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A Study on the Determinants of Foreign Portfolio Investment in India

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Abstract

This research paper analyzed the determinants of foreign portfolio investment in India during 1990-91 to 2022-2023. The correlation matrix shows that foreign portfolio investment is highly correlated with the share of market capitalization (0.756), GDP (0.703), foreign exchange reserves (0.612), and Openness (0.346). In contrast, the difference in interest rates between India and the US, as well as the debt-service ratio, has negative correlations with foreign portfolio investment. Additionally, the matrix indicates strong positive correlations between several of the explanatory variables. GDP is highly correlated with market capitalization, foreign exchange reserves, and the turnover ratio on the Bombay Stock Exchange. Foreign exchange reserves and market capitalization also show a significant positive correlation. The share of market capitalization is correlated with foreign exchange reserves and openness. The regression analysis found that GDP, openness, real effective exchange rate (REER), and debt-service ratio influenced portfolio investment during the study period. While the coefficients of these variables were not collectively significant (except for REER), they were individually statistically significant at the 1% level (equations 1, 2, and 4). In equation 5, openness and REER (with the expected negative coefficient) were statistically significant. Openness was also significant in equation 7, along with GDP and debt-service ratio, though the debt-service ratio coefficient was not highly significant. These results suggest that trade openness had the most influence on foreign portfolio investment inflows to India. GDP, REER, and the debt-service ratio also impacted foreign portfolio investment, but to a lesser degree. The elasticity of foreign portfolio investment with respect to openness was 5.49%, meaning a 1% change in openness led to a 5.49% change in foreign portfolio investment.

Keywords: Portfolio, investment, debt, export, import, openness.

Introduction

Foreign portfolio investment (FPI) refers to the holding of securities and other financial assets by investors in a country other than their own. Unlike foreign direct investment (FDI), FPI does not provide the investor with direct ownership or control of a company's assets. FPI is generally more liquid than FDI, though the liquidity can vary depending on market volatility. Along with FDI, FPI is a common way for investors to gain exposure to overseas economies. Both FDI and FPI represent important sources of funding for many economies globally. In FPI, investors make hands-off, passive investments in securities such as stocks, bonds, mutual funds, and exchange-traded funds (ETFs) issued by foreign companies or governments. The expectation is to earn a return on these investments. At a macro level, FPI is recorded in a country's capital account and balance of payments, which track the flow of money between that country and others. The theory of foreign portfolio investment has examined macroeconomic factors such as interest rate differentials and exchange rate fluctuations. If indirect investment is viewed as a transfer of wealth akin to the cross-border movement of technology, physical assets, or human capital, then its

determinants should be considered in the same way as the internalized capital transfer component of Dunning's eclectic paradigm. The three core principles of Dunning's OLI framework also apply to foreign portfolio investment.

1. Ownership Specific Advantages

For foreign portfolio investment to occur, the investing entity must have capital to invest. This capital availability can be seen as an advantage over entities that lack such resources. Additionally, the investor must have knowledge about the prospects of the target firms as well as alternative foreign investment opportunities and their likely outcomes. If an intermediary is involved, such knowledge would also include information about competent advisory sources. These specific advantages are necessary when portfolio investment is unconditional, with the investor having no influence over the investment's outcome. This covers most individual and institutional loans, as well as minority equity investments. However, in some cases, foreign portfolio investment may be part of a broader asset transfer package, with terms and conditions set by the lending or investing entity, even without a controlling equity stake. In such instances, the advantages of

the foreign portfolio investment may resemble those associated with foreign direct investment.

2. Location Specific Advantages

The location-specific advantages of foreign portfolio investment (FPI) reflect the likely opportunities for securing a good rate of return (in the form of interest, dividends, and capital appreciation) on the invested capital. When the expected rate of return, discounted for risk, is higher in the home country than elsewhere, domestic investment will be preferred over foreign investment. Conversely, when the reverse is true, the choice between different foreign locations can be assessed using the same criteria as those used to evaluate the location for foreign direct investment (FDI), with the sole exception that in the case of FPI, one looks at the location advantages from the perspective of how they affect the prosperity of the recipient entity, rather than that of the investing company. As such, the variables that affect the prosperity of indigenous firms, such as raw materials and labor costs, taxes, quality of infrastructure, size and character of the local market, and managerial efficiency, are likely to influence the location of inbound portfolio investment just as they do the location of direct investment. It may be hypothesized that FPI will be more responsive to changes in the value of location-specific variables of countries and regions than FDI, partly because the latter tends to be more "invisible" and is likely to be more volatile than the internal workings of multinational corporations.

3. Externalization Advantages

The internationalization theory of FDI posits that firms engage in foreign production due to the failure of cross-border markets to provide intermediate goods and services at a lower cost than could be achieved through intra-firm transactions. The key market cost driving this is that of intangible assets, especially technology and information. There is no reason why finance capital should not be treated as another form of intangible asset. The fungibility and divisibility of foreign portfolio investment, combined with its homogeneity, result in lower transaction and coordination costs compared to real intangible assets. Consequently, the volume of foreign portfolio investment can exceed the value of cross-border flows of intangible assets between firms. Building on the theory of John Dunning, the major actors in foreign portfolio investment can be identified. Additionally, the OLI variables facing direct investors need to be modified to explain foreign portfolio investment, and the particular advantages to private portfolio investors can be translated into an FDI context.

Table 1: Major Actors and Their Objectives in Private Portfolio Investment.

Investor	Objective
Institutional Investors	Yield
Capital Gain, Diversification, Speculation, Market Knowledge/Access	
Bank Holding Companies	Yield
Capital Gain, Market Knowledge/Access, Diversification	
Non-Financial Firms	Yield
Capital Gain, Speculation, Market Knowledge/Access, Diversification	

Source: Dunning, J.H. and Dillyard, J.R., "Towards a General Paradigm of Foreign Direct Investment and Foreign Portfolio Investment", Transnational Corporations, April 1999.

The major actors and their objectives are outlined in Table 1. These actors fall into three categories: mutual funds, banks, and other investors such as corporations, investment banks, insurance companies, pension funds, and individuals. While each type of investor has similar objectives, the criteria they use to make investment decisions differ. For example, the concept of diversification will have different meanings for different investors, depending on the structure of their portfolios and diversification strategies. Diversification refers to reducing risk by investing in a variety of assets, such as stocks in different industries, bonds from different countries, or a mix of stocks and bonds. The expertise and market knowledge of portfolio managers—their ability to research, identify, and act on investment opportunities, as well as marshal funds to invest—largely determine how much a portfolio can be diversified. An international bond fund will diversify differently than an international stock fund, and both will diversify differently from a single-product high-tech firm looking to invest in a foreign firm to access new markets. The passage then cross-references the investors' objectives with the ownership, location, and externalization (OLE) advantages of foreign portfolio investment (FPI). Ownership advantages include portfolio size, risk management capabilities, existing FPI, and market knowledge. Location advantages refer to the home and foreign environments, such as access to funding and favorable regulations. Externalization advantages involve leveraging markets to support ownership and location, such as taking advantage of investments with limited covariance and lower transaction costs.

Ultimately, the performance of a portfolio depends on the interplay of these OLE advantages. Assuming the ownership variables are in place, the choice of FPI outlet would depend on location and externalization factors. Studies have found that broad macroeconomic reforms, such as exchange rate realignment, reduced capital restrictions, and a commitment to a market economy, have helped attract portfolio investment in East Asia and Latin America.

Review of Literature

Reetika Garg & Pami Dua (2014) ^[5] this paper examines the macroeconomic factors that influence portfolio flows to India. The findings indicate that lower exchange rate volatility and greater opportunities for risk diversification encourage these portfolio inflows. Conversely, higher equity returns in other emerging markets deter such flows. Other traditional determinants include domestic equity performance, exchange rate, interest rate differential, and domestic economic growth. Further analysis of disaggregated portfolio flows reveals that the drivers of foreign institutional investment (FII) flows are similar to those of overall portfolio flows. In contrast, American Depository Receipts (ADRs) and Global Depository Receipts (GDRs) are significantly impacted only by domestic equity returns, exchange rate, domestic output growth, and foreign output growth.

Ragavan S. & M. Selvam (2017) ^[9] in their study found that the exchange rate had a significant effect on foreign portfolio investment, the SENSEX, and the NIFTY during the period examined. This suggests the exchange rate is a key factor in determining investments. To avoid excessive money pumping by the RBI and reduce the risk of high inflation, the study recommends restricting foreign portfolio investment within certain limits.

Kirti Gupta & Shahid Ahmed (2020) ^[10] in their study volatility nature of foreign portfolio flows, especially into debt markets,

can have significant implications for the financial and macroeconomic stability of recipient countries. It is necessary to identify the key drivers of portfolio investments in the bond markets of developing economies in order to design effective policies that enhance economic resilience and help manage capital flow volatility. While the determinants of foreign portfolio investment in the Indian equity market have been examined in the literature, the flows to the bond market remain largely unexplored. Therefore, the purpose of this paper is to identify the potential determinants of foreign portfolio flows to the Indian bond market, both in the short and long term.

Manowar Hossain (2022) [11] in this study examines the factors influencing foreign portfolio investment (FPI) inflows across various sectors in India from February 2012 to July 2020. The findings indicate that in the short-term, FPI inflows have a significant positive correlation with the index of industrial production (IIP), foreign direct investment (FDI), and market capitalization (MC), but a significant negative correlation with the US dollar exchange rate (DEXR) and real effective exchange rate (REER). The panel autoregressive distributed lag (ARDL) analysis shows that in the long-term, sectoral FPI inflows have a significant negative relationship with interest rate differential (IRD), MC, and the US DEXR, but a significant positive relationship with international liquidity (IL) and REER. Additionally, the interest rate differential boosts FPI inflows across all sectors except for new economy sectors. The policy implications suggest the need to create a conducive investment climate to encourage foreign portfolio investors.

Methodology

The primary objective of this article is to examine the determinants of foreign portfolio investment in India from 1990-91 to 2022-23. For this purpose, the study utilized secondary data on the determinants of India's foreign portfolio investment, collected from various sources such as the Monthly Statistics of the Foreign Trade of India, Economic Survey, RBI Bulletin, Handbook of Statistics on Indian Economy, and the Bombay Stock Exchange. The collected data were analyzed using econometric tools, including correlation analysis, multiple regression modeling, and elasticity modeling. The study was conducted using SPSS 19 software.

Correlation Model

$$r = \frac{N\sum dx dy - \sum dx \sum dy}{\sqrt{[N\sum dx^2 - (\sum dx)^2] [N\sum dy^2 - (\sum dy)^2]}}$$

Where

dx = X-A

dy = Y-B

N = Number of pairs of observations A and B are assumed mean of X and Y respectively.

Multiple Regression Model

For the present study, only some of location specific and externalization variables have been considered. Location variables include history of prospects for economic growth India's GDP, stock of foreign exchange reserves, debt-service ratio, Externalization variable includes correlation of returns with home markets (the interest differential between India and U.S.A., Degree of market openness and integration with global or regional markets (trade-GDP ratio), level of maturity of market (turn-over ratio), and share of market capitalization of Bombay Stock Exchange in the world market capitalization and REER.

This study examined a select set of location-specific and externalization variables. The location variables considered were India's economic growth prospects, foreign exchange reserves, and debt-service ratio. The externalization variables included the correlation of returns with domestic markets, the interest rate differential between India and the U.S., the degree of market openness and global/regional integration (trade-GDP ratio), the market's maturity level (turnover ratio), and the Bombay Stock Exchange's share of global market capitalization, as well as the real effective exchange rate (REER).

$$FPI = \psi_0 + \psi_1GDP + \psi_2FER + \psi_3DES + \psi_4DIR + \psi_5OPEN + \psi_6BSE + \psi_7SMC + \psi_8REER + U$$

Where

- FPI = Inflow of Foreign Portfolio Investment.
- GDP = Gross Domestic Product at factor cost.
- FER = The Foreign Exchange Reserves.
- DES = Debt servicing as a proportion of Exports.
- DIR = Difference in the Interest Rate between India and the United States.
- OPEN = Sum of Exports and Imports as a proportion of GDP.
- SMC = The Share of Market Capitalization.
- BSE = Turn-Over Ratio at the Bombay Stock Exchange.
- REER = The Real Effective Exchange Rate of the Indian Rupee.
- $\psi_1, \psi_2, \dots, \psi_8$ = Regression co-efficient.
- U = Stochastic disturbance term.

According to the literature, gross domestic product, foreign exchange reserves, degree of openness, turnover ratio on the Bombay Stock Exchange, and market capitalization share should have positive coefficients, while the other variables should have negative coefficients.

Elasticity Model

Elasticity = Percentage change in dependent economic factor/Percentage change in independent economic factor

Results and Discussions

Table 2 presents the correlation matrix for Foreign Portfolio Investment in India and other related variables.

Table 2: Correlation Matrix of Foreign Portfolio Investment

	FPI	GDP	FER	DES	DIR	OPEN	SMC	BSE	REER
FPI	1								
GDP	0.703	1							
FER	0.612	0.948	1						
DES	-0.527	-0.804	-0.871	1					
DIR	-0.482	-0.745	-0.703	0.669	1				
OPEN	0.346	0.682	0.784	-0.531	-0.368	1			
SMC	0.756	0.963	0.985	-0.802	-0.641	0.763	1		
BSE	0.381	0.889	0.933	-0.821	-0.503	0.755	0.869	1	
REER	0.245	0.368	0.428	-0.439	-0.115	0.126	0.367	0.462	1

Source: Author's own calculation.

The correlation matrix reveals a high degree of association between the explanatory variables. This suggests potential multicollinearity issues, which need to be examined further. The correlation matrix shows that foreign portfolio investment is highly correlated with the share of market capitalization (0.756), GDP (0.703), foreign exchange reserves (0.612), and Openness (0.346). In contrast, the difference in interest rates between India and the US, as well as the debt-service ratio, has negative correlations with foreign portfolio investment. Additionally, the matrix indicates strong positive correlations between several of the explanatory variables. GDP is highly correlated with market capitalization, foreign exchange reserves, and the turnover ratio on the Bombay Stock Exchange. Foreign exchange reserves and market capitalization also show a significant positive correlation. The share of market capitalization is correlated with foreign exchange reserves and openness. This analysis of the correlation matrix highlights the need to carefully consider multicollinearity when selecting the variables to include in the equation. Including highly correlated variables simultaneously may lead to issues in the model estimation and interpretation.

Regression Results

Using Ordinary Least Square linear equation the expected explanatory variables are regressed. The regression results are presented in the Table 3.

Table 3: Regression Analysis of Foreign Portfolio Investment

Eq. No.	Constant	GDP	OPEN	REER	DES	R ²	F
1	12126.857			276.046**		62.8	2.543
2	-2134.297	0.004**				49.3	36.471
3	-5349.193	0.005**			285.654	50.7	18.745
4	-8644.537		3467.742**			54.8	17.697
5	53759.742		2464.846	329.846**		34.6	23.142
6	8462.286	0.006**	2437.463			56.1	19.864
7	3856.758	0.005**	1946.751**	-67.856	196.945*	57.2	34.861
E			5.49				

Source: Author's own calculation.

**One per cent level of significant.

*Five per cent level of significant.

e Elasticity of FPI with to Openness.

The regression analysis found that GDP, openness, real effective exchange rate (REER), and debt-service ratio influenced portfolio investment during the study period. While the coefficients of these variables were not collectively significant (except for REER), they were individually statistically significant at the 1% level (equations 1, 2, and 4). In equation 5, openness and REER (with the expected negative coefficient) were statistically significant. Openness was also significant in equation 7, along with GDP and debt-service ratio, though the debt-service ratio coefficient was not highly significant. These results suggest that trade openness had the most influence on foreign portfolio investment inflows to India. GDP, REER, and the debt-service ratio also impacted foreign portfolio investment, but to a lesser degree. The elasticity of foreign portfolio investment with respect to openness was 5.49%, meaning a 1% change in openness led to a 5.49% change in foreign portfolio investment.

Conclusion

The correlation matrix shows that foreign portfolio investment is highly correlated with the share of market capitalization (0.756), GDP (0.703), foreign exchange reserves (0.612), and Openness (0.346). In contrast, the difference in interest rates between India and the US, as well as the debt-service ratio, has negative correlations with foreign portfolio investment. Additionally, the matrix indicates strong positive correlations between several of the explanatory variables. GDP is highly correlated with market capitalization, foreign exchange reserves, and the turnover ratio on the Bombay Stock Exchange. Foreign exchange reserves and market capitalization also show a significant positive correlation. The share of market capitalization is correlated with foreign exchange reserves and openness. This analysis of the correlation matrix highlights the need to carefully consider multicollinearity when selecting the variables to include in the equation. Including highly correlated variables simultaneously may lead to issues in the model estimation and interpretation. The regression analysis found that GDP, openness, real effective exchange rate (REER), and debt-service ratio influenced portfolio investment during the study period. While the coefficients of these variables were not collectively significant (except for REER), they were individually statistically significant at the 1% level (equations 1, 2, and 4). In equation 5, openness and REER (with the expected negative coefficient) were statistically significant. Openness was also significant in equation 7, along with GDP and debt-service ratio, though the debt-service ratio coefficient was not highly significant. These results suggest that trade openness had the most influence on foreign portfolio investment inflows to India. GDP, REER, and the debt-service ratio also impacted foreign portfolio investment, but to a lesser degree. The elasticity of foreign portfolio investment with respect to openness was 5.49%, meaning a 1% change in openness led to a 5.49% change in foreign portfolio investment.

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