

International Journal of Economics and Business Administration
Volume VIII, Issue 2, 2020

pp. 100-113

Foreign Portfolio Investments, Exchange Rates and Capital Openness: A Panel Data Approach

Submitted 01/02/20, 1st revision 21/02/20, 2nd revision 22/03/20, accepted 10/04/20

Patricia Lindelwa Makoni¹

Abstract:

Purpose: The aim of this paper is to examine the effect of real exchange rate and capital openness on foreign portfolio investments, using a panel of nine African countries, after the global financial crisis in the period 2009 -2016.

Design/Methodology/Approach: We adopted a panel data approach, and more specifically data was analysed using the Fixed Effects model. The economic data was sourced from the World Bank database of development indicators, while we used Chinn and Ito's database for capital openness.

Findings: Building on from the international finance and portfolio behaviour theories, the results show that real exchange rates, capital openness and the rate of inflation have a negative relationship with FPI inflows. On the contrary, the lag of FPI, institutional quality, real economic growth rate and stock market development attract inward FPI, as portrayed in the positive relationship between the dependent and independent variables.

Practical Implications: In accordance with these findings, we find that, host countries' governments that adopted fiscal and monetary policies can ensure macroeconomic stability, and a prudently managed exchange rate through incentivising exports and discouraging imports into the host country, to attract inward FPI flows.

Originality/Value: The study confirms the theoretical and empirical underpinnings that there is a negative relationship between foreign portfolio investment, and real exchange rates and capital openness, respectively in most developing countries, and African economies are no different.

Keywords: FPI, real exchange rate, capital openness, panel data.

JEL classification: F21, G15, F31, C23.

Paper Type: Research article.

¹Professor, University of South Africa, Department of Finance, Risk Management and Banking, South Africa, E-mail: makonpl@unisa.ac.za or patricia.makoni@gmail.com; ORCID ID: <https://orcid.org/0000-0002-9038-1411>

1. Introduction

The globalisation and integration of financial markets has resulted in an influx of international capital flows (Goldstein and Razin, 2006). The role played by these investment flows therefore cannot be downplayed. It has become increasingly acknowledged that such flows are beneficial not only to the foreign investors but also the host countries themselves. Calvo *et al.* (1996) and Singhania and Saini (2018) gave credence to foreign portfolio investment and the important contribution that it makes to developing countries. FPI has been identified to supplement domestic savings and investment, as well as introducing new, advanced technology, which results in higher productivity, employment and economic growth. FPI further improves stock market liquidity by spreading the risk of investors over a larger client base; while for listed corporations, it decreases the cost of capital to finance future growth and expansion plans.

Foreign portfolio investment (FPI) ranks lower than foreign direct investment (FDI) in the international capital flows hierarchy. This is attributable to what Hattari and Rajan (2008) and Opperman and Adjasi (2017) refer to as “*hot money*”, due to the reversibility and liquidity of FPI flows that are invested on the stock market. The pursuit of higher returns for international investors demands a stable macroeconomic environment characterised by low inflation, a stable exchange rate, capital openness and an optimistic outlook on economic growth. An unstable exchange rate would expose foreign investors and multinational corporations (MNCs) to uncertainty in terms of return on investment in the form of dividends and capital appreciation on their shares listed on the host country’s stock market. Further to this, capital openness is required to ensure the repatriation of these returns on investment.

According to theorists such as Schumpeter (1912), financial sector development affects the allocation of savings, improves productivity and technological growth, and hence improves economic growth. He was supported by other early scholars such as Goldsmith (1969), McKinnon (1973) and Shaw (1973), who theorised that liberalised, integrated and well-functioning financial markets, enhance economic growth, by reducing transaction costs, and facilitating capital allocation to projects that yield the highest returns, and spur enhanced economic growth rates.

It is also these same financial markets that play the critical role of attracting and retaining global foreign portfolio investment inflows to a host country (Thalassinos, 2007). In light of this, countries with well-developed financial markets, coupled with macroeconomic stability, favourable investor policies and strong institutions, are likely to be recipients of such international capital flows, particularly foreign portfolio investment (FPI) (Sawalha, *et al.*, 2016; Thalassinos and Kiriazidis, 2003).

Agarwal (1997) found that, as determinants of FPI inflows, both the exchange rate and capital openness had a significant and negative relationship with this particular capital flow, implying that a depreciation in a currency and restrictions in the

markets would ultimately shun away potential FPI investors. Abbott and De Vita (2011) confirmed that FPI flows were higher in countries that belong to the European Money Union, as they portray exchange rate stability.

Among the BRICS (Brazil, Russia, India, China and South Africa) emerging market countries, Meurer (2016) studied the causal relationship between FPI and GDP, investment, and other financial variables in Brazil using quarterly data for the period 1995 and 2009. He found a strong, negative relationship between FPI and the real exchange rate in Brazil. Mercado and Park (2011) examined the size of international capital flows for a panel of different countries, including Russia, and concluded that real exchange rates have a negative and highly significant influence on FPI, while capital openness was positive and highly significant.

Several scholars such as Kumar (2018), Bhasin and Khandelwal (2013) and Verma and Prakash (2011) examined the relationship between FPI and exchange rates in India. They found that exchange rates had a negative and significant impact on inward FPI flows to India in the long run, thus a depreciation of the Indian Rupee would significantly reduce FPI flows to the country. Bhasin and Khandelwal (2013) further concluded that capital openness in India also had a negative effect on inward FPI to India.

Contrary to the findings of studies conducted in other countries, Waqas *et al.* (2015) used the GARCH methodological approach on monthly and annual data from 2000 – 2012. They concluded that in the case of China, the real exchange rate had a positive and highly significant relationship with FPI flows; attributable to that the country does not engage in the trade of primary goods, hence, there is minimal fluctuation of the Chinese Yen. For Sub-Saharan African countries, Opperman and Adjasi (2017) found that the pull factors of real exchange rates and financial openness, although positive and significant, resulted in volatility of FPI inflows.

The relevance and contribution of this paper is that it sought to determine the effect of the real exchange rates and capital openness on a short panel of selected African countries for the period immediately after the 2007 - 2008 sub-prime global financial crisis, which had serious ramifications for many developed and developing countries. The global crisis had an impact on the decisions taken by international investors and multinational corporations on where to place their investments. We tested the proposition that economies that have more stable exchange rate regimes and less restrictions of capital, have a higher likelihood of attracting FPI inflows.

In this study, using the Fixed Effects model, it was found that the instability of exchange rates, restrictive capital controls and high rates of inflation have an adverse influence on FPI. On the other hand, the previous period's (t-1) FPI inflows present a signalling effect to future FPI investors, together with good quality institutions, future economic growth prospects, and stock market development, all emerged as having a positive relationship with inward FPI flows. These findings confirm the

existing theoretical and empirical underpinnings that for this study's key variables, there is predominantly a negative relationship between foreign portfolio investment, and real exchange rates as well as capital openness, respectively, in most developing countries, and African economies are no different. The remainder of this paper considers the associated relevant literature, and methodology adopted to test the relationships between the main variables of FPI, real exchange rates and capital openness. This is followed by the analysis and discussion of findings thereof. Conclusions and policy recommendations are then drawn based on our econometric results.

2. Literature Review

Theorists such as Ohlin (1933) and Iversen (1936) explained international capital flows by assuming that, in the absence of impediments (perfect markets); international financial capital would go to host countries where the returns were highest. Hymer's (1976) portfolio investment theory asserts that FPI is attracted by high interest rates since it decreases the borrowing cost. Hence, foreign investors will remain in the host country until such time that the home and host country interest rates are at equilibrium.

The theory of FPI is believed to be traditionally located within international economics, and is based on macroeconomic financial variables, mainly, interest rates and exchange rate fluctuations (Dunning and Dilyard, 1999). With this in mind, they argued that financial resources flow from capital-rich countries to poor ones, in pursuit of the higher rate of return. This is in accordance with the uncovered interest rate parity proposition that foreign investors expect a capital gain and regular dividends on their domestic investments, not only because of stock market activity but also through the appreciation of the domestic currency (Kumar, 2018). According to Shefrin and Staman (2000), behavioural portfolio theory affirms that international financial markets are pivotal in ensuring those foreign portfolio investors' requirements for capital gains and dividends are fulfilled.

Earlier scholarly empirical literature identified not only economic growth as a determinant of FPI flows, but other factors too. These include the level of stock market development, the presence of good quality institutions (the rule of law, respect of investor rights, corporate governance and transparency), macroeconomic stability as reflected by the real exchange rate, the absence of capital controls, and the prior period's FPI flows, amongst others. These factors were identified in the studies of Agarwal (1997), Dua and Sen (2006), Ekeocha *et al.* (2012), Gumus *et al.* (2013) and Kumar (2018). Sarno *et al.* (2016) referred to these determinants as "*pull factors*", as they reflect the host country's attractiveness to foreign investors. These pull factors have been found to either have a positive or negative effect on inward FPI flows.

Rashid and Khalid (2017) examined the impact of exchange rate uncertainty and FPI in Pakistan using the GMM approach concluding that unstable exchange rate discourages FPI flows. Using the ARDL methodology on time series data for India, Srinivasan and Kalaivani (2013) found that the real exchange rate has a negative and significant effect on inward FPI. Other scholars that reached similar findings in their respective studies were those of Kaur and Dhillon (2010) and Kodongo and Ojah (2012). Essentially, currency depreciation or devaluation attracts FPI as host country equity shares will be less expensive to foreign investors.

Capital openness, which is the absence or relaxation of restrictions on the flow of capital, needs to be present if host countries are to attract international investors. The role of capital openness in inward FPI flows was captured by Mercado and Park (2011), Hattari and Rajan (2011), and Vo *et al.* (2017), respectively. Institutional quality has a positive relationship with FPI. This is because the more transparent host countries' financial markets are the more attractive the country is to international investors. Real GDP growth rate is an indicator of the health of an economy. The positive relationship between real economic growth and FPI was affirmed by Waqas *et al.* (2015) and Atobrah (2015).

Macroeconomic stability and capital openness, coupled with stock market development of host countries, has seen a surge in global FPI flows, particularly from developed to emerging markets and developing countries alike. The role of the size of the stock market, as measured by capitalisation, has received growing attention. The host country stock market also derives benefits from the presence of international investors by enjoying increased market liquidity. The positive correlation of stock market development with FPI is evidenced in the studies by Alfaro *et al.* (2004), Azman-Saini *et al.* (2010), Choong, (2012), Agbloyor *et al.* (2014), and Soumaré and Tchana, (2015). On the contrary, persistently high inflation rates, measured as the percentage change in the deflator, were found to shun FPI inflows as they translate to a contraction of domestic savings and private foreign investment (Allen and Ndikumana, 2000; Ekeocha, 2008; Orji and Mba, 2010; Waqas *et al.*, 2015).

In summary, the theoretical and empirical literature presented above confirms that FPI inflows are affected by various factors, with the impact being either positive or negative, depending on the variables of interest from both the foreign investors' and the host countries' perspectives.

3. Methodology

3.1 Data Description

The aim of this paper was to explore the effects of real exchange rates and capital openness on foreign portfolio, using World Bank panel data for Botswana, Cote D'Ivoire, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, and South Africa from

2009 to 2016. The reason we focus on this period is that it commences immediately after the global financial crisis that shook markets all over the market. Panel data analysis involves the pooling of observations on a cross-section of countries over several time periods (Baltagi, 2008). Panel data analysis assumes that subjects under study are heterogeneous, while times-series and cross-sectional studies that do not control for heterogeneity face the risk of reporting biased results (Hsiao, 2003).

Estimations in the panel environment, especially with the introduction of orthogonal deviation technique, accommodate these biases. Other arguments in favour of panel data is that it is deemed to be more informative than snapshot research, gives more variability, presents less collinearity, allows more degrees of freedom and is generally considered more efficient than time series analysis (Hurlin, 2004). Also, in order to deal with the problem of multicollinearity which arises in multiple regression analysis when predictor variables are themselves highly correlated; Gujarati and Porter (2009) suggested the application of combined cross-sectional and times series data (i.e. panel data) which increases the number of observations, thereby improving the accuracy of results obtained from running the econometric estimations. As such, due to the nature of our study, we found that applying the panel data approach was the most appropriate methodology to achieve our paper's objectives.

3.2 Econometric Model

In determining the relationship between FPI, real exchange rates and capital openness, the following econometric model was estimated:

$$FPI_{it} = \alpha_0 FPI_{it-1} + \alpha_1 REXCR_{it} + \alpha_2 KAOPEN_{it} + \alpha_3 INSTQ_{it} + \alpha_4 RGDPG_{it} + \alpha_5 SMCAP_{it} + \alpha_6 INFL_{it} + \varepsilon_{it} \quad (1)$$

where, FPI is measured as the ratio of net FPI to GDP. The independent variables are the real exchange rate, (REXCR) and capital openness which proxies the extent of financial openness using the Chinn and Ito (2002) index (KAOPEN). Control variables include stock market development (SMCAP), real GDP growth rate (RGDPG), inflation (INFL), and institutional quality (INSTQ). i denotes country, t denotes time, α_0 is a constant term, and ε_{it} is a random error term. These variables were based on earlier theoretical and empirical work of other scholars.

Diagnostic tests were applied to the above model before it was estimated. To avoid spurious results of the regression analysis, the data was tested for serial correlation, multicollinearity and heteroskedasticity. The Breusch-Pagan test was used to test for heteroskedasticity. A correlation matrix was used to detect any multicollinearity amongst the variables. The Ordinary Least Squares (OLS) model was applied on the multiple regression to determine the nature of the relationship between the

dependent and independent variables. The next section presents the results of the regression analysis.

4. Results

In line with the objectives of this paper, the estimation results are presented. In Table 1 below, is the correlation matrix. One of the shortcomings of multiple regression analysis is multicollinearity. As such, according to our findings, do not portray any high correlations between the variables under study, hence we can conclude that multicollinearity is absent in this data set.

Table 1. *Correlation matrix (5%)*

	FPIGDP	REXCR	KAOPEN	INSTQ	RGDPG	SMCAP	INFL
FPIGDP	1.0000						
REXCR	-0.0879	1.0000					
KAOPEN	0.3538*	-0.2956*	1.0000				
INSTQ	0.3118*	-0.4839*	0.4315*	1.0000			
RGDPG	-0.0130	0.2562*	0.1289	-0.2388*	1.0000		
SMCAP	0.1226	-0.2797*	-0.1698	0.2810*	-0.3268*	1.0000	
INFL	-0.0732	-0.0046	0.0063	0.0317	0.1453	-0.1268	1.0000

Source: Author's own computations.

Table 2 presents the estimation results. The one-period lag of foreign portfolio investment (FPI) was included in the regression to control for dynamic effects.

Table 2. *Estimation results*

	OLS	FIXED EFFECTS	RANDOM EFFECTS	2-STEP GMM	GLS	LSDVC
L.FPIGDP	0.340 (0.222)	0.0257 (0.0273)	0.340* (0.165)	-0.0820 (0.634)	0.230*** (0.0673)	0.241 (0.257)
REXCR	0.0148 (0.0133)	-0.0673** (0.224)	0.0148 (0.0138)	-0.0810 (0.254)	0.0121*** (0.00099)	-0.0863 (0.666)
KAOPEN	2.205 (1.442)	-0.493 (0.649)	2.205 (1.674)	1.769 (5.828)	1.895*** (0.141)	-0.665 (2.665)
INSTQ	20.02 (23.27)	14.74 (14.73)	20.02 (21.39)	0.747 (13.40)	15.50*** (1.634)	15.43 (9.072)
RGDPG	-0.394 (0.412)	0.147 (0.408)	-0.394 (0.476)	0.0959 (0.404)	-0.336*** (0.0275)	0.172 (1.831)
SMCAP	0.0338 (0.0266)	0.394 (0.450)	0.0338 (0.0431)	0.143 (0.445)	0.0319*** (0.00632)	0.428*** (0.0862)
INFL	-0.0400 (0.0550)	-0.0526 (0.0514)	-0.0400 (0.0606)	-0.0183 (0.0490)	-0.0319*** (0.00302)	-0.0552 (0.0420)

_cons	-6.030 (7.917)	-14.49 (26.60)	-6.030 (7.490)		-4.279*** (0.631)	
N	63	63	63	54	63	63
R ²	0.355	0.142				

Note: Standard errors in parentheses

****, **, * Denotes 1%, 5% and 10% level of significance respectively*

Source: Authors' own computations.

We used a sizeable number of estimation techniques that includes the pooled OLS, Fixed effects (FE) model, Random effects (RE) model, Generalized Method of Moments (GMM) model, the generalized least squares (GLS) and the Least squares dummy variable (LSDV) corrected for Kiviet bias (Kiviet, 1995), primarily as a means for rigorous testing (robustness). Table 3 shows the diagnostic statistics of all the estimation models presented in Table 2 above.

According to the post-estimation Arellano-Bond AR (1) and AR (2), the tests do not show any significant rejection of the null hypothesis that there is no first order and second order correlation in the estimated residuals; therefore, this paper's findings are consistent. In addition, the Hansen test with a p-value of 0.877 implies that the instruments used in the empirical estimation are appropriate.

Table 3. Diagnostic statistics

	Pooled	Fixed effects	Random effects	Diff GMM	GLS	LSDVC
Observations	63	63	63	54	63	63
Groups	9	9	9	9	9	9
F-stats/Wald chi2	1.73	3289.49	2516.51	1.35	332.68	
Prob>F/Prob>Wald chi2	0.1210	0.0000	0.0000	0.339	0.0000	
Hausman (Chi2)		59.81	59.81			
Prob>chi2		0.0000	0.0000			
R-SQUARED						
Within		0.1419	0.0340			
Between		0.0360	0.7763			
Overall	0.3554	0.0299	0.3554			
Arellano-Bond AR(1)				0.43		
Prob>z				0.664		
Arellano-Bond AR(2)				-0.09		
Prob>z				0.664		
Sargan test of overid				91.81		
Prob>chi2				0.000		
Hansen test of overid				1.19		
Prob>chi2				0.877		
Instruments				25		

Source: Author's own computations.

The Hausman test results with a statistically significant chi-square of 59.81, and a very small probability of less than 1% imply that we should reject the null hypothesis, that the unobservable, country-specific effects and the regressors are statistically independent (orthogonal). Thus, the fixed-effects estimation results are analysed and discussed in the next section.

5. Discussion of Findings

According to the Fixed Effects model, the results reveal that there is a negative but statistically significant relationship between foreign portfolio investment and the real exchange rate of the sampled African countries. The negative sign, which was expected in line with literature, implies that a higher exchange rate will discourage inward FPI. This finding is consistent with that of Ekeocha (2008), Garg and Dua (2014) and Rashid and Khalid (2017), who all concluded that higher exchange rates and currency risk shun FPI inflows due to the uncertainty of returns to the investors in relation to their home currencies.

According to Gumus *et al.* (2013), a high exchange rate impacts on the profitability of shares of companies listed on the stock market, thereby further exposing foreign investors to exchange rate or currency risk. Foreign investors would therefore prefer a situation wherein the host countries' currencies appreciate in order for the investors to realise capital gains and strong dividend yields.

Capital openness, being the removal of restrictions of trade in international financial assets such as stocks and bonds globally, was measured by the Chinn-Ito index which is based on four binary dummy variables, namely whether the country has multiple exchange rates, current account restrictions, capital account restrictions, and requirements to surrender export proceeds. The results were expected to yield a negative sign.

The paper's findings indeed confirmed the existence of a negative relationship between FPI and capital openness, similar to the conclusions drawn by Mercado and Park (2011). This may be due to the restrictions imposed on money outflows by these African countries in an effort to avoid the flight of capital out of their economies, which would result in a negative impact on the fiscus. Others such as Fratzscher (2012) and Garg and Dua (2014) however found no impact of capital openness on FPI inflows.

The lag of FPI, being the previous period's inflow of foreign portfolio investment, was determined to be positive in our study. This is supported by the existing proposition that prospective investors examine past trends of FPI, prior to making further financial commitments in foreign host countries, and is therefore an important predictor of future of FPI flows. The finding is reinforced by the study of Rashid and Khalid (2017). Inflation was found to have a negative impact on FPI inflows, a conclusion similarly reached by Agrawal (1997), Haider *et al.* (2017),

Singhania and Saini (2018) as well as Al-Smadi (2018). Similar to the papers by De Santis and Luhrmann (2009) and Garg and Dua (2014), the real GDP growth emerged as being positively correlated with FPI inflows, as it is an indicator of sound macroeconomic policies. A high economic growth rate signifies rapidly expanding economic sectors, which would translate to bigger returns for foreign portfolio investors. For the host country, FPI as a capital injection, would augment domestic savings, through the multiplier effect, resulting in increased levels of economic growth (Sawalha *et al.*, 2016).

Institutional quality measures the legal, political, economic, and bureaucratic characteristics of host countries. The findings that there is a positive relationship between FPI and institutional quality are collaborated by Ekeocha *et al.* (2012) and Al-Smadi (2018). Daude and Fratzscher (2008) affirmed the importance of strong regulatory institutions as a prerequisite for host nations to be able to attract FPI inflows. In a similar vein, the same would apply in the case of FDI inflows, as Jindřichovská *et al.* (2020) concluded. According to them, the quality of institutions in a country is important to attract foreign capital flows. Lastly, stock market development (SMCAP) was also found to have a positive impact on FPI inflows.

These results are in line papers by Thapa and Poshakwale (2011), as well as Fratzscher (2012). King and Levine (1993) concluded that indicators of financial development are correlated with increased capital and investment accumulation. Stock markets further act as an efficient conduit for capital allocation in the economy, as postulated by Schumpeter (1912).

This study confirms the theoretical and empirical underpinnings that there is a negative relationship between foreign portfolio investment, and real exchange rates and capital openness, respectively in most developing countries, and African economies are no different.

6. Conclusions and Policy Recommendations

According to several scholars, foreign portfolio investment is just one aspect of international finance. It complements the effort of international trade, foreign aid, and foreign direct investment. The global financial crisis of 2007-2008 shook many markets world-over, resulting in a flight of capital from the financial markets. As this study was interested in examining how African economies performed in the aftermath of the global economic meltdown, we investigated the relationship between foreign portfolio investment, real exchange rate and capital openness. The findings under the fixed effects model, that the real exchange rate has a significant and negative impact on FPI, while capital openness has a negative but insignificant effect on inward FPI flows, are supported by various theories and empirical studies, as discussed above.

Our paper makes a significant contribution in that it confirms that, despite the efforts made by African countries to be financially liberated and integrated with global markets, there are still more strides to be taken. Host governments need to harness increased levels of FPI as it plugs the domestic savings and investment void. FPI contributes to the accumulation of capital to fund the domestic current account deficit. A developed stock market greatly contributes to FPI as it absorbs inward flows and offers international investors an opportunity to diversify their portfolios. Regulation pertaining to the financial statements and the disclosure by companies are also crucial institutions that need to be transparently adhered to and maintained.

The policy implications of our study are that exchange rates need to be prudently managed to avoid sporadic flows and instability of the local currency vis-à-vis the international currencies. Exchange rate instability can also be contained by increasing exports and discouraging imports, without harming international trade agreements between the host country and other countries in the world.

In addition, host countries need to relax capital controls, that are characteristic of many developing countries, Africa included; which hinders the repatriation of dividends and capital gains earned by foreign investors. In order for policy makers in our sample of host countries to achieve this, both fiscal and monetary policies need to strive to maintain a stable macroeconomic environment, defined by low inflation and a steadily growing economic growth rate, with the objective of attracting inward capital flows, without crowding out the domestic market.

References:

- Abbott, A.J., De Vita, G. 2011. Evidence on the impact of exchange rate regimes on bilateral FDI flows. *Journal of Economic Studies*, 38(3), 253-274.
- Agarwal, R. 1997. Foreign portfolio investment in some developing countries: A study of determinants and macroeconomic impact. *Indian Economic Review*, 32(2), 217-229.
- Agbloyor, E.K., Abor, J.Y., Adjasi, C.K.D., Yawson, A. 2014. Private capital flows and economic growth in Africa: The role of domestic financial markets. *Journal of International Financial Markets, Institutions and Money*, 30, 137-152.
- Allen, D.S., Ndikumana, L. 2000. Financial intermediation and economic growth in Southern Africa. *Journal of African economies*, 9(2), 132-160.
- Al-Smadi, M.O. 2018. Determinants of foreign portfolio investment: the case of Jordan. *Investment Management and Financial Innovations*, 15(1), 328-336.
- Atobrah, R. 2015. Determinants of Foreign Portfolio Investment: Evidence from Sub-Saharan Africa. Doctoral Dissertation, University of Ghana.
- Azman-Saini, W.N.W., Law, S.H., Ahmad, A.H. 2010. FDI and economic growth: New evidence on the role of financial markets. *Economics letters*, 107(2), 211-213.
- Baltagi, B. 2008. *Econometric analysis of panel data*. John Wiley & Sons.
- Bhasin, N., Khandelwal, V. 2013. Foreign institutional investment in India: Determinants and impact of crises. *The Indian Journal of Commerce*, 66(2), 1-15.
- Calvo, G.A., Leiderman, L., Reinhart, C.M. 1996. Inflows of Capital to Developing Countries in the 1990s. *Journal of Economic Perspectives*, 10(2), 123-139.
- Chinn, M.D., Ito, H. 2002. Capital account liberalization, institutions and financial

- development: cross country evidence. Working Paper No. w8967. NBER.
- Choong, C. 2012. Does domestic financial development enhance the linkages between foreign direct investment and economic growth? *Empirical Economics*, 42(3), 819-834.
- Daude, C., Fratzscher, M. 2008. The pecking order of cross-border investment. *Journal of International Economics*, 74(1), 94-119.
- De Santis, R.A., Lüthmann, M. 2009. On the determinants of net international portfolio flows: A global perspective. *Journal of International Money and Finance*, 28(5), 880-901.
- Dua, P., Sen, P. 2006. Capital flow volatility and exchange rates: The case of India. Central for Development Economics. Working Paper No. 144, Department of Economics, Delhi School of Economics.
- Dunning, J.H., Dilyard, J.R. 1999. Towards a general paradigm of foreign direct and foreign portfolio investment. *Transnational Corporations*, 8(1), 1-52.
- Ekeocha, P.C. 2008. Modelling the long run determinants of foreign portfolio investment in an emerging market: Evidence from Nigeria. In *International Conference on Applied Economics*, 289-296.
- Ekeocha, P.C., Ekeocha, C.S., Victor, M., Oduh, M.O. 2012. Modelling the long run determinants of foreign portfolio investment in Nigeria. *Journal of Economics and Sustainable Development*, 3(8), 194-205.
- Fratzscher, M. 2012. Capital flows, push versus pull factors and the global financial crisis. *Journal of International Economics*, 88(2), 341-356.
- Garg, R., Dua, P. 2014. Foreign portfolio investment flows to India: determinants and analysis. *World Development*, 59, 16-28.
- Goldsmith, R.W. 1969. *Financial structure and development*. Yale University Press.
- Goldstein, I., Razin, A. 2006. An information-based trade-off between foreign direct investment and foreign portfolio investment. *Journal of International Economics*, 70(1), 271-295.
- Gujarati, D. N., Porter, D. 2009. *Basic econometrics*. McGraw-Hill International Edition.
- Gumus, G.K., Duru, A., Gungor, B. 2013. The relationship between foreign portfolio investment and macroeconomic variables. *European Scientific Journal*, 9(34).
- Haider, M.A., Khan, M.A., Saddique, S., Hashmi, S.H. 2017. The Impact of Stock Market Performance on Foreign Portfolio Investment in China. *International Journal of Economics and Financial Issues*, 7(2), 460-468.
- Hattari, R., Rajan, R.S. 2008. Sources of FDI flows to developing Asia: The roles of distance and time zones. Asian Development Bank. <http://hdl.handle.net/11540/3705>.
- Hausman, J.A. 1978. Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271.
- Hurlin, C. 2004. Testing Granger causality in heterogeneous panel data models with fixed coefficients. *Document de recherche LEO*, 5, 1-31.
- Hymer, S.H. 1976. *International operations of national firms*. MIT press.
- Iversen, C. 1936. *Aspects of the theory of international capital movements*. Taylor & Francis.
- Jindřichovská, I., Ugurlu, E., Thalassinou, E.I. 2020. Exploring the Trend of Czech FDIs and their Effect to Institutional Environment. *International Journal of Economics and Business Administration*, 8(1), 94-108, <https://www.ijeba.com/journal/411>.
- King, R.G., Levine, R. 1993. *Financial intermediation and economic development*. Capital markets and financial intermediation, World Bank Publications, Vol. 1285, 156-189.
- Kiviet, J.F. 1995. On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. *Journal of Econometrics*, 68(1), 53-78.

- Kodongo, O., Ojah, K. 2012. The dynamic relation between foreign exchange rates and international portfolio flows: Evidence from Africa's capital markets. *International Review of Economics & Finance*, 24, 71-87.
- Kumar, V. 2018. Dynamics of Private Capital Flows to India: A Structural VAR Approach. *The Journal of Developing Areas*, 52(4), 129-149.
- McKinnon, R.I. 1973. *Money and capital in economic development*. Brookings Institution Press.
- Mercado Jr, R.V., Park, C.Y. 2011. What drives different types of capital flows and their volatilities in developing Asia? *International Economic Journal*, 25(4), 655-680.
- Meurer, R. 2016. Portfolio Investment Flows, GDP, and Investment in Brazil. *International Journal of Economics and Finance*, 8(12), 1-9.
- Ohlin, B. 1933. *International and interregional trade*. Harvard Economic Studies, Cambridge, MA.
- Opperman, P., Adjasi, C.K.D. 2017. The determinants of private capital flow volatility in Sub-Saharan African countries. *Research in International Business and Finance*, 42, 312-320.
- Orji, A., Mba, P.N. 2010. Testing for Simultaneity: The Nexus between Foreign Private Investment, Capital Formation and Economic Growth Using Nigerian Data. *Journal of Infrastructure Development*, 2(2), 105-120.
- Poshakwale, S.S., Thapa, C. 2011. Investor protection and international equity portfolio investments. *Global Finance Journal*, 22(2), 116-129.
- Rashid, A., Khalid, A. 2017. The Impact of Exchange Rate Uncertainty on Foreign Portfolio Investment in Pakistan. *NUML International Journal of Business & Management*, 12(2), 88-102.
- Sarno, L., Tsiakas, I., Ulloa, B. 2016. What drives international portfolio flows? *Journal of International Money and Finance*, 60, 53-72.
- Sawalha, N.N., Elian, M.I., Suliman, A.H. 2016. Foreign capital inflows and economic growth in developed and emerging economies: A comparative analysis. *The Journal of Developing Areas*, 50(1), 237-256.
- Schumpeter, J.A. 1912. *The theory of economic development: An inquiry into profits, capital, credit, interest and the business cycle*. Trans. Redvers Opie. Cambridge, MA, Harvard University Press,
- Shaw, E. 1973. *Financial deepening in economic development*. Washington, Brookings Institution.
- Shefrin, H., Statman, M. 2000. Behavioural portfolio theory. *Journal of financial and quantitative analysis*, 35(2), 127-151.
- Singhania, M., Saini, N. 2018. Determinants of FPI in Developed and Developing Countries. *Global Business Review*, 19(1), 187-213.
- Soumaré, I., Tchana, F. 2015. Causality between FDI and financial market development: Evidence from emerging markets. *The World Bank Economic Review*, 29(suppl_1), S205-S216.
- Srinivasan, P., Kalaivani, M. 2013. Determinants of Foreign Institutional Investment in India: An Empirical Analysis. *Journal of Academic Research in Economics*, 5(3), 361-375.
- Thalassinos, I.E., Kiriazidis, T. 2003. Degrees of Integration in International Portfolio Diversification: Effective Systemic Risk. *European Research Studies Journal*, 6(1-2), 119-130, DOI: 10.35808/ersj/92.
- Thalassinos, I.E. 2007. Trade Regionalization, Exchange Rate Policies and EU-US Economic

- Cooperation. *European Research Studies Journal*, 10(1-2), 111-118, DOI: 10.35808/ersj/167.
- Verma, R., Prakash, A. 2011. Sensitivity of capital flows to interest rate differentials: An empirical assessment for India. Reserve Bank of India, Working Paper No. 7, available from <https://www.rbi.org.in/SCRIPTs/PublicationsView.aspx?id=13364>.
- Vo, X.V., Nguyen, D.P., Ho, V.T., Nguyen, T.T. 2017. Where do the advanced countries invest? An investigation of capital flows from advanced countries to emerging economies. *Journal of International Financial Markets, Institutions and Money*, 51, 142-154.
- Waqas, Y., Hashmi, S.H., Nazir, M.I. 2015. Macroeconomic factors and foreign portfolio investment volatility: A case of South Asian countries. *Future Business Journal*, 1(1-2), 65-74.