

Monetary Policy Independence, Exchange Rate Stability, and Investment in Developing Countries

Mr. Setuza Muhire Ian, Prof. Dr. Vicente Cabatania Sinining

Doctor of Philosophy (Ph.D.) in Business Administration, Lincoln University College, Malaysia

ABSTRACT

This study investigates the impact of the macroeconomic policy trilemma-monetary policy independence, exchange rate stability, and financial openness-on investment in developing countries, with particular emphasis on African economies. Grounded in the theoretical framework of the Impossible Trinity, the study examines how different policy combinations influence investment dynamics in economies characterized by structural constraints and increasing financial integration. Using a balanced panel dataset of 39 African countries spanning a 30-year period, the analysis employs Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) estimation techniques to evaluate the relationship between the Trilemma Index components and investment outcomes.

The empirical results indicate that managing the trade-offs associated with the trilemma remains a persistent challenge for African economies. Many countries in the region exhibit limited monetary policy autonomy and underdeveloped financial systems, which increases their reliance on foreign direct investment (FDI) as a primary source of capital inflows. At the same time, structural vulnerabilities and exposure to external shocks constrain their ability to maintain exchange rate stability. Consequently, policymakers face significant difficulties in simultaneously achieving macroeconomic stability, financial openness, and investment growth. Endogeneity tests further confirm the robustness of the estimated relationships.

Overall, the findings underscore the importance of strengthening macroeconomic institutions, improving monetary policy frameworks, and enhancing exchange rate management to better navigate the trilemma constraints and promote sustainable investment in African economies.

INTRODUCTION

Investment plays a crucial role in promoting economic growth and development in developing countries. Both domestic investment and foreign direct investment (FDI) contribute to capital accumulation, technological transfer, employment creation, and productivity improvement. However, investment decisions are strongly influenced by macroeconomic conditions, particularly monetary policy independence and exchange rate stability, which shape the overall investment climate in an economy.

Monetary policy independence refers to the ability of a country's central bank to set interest rates and control the money supply based on domestic economic conditions without external constraints.

When central banks maintain policy autonomy, they can respond effectively to inflation, unemployment, and economic shocks, thereby creating a stable macroeconomic environment that supports investment (Aizenman, Chinn, & Ito, 2013). Stable and credible monetary policy also reduces uncertainty for investors and enhances confidence in financial markets.

Exchange rate stability is another important determinant of investment, particularly in developing economies that depend heavily on international trade and capital flows. Large fluctuations in exchange rates increase the risks associated with cross-border transactions and reduce the predictability of returns on investment. Studies have shown that exchange rate

How to cite this paper: Mr. Setuza Muhire Ian | Prof. Dr. Vicente Cabatania Sinining "Monetary Policy Independence, Exchange Rate Stability, and Investment in Developing Countries"

Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-10 |

Issue-3, June 2026, pp.1037-1051, URL: www.ijtsrd.com/papers/ijtsrd125029.pdf



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KEYWORDS: *Impossible Trinity, Financial Liberalization, Monetary Policy Independence, Exchange Rate Stability, Foreign Direct Investment, African Economies.*

volatility discourages foreign direct investment and long-term capital inflows because investors prefer predictable macroeconomic environments (Goldberg & Kolstad, 1995; Servén, 2003). Conversely, a stable exchange rate regime can attract foreign investors by reducing currency risk and improving trade competitiveness.

The relationship between monetary policy independence, exchange rate stability, and investment is closely linked to the Impossible Trinity (or Mundell–Fleming Trilemma), which states that a country cannot simultaneously achieve full capital mobility, fixed exchange rates, and independent monetary policy (Mundell, 1963; Obstfeld, Shambaugh, & Taylor, 2005). Policymakers in developing countries must therefore make strategic choices regarding which two of these three objectives to prioritize. These policy choices can significantly influence investment flows, financial stability, and economic growth.

In many developing countries, especially in Africa and other emerging regions, policymakers face the challenge of maintaining exchange rate stability while also preserving monetary policy flexibility to support domestic economic objectives. At the same time, increasing globalization and financial integration have intensified capital mobility, further complicating macroeconomic management. Empirical evidence suggests that countries that maintain credible monetary frameworks and stable exchange rate regimes tend to experience higher levels of investment and stronger economic performance (Aizenman et al., 2013).

Understanding the interaction between monetary policy independence, exchange rate stability, and investment is therefore essential for designing effective macroeconomic policies in developing countries. By examining how these factors influence investment decisions, policymakers can adopt strategies that promote financial stability, attract foreign capital, and foster sustainable economic growth.

In particular, they assess the transmission of interest rate shocks in different regimes and contrast different regimes that have been close to the three trilemma vertices over time. Overall, the results agree with the trilemma prediction. During the periods of fixed exchange rates in the classic gold standard period, there is a pronounced and rapid pass-through of interest rate shocks (corresponding to the right-hand corner of the trilemma). This is consistent with the prediction that the fixed exchange rate combined with capital mobility will destroy monetary independence. By contrast, during the Bretton Woods era, fixed

exchange rates did not represent a major constraint on domestic interest rates, a by-product of widespread capital controls (corresponding to the topmost vertex of the trilemma). In the post-Bretton Woods era, the return to a more globalized pattern is manifested in increased transmission of interest rates between fixed income countries.

Problem Statement and Research Question

The relationship between macroeconomic policy choices and investment performance has attracted growing attention in international macroeconomics, particularly in developing economies. A key framework used to analyze these policy trade-offs is the macroeconomic trilemma, also known as the Impossible Trinity. According to Aizenman, Chinn, and Ito (2008), policymakers cannot simultaneously achieve monetary policy independence, exchange rate stability, and full financial openness. Instead, governments must choose two of these policy objectives while sacrificing the third. This constraint has become increasingly relevant in a globalized financial environment characterized by high capital mobility and frequent external shocks.

Historical and empirical studies show that different monetary regimes have adopted varying combinations of these policy objectives depending on their institutional structures and economic priorities (Aizenman, 1987; Aizenman, 2019; Aizenman et al., 2008). In recent years, the importance of this trade-off has become even more evident for developing countries, particularly in Africa, where macroeconomic stability remains a key challenge. For instance, global financial shocks such as the COVID-19 pandemic, commodity price volatility, and tightening global monetary conditions have exposed the vulnerability of many African economies to external financial pressures.

Recent empirical studies highlight the importance of macroeconomic policy coordination in mitigating these vulnerabilities. Jebeniani and Trabelsi (2022) show that accommodative monetary policy within fixed or intermediate exchange rate regimes can help stabilize exchange rate fluctuations and reduce currency misalignments in developing countries. Similarly, Deng and Fang (2022) find that firms' responses to monetary policy shocks depend significantly on debt maturity structures, suggesting that the impact of monetary policy on investment is complex and varies across economic environments.

Despite the growing body of literature on exchange rate regimes, financial openness, and macroeconomic policy coordination in Africa, empirical evidence linking the Trilemma Index to investment outcomes in the region remains limited. Most existing studies focus

primarily on macroeconomic stability, inflation, or capital flows, while relatively few examine how the components of the trilemma influence private and public investment decisions. This gap is particularly important because investment remains a key driver of economic growth and structural transformation in African economies, which continue to rely heavily on foreign direct investment (FDI) and external financing.

Literature Review

This chapter presents the relevant theoretical and empirical literature on the effect of the Trilemma Index on investments. The first section addresses the theoretical underpinning of the study, the second section examines the empirical literature of interest to the topic, and the last section draws conclusions from both the theoretical and empirical literature.

Theories on Investment

The Fisher equation explains that the nominal riskless interest rate (k^r) is composed of the real riskless rate of interest (k^*) plus expected inflation rate (EI). This equation can mathematically be expressed as: $(k^r) = k^* + EI$ (1) Equation (1) was developed in terms of the expectations of financial markets participants (Kudryashov & Zakharchenko, 2014; Yokus & Yavuz, 2021). This means investors determine their desired risk-free rate of return before investing their money. That's because; The nominal risk-free rate is the base on which all other returns are built. From the Fisher equation; When inflation is low, the nominal interest rate also falls. This implies that the expected return on investment will be high. In addition, the cost of capital would also be low and thus the financial cost of new investments would be low. As foreign investors seek to lower their financial costs to maintain price competitiveness, the availability of capital at low lending rates will allow foreign investors not only to find better partners in the host country with sufficient domestic investment to complement, but also to increase returns maximize their investment. Therefore, the ready availability of capital at a lower nominal interest rate in the host country would attract foreign investors. So Fisher's equation shows that when inflation is low, the nominal interest rate is also low. Therefore, the financial cost of foreign direct investment (FDI) is low and the return on investment is high. Therefore, inflation has a negative impact on foreign direct investment.

(Megasari & Saleh, 2021) define an exchange rate as the price of a monetary unit expressed in relation to another currency rate. These theories differ according to long-term and short-term. If two countries produce an identical good and all factors, including

transportation and legal costs, remain constant, the price of that good should be constant worldwide in the long run, no matter which country produces it (Kiat, 2008; Omankhanlen, 2011). This is called the law of one price, which is only relevant in the long term.

The Keynesian model is based on analysis of aggregate demand (AD) and aggregate supply (AS). The main feature of this theory is that the AS curve slopes up in the short term instead of being vertical (Annicchiarico & di Dio, 2015). When the AS curve is vertical, shocks on the demand side of the economy only affect prices. (da Silva, 2001; Ojapinwa & Nwokoma, 2018) point out, however, that due to this ascending nature of the AS curve and changes in demand, prices and production can change. The short-term dynamic equilibria of the AD and AS curves form an adjustment path that initially shows a positive relationship between inflation and growth, but later becomes negative towards the last part of the adjustment path (Annicchiarico & di Dio, 2015; Calvert Jump et al., 2019; Clerc, 2021; Kiley, 2016). In this model, there is a short-run trade-off between output and change in inflation, but no lasting trade-off between output and inflation. In order for inflation to be kept constant at any level, production must match the natural rate. Any level of inflation is sustainable; However, for inflation to fall, there must be a period when production is below the natural rate.

Neo-classical Theory consists of several other models that attempt to explain countries' investment and economic growth (Connor, 1973; Desai & Potter, 2021). However, the dynamic relationship between the Trilemma Index and investment can be deduced. The model showed diminishing returns for labor and capital separately and constant returns for both factors together. According to Mundell's model, an increase in inflation or inflation expectations directly reduces the wealth of people and firms (Bar-Eli et al., 2020; Eisner & Nadiri, 1968; Kashyap Heena, 2015; Keane, 2019; North, 1993; Waldén et al., 1961).

Empirical Studies

The international financial trilemma is a challenge to reconcile government policies and ensure a healthy financial sector to facilitate a country's economic development. (Arefjevs & Bogdanova, 2020) have developed a model of the international financial trilemma that defines the three main pillars of the international financial trilemma and the corresponding relevant economic indicators, they propose to determine the financial trilemma index based on the following pillars: financial stability, financial inclusion and transparency. The authors analyze FinTech services as a disruptive element affecting the International Financial Trilemma Index. As the

statistical basis of the financial trilemma and its building blocks, the data set is determined from publicly available databases such as the Global Competitiveness Index, the Financial Development Index, Global Findex and Doing Business.

(Aizenman & Ito, 2014) examine the potential implications of the degree of divergence of open macroeconomic policies in the context of the trilemma hypothesis. Using an index that measures the extent of policy divergence between the three policy trilemma choices: monetary independence, exchange rate stability, and financial openness, they find that emerging economies have adopted combinations of trilemma strategies with the lowest degree of policy divergence. They then examine whether and to what extent the degree of open macropolitical convergence affects the likelihood of a crisis, finding that a developing or emerging economy with a higher degree of policy divergence is more likely to experience a currency or debt crisis. They also compare the development of trilemma policies around the time of the crisis for the groups of Latin American crisis countries in the 1980s and the Asian crisis countries in the 1990s. They find that Latin American crisis countries tend to close their capital accounts after a crisis, while this is not the case in Asian crisis countries. Crisis Asian countries tended to reduce the degree of policy divergence in the post-crisis period, possibly meaning they opted for open macro policies that made their economies less vulnerable to crises.

(Aizenman et al., 2011) examine how policy configurations affect macroeconomic performance, with a focus on Asian economies. They find that the three policy choices matter for output volatility and the medium-term level of inflation. Greater monetary independence is associated with lower output volatility, while greater exchange rate stability implies greater output volatility, which can be mitigated if a country holds international reserves (IR) at levels above a threshold (about 20% of GDP). Greater monetary autonomy is associated with higher levels of inflation, while greater exchange rate stability and greater financial openness could lower the rate of inflation. They find that trilemma policy configurations affect output volatility through the investment or trade channel depending on the openness of economies. They point out that in a more open economy, policymakers would prefer to seek greater exchange rate stability while holding vast amounts of international reserves. Emerging Asian economies are equipped with macroeconomic policy configurations that help economies dampen real exchange rate volatility.

Expected Benefits of the Research

This research analysis makes a significant contribution to policy making related to monetary policy, financial openness and exchange rate stability and their economic and financial implications for the development of financial institutions and markets. In this study, we anticipate that effective management of the Trilemma Index can have a positive impact on private and public investment, and this can lead to efficient and effective management of interest payments and debt servicing on external debt. This argument has not been thoroughly explored by either developing country. As we have an interesting topic and this is the first to use all of the Trilemma Index data, we expect that our research may make a notable contribution to the academic literature and be of use to policy makers worldwide, particularly in sub-Saharan Africa and in the context. Interested in investment and a balance between the country's economic growth and prosperity, the government can determine whether measures are being taken to encourage foreign direct investment. It isolates the country-specific factors that explain variability investment. The current study is useful in determining exchange rates to achieve a balance between domestic and foreign investment in order to attract foreign direct investment and stimulate growth. It will be useful for major Forex market players as the ratio between the Trilemma Index and the FDI will determine the trading level at any point in time.

Research data and methods

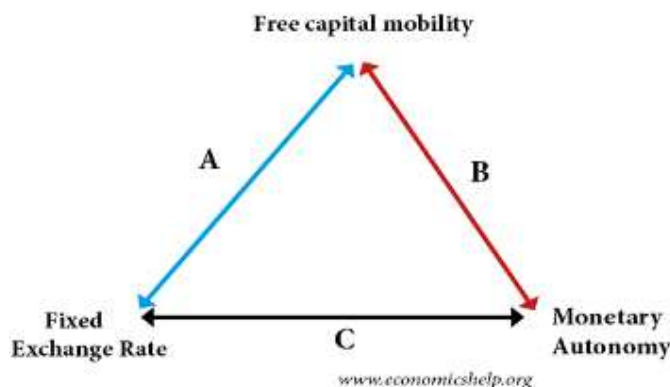
We collect data from 39 African countries. The main sources of our data are the trilemma dataset1, the IMF and the World Bank. The World Economic Outlook (WEO) is also a key to the country-specific variables. The dependent variable are the trilemma indices, which quantify the degree of fulfillment along the three dimensions of the trilemma hypothesis: monetary independence, exchange rate stability, and financial openness. These indices are first introduced by (Aizenman, Chinn and Ito, 2008). The political trilemma refers to the trade-offs faced by a government when deciding international monetary policy. The impossible trinity (also known as the trilemma) is a trilemma in international economics that states that it is impossible to have all three of the following at the same time: - a stable exchange rate; free movement of capital (lack of capital controls); and an independent monetary policy. When the government sets a fixed exchange rate and allows capital to move freely, they have to change interest rates according to outside pressures. This implies that in a recession the country could not lower interest rates, otherwise the currency would depreciate. If the government wanted to seek monetary autonomy and

allow capital to move freely, it would have to allow a flexible exchange rate. For example, if the government is worried about inflation, it could raise interest rates. These higher interest rates would cause the currency to appreciate. Countries looking to boost growth would lower interest rates, but lower interest rates would drain hot money from the economy and cause the exchange rate to fall. If the government wants to have a fixed exchange rate, but also wants to change interest rates according to its own preferences, it needs to control the outflow of money. Suppose a country wants to keep its exchange rate stable but lower interest rates to stimulate growth, and then downward pressure on the currency is created. Investors want to sell this country's currency and buy dollars. However, if the country prevents investors from buying dollars and taking currency out of the country, then it can keep the value of the currency artificially high (Mundell, 1963).

The degree of monetary independence is measured as the reciprocal of the annual correlation between the monthly interest rates in the home country and the base country. The base country is defined as the country with which a home country's monetary policy

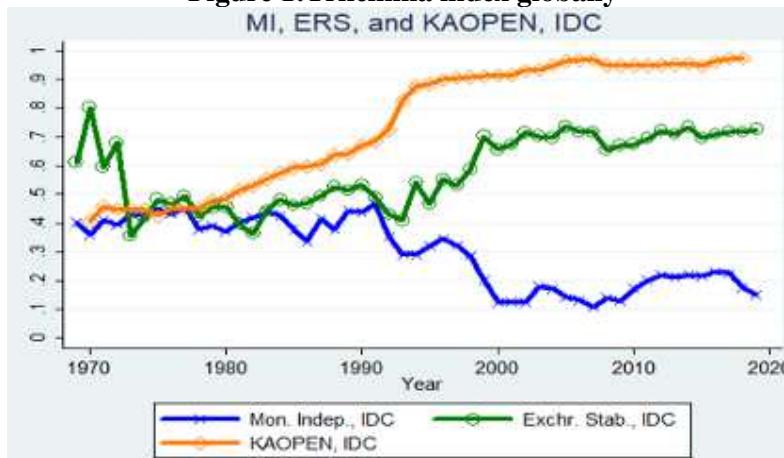
is most closely linked, as in Shambaugh (2004). By design, the maximum value is 1 and the minimum value is 0. Higher values of the index mean more monetary policy independence. To measure exchange rate stability, annual standard deviations of the monthly exchange rate between the home country and the base country are calculated and the index normalized between 0 and 1. As a measure of financial openness, we use the Capital Account Openness Index, or KAOPEN, by Chinn and Ito (2006, 2008). KAOPEN is based on information on restrictions in the International Monetary Funds Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). In particular, KAOPEN is the first standardized principal component of variables indicating the presence of multiple exchange rates, restrictions on current account transactions, capital account transactions, and the requirement to release export earnings. The Chinn-Ito Index is normalized between zero and one. Higher scores on this index indicate that a country is more open to cross-border capital transactions (Aizenman, Chinn, and Ito, 2008; Aizenman, Chinn, and Ito, 2017).

The policy trilemma



This simple diagram suggests that a government must choose either: A = Fixed exchange rate + free capital mobility; B = Free capital mobility + monetary autonomy; C = Fixed Exchange rate + monetary autonomy.

Figure 1: Trilemma index globally



Source: The Trilemma Indexes (pdx.edu), (Aizenman, 2019)

To estimate the relationship between the trilemma policy framework and investment, this study employs both the **Ordinary Least Squares (OLS)** estimator and the **Two-Stage Least Squares (2SLS)** estimator. The use of the **2SLS approach** helps address potential **endogeneity problems**, particularly those arising from reverse causality and omitted variable bias.

The baseline OLS regression model is specified as follows:

$$Investment_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 PrivateInv_{it} + \beta_3 PublicInv_{it} + \beta_4 MI_{it} + \beta_5 ERS_{it} + \beta_6 KAOPEN_{it} + \mu_i + \epsilon_{it}$$

$$Investment_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 PrivateInv_{it} + \beta_3 PublicInv_{it} + \beta_4 MI_{it} + \beta_5 ERS_{it} + \beta_6 KAOPEN_{it} + \mu_i + \epsilon_{it}$$

Where:

$Investment_{it}$ Investment_{it} = Total investment in country i at time t

FDI_{it} FDI_{it} = Foreign direct investment

$PrivateInv_{it}$ PrivateInv_{it} = Private investment

$PublicInv_{it}$ PublicInv_{it} = Public investment

MI_{it} MI_{it} = Monetary independence index

ERS_{it} ERS_{it} = Exchange rate stability index

$KAOPEN_{it}$ KAOPEN_{it} = Financial openness index

μ_i \mu_i = Country-specific effects

ϵ_{it} \epsilon_{it} = Error term

Description and Distribution of Data

In this section we present data using tables and figures. We show and explain the most important variables that we used in this paper. We also describe the most important variables by country.

Figure 2: The main Variables and data distribution

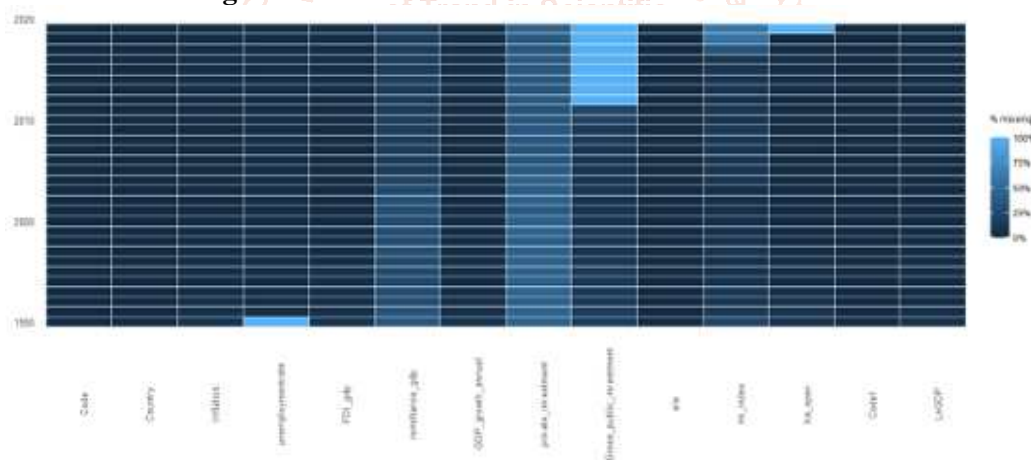
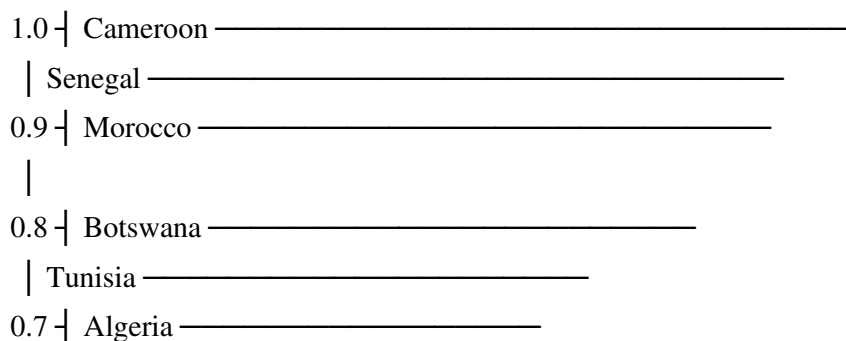


Figure 3: Exchange Rate Stability by Countries

Exchange Rate Stability Index (0 – 1)



The Exchange Rate Stability (ERS) Index, developed by Joshua Aizenman, Menzie D. Chinn, and Hiro Ito, measures the degree to which a country maintains a stable exchange rate. The index ranges from 0 to 1, where values closer to 1 indicate higher exchange rate stability, while values closer to 0 indicate greater exchange rate flexibility or volatility.

Figure 4: Monetary Policy Independence by Country

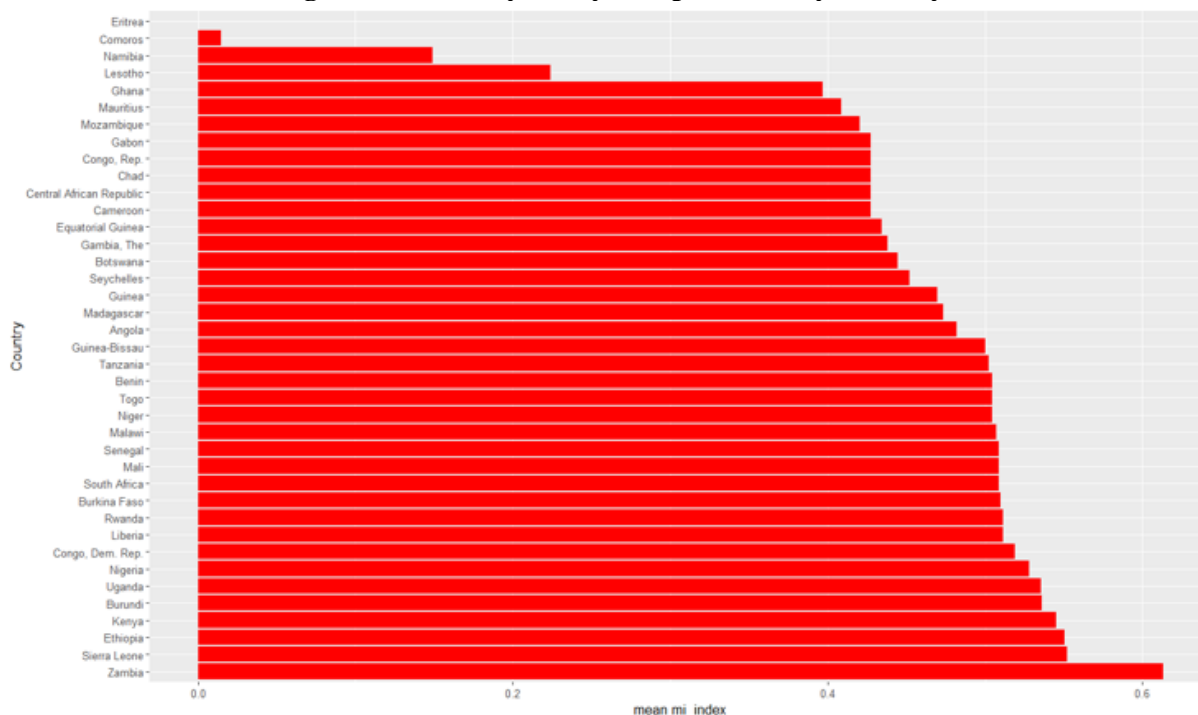


Figure 5: Country Financial Openness by Country

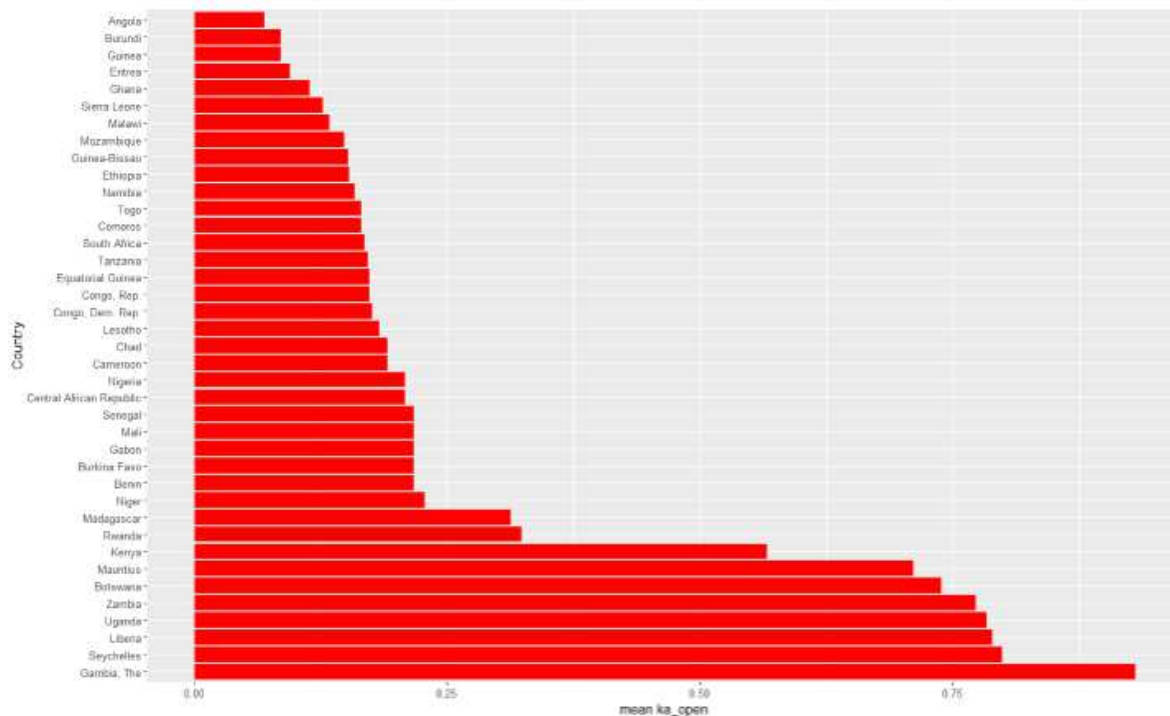


Table 1: List of countries' codes and years

Code	min	max
AGO	1990	2019
BDI	1990	2019
BEN	1990	2019
BFA	1990	2019

BWA	1990	2019
CAF	1990	2019
CMR	1990	2019
COD	1990	2019
COG	1990	2019
COM	1990	2019
ERI	1990	2019
ETH	1990	2019
GAB	1990	2019
GHA	1990	2019
GIN	1990	2019
GMB	1990	2019
GNB	1990	2019
GNQ	1990	2019
KEN	1990	2019
LBR	1990	2019
LSO	1990	2019
MDG	1990	2019
MLI	1990	2019
MOZ	1990	2019
MUS	1990	2019
MWI	1990	2019
NAM	1990	2019
NER	1990	2019
NGA	1990	2019
RWA	1990	2019
SEN	1990	2019
SLE	1990	2019
SYC	1990	2019
TCD	1990	2019
TGO	1990	2019
TZA	1990	2019
UGA	1990	2019
ZAF	1990	2019
ZMB	1990	2019

Table 2: Summary Statistics

VARIABLES	(1) mean	(2) Sd	(3) p25	(4) p50	(5) p75	(6) min	(7) max	(8) N
Inflation	16.7347	52.8003	2.09607	6.51484	13.3252	-15.4237	466.407	1,258
Unemploymentrate	7.81875	7.50236	2.92000	4.52000	9.43000	0.56000	33.2900	1,201
FDI_gdp	3.60560	5.99062	0.54000	1.97000	4.36000	-3.75000	39.4600	1,242
remittance_gdp	3.68108	7.54540	0.29000	1.27000	3.36000	0	53.8300	1,011
gvtspend_gdp	14.8659	6.67599	10.5100	14.0850	17.7400	2.05000	39.6300	1,102
GDP_growth_annual	4.08236	4.74975	1.92121	4.22793	6.33369	-10.7934	20.7158	1,252
Tax_revenue_GDP	16.7240	7.41635	11.1276	14.9486	22.4202	5.68812	35.9075	511
Gross_nat_expend_gdp	108.825	16.8165	101.402	108.325	115.370	67.0096	174.421	1,110
private_investment	14.9650	6.86809	9.87621	14.3884	18.7282	2.01625	39.9840	765
Gross_capital_formation	21.2090	9.53404	15.1566	20.4861	26.1430	0	52.1218	1,133
Gross_public_investment	7.55630	4.35935	4.49472	6.75884	9.73434	0.75992	26.1894	777
Ers	0.64095	0.35033	0.30699	0.67876	1	0.031324	1	1,166
mi_index	0.45887	0.17994	0.35261	0.48263	0.58523	1.4130e-03	0.86328	1,014
ka_open	0.29867	0.29032	0.16496	0.16496	0.41654	0	1	1,111
LnGDP	22.4150	1.50164	21.3051	22.4002	23.2871	19.2642	26.6321	1,255

Empirical Results and Discussion

This section focuses on the empirical results and discussion. We present our regression analysis results in tables. We also report in this section the endogeneity tests using the two-stage least squares method.

Table 3: The effect of Exchange Rate stability on investment

VARIABLES	(1) FDI percent of GDP	(2) private investment	(3) Gross public investment
Exchange Rate Stability	-0.453 (-0.499)	3.097** (2.157)	-1.692** (-2.220)
Unemployment rate	-0.335*** (-3.411)	-0.209* (-1.752)	-0.0524 (-0.608)
LnGDP	-0.168 (-0.225)	0.510 (0.435)	-1.532** (-2.248)
GDP_growth_annual	0.00400 (0.0972)	-0.00143 (-0.0265)	0.114*** (3.847)
Inflation	0.000455 (0.0562)	-0.0226 (-1.219)	0.000868 (0.162)
Remittances as percent of GDP	0.122** (2.484)	-0.121 (-1.146)	0.214*** (4.545)
Constant	2.081 (0.116)	1.894 (0.0669)	47.06*** (2.890)
Observations	854	546	557
R-squared	0.463	0.613	0.651
Country FE	YES	YES	YES
Year FE	YES	YES	YES

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Exchange rate movements affect FDI values because they strongly affect not only the amount of cash inflows received from investments, but also the amount of cash outflows required to continue operating those investments. Currencies appreciate and depreciate according to prevailing market conditions (Zhang, 2022). These exchange rate movements affect inflation and interest rates, which can significantly affect the economic growth of developing countries and also lead to a decrease in foreign direct investment. The economic difficulties of developing countries do not stem from their perceived isolation from developed countries, but rather from the way they are imposed on the international system. (Husain et al., 2005) argues that economic policies that create a favorable business environment are always desirable. Inflation, which refers to a general increase in the price level, hampers foreign direct investment particularly when the general price level is high (high inflation), but when general prices are stable (low inflation) then foreign direct investment becomes attractive. Low inflation leads to low nominal interest rates and low costs of capital.

Table 4: The effect on monetary policy on investment

VARIABLES	(1) FDI percent of GDP	(2) private investment	(3) Gross public investment
Monitory policy independency	2.387** (2.078)	-0.258 (-0.168)	1.578* (1.735)
Unemployment rate	-0.253** (-2.452)	-0.293** (-2.396)	-0.00388 (-0.0459)
LnGDP	-0.582 (-0.710)	0.188 (0.160)	-1.459** (-2.142)
GDP_growth_annual	0.00444 (0.102)	0.00229 (0.0426)	0.0900*** (2.975)
Inflation	0.00573 (0.696)	-0.0224 (-1.247)	0.00146 (0.280)
Remittances as percent of GDP	0.147*** (2.860)	-0.127 (-1.178)	0.195*** (4.190)

Constant	9.736 (0.493)	11.15 (0.392)	43.89*** (2.694)
Observations	768	502	516
R-squared	0.494	0.633	0.631
Country FE	YES	YES	YES
Year FE	YES	YES	YES

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Monetary policy affects corporate investment through both an interest rate channel and a balance sheet channel. First, monetary policy can influence firms' demand for capital as an input to the production process via the interest rate channel. This is because interest rates influence decisions to save or invest and can stimulate aggregate demand. Second, through the balance sheet channel, monetary policy can make external borrowing cheaper for firms and lower firm-specific user costs of capital, allowing them to invest more. The debt financing premium is the difference between the cost of debt financing and equity financing (Francis et al., 2011; Mundell, 1963). Lower interest rates can reduce this premium as they increase asset value, increasing the value of companies' balance sheets and therefore their net worth. Monetary policy affects companies in different ways. Not all spending is equally sensitive to interest rates. Therefore, the fluctuations in demand generated by monetary policy will differ from company to company. Expenditure on durable goods such as cars or household furniture is often funded by loans and provides a range of services over time; such spending is therefore more interest rate sensitive than prudent policy (Francis et al., 2011; Razin et al., 2004). There is ample evidence that output from industries producing durable goods is more sensitive to monetary policy shocks.

Table 5: The effect of country financial openness policy on investment

VARIABLES	(1) FDI percent of GDP	(2) private investment	(3) Gross public investment
Country Financial Openness	-0.927 (-0.751)	-2.650 (-1.518)	-3.328*** (-3.618)
Unemployment rate	-0.339*** (-3.410)	-0.221* (-1.841)	-0.0940 (-1.074)
LnGDP	-0.0942 (-0.126)	0.667 (0.572)	-1.682** (-2.495)
GDP_growth_annual	0.00242 (0.0582)	0.00557 (0.103)	0.110*** (3.717)
Inflation	0.00138 (0.172)	-0.0345* (-1.867)	0.00255 (0.483)
Remittances as percent of GDP	0.124** (2.498)	-0.127 (-1.196)	0.224*** (4.768)
Constant	0.0327 (0.00182)	0.273 (0.00963)	50.15*** (3.103)
Observations	844	541	552
R-squared	0.465	0.613	0.644
Country FE	YES	YES	YES
Year FE	YES	YES	YES

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

FDI is an important part of the capital flow for developing countries, and its contribution to economic growth is widely disputed, although most researchers agree that the benefits far outweigh the costs to the economy. (Megasari & Saleh, 2021) note that foreign direct investment includes a package of potential growth-enhancing attributes such as technology and access to the international market. FDI is a component of international capital flows and is the largest source of external financing for developing countries, as it is widely believed that economic growth depends critically on domestic and foreign investment, just as the rate of foreign investment inflows depends on the rate of economic growth.

Table 6: TWO STAGES LEAST SQUARES: Exchange rate Stability

	(1)	(2)	(3)
VARIABLES	IV-2SLS	IV-2SLS	IV-2SLS
Exchange Rate Stability	-1.276*	4.410***	-1.393**
	(-1.772)	(4.842)	(-2.251)
Unemployment rate	0.00330	0.0656*	0.00567
	(0.118)	(1.674)	(0.230)
LnGDP	-0.113	1.709***	-0.347**
	(-0.806)	(8.308)	(-2.344)
GDP_growth_annual	0.190***	-0.0135	0.135***
	(3.997)	(-0.207)	(3.571)
Inflation	-0.0190**	-0.0408*	0.0131*
	(-1.968)	(-1.737)	(1.846)
Remittances as percent of GDP	0.0421	-0.227***	0.105***
	(1.422)	(-2.877)	(4.365)
Constant	5.876*	-25.98***	15.21***
	(1.802)	(-5.556)	(4.549)
Observations	826	529	532
R-squared	0.028	0.238	0.108
Cragg-Donald Wald	208.8	208.8	208.8
Stock-Yogo10%	16.38	16.38	16.38
Control variables	YES	YES	YES
Country FE	YES	YES	YES
Year FE	YES	YES	YES
Adj R2	0.0212	0.229	0.0979

z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

A weak national currency can push up inflation in a country that is a large importer due to higher prices for foreign products. This could prompt the central bank to raise interest rates to counter inflation, as well as support the currency and prevent a sharp drop. Conversely, a strong currency depresses inflation and puts a brake on the economy, which is tantamount to tight monetary policy (Baxter & Stockman, 1989; da Silva, 2001). In response, a country's central bank may move to keep interest rates low or cut them further to prevent the local currency from becoming too strong. The exchange rate thus indirectly affects the interest rate you pay on your mortgage or car loan, or the interest you receive on the money in your savings or money market account. A weak national currency boosts economic growth by boosting exports and making imports more expensive (thereby forcing consumers to buy domestic goods). Faster economic growth usually leads to better employment prospects. A strong national currency can have the opposite effect, slowing economic growth and reducing job prospects. Exchange rate fluctuations can have a significant impact on your investment portfolio, even if you only hold domestic investments. For example, the strong dollar generally dampens global demand for commodities as they are priced in dollars (Atish, 2003; Jebeniani & Trabelsi, 2022). This weak demand may impact domestic commodity producers' earnings and valuations, although some of the negative impact would be mitigated by the weaker local currency. A strong currency can also have an impact on sales and profits generated abroad in recent years. Of course, the impact of exchange rates on portfolio returns is well known. Investing in securities denominated in an appreciating currency may increase total returns, while investing in securities denominated in a depreciating currency may decrease total returns.

Table 7: TWO STAGES LEAST SQUARES: Monetary Policy

	(1)	(2)	(3)
VARIABLES	IV-2SLS	IV-2SLS	IV-2SLS
Monitory Policy Independency	3.755**	1.799	3.858***
	(2.161)	(0.788)	(2.577)
Unemployment rate	-0.258**	-0.275**	0.00696
	(-2.567)	(-2.379)	(0.0843)

LnGDP	-0.418	0.252	-1.491**
	(-0.528)	(0.231)	(-2.243)
GDP_growth_annual	-0.0173	-0.0185	0.0790***
	(-0.406)	(-0.376)	(2.702)
Inflation	0.00382	-0.0292	-0.00239
	(0.291)	(-1.601)	(-0.278)
Remittances as percent of GDP	0.153***	-0.146	0.173***
	(3.107)	(-1.465)	(3.850)
Constant	8.208	12.64	46.79***
	(0.406)	(0.454)	(2.809)
Observations	737	483	489
R-squared	0.509	0.661	0.620
Cragg-Donald Wald	208.8	208.8	208.8
Stock-Yogo10%	16.38	16.38	16.38
Control variables	YES	YES	YES
Country FE	YES	YES	YES
Year FE	YES	YES	YES
Adj R2	0.460	0.615	0.568

z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Consequently, if the impact of monetary policy on demand for durable goods is relatively strong, the investment demand of manufacturing companies should also react more strongly to monetary policy shocks. Another reason for the different impacts on business investment is the size of the external financing premium they face. Firms with less access to finance should face higher and more volatile external financing premiums. Unfortunately, we cannot measure companies' external financing premiums. However, a good indicator of access to finance is the age of the company. Younger companies generally have less access to credit, are smaller and have lower revenues. Recent evidence from the US and UK has already shown that younger firms are more responsive to monetary policy shocks (Hamiani et al., 2020; Mishkin, 2009; Zhang, 2022) the amount of money circulating in the economy and its value. The main goal of monetary policy is long-term economic growth, but the central bank can set other goals for this purpose. Therefore, the Fed's monetary policy goal is to support employment, stable prices and moderate long-term interest rates.

Table 8: TWO STAGES LEAST SQUARES: Country Financial Openness

VARIABLES	(1)	(2)	(3)
	IV-2SLS	IV-2SLS	IV-2SLS
Country Financial openness	-1.751	-0.584	-4.194***
	(-1.204)	(-0.293)	(-3.837)
Unemployment rate	-0.347***	-0.198*	-0.131
	(-3.533)	(-1.727)	(-1.571)
LnGDP	-0.122	0.976	-1.497**
	(-0.163)	(0.877)	(-2.327)
GDP_growth_annual	0.00617	0.00566	0.0866***
	(0.149)	(0.110)	(3.049)
Inflation	0.00239	-0.0398**	0.000927
	(0.296)	(-2.059)	(0.184)
Remittances as percent of GDP	0.133***	-0.119	0.223***
	(2.704)	(-1.181)	(5.020)
Constant	3.817	-4.757	50.12***
	(0.199)	(-0.167)	(3.087)
Observations	814	522	526
R-squared	0.466	0.616	0.632
Cragg-Donald Wald	208.8	208.8	208.8
Stock-Yogo10%	16.38	16.38	16.38
Control variables	YES	YES	YES

Country FE	YES	YES	YES
Year FE	YES	YES	YES
Adj R2	0.417	0.567	0.585

z-statistics in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

The stronger the openness effect, the lower the optimal tax on leverage; and when this effect is dominant, the optimal policy is in the form of an investment subsidy (Aizenman, 1987; Caglayan & Demir, 2014; Fagiolo et al., 2020; Manova, 2008; Yu & Qayyum, 2021). However, financial factors are critical to improving corporate export performance and innovation, as financial openness can ease corporate financial constraints through international capital inflows to stimulate corporate innovation. However, given the increase in cross-border capital flows globally, countries' financial openness does not promise to attract more international direct investment in our sample.

Conclusion

We note that the trilemma index control is still a major challenge for investors on the African continent. With some of the fastest growing economies in the world, African nations are playing an increasingly important role in the global economy. The population is young and growing rapidly, and household incomes and consumption are expected to increase. Digital and mobile access is increasing rapidly, the infrastructure gap is closing and Africa is poised for mass industrialization. In addition, all governments have taken unprecedented steps to support investors. And as business environment reforms are enacted across the continent, the prospects for investing in Africa's numerous and diverse countries are very different than they have been for decades. Despite the abundance of opportunities, doing business in Africa continues to come with real and perceived risks. Institutional and economic barriers, risk and reward imbalances, and high transaction costs can make it difficult for investors to find opportunities and close deals. However, understanding the conditions of the Trilemma Index or the impossible trinity can increase the effectiveness of macroprudential and capital control policies, their impact on the investment cycle and patterns of capital flows, while the demand for international reserves remains a challenge for key countries as more experience required in administering these policies.

References

- [1] Aizenman, J. (1987). Investment, Openness, and Country Risk. NBER WORKING PAPER SERIES. <https://doi.org/10.3386/W2410>
- [2] Aizenman, J. (2019). International Reserves, Exchange Rates, and Monetary Policy: From the Trilemma to the Quadrilemma. In Oxford Research Encyclopedia of Economics and Finance. <https://doi.org/10.1093/acrefore/9780190625979.013.313>
- [3] Aizenman, J., Chinn, M. D., & Ito, H. (2008). Assessing the Emerging Global Financial Architecture: Measuring the Trilemma's Configurations over Time. Place: Publisher
- [4] Aizenman, J., Chinn, M. D., & Ito, H. (2011). Surfing the waves of globalization: Asia and financial globalization in the context of the trilemma. *Journal of the Japanese and International Economies*, 25(3). <https://doi.org/10.1016/j.jjie.2011.06.003>
- [5] Aizenman, J., & Ito, H. (2014). The more divergent, the better? Lessons on trilemma policies and crises for Asia. *Asian Development Review*, 31(2). https://doi.org/10.1162/ADEV_a_00030
- [6] Annicchiarico, B., & di Dio, F. (2015). Environmental policy and macroeconomic dynamics in a new Keynesian model. *Journal of Environmental Economics and Management*, 69(1). <https://doi.org/10.1016/j.jeem.2014.10.002>
- [7] Arefjevs, I., & Bogdanova, O. (2020). International Finance Trilemma as a Tool for Balanced Development of an Economy. *European Integration Studies*, 1(14). <https://doi.org/10.5755/j01.eis.1.14.26318>
- [8] Atish, G. (2003). Exchange rate regimes: choices and consequences. *Choice Reviews Online*, 40(11). <https://doi.org/10.5860/choice.40-6524>
- [9] Bar-Eli, M., Krumer, A., & Morgulev, E. (2020). Ask not what economics can do for sports - Ask what sports can do for economics. In *Journal of Behavioral and Experimental Economics* (Vol. 89). <https://doi.org/10.1016/j.socec.2020.101597>
- [10] Baxter, M., & Stockman, A. C. (1989). Business cycles and the exchange-rate regime. Some international evidence. *Journal of Monetary*

- Economics, 23(3). [https://doi.org/10.1016/0304-3932\(89\)90039-1](https://doi.org/10.1016/0304-3932(89)90039-1)
- [11] Caglayan, M., & Demir, F. (2014). Firm Productivity, Exchange Rate Movements, Sources of Finance, and Export Orientation. *World Development*, 54. <https://doi.org/10.1016/j.worlddev.2013.08.012>
- [12] Calvert Jump, R., Hommes, C., & Levine, P. (2019). Learning, heterogeneity, and complexity in the New Keynesian model. *Journal of Economic Behavior and Organization*, 166. <https://doi.org/10.1016/j.jebo.2019.07.014>
- [13] Clerc, P. (2021). The Dynamics of Unemployment and Inflation in New Keynesian Models with Two Labor Margins. *Journal of Money, Credit and Banking*, 53(2–3). <https://doi.org/10.1111/jmcb.12768>
- [14] Connor, J. W. (1973). The neo-classical transport theory of a plasma with multiple ion species. *Plasma Physics*, 15(8). <https://doi.org/10.1088/0032-1028/15/8/003>
- [16] da Silva, S. (2001). Chaotic exchange rate dynamics redux. *Open Economies Review*, 12(3). <https://doi.org/10.1023/A:1011181423098>
- [17] Deng, M., & Fang, M. (2022). Debt maturity heterogeneity and investment responses to monetary policy. *European Economic Review*, 144, 104095. <https://doi.org/10.1016/J.EUROECOREV.2022.104095>
- [18] Desai, V., & Potter, R. B. (2021). 5 New institutional economics and development. In *The Companion to Development Studies*. <https://doi.org/10.4324/9780203773420-10>
- [19] Eisner, R., & Nadiri, M. I. (1968). Investment Behavior and Neo-Classical Theory. *The Review of Economics and Statistics*, 50(3). <https://doi.org/10.2307/1937931>
- [20] Fagiolo, G., Giachini, D., & Roventini, A. (2020). Innovation, finance, and economic growth: an agent-based approach. *Journal of Economic Interaction and Coordination*, 15(3). <https://doi.org/10.1007/s11403-019-00258-1>
- [21] Francis, B. B., Hunter, D. M., & Kelly, P. J. (2011). Financial Market Openness and Monetary Policy Independence: Does the Impact of Monetary Policy Differ between Investable and Non- Investable Firms? SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.1362328>
- [22] Hamiani, K. M., Buessings-Loercks, M., & Fleuriet, V. (2020). Monetary Policy Under an Exchange Rate Anchor. *IMF Working Papers*, 20(180). <https://doi.org/10.5089/9781513556383.001>
- [23] Husain, A. M., Mody, A., & Rogoff, K. S. (2005). Exchange rate regime durability and performance in developing versus advanced economies. *Journal of Monetary Economics*, 52(1). <https://doi.org/10.1016/j.jmoneco.2004.07.001>
- [24] Jebeniani, J., & Trabelsi, J. (2022). Effects of the business cycle on real exchange rate misalignments with respect to exchange rate regimes. *International Economics*, 170, 92–102. <https://doi.org/10.1016/J.INTECO.2022.02.009>
- [25] Jeffrey A. Frankel, & Saravelos, G. (2010). Are Leading Indicators of Financial Crises Useful for Assessing Country Vulnerability? Evidence from the 2008-09 Global Crisis. In NBER Working Paper No. 16047.
- [26] Kashyap Heena. (2015). Relevance of classical and neo-classical theories in present world. *Indian Streams Research Journal*, 5(1).
- [27] Keane, W. (2019). How everyday ethics becomes a moral economy, and vice versa. *Economics-ejournal.ja.2019-46*, 13. <https://doi.org/10.5018/economics-ejournal.ja.2019-46>
- [28] Kiat, J. (2008). The effect of exchange rate and inflation on foreign direct investment and its relationship with economic growth in South Africa. *Economics and Applied Informatics*, 17(1).
- [29] Kiley, M. T. (2016). Policy paradoxes in the New Keynesian model. *Review of Economic Dynamics*, 21. <https://doi.org/10.1016/j.red.2016.03.002>
- [30] Kudryashov, N. A., & Zakharchenko, A. S. (2014). A note on solutions of the generalized Fisher equation. *Applied Mathematics Letters*, 32(1). <https://doi.org/10.1016/j.aml.2014.02.009>
- [31] Manova, K. (2008). Credit constraints, equity market liberalizations and international trade. *Journal of International Economics*, 76(1). <https://doi.org/10.1016/j.jinteco.2008.03.008>
- [32] Megasari, T., & Saleh, S. (2021). Determinant of FDI Inflows in OIC Countries. *International*

- Journal of Islamic Economics and Finance (IJIEF), 4(1). <https://doi.org/10.18196/ijief.v4i1.9473>
- [33] Mishkin, F. S. (2009). Globalization, macroeconomic performance, and monetary policy. *Journal of Money, Credit and Banking*, 41(SUPPL. 1). <https://doi.org/10.1111/j.1538-4616.2008.00204.x>
- [34] Mundell, R. A. (1963). Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates. In *Science politique* (Vol. 29, Issue 4).
- [35] North, D. (1993). The New Institutional Economics and Development. *EconWPA Economic History*, January.
- [36] Obstfeld, M., Shambaugh, J. C., & Taylor, A. M. (2004). Monetary sovereignty, exchange rates, and capital controls: The Trilemma in the interwar period. *IMF Staff Papers*, 51(SPEC. ISS.).
- [37] Obstfeld, M., Shambaugh, J. C., & Taylor, A. M. (2008). Financial Stability, the Trilemma, and International Reserves Maurice. NBER Working Paper, 14217(April).
- [38] Obstfeld, M., Shambaugh, J. C., & Taylor, A. M. (2009). Financial instability, reserves, and central bank swap lines in the panic of 2008. *American Economic Review*, 99(2). <https://doi.org/10.1257/aer.99.2.480>
- [39] Ojapinwa, T. v., & Nwokoma, N. I. (2018). Workers' Remittances and the Dutch-Disease Argument: Investigating the Relationship in Sub-Saharan Africa. *African Development Review*, 30(3). <https://doi.org/10.1111/1467-8268.12339>
- [40] Omankhanlen, A. E. (2011). The Effect of Exchange Rate and Inflation on Foreign Direct Investment and Its Relationship with Economic Growth in Nigeria. *Economics and Applied Informatics*, 17(1).
- [41] Razin, A., Rubinstein, Y., & Berglas, E. (2004). NBER WORKING PAPER SERIES GROWTH EFFECTS OF THE EXCHANGE-RATE REGIME AND THE CAPITAL-ACCOUNT OPENNESS IN
- [42] A CRISIS-PRONE WORLD MARKET: A NUANCED VIEW Growth Effects of the Exchange-Rate Regime and the Capital-Account Openness in A Crisis-Prone World Market: A Nuanced View. <http://www.nber.org/papers/w10555>
- [43] Waldén, L. J., Meade, J. E., & Walden, L. J. (1961). A Neo-Classical Theory of Economic Growth.
- [44] *Ekonomisk Tidskrift*, 63(3). <https://doi.org/10.2307/3438723>
- [45] Yokus, A., & Yavuz, M. (2021). Novel comparison of numerical and analytical methods for fractional burgerUfisher equation. *Discrete and Continuous Dynamical Systems - Series S*, 14(7). <https://doi.org/10.3934/DCDSS.2020258>
- [46] Yu, Y., & Qayyum, | Muhammad. (2021). Impacts of financial openness on economic complexity: Cross-country evidence. <https://doi.org/10.1002/ijfe.2491>
- [47] Zhang, T. (2022). Monetary Policy Spillovers through Invoicing Currencies. *Journal of Finance*, 77(1). <https://doi.org/10.1111/jofi.13071>