NOLEGEIN: Journal of Financial Planning and Management
Vol. 1: Issue 1
www.mbajournals.in

The Analysis of the Factors Contributing to the Fluctuations of FII in India

J. Pai Maroor, B. Vamana Baliga
Justice K.S. Hegde Institute of Management, Nitte, Karnataka, India
Sri Mahaveera College, Moodbidri, Karnataka, India

ABSTRACT

Foreign Institutional Investment (FII) has emerged as an engine of Indian economic growth as it meets the much-needed capital requirement. Though FII has flown largely to Indian market, it is not consistent and stable. FII appears to be sensitive to several global and domestic macroeconomic factors. The present study has the objective to investigate the factors contributing to the fluctuations in the FIIs. The study is based on secondary data which are collected on monthly basis from April, 2005 to December, 2016. A linear multiple regression model has been developed with BSE sensex, exchange rate, whole sale price index, index of industrial production and treasury bill yield rate as explanatory variables and FII as dependent variable. The results show that Exchange rate, Inflation and Treasury bill yield have significant impact on FII in India. It has been found that Exchange rate has inverse relationship with the FII. This leads to the inference that appreciation of the domestic currency may discourage FII in Indian capital market. Surprisingly, inflation seems to have positive impact on FII and Treasury bill yield appears to be inversely related to FII. Based on the outcome of the study, it has been suggested to the government to pursue appropriate monetary and fiscal policy measures to stabilize interest rate, inflation and exchange rate to ensure stable FII inflow to Indian capital market which would strengthen Indian economy.

Keywords: FII, IIP, treasury bill yield, WPI

Corresponding Author
E-mail: jnan_pai@yahoo.com

INTRODUCTION

India, being one of the leading developing countries in the world, is recording a rapid economic growth. There can be many reasons responsible for this rapid economic growth. One among them is increased inflow of foreign capital. Almost all the countries in the world depend on foreign capital for its economic development. It is not possible for every country to possess all the economic resources that are required for its economic development. This is true in the case of India also. Indian Government is trying to attract more and more foreign capital which are utilized in achieving an all-round development. The foreign capital started flowing into the country since 1991 with the policies of Liberalization, Globalization and Privatization. The decision taken by the then Government laid a foundation for achieving a rapid economic growth.

The rate of flow foreign capital into the country was not great initially. But later with the various Government Initiatives it started increasing at an increasing rate. Now, India has become one of the top destinations for investment in the world. It has become an attractive spot for investment.

Foreign Capital flows into an economy in two forms. They are Foreign Direct Investment (FDI) and Foreign Institutional

Investment (FII). Unlike FDI, FII is an investment by a foreign individual or corporate in the domestic security segment. The investment can be either in Equity or in Debt segments. In the previous financial year, India has bagged $7.46 billion foreign institutional investments. From April 2000, India received a cumulative FII of $183.69 billion. The rising FIIs have become one of the key drivers of economic growth of India.

At this juncture, a question arises as to the driving forces that influence the foreigners to invest in our country. There can be many factors which attract the foreigners to invest in India. These factors can be economic as well as non-economic factors. Non-economic factors may include strong political will, strong leadership with determined focus, political stability, etc. The economic factors would be inflation, stock market performance, GDP, balance of payments position of the country, interest rates prevailing in the market, exchange rates, etc.

Research Problem

As mentioned earlier, there are a lot of factors causing fluctuation in FII in India. So, the present study aims at identifying the key macro-economic factors which cause sensitivity in FII in India. Even the policy makers are interested in this issue as they can be able to increase the FII inflow by controlling the factors which cause sensitivity in FII.

Review of Literature

Many economists and analysts have conducted several studies to demystify the governing factors in the sensitivity of FII in India. This section of the study reviews some of the prominent research works and their findings. Most of these studies considered factors like stock market return, exchange rate of INR against USD, inflation prevailing in the domestic and foreign countries, Interest rates, Foreign Exchange Reserves, etc. for analyzing the sensitivity of FII towards these variables.

The role played by stock returns, inflation and risk on the FII in India. The study used Dicky- Fuller test to determine the role of these variables on FII. The monthly data collected from various secondary sources from 1994 to 2002 were being used in the study for statistical analysis. The study came to a conclusion that inflation and stock returns are the major determinants of FII in India [1].

Study to identify the role of various macro-economic factors on FII in India. Variables like BSE return, NSE return, S&P return, BSE risk, NSE risk, S&P risk, exchange rate, inflation, IIP and treasury bill yield were considered in the study. The research work employed secondary data collected for a period of 12 years from 2002 to 2015. The author concluded that only 15% of variation in FII was caused by these variables together. And also, Nifty return, S&P return, Nifty risk and S&P risk have major and positive impact on FII. Surprisingly, the study shows that Sensex return was not a major factor influencing FII [2].

The impact of some macro-economic factors on FII in India. The study considered variables like IIP, ER, Inflation, Forex reserve and Sensex return. For the purpose of statistical analysis secondary data collected for 15 years ranging from 2000 to 2015 were considered. The study came into a conclusion that IIP, ER and Forex reserve were the key factors affecting FII inflow. This study work also didn't consider Sensex return as the key influencing factor in FII in India [3].

Study to understand the impact of foreign institutional investment in India on the financial and macroeconomic system. The

research work had considered variables like Sensex, money supply, wholesale price index, index of industrial production and exchange rate. The study aimed at investing whether causality between Foreign Institutional Investment (FII) and other macro-economic variables existed. For this purpose, it had used monthly data of these variables for a period ranging between 1993 and 2013. Toda and Yamamoto long-run causality test was applied to examine the nature of various inter relationships among these variables. The study concluded that a bi-directional causality existed between FII and Sensex, FII and IIP, Money supply and FII, and no causality was detected between FII and ER [4].

The author relationship between exchange rate and FII. The study had considered the daily data of these two variables for a period of five years ranging from 2009 to 2014. The study had employed AD-Unit root test and Granger Causality test to analyze the data. The study came to a conclusion that a bidirectional relationship exists between exchange rate and Foreign Institutional Investment in India [5].

The author study had followed a linear model between dependent variable and independent variable. FII is the dependent variable and Wholesale price index, S&P 500 index, BSE Sensex, Standard deviation for Sensex, standard deviation for S&P 500, Nominal exchange rate, and interest rate differential. The study had considered US as a proxy and compared the indicators such as stock returns, Interest rates, etc. with that of US. The study had identified a direct relationship between FII and Sensex, a negative relationship between FII and S&P 500 returns. Similarly, the risk in equity market in the country was found affecting negatively on FII [6].

The author tried to analyze the nature and sources of portfolio flows in India and then examined the possible determinants of FII. Trend analysis has been used here to show the pattern and trend of Foreign Institutional Investments into the country. And then, Correlation and Linear regression analysis technique has been followed to find out the relationship between BSE Sensex and FII Flows. Moreover, the author has compared the relationship of these two variables in different time periods. The author has utilized secondary data ranging from 1993 to 1999. The study concluded that there is a high degree of correlation between FII and BSE Sensex and Equity returns act as a major determinant or cause of FII in India [7].

The author objective of exploring the correlation of FII with BSE Sensex and with Mutual fund investments. The study wanted to know if FII had high correlation with Sensex or with MF investments. The sample period of the study was from 2000 to 2013. And, it used Karl Pearson's Coefficient of Correlation method to find out the correlation between these variables. The study concluded that FII had positive correlation with both Sensex and with MF investments, but it was more positively correlated with Sensex than with MF investments [8].

The author examined the determinants of FII in India. The study had utilized the monthly data collected for a period of 2001 to 2014. Correlation and Autoregressive Distributed Lag method was applied in the study. The study had considered both the domestic and foreign indicators to ascertain its impact on FII. The variables include Wholesale Price Index, Exchange Rate, Return on Nifty, Index of Industrial Production, Return on S&P 500, Market capitalization, Producer Price Index and US Treasury Bill Rate. The study concluded that FIIs had positive

relationship with Exchange Rate, Nifty Return, and Return on S&P 500, Producer Price Index and NSE Market Capitalization. It found a negative relationship between FII and wholesale price index and US T Bill rates had a significant and negative impact on FII in India [9].

The author tried to examine the determinants of FIIs in India. The study considered both domestic and foreign variables to ascertain its impact on FII in India. So, it included return and risk at S&P 500 index of USA to analyze its impact on FII. The domestic indicators included in the study are return and risk at Nifty, inflation, interest and exchange rate. The study was based on the secondary data collected for a period ranging between 1996 and 2006. The statistical methods like mean, standard deviation, correlation and regression analysis was being applied in the study to arrive at the results. The study concluded that Nifty returns, Risk at S&P 500 and interest rates are highly correlated to FII. Further, it found out that Nifty Returns and S&P 500 risk were significant. And, Interest rate had a high correlation but it was statistically not significant. Surprizingly, the inflation rates had a positive relationship with FII which ought to have a negative relationship [10].

Research Gap and Scope of the Study

From the review of literature, it appears that results are highly fragmented. They lack unanimity. Different studies have identified different variables as governing factors of FII. Further, the nature of relationship of such different variables associated with FII also found to be vary. Hence this generates the question - what are the factors for which FII in India sensitive? As there are no satisfactory answers available from the existing literature, a fresh study is necessary. The present study makes an attempt empirically to fill the void. Thus, the scope of the study is extended to track down the factors influencing the decisions of foreign institutional investors towards investing in Indian capital market.

Study Objectives

The present study has the following objectives:

(1) To analyze the trend of FII in India
(2) To identify the factors governing FII in India

RESEARCH METHODOLOGY

Variables and Data

There are many macro-economic variables which might influence FII in India. But, the current study has considered following variables among the various macro-economic variables. The variables are selected based on the outcome of the past literature and their theoretical importance.

The variables used in the study are:

(1) Foreign Institutional Investment Inflow (FII Inflow)
(2) BSE Sensex
(3) Index of Industrial Production (IIP)
(4) Wholesale Price Index (WPI)
(5) Exchange Rate (ER)
(6) 91 days T-bill yield

Here, FII Inflow is a dependent variable and all other variables are independent variables. BSE Sensex is normally expected to have a positive and significant relationship with FII. With the increase in Sensex returns, the domestic stock market becomes more attractive to the foreign investors. So, theoretically BSE Sensex will have a positive relationship with FII. Index of Industrial Production (IIP) shows the growth in various sectors of the economy in terms of production. The increased industrial production leads to more profitability and leads to wealth creation. This will attract the foreign investors to invest in the stocks of such sectors. So, theoretically we can expect a positive relationship between IIP and FII.

Wholesale Price Index is considered as a measure of Inflation in the country. If a country has high inflation then it can be assumed that the country has failed in framing a suitable economic and monetary policy. So, it can have an impact on the foreign investors. Usually, a low level of inflation is desired by the foreign investors. So, a negative relationship can be expected between FII and Wholesale Price Index.

Exchange Rate is the rate at which currency of one country is bought and sold in terms of another foreign currency. If the domestic currency depreciates against the foreign currency, then the domestic currency will become cheaper for the foreign investors and we can expect huge inflow of foreign capital. So, a negative relationship can be expected between FII and ER theoretically. Treasury bills are the short-term debt obligation of the Central Government. The Government raises additional funds to invest in various developmental programs by selling treasury bills with different maturity periods. Here, we can expect a positive relationship between FII and T-Bill. As the yield in T-bills increases it becomes more attractive for the foreigners to invest in debt securities in the country.

The required data on the various variables are procured from the secondary sources. The major source of secondary data collection in the study is the Handbook of Statistics on Indian Economy, published by the Reserve Bank of India (RBI).

Study Period

The study period of this research work is from April 2005 to December 2016. Monthly average data for these periods are considered. This amounts to 141 observations for each variable.

Statistical Tools

The study tries to understand the trend of FII inflow and also aims at demystifying the key factors in the sensitivity of FII. Simple statistical tools like percentage, graphical presentation etc. are employed to analyze the trends in FII. In order to trace out the factors influencing the FII, linear multiple regression applied. The regression model has been estimated using SPSS.

The following regression model is approached in the present study.

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

where, Y = Net FII inflow, a = Intercept of Y which is constant, β_1, β_2, β_3, β_4 and β_5 =Beta coefficients of X_1, X_2, X_3, X_4 and X_5 respectively, X_1 = BSE Sensex, X_2 =Exchange Rate (ER), X_3 = Index of Industrial Production (IIP), X_4 = Wholesale Price Index (WPI), X_5 = Treasury Bill Yield (T-bill), e = error term.

Hypotheses

Following Hypotheses have been formed to check the relationship between FII and selected variables.

- H1: BSE Sensex has no significant impact on FII
- H2: ER has no significant impact on FII
- H3: IIP has no significant impact on FII
- H4: WPI has no significant impact on FII
- H5: T-bill Yield has no significant impact on FII

ANALYSIS AND INTERPRETATION

Trend and Pattern of FII Inflow into India

The Foreign Investment in Indian soil began with the policy of Economic reforms in 1991 taken by the then

Narasihma Rao Government. But, initially the foreign investment in our capital market was very low. Between 1992 and 2016, India received a cumulative Net Foreign Institutional Investments of Rs. 902,384 crore.

To have better clarity about the trend and pattern of FII in India, the study has identified two phases in FII in India. The first phase is between 1992 and 2002, and the second phase is from 2003 to 2016. During the period of 1992 to 2002, the FII flow into the country was considerably low. The net FII inflow was merely Rs. 59,902 crore. The Table 1 shows the trend of FII inflow during the first phase.

Table 1. *Net FII inflows to India between 1992 and 2002.*

Year	FII	% Change
1992-93	4	NA
1993-94	5445	136025.00
1994-95	4775	-12.30
1995-96	6721	40.75
1996-97	7387	9.91
1997-98	5910	-19.99
1998-99	-729	-112.34
1999-00	9765	-1439.51
2000-01	9682	-0.85
2001-02	8273	-14.55
2002-03	2669	-67.74

Source: Handbook on Indian Economy, RBI.

Table 1 shows the pattern of Inflow of FII into the country during the period of first phase. Here, we could see a sudden increase of FII inflow from Rs. 4 crore in 1992 to Rs. 5445 crore in 1993. This could be because of the initial desperate efforts of the then Government to attract more foreign capital inflow so as to bring up the bottom reached Foreign Exchange Reserves. But, after 1993 there was no considerable improvement in the pattern of FII inflow. And, also the pattern of inflow was inconsistent. There was no consistency in the flow of FII and there was rapid fluctuation in FII inflow. Table 2 shows the pattern of FII in the second phase (2003 to 2016).

In Table 2, during the period of second phase the FII inflow was more aggressive. It increased from Rs. 2669 crore in 2002 to Rs. 44001 crore within 1 year. And in 2008, India so a net FII outflow of Rs. 43336 crore. The whole world was experiencing severe economic crisis in 2008 and India was not an exception to that. The global economic crisis led the investors to withdraw their money invested in the domestic capital market. The FII flow was more aggressive and also larger in number during second phase compared to the first phase.

Figure 1 shows the pattern and trend of FII inflow into India during both the phases put together.

Table 2. *Net FII Inflows to India between 2003 and 2017.*

Year	FII	% Change
2003-04	44001	1548.59
2004-05	41418	-5.87
2005-06	48650	17.46

2006-07	23755	-51.17
2007-08	62583	163.45
2008-09	-43336	-169.25
2009-10	114902	-365.14
2010-11	110759	-3.61
2011-12	49916	-54.93
2012-13	140625	181.72
2013-14	85522	-39.18
2014-15	110243	28.91
2015-16	-4882	-104.43
2016-17	58326	-1294.72

Source: Handbook on Indian Economy, RBI.

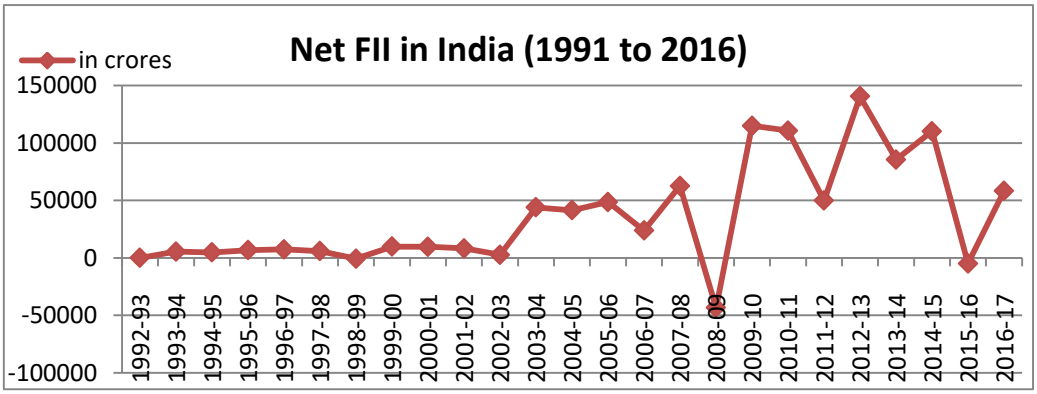

Fig. 1. *Foreign institutional investment inflows to India. Source: author's work based on the raw data.*

The graphical representation depicts the trend of FII inflows into India over the period of last 22 years. The investment was very low till 2002–2003 and later it gained momentum. During the period of Global Economic Crisis in 2008, there was a net outflow of FII due to negative outlook by the foreigners about Indian Economy. But, India has managed to gain back the interest of the foreign investors. And a year after 2008, the FII inflow reached a peak level of all time with an Inflow of Rs. 114902 crore in 1 year. However, there were still fluctuations in FII flow after 2009 also.

Factors Governing FII in India

As understood from the trend analysis FII in India is highly volatile. The volatility in the inflow of foreign institutional investment has intensified since 2002–2003. The present study made attempt to investigate the factors contributing to such frequent fluctuation in the FII inflow to the Indian market. Linear multiple regression models have been estimated for this purpose and the results are presented Tables 3–5. The regression model summary presented in Table 3 shows the goodness of fit of the model as the Durbin–Watson statistic value is at the acceptable limit. ANOVA results and significant F value reassure the reliability of the results.

Table 3. *Regression model summary.*

Model	R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
1	.287[a]	.082	.048	9074.79659	1.387
a. Predictors: (Constant), Tbill, ER, IIP, Sensex, WPI.					
b. Dependent Variable: FII.					

Table 4. *ANOVA results.*

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	996498762.214	5	199299752.443	2.420	.039[b]
	Residual	11117510964.864	135	82351933.073		
	Total	12114009727.078	140			

a. Dependent variable: FII.
b. Predictors: (Constant), Tbill, ER, IIP, Sensex, WPI.

Table 5. *Factors governing FII in India.*

Model		Coefficients		t	Sig.	Collinearity Statistics	
		B	Std. Error			Tolerance	VIF
1	(Constant)	33054.883	52474.547	.630	.530		
	Sensex	-.021	.276	-.074	.941	.222	4.498
	ER	-607.143	223.760	-2.713	.008	.151	6.642
	IIP	-12764.036	26727.129	-.478	.634	.157	6.368
	WPI	272.883	116.677	2.339	.021	.055	18.327
	T-bill	-1212.985	590.983	-2.052	.042	.606	1.650
a. Dependent Variable: FII.							

The regression results presented in Table 5 reflects that exchange rate, inflation and interest rate have significant impact on the inflow of foreign institutional investment in India. As per the theoretical predictions exchange rate and FII are negatively related and it appears that in India strong exchange rate discourages FII and weak domestic currency motivates foreign institutional investors to buy more in Indian market. In Indian scenario, inflation and short run interest rates also have significant impact on foreign institutional investment but surprisingly they do not have expected signs of relationship. Inflation seems to influence FII positively. This may be attributed to the fact that along with inflation, economic growth in GDP also growth steadily reflecting optimism for future market. Positive impact of inflation on FII India was earlier explored by Rajkumar and Gupta (2010), off course for different time period. The current study also infers that 90 days Treasury bill rate has negative impact on FII. It was also found that BSE Sensex and growth of industrial sector (IIP) do not have significant impact on FII. This shows that the attitudes of the foreign investors are not altered by the frequent fluctuations in the stock market. Investors who are look for medium term and long-term investment over trading are really not sensitive to BSE Sensex. The result disagrees with Rai and Bhanumurthy (2004) who empirically arrived at the conclusion that stock returns is the major significant factors governing the FII. Similar to the present study, Himachalpathy and Kavya (2010) and Amitha (2016) could not find sensex as significant determinant of FII.

Testing of Hypotheses

The t-values and their significance level for various variables under study are considered in testing the major hypotheses of the study. The results of the hypotheses testing are presented and interpreted in Table 6.

Table 6. *Summary of results of hypotheses testing.*

Hypotheses	Decision	Inference
H_1: BSE Sensex has no significant impact on FII	Accept	Stock returns do not have significant impact on FII
H_2: ER has no significant impact on FII	Reject	Exchange rate has significant impact on FII
H_3: IIP has no significant impact on FII	Accept	Industrial growth has no significant impact on FII.
H_4: WPI has no significant impact on FII	Reject	FII is significantly influenced by the changes in inflation.
H_5: T- Bill Yield has no significant impact on FII	Reject	T-bill interest has significant impact on FII

POLICY IMPLICATIONS

India though grows at the phenomenal rate over the last two decades, the country still need to focus on capital accumulation as many of the growth projects were either not initiated or on halt at the half way due to capital inadequacy. There are limitations to the domestic economy to raise sufficient funds internally. Hence, attracting foreign investment becomes crucial. Many domestic companies are raising capital from the stock market and the share of FII is increasing, but keeps fluctuating. What is undeniable is that FII is the engine of growth of several sectors of India as well as the GDP. Considering the micro and macro impact FII has on Indian economy, policy makers need to draw up necessary policies. Fundamentals would be identifying the factors which govern the FII. As observed from the results, Treasury bill yield, Inflation and Exchange rate are the factors which affect FII significantly. Hence, the policymakers have to set their focus towards bringing stabilization in these variables. Stabilizing the short run interest rate would build up the confidence among the foreign institutional investors on Indian capital market. More importantly, steps should be taken to stabilize the exchange rate. This not only attracts more foreign investment but also avoids hasty withdrawal of FII in anticipation of loss due to exchange rate fluctuation. Appropriate monetary and fiscal policies may make Indian capital market most attractive. This eventually would contribute to the growth of Indian economy.

CONCLUSION

Based on the statistical analysis, the present research work found out that three out of the five independent variables used in the study significantly impact FII in India. It shows a negative relationship between Exchange Rate and FII in India. And, the relationship seems to be very significant. Wholesale Price Index which is used to measure general inflation in the country has a significant and positive relationship with FII. Theoretically, there exists a negative relationship between FII and WPI. But, the study shows a positive relationship between these two which is quite surprising. The Treasury bill yield is found to have an inverse relationship with FII and the relationship is quite significant. This is expected as an increase in the interest rate will reduce the actual yield but the increased interest rate will attract people to invest in debt segment.

Astonishingly, BSE Sensex does not show any positive and significant relationship with FII. Theoretically, a positive and significant relationship exists between FII and Stock Returns. But the study has found no such relationship between these two. So, it has become clear that the attitude of foreign investors doesn't depend upon the fluctuations in the domestic stock returns. Similarly, Index of Industrial Production (IIP) found to be insignificant with respect to sensitivity in FII.

So, the study found out that ER, WPI and T-bill have significant impact in the sensitivity of FII. And, FII is not impacted by any variations in BSE Sensex and IIP.

REFERENCES

[1] Rai and Bhanumurthy (2004)
[2] http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1049.2004.tb00246.x/abstract.
[3] Amitha (2016)
[4] http://www.prakriti.org.in/project/amita-jha/.
[5] Himachalpathy and Kavya (2010)
[6] https://www.projectguru.in/publications/factors-attract-foreign-direct-investment-india/.
[7] Kaur and Dhillon (2010)
[8] http://ejbe.org/EJBE2010Vol03No06p57KAUR-DHILLON.pdf.
[9] Mourya (2015)
[10] http://www.icmr.nic.in/icmrsql/biodata.asp?expno=00011209.
[11] Saragogi (2008)
[12] http://www.sclt.in/judgements/search?search_api_views_fulltext=11.%20Subash%20Chander%20v.%20Krishan%20Lal&page=53.
[13] Chakrabarthi (2001)
[14] http://onlinelibrary.wiley.com/doi/10.1111/1467-6435.00142/abstract.
[15] Agarwal (2013)
[16] https://thesupermanreturns.wordpress.com.
[17] Mohanasundaram et al. (2015)
[18] https://www.sciencedirect.com/science/article/pii/S1877042815020273.
[19] Rajkumar and Gupta (2010)
[20] http://www.news18.com/news/india/all-fine-between-rani-and-vidya-rajkumar-gupta-355842.html.

