.7246	Accepted
AVG_GOLD_PRC does not Granger Cause WT_AVG_MONTHLY_CMR	56	0.30535	0.8729	Accepted
WT_AVG_MONTHLY_CMR does not Granger Cause AVG_GOLD_PRC		0.87811	0.4843	Accepted
BRENT_CRUDE_DAILY does not Granger Cause WT_AVG_MONTHLY_CMR	56	0.57509	0.6821	Accepted
WT_AVG_MONTHLY_CMR does not Granger Cause BRENT_CRUDE_DAILY		2.08426	0.0978	**Rejected**

Source: Author's calculation

4.4 Results of Regression Analysis

The results of the regression analysis were summarised in the Table 5 below. Based on regression model USDINR exchange rate, balance of trade, Brent Crude Oil Prices and Gold Price significantly impacts monthly call rate as it is evident from t stat. the adjusted R square is 0.89 which indicate good fit of the model.

Call rates increase during volatile forex market conditions. This increase is a result of monetary measures for tightening liquidity conditions and short position taken by market agents in domestic currency against long positions in US dollars in anticipation of higher profits through depreciation of the rupee. Banks fund foreign currency positions by withdrawing from the inter bank call money market which leads to a hike in the call money rates.

Table 5 : Results of Regression Analysis

Variables	Null Hypothesis	t Stat	P-value	Results
INR USD Exchange rate	INR USD Exchange rate has no significant relationship with Avg. Monthly Call Rate	-1.78063	0.081049	Reject
PMI	PMI has no significant relationship with Avg. Monthly Call Rate	-1.12707	0.265093	Accept
Monthly BOT	Monthly BOT has no significant relationship with Avg. Monthly Call Rate	3.328228	0.001646	Reject
Money supply	Money supply has no significant relationship with Avg. Monthly Call Rate	0.796034	0.429776	Accept
IIP	IIP has no significant relationship with Avg. Monthly Call Rate	-0.03704	0.970597	Accept
FII_Equity	FII_Equity has no significant relationship with Avg. Monthly Call Rate	-0.34304	0.733003	Accept
Brent_Crude_Oil Price	Brent_Crude_Oil Price has no significant relationship with Avg. Monthly Call Rate	2.129474	0.038162	Reject
Gold price	Gold price has no significant relationship with Avg. Monthly Call Rate	5.444085	1.58E-06	Reject
WPI	WPI has no significant relationship with Avg. Monthly Call Rate	-1.36713	0.177701	Accept

Source: Author's calculation

Regression Statistics	
Multiple R	0.953425
R Square	0.909019
Adjusted R Square	0.892643
Standard Error	0.707897
Observations	60

Source: Author's calculation

4.5 Results of VAR

The paper concludes that more than 90% of the movements in call money rate can be explained by modelling the key economic factors through VAR. the value of call money rate is affected by the lag values of Oil price (up to four lags), call money market rate (up to three lags), Foreign investments in India (up to a certain limit) and lag values of money supply. The monthly call money market rate is also effected to a certain extent by the lag values of Balance of Trade, Purchasing Manager Index (PMI) and Wholesale Price Index (WPI). The results of VAR model is reported in Table 6 below.

Table 6: VAR model results

Equation: WT_AVG_MONTHLY_CMR = C(361)*USD_EXCHNG_RATE_AVG		
_MNTH(-1) + C(362)*USD_EXCHNG_RATE_AVG_MNTH(-2) + C(363)		
*USD_EXCHNG_RATE_AVG_MNTH(-3) + C(364)*USD_EXCHNG_RAT		
E_AVG_MNTH(-4) + C(365)*AVG_GOLD_PRC(-1) + C(366)		
*AVG_GOLD_PRC(-2) + C(367)*AVG_GOLD_PRC(-3) + C(368)		
*AVG_GOLD_PRC(-4) + C(369)*BRENT_CRUDE_DAILY(-1) + C(370)		
*BRENT_CRUDE_DAILY(-2) + C(371)*BRENT_CRUDE_DAILY(-3) +		
C(372)*BRENT_CRUDE_DAILY(-4) + C(373)*FII_EQUITY(-1) + C(374)		
*FII_EQUITY(-2) + C(375)*FII_EQUITY(-3) + C(376)*FII_EQUITY(-4) +		
C(377)*IIP(-1) + C(378)*IIP(-2) + C(379)*IIP(-3) + C(380)*IIP(-4) +		
C(381)*MNY_SUPLY(-1) + C(382)*MNY_SUPLY(-2) + C(383)		
*MNY_SUPLY(-3) + C(384)*MNY_SUPLY(-4) + C(385)		
*MONTHLY_BOT_USD(-1) + C(386)*MONTHLY_BOT_USD(-2) +		
C(387)*MONTHLY_BOT_USD(-3) + C(388)*MONTHLY_BOT_USD(-4)		
+ C(389)*PMI(-1) + C(390)*PMI(-2) + C(391)*PMI(-3) + C(392)*PMI(-4) +		
C(393)*WPI(-1) + C(394)*WPI(-2) + C(395)*WPI(-3) + C(396)*WPI(-4) +		
C(397)*WT_AVG_MONTHLY_CMR(-1) + C(398)*WT_AVG_MONTHLY_		
CMR(-2) + C(399)*WT_AVG_MONTHLY_CMR(-3) + C(400)		
*WT_AVG_MONTHLY_CMR(-4)		
Observations: 56		
R-squared	0.9943	Mean dependent var 6.681313
Adjusted R-squared	0.980406	S.D. dependent var 2.118758
S.E. of regression	0.296579	Sum squared resid 1.407347
Durbin-Watson stat	2.22396	

Source: Author's calculation

5. Conclusion

Correlation exercise shows that there is a negative correlation between CMR and purchasing manager index (PMI), balance of trade BOT, and FII Equity. None of these negative correlation

were high. Positive and high correlation exists between CMR and money supply (MS), gold price, WPI and Brent crude oil.ADF test shows for all the ten variables the level data was non-stationary except for FII Equity ; however stationarity was reached after the first difference.The results of granger causality was shows that Money Supply causes movements in Call Money Market rate. The result of regression analysis shows that USDINR exchange rate, balance of trade, Brent Crude Oil Prices and Gold Price significantly impacts monthly call rate.

The paper concludes that more than 90% of the movements in call money rate can be explained by modelling the key economic factors through VAR. the value of call money rate is affected by the lag values of Oil price (up to four lags), call money market rate (up to three lags), Foreign investments in India (up to a certain limit) and lag values of money supply. The monthly call money market rate is also effected to a certain extent by the lag values of Balance of Trade, Purchasing Manager Index (PMI) and Wholesale Price Index (WPI).

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