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Determinants of Capital Flight and Its Impact on Economic Performance: A Study of the Developing Economies

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ABSTRACT

Capital flight imposes a great danger to the developing economies by lowering their economic activity, devaluing the currency, and hindering economic growth. This paper contributes to the literature by investigating the determinants of capital flight of developing economies. Determinants are studied as indices, and these indices are calculated by using the Arithmetic Mean approach. There is a two-steps model; in the first part, determinants are discussed, and in the second part, capital flight is used as an independent variable, and its impact on economic performance is measured in 59 Developing Economies. GMM (Generalized Method of Moments) is used for the determinants of capital flight, and panel GLS (Generalized least square) is used to check the impact of capital flight on economic performance. Macroeconomic variables (external debt, inflation, exports, interest rate, and exchange rate) are also part of the study with four indices as determinants (Country Risk Index, Economic Freedom Index, financial inclusion index, and Governance institution and corruption index). Results suggest that all included indices were significant along with all macroeconomic variables. Country risk, external debt, and exports have a negative coefficient, while others have a positive coefficient value. Capital investment, foreign direct investment, and Gross domestic product were used as proxies of economic performance. Results of GLS have shown there is a significant and negative impact of capital flight on economic performance. Capital flight is measured by using the residual methodology.

Keywords: Capital flight, financial inclusion, country Risk, Economic Freedom, Governance institution and Corruption index, Generalized Methods of Moments, and Generalized Least Square.

1. INTRODUCTION

Capital flight has been a source of concern for policymakers since the emergence of the debt crisis and associated drastic decline in capital inflows from industrialized

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countries (Otusanya & Adeyeye, 2021). Capital flight has been viewed as a constraint on economic growth since it implies a loss of resources used as domestic investment. Moreover, it is often argued that reversal of these capital outflows could significantly contribute to solving a debt crisis. Capital flight has existed since money has crossed borders, but it gained popularity in the early 1980s. Although Capital flight is not a new issue, two centuries ago, it was documented by Adam Smith in his very famous book "The wealth of nations." He described the concept of capital flight as, "The proprietor of stock is necessarily a citizen of the world, and is not necessarily attached to any particular country. Accordingly, he would be apt to abandon the country in which he was exposed to a vexatious inquisition, to be assessed to a burdensome tax, and would remove his stock to some other country where he could either carry on his business or enjoy the fortune more at his ease" (Smith, 1937). The stylized argument is that residents decide to invest their wealth abroad due to an adverse domestic investment climate or economic agents consider it too risky to invest domestically.

Capital flight causes many irregularities in income distribution, illegal activities, macroeconomic stability, welfare, and other developing activities. Capital flight has gained widespread empirical attention in the early nineties, especially in Latin America and sub-Saharan African countries, but Asian countries have received less economic conditions (Osei-Assibey, Domfeh, & Danquah, 2018). Despite the vast amount of research on Capital flight, there is no definition upon which all scholars can agree. The capital flight usually refers to the money leaving a developing economy to be invested elsewhere, usually a developed economy. Not all money that is going abroad is capital flight but it can be the transaction money, day-to-day outflow, simple investment from the country which is not facing any crisis (Owens, 2017). The concern of this research is the illegal and illicit flow of capital and assets, usually from the non-bank private investor. Licit or legal transaction does not cross-government control and avoids taxes but follows all the government's rules). The capital flight goes beyond the boundary by using different sources, and these sources further describe the concept deeply. Capital flight comprises irregular short-term/speculative outflow which is called hot money. It is fueled by capital holders and causes high risk politically, economically, high inflation,

taxes, more government control, and leads to the devaluation of currency (J. T. J. E. E. R. Cuddington, 1987).

Three main theories are related to capital flight yet create motivation behind a flight of capital. These theories include the portfolio approach, the dirty money approach, and the political risk approach. Most researchers rely on conventional market models of expected utility maximization by rational economic actors to explain capital flight, which is termed the portfolio approach. This approach says that macroeconomic context is essential in driving capital flight and changing the investor's decision about his money. Capital flight is merely a portfolio adjustment caused by market distortions and asymmetric risks, developing relative to developed economies, resulting from rational economic agents maximizing returns beyond the source economy (Dooley, 1988). There can be two types of factors in this macroeconomic context, e.g., pull and push factors. "Push factors" are the external global conditions that affect the rate of return on investment in the source economy, e.g., monetary and fiscal policies, risk appetite, liquidity, growth, productivity, and interest rate differentials. "Pull factors" are country-specific and typically go the fundamental divergences between developing countries and developed countries (TIRUNEH, SIRANOVA, & OSTRIHON). These factors include GDP, inflation, external debt, exchange rate, high taxes, and investment risk. Developing countries employ different capital controls to stop capital flight due to external debt, country risk, and interest rate differentials. This portfolio approach provides a basis for another paradox called the "Lucas Paradox," which says that capital must fly from the developed economies to the capital-poor developing economies where the investment rate is higher, but this sort of flow is not seen in history. Lucas paradox says capital rich countries do not need more capital, but the developing countries do. There can be two explanations for the global patterns of capital flight from developing economies to developed economies (Uche, Effiom, & Economics, 2021).

Another cause of capital flight from developing economies is to transfer "dirty money" derived from criminal, corrupt, and commercial activity. Criminal activities include drug racketeering, trafficking in counterfeit and contraband goods, smuggling and slave trading, embezzlement, forgery securities and credit fraud, burglary, sexual

exploitation and prostitution, and so forth typically undertaken by organized crime (Otusanya & Adeyeye, 2021). Illicit capital flows come from bribery and embezzlement of public officials who try to hide their ill-gotten money, and corporate dirty money comes from tax evasion, trade misinvoicing, falsified or mispriced assets swaps, and abusive transfer pricing with the help of corrupt officials and institutions (Heggstad & Fjeldstad, 2010) and (Kar & Cartwright-Smith, 2008). The dirty money approach equates the illicit capital flows to illegal money, but this narrow approach is problematic. However, capital flight from developing economies is not exclusively limited to that derived from criminal activity. For example, outflows resulting from Trade misinvoicing transfer pricing, use of tax havens, and other criminal activities are considered abusive for developing countries but not necessarily illegal. Moreover, trade openness itself has facilitated much capital flight through trade misinvoicing (Basorudin, Harwin Kusmaryo, Hartini Rachmad, Amannullah, & Rachmadani Hamid, 2021).

Another reason for capital flight is the “political risk approach” it generally attributed to political change, political disturbances, and government policy changes. All these things have a devastating impact on the economic decision-making of investors; if the political situation is not stable, then an investor will prefer to keep his money at some safe place. Political instability generates many types of risks, e.g., social risk, economic risk, property right risk, expropriation risk, business risk, and social risk. Moreover, all these risks have a strong relationship with capital flight (Le & Zak, 2006). Terrorism is another product of political risk, and it proved to be a significant driver of capital flight from sub-Saharan African economies (Efobi & Asongu, 2016) and (Simplice A. Asongu, Nting, & Osabuohien, 2019).

The above-discussed problems of developing countries have raised plenty of research questions which will be a concern of this study. The objective of this study is to answer the following question;

- What are the determinants of capital flight in developing economies?
- What is the impact of capital flight on the economic performance of developing economies?
- What are the different methods available for measuring capital flight?

- What are the legal and preventive measures taken by developing economies to minimize and reverse capital flight?

Capital flight has severe consequences for both developed and developing economies but significantly less addressed area in academics concerning developing countries especially. Capital flight is essential for developing economies for at least three reasons. First, capital is scarce in developing countries, so capital flight contributes to the increasing scarcity of capital. Second, capital flight is a negative signal to the entire world of investors because it creates uncertainty and risk. The twin goal of growth and development will become impossible because economic policies become more challenging to implement, and the rising social condition of people becomes a heavier burden to address (Popogbe & Adeosun, 2020; Schineller, 1997). Third, economic justice cannot be practiced in external debt, which benefits only a few (Siddiqui & Malik, 2001). This study is planned around the idea of making the country's economy strong; in this regard, the study contributes to both areas of policy-making and literature in several ways. Initially will try to identify countries in which capital flight is more which helps policymakers formulate effective policies in getting the country's capital back. The next step is to analyze the determinants of capital flight; although determinants of capital flight are discussed many times in literature for developed and developing economies, this study looks at the determinants with a different approach. It includes many factors that further will be converted to composite indices and will be regressed against capital flight for multidimensional results; This is an addition to the existing literature because determinants have never been studied in that way. This study will shed some light on a possible link of capital flight with “corruption, institutions, and governance” developing economies.

Furthermore, the introduction of a new index which is “Financial inclusion,” will be tested against capital flight which will also enhance the body of knowledge. This study will also assess the strength of “country risk” and its impact on a capital flight; this association will further widen the vision of policymakers to deal with capital flight. Moreover, the study will discuss the “Economic freedom index” and its relationship with capital flight; highlights relevant areas which need the attention of policymakers. Several

Macroeconomic variables are also included and analyzed with capital flight yet give a guideline to policymakers and academicians to understand the essential macroeconomic factors affecting capital flight. After exploring the determinants of capital flight, a cross-country analysis will be done between both clusters to find essential determinants for developed and developing economies, respectively, so it will be easy for the politicians and policymakers to avoid capital flight. Lastly, this study aims to explore the impact of capital flight on a country's performance, which will also help policymakers understand how they can improve the performance of a country through policy-making.

2. LITERATURE REVIEW

In practice, the issue of capital flight has been recognized after 90's financial crisis, and some severe steps against it have been taken in the last 20 years, but in academia, Capital flight is still a less explored or neglected field, particularly in finance(Chang, Claessens, Cumby, & Economics, 1997). The available literature on capital flight is mostly on its methodologies and determinants. A very few studies attempted to capture its determinants by making indices. This trend is the lack of availability of reliable data due to the hidden nature of this phenomenon (J. T. Cuddington, 1986). Capital flight has been a major factor contributing to the mounting foreign debt problems and inhibiting development efforts in the third world(J. T. Cuddington, 1986). Most analysts have also attributed and mentioned the sluggish growth of economies due to capital flight. There are some consequences of capital flight that lead the countries in another direction than desired. There is less capital to invest in the domestic market as capital leaves the country. At the same time, it indicates that foreign direct investment is decreasing. Investors are both looking to invest in other countries and withdrawing their funds. If those investments have already been made, it may not appear to be such a bad thing. Business A, for example, could sell its factory in China and withdraw its capital. Because the factory is still operational, the Chinese economy has already reaped the benefits. However, we must remember that capital flight implies that investors are also hesitant to invest in the first place. So during capital flight, not only does capital that could be used for investment move abroad, but it does not enter the country in the first place either.

When the amount of capital in a country decreases, profits in that country decrease.

As a result, when capital leaves a country, it also leaves behind the taxes it generated. In the long run, it also reduces potential tax receipts. This is because capital flight impacts economic investment, which means businesses cannot create as many jobs, factories, and other productive assets. As a result, a country's economic potential can dwindle if it does not receive the same investment. This means that if capital had stayed in the country, the economy would have been larger. That translates to more jobs and more productive employees. As a result of fewer people working and a smaller economy, governments will receive less revenue from income taxes, corporation taxes, and other sources. The term "capital flight" refers to a drop in demand for a country's currency. For example, to invest in China, a US investor must first purchase the Chinese Yuan. However, during the capital flight, the US investor will want to convert their Chinese Yuan into US dollars.

This signals to the exchange markets that demand for the Chinese Yuan is waning, and demand in the US increases. As a result, the Chinese Yuan begins to depreciate against the US dollar. As capital leaves the country, domestic firms and governments have fewer options for borrowing. Investors who are willing to lend are few and far between. To attract investment, governments must begin paying higher interest rates. Investors fled in droves from Greece during the 2012 crisis, leaving the Greek government without a line of credit. Interest rates on government debt rose quickly in response to the increased risk. At the same time, the debt grows due to having to pay higher interest payments on the debt. Literature on the capital flight maintained that a large amount of the capital flows into the developed world from the developing countries, and despite measurement problems, is having adverse effects on developing countries (Nölling, 1986),(Ashman, Fine, & Newman, 2011). Most of the literature is focused on the concept, measurement, methods (J. T. Cuddington, 1986), and determinants of capital flight(Beja & countries, 2005; Beja Jr, 2005; Cerra, Rishi, & Saxena, 2008).

However, indices are never developed to check their impact on the capital flight. Considering the main causes and reasons to study capital flight, this study considers six reasons to reconsider capital flight. The first is to examine the role of governance, institutions, and corruption on capital flight. Institutions, especially financial institutions, play an important role in the flight of capital; facilitate investors by relaxing the transfer

policies or sometimes using unfair means. These unfair means lead to corruption and also indicate the existence of bad governance. The capital flight which is a consequence of the offshore financial economy is fundamentally traceable to poor governance, institutional negligence, and corruption (Osei-Assibey, et al., 2018). The second reason is to shed some light on the relationship between capital flight and the Country risk index. Risk usually refers to uncertainty regarding investment and government policies. It encompasses various factors, e.g., expropriation, inflation, tax fluctuation, and changing government reforms. Economic, social, and political risks are the factors that shape up the decision of an investor about the ideal destination for his assets (Le & Zak, 2006).

Terrorism is a part of country risk, and if terrorism exists in a country, an investor never feels safe about his investments and assets. Some studies have shown it as a most disturbing element for the investors, and they shift their assets abroad by any means (Efobi & Asongu, 2016), (Simplice A. Asongu, et al., 2019) and (Hyder, Akram, & Padda, 2015). Third, the reason is to analyze the association of Economic freedom and capital flight. There are Different aspects of Economic freedom which can be game-changer for an investor to decide about the destination of his assets. By economic freedom, not only means freedom of trade but freedom of fiscal policies, business, and investment. Trade and financial liberalization are some of the main aspects of economic freedom, and several studies in the literature show their strong impact on capital flight (Lensink, Hermes, & Murinde, 1998) and (Yalta, Yalta, & Finance, 2012). Fourth, the reason is to study financial inclusion with capital flight. Financial inclusion is defined as the financial involvement of individuals in the domestic economy and the involvement of the domestic economy in globalization. Financial inclusion is closely related to financial development and financial integration (Memdani, Rajyalakshmi, & Studies, 2013). Different studies have shown different approaches to measure financial inclusion; usually, it is measured from the perspective of banks. But financial inclusion is a wider concept and it can be measured with financial literacy, globalization index, and illicit economic activities alongside the licit economic activities. Financial literacy is about the banks; Banks are widely studied with financial inclusion and capital flight separately and found to be very important for both yet proves that institutions play a vital role in sending

the capital abroad (Heggstad & Fjeldstad, 2010) and (Rosengard & Prasetyantoko, 2011). Globalization is a very important factor for measuring capital flight in the present technologically advanced era and it is generally seen as financial liberalization and free trade. So, as a part of financial inclusion; globalization can be taken for more diverse results. The fifth, reason is the consideration and importance of macroeconomic variables in the capital flight. All Theories of capital flight indicates the importance of macroeconomic variables e.g. interest rate, exchange rate, external debt and inflation.

Macroeconomic variables proved to be important In the long run for the capital flight hence are the main players (Hunjra, Mehmood, & Bakari, 2018) and (Imran, Bakari, & Review, 2018). Economists have devoted much greater attention to capital flight than the financial analyst even though direct linkage has been found in the capital flight and financial performance of any country (Edwards, 2001). The sixth and last reason is to sort out the most suitable way to measure capital flight for our sample of 90 countries divided into two main categories of developed and developing. In short, scholars are interested in capital flight because of the old and new issues and reasons. The lessons from the past are still very relevant to the current context; but with the new dimensions to the same problems, new lessons have to be learned as well. Proponents of capital flight argue that it has stopped economic growth because it involves the exportation of savings and investment (Deppler & Williamson, 1987). The economic consideration of the resident to hold their assets abroad is mainly because of the lack of confidence in the domestic economic and financial situation. Many studies analyzed capital flight and its causes by not distinguishing between domestic and foreign investors and pointed out important factors e.g. inflation, exchange rate, GDP, External debt, institutional transparency, Governance, interest rate, and corruption which are important in determining capital flight for developed and developing economies (J. T. J. E. E. R. Cuddington, 1987), (Ndikumana & Boyce, 2011), (Simplice A. Asongu & Nwachukwu, 2016), (Efobi & Asongu, 2016), (Ahmad & Sahto, 2015), and (F. R. Gunter, 2017). Therefore capital flight has become an important concern for both developing and industrialized countries. Private actors and public authorities are both responsible for the capital flight. Because of macroeconomic uncertainty, political instability, a less

developed financial system, and a higher rate of return differentials abroad, private actors prefer to hold their savings abroad (Ndikumana & Boyce, 2011). While; because of corruption, institutional negligence, bad governance, and country risk, public authorities embezzle funds and transfer them to overseas banks (Kollamparambil & Gumbo, 2018).

Capital flight is not the only problem for developing economies but it has become a serious concern for developed economies also. After the global financial crisis, capital controls were increased while exchange controls were intensified. However, the capital flight continued in the first half of 1999 (about 11.8 billion\$) showing an increase to previous years. Capital flight keeps on increasing with every passing year imposing a very high burden on already fragile economies. So, the agenda of capital flight concerning both developing and developed countries need attention at both academic and practical level to deal with this bolt from the blue. By keeping in view the above points, this study aims to analyze the determinants of capital flight in 59 developing countries moreover the impact of capital flight on economic performance.

Capital flight is a slippery concept: several interpretations have been given of what exactly is meant by the term. Usually, capital flight is related to the highest uncertainty and risk concerning returns on domestically held assets. So the residents take their money and run to avoid the alarming situation (Lensink, Hermes, Murinde, & Finance, 2000). Normal capital outflow and abnormal capital outflow needs to be distinguished, although empirically, it is challenging. Since normal outflows are based on the consideration of portfolio diversification of residents and domestic commercial banks' activities aiming to acquire or extend foreign deposit holdings (Deppler & Williamson, 1987). Undoubtedly, capital flight remained an unspeakable topic for many years, but the financial crisis of the '90s has made this topic important for developing and developed economies. Capital flight is a synonym of an economic imbalance created by the debt problem (Gulati, 1988). The previous literature discussed three main methods to estimate capital flight, e.g., the balance of payment method, Cuddington approach, and Dooley measures. Several studies measured capital flight indirectly from a balance of payment statistics by comparing the sources of capital inflows (i.e., the net increase in the external debt and a net inflow of foreign investment with the uses of these inflows i.e. Current account deficit

and addition to foreign reserves). If the sources exceed the uses of inflows, the difference is termed capital flight. This is a so-called residual method, and it is widely used in the literature. (F. R. J. C. E. R. Gunter, 2004) have used this approach to estimate capital flight from China. Another study has used this method and then checked capital flight with government uncertainty regarding policies (Hermes & Lensink, 2001). This method has avoided separating the normal and abnormal capital outflow, but it has taken every private capital outflow as a capital flight. Several variations have been made to this World Bank approach of capital flight (Lensink, et al., 2000). This study will opt for this estimation method due to its acceptability and ease. The second estimation method name is “hot money measure,” also called the Cuddington approach. It measures capital flight by adding net errors and omissions and non-bank private short term capital outflows (J. T. Cuddington, 1986). This measure reflects the idea that capital flight goes unrecorded due to criminal matters of these capital movements. It is argued that unrecorded capital investments appear in the net error and omissions. Moreover, by concentrating on short-term flows; medium and long term flows are excluded, which are considered more normal according to these authors (Gibson & Tsakalotos, 1993). The capital flight, measured by this approach, is short-term, but the residual method gives a long-term view of capital flight (Kant, 1996). Dooley proposed the third approach to capital flight estimation, which aims to measure abnormal and illegal capital outflows. Dooley defines capital flight as the money kept outside the country to avoid government control, excluding normal outflows. Consequently, Dooley measures; include all capital outflows that do not receive or register interest payments. The literature says there is a similarity between Dooley and the residual method of capital flight because Dooley measures partly based on the residual/Morgan method. Many studies have used Dooley measure to estimate capital flight. (Anthony & Hughes Hallett, 1992), (Schineller, 1997) and (Chang, et al., 1997). This study will use the residual methodology to measure capital flight.

Heavenly indebted developing countries with recurrent debt service problems must face that capital is turning its back on them. They face some difficulties obtaining loans, and their citizens, including political elites, are trying to salvage their money. There are some reasons which induced the flight of capital from developing economies: E.g., Tax

policies, exchange rate motive, risk, and security. Because capital is in short supply, the impact of capital flight on developing countries is much more significant. A \$1 billion investment is far more important to countries like Vietnam than to the United States. As a result of capital flight, we see a significant economic impact, which disproportionately affects developing countries(Yalta & Yalta, 2021).

Nonetheless, significant capital flight will have an impact on any economy. It does so, in general, because there is less capital available for investment. Investors may choose to sell their debt and leave, reducing the amount of credit available. They could also sell assets to domestic buyers and walk away with their money. The flight to a foreign currency can be triggered by an overpriced currency and subsequent speculations of devaluation. This foreign currency does not have to be invested abroad.

On the other hand, domestic bank deposits are often not denominated in a foreign currency, necessitating investment overseas. Exporters and importers have a vested interest in engaging in unlawful foreign exchange transactions if different exchange rates apply to commercial and capital market transactions. Monetary authorities frequently subsidize imports by setting a lower foreign exchange rate, so discriminate against capital exports. In such instances, the importer can over invoice imported items, blurring the line between commercial and capital transactions and gaining a better foreign exchange rate. Capital flight is generally a secondary event in the case of smuggling since the main goal is to avoid hefty export duties or acquire a more excellent price for their goods abroad if prices are fixed at a low level at home and if a marketing board has a monopoly (Ayadi, 2008). If capital earns a lesser return at home than overseas, the yield incentive comes into play. When savers are faced with negative real interest rates on their savings versus favorable real interest rates on international accounts, they prefer the latter. Tax considerations also encourage investors to invest in tax havens like the Netherlands Antilles rather than their own countries, where their income is heavily taxed. High taxes, price controls, import restrictions, and political instability can diminish profit margins and raise risk; low or extremely uncertain yields at home make it easier for potential investors to choose an account overseas. When inflation rates are high, price limits on specific goods to combat price increases can negatively impact domestic

investment(Irani, Athari, Hadood, & Administration, 2021). In such circumstances, price modifications must be made regularly. If the authorities fail to make these modifications, businesses will suffer significant losses due to price distortions. The mere possibility of pricing distortions as a result of excessive inflation or price regulations can make realistic planning difficult.

On the other hand, foreign investment is frequently thought to be less risky (Rahman, 2019). Finally, capital exports are triggered by the urge to protect assets. The security motive or portfolio concerns usually come into play here rather than yield considerations. Residents are primarily motivated to invest a portion of their money abroad for political reasons, particularly the fear of expropriation (Schineller, 1997).

The previous literature discussed three main methods to estimate capital flight, e.g., the balance of payment method, Cuddington approach, and Dooley measures. Several studies measured capital flight indirectly from a balance of payment statistics by comparing the sources of capital inflows (i.e., the net increase in the external debt and a net inflow of foreign investment with the uses of these inflows, i.e., Current account deficit and addition to foreign reserves). If the sources exceed the uses of inflows, the difference is termed capital flight. This is a so-called residual method, and it is widely used in the literature. (F. R. J. C. E. R. Gunter, 2004) have used this approach to estimate capital flight from China. Another study has used this method and then checked capital flight with government uncertainty regarding policies(Hermes & Lensink, 2001). This method has avoided separating the normal and abnormal capital outflow, but it has taken every private capital outflow as a capital flight. Several variations have been made to this World Bank approach of capital flight (Lensink, et al., 2000). This study will opt for this estimation method due to its acceptability and ease. The second estimation method name is “hot money measure,” also called the Cuddington approach. It measures capital flight by adding net errors, omissions, and non-bank private short-term capital outflows (J. T. Cuddington, 1986). This measure reflects the idea that capital flight goes unrecorded due to criminal matters of these capital movements. It is argued that unrecorded capital investments appear in the net error and omissions. Moreover, by concentrating on short-term flows, medium and long-term flows are excluded, which are considered to be more

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3. DATA & METHODOLOGY

Data of 59 developing countries were included in the analysis from the year 2001-2019. Initially, a sample of 129 developing countries was considered, but only 59 countries were included to avoid manipulation in results due to the unavailability of data. Therefore, a balanced panel GMM is used to analyze determinants of capital flight in step 1. Data is mainly collected from World Bank indicators, the International monetary fund, and transparency international. The problem of missing values is commonly observed in macroeconomic data, and it is vital to deal with it with minimum manipulation.

Furthermore, missing values were treated using MCMC (Markov chain Monte Carlo method)(Brooks, 1998). Moreover, standardization and coding were done. The functional form is given below;

$$CF_{i,t} = \sigma_0 + \sigma_1 CF_{i,t-1} + \sigma_2 GIC_{i,t} + \sigma_3 CRI_{i,t} + \sigma_4 EF_{i,t} + \sigma_5 FI_{i,t} + \sigma_6 IR_{i,t} + \sigma_7 ER_{i,t} + \sigma_8 EXP_{i,t} + \sigma_9 EXD_{i,t} + \sigma_{10} INF_{i,t} + \sum_{h=1}^{10} \delta_h W_{ME} + \eta_i + \xi_t + \varepsilon_{i,t}$$

The strategy of GMM, which will be used here, is adapted from (Simplice A. Asongu, et al., 2019). In step 2 on analysis, the impact of capital flight is checked on the economic performance of developing countries, and for that GLS (Generalized Least Square) technique is used; functional form is given below;

$$EP_{it} = \beta_1 + \beta_2 KF_{it} + \mu$$

Model of the study Step 1:

Figure 1: In the first model Dependent variable is capital flight.

Arriving at the acceptable definition of capital flight is as difficult as measuring it. Perhaps the best definition of capital flight is to describe it “as speculative short term capital outflow based on political and economic apprehension in the home country.” There are three methods to calculate capital flight, but the study used the residual method to estimate capital flight. The World Bank introduced the residual estimation method, and different scholars have made different changes at different times. Nevertheless, by using this formula, we can calculate Capital flight, which was previously used by (Ahmad & Sahto, 2015).

$$KF_{it} = \Delta ED_{it} + NFDI_{it} - \Delta CAD_{it} - FR_{it} \dots (1)$$

Where,

ED= External debt

NFDI= Net foreign direct investment

CAD= Current Account Deficit

FR= Foreign reserves

Total external debt stocks to gross national income. Total external debt is debt owed to non-residents repayable in currency, goods, or services.

Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital.

The current account balance is a sum of net exports goods and services, net primary income, and net secondary income.

Total reserves comprise holdings of monetary gold, special drawing rights, reserves of IMF members held by the IMF, and foreign exchange holdings under monetary authorities' control. Independent variables are given below;

Table 3.1: List of Independent variables

Variable Name	Proxy
Economic freedom index	Fiscal freedom index
	Financial freedom index
	Economic freedom overall index
	Investment freedom index
	Trade freedom index
	Corruption freedom index
	Business freedom index
Country risk index(ICRG methodology)	Economic factors
	Financial factors
	Political factors
Financial inclusion index	Shadow Economy
	Globalization Index
	Financial Literacy
Governance institution and corruption index	Rule of Law
	Government Effectiveness
	Political Stability
	Voice and Accountability
	Corruption Perception
	Political Rights
	Control of Corruption
	Regulatory Quality
Macroeconomic Variables	External Debt
	Inflation
	Exports
	Interest Rate
	Exchange Rate

In step 2:

Capital flight is an independent variable. However, GDP, capital investment, and foreign direct investment are dependent variables

Figure 1: Model 2

4. RESULTS AND DISCUSSION

Table 4.1 shows the descriptive stat of all the variables of model 1. All variables are normally distributed, and outliers were treated. Value of SD shows how much variation that certain variable experienced within its mean.

Data of 57 developing countries are included for 19 years from 2001-2019. Initially, the sample size was 100, but due to missing data, many countries were excluded.

This table shows the correlation between all the variables, and some variables have more than 50 % of correlation, so we need to check whether there is any need to drop the variable, and for that, Multicollinearity must be checked. In table 4.2, the GCI index and country risk have a .76 correlation, and we have to test Multicollinearity through VIF to decide to drop one of these variables.

Table 4.1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Capital Flight	-0.11358	0.203059	-1.97813	1.14425
Country Risk	-0.40638	0.823344	-3.02743	3.198786
Economic Freedom index	-0.23728	1.007952	-5.6049	2.626476
Financial Inclusion Index	-0.45341	0.868601	-2.18886	2.996587
GIC Index	-0.57638	0.643073	-1.89286	1.416914
External Debt	-0.24076	0.105886	-0.27992	0.935598
Inflation	0.186031	1.066917	-2.18326	13.32293
Exports	0.013874	0.273814	-0.3636	7.40682
Interest Rate	0.150735	1.137666	-4.08059	5.262503
Exchange Rate	-0.08474	0.291697	-0.2367	1.366625

Table 4.2: Correlation Analysis

	Capital Flight	Country Risk	Economic Freedom index	Financial Inclusion Index	GIC Index	External Debt	Inflation	Exports	Interest Rate	Exchange Rate
Capital Flight	1									
Country Risk	0.1131	1								
Economic Freedom index	-0.1801	0.2106	1							
Financial Inclusion Index	0.0947	0.1786	-0.1196	1						
GIC Index	0.0907	0.7605	0.2374	0.214	1					
External Debt	-0.2712	0.1842	0.2523	-0.0282	0.2485	1				
Inflation	0.0661	-0.3213	-0.3119	-0.0224	-0.2886	-0.0817	1			
Exports	-0.0046	-0.0684	-0.0191	-0.0216	-0.0471	-0.0519	0.0139	1		
Interest Rate	0.0003	0.0887	-0.0142	0.1212	0.0436	0.0273	-0.0912	-0.0261	1	
Exchange Rate	0.0395	-0.0514	-0.2402	-0.1555	-0.182	-0.1294	0.0319	0.001	0.179	1

Table 4.3: multicollinearity

F(9, 1074) = 18.29

Prob > F = 0

R-squared = 0.1329

Adj R-squared = 0.1256

Root MSE = 0.19295

Capital Flight	Coef.	Std. Err.	T	P> t	[95% Conf.Interval]	
Country Risk	0.032172	0.011284	2.85	0.004	0.010031	0.054313
Economic Freedom index	-0.02865	0.006782	-4.22	0	-0.04196	-0.01534

Financial Inclusion Index	0.006101	0.007128	0.86	0.392	-0.00789	0.020088
GIC Index	0.035467	0.014607	2.43	0.015	0.006806	0.064129
External Debt	-0.5443	0.058292	-9.34	0	-0.65868	-0.42992
Inflation	0.014527	0.006158	2.36	0.019	0.002444	0.026611
Exports	-0.00628	0.02118	-0.3	0.767	-0.04784	0.035279
Interest Rate	-0.00123	0.005303	-0.23	0.816	-0.01164	0.009174
Exchange Rate	1.95E-05	0.021959	0	0.999	-0.04307	0.043108
_cons	-0.21962	0.015938	-13.78	0	-0.25089	-0.18834

Variable	VIF	1/VIF
GICIndex	2.6	0.384681
Country Risk	2.5	0.399385
Economic Freedom index	1.29	0.772541
Inflation	1.21	0.824313
Exchange Rate	1.19	0.837798
Financial Inclusion Index	1.15	0.87264
External Debt	1.13	0.888538
Interest Rate	1.07	0.931441
Exports	1.01	0.992892
Mean VIF	1.46	

Based on the above testing technique, no variable has an issue with Multicollinearity, so we do not need to drop any variable out of the analysis. Furthermore, no value is greater than 5, so there is a low Multicollinearity to move forward to perform GMM.

Table 4.4: GMM dynamic panel estimation result

Capital Flight	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
L1. Capital Flight	0.352***	0.006173	56.95	0	0.339424 0.36362
Country Risk Index	-0.175***	0.017778	-9.87	0	-0.2103 -0.14061
Economic Freedom Index	0.0364***	0.006241	5.83	0	0.024183 0.048646
Financial inclusion Index	0.336***	0.019426	17.3	0	0.298068 0.374218
GIC Index	0.375***	0.023539	15.93	0	0.328948 0.421218
External Debt	-0.0447*	0.018583	-2.41	0.016	-0.08112 -0.00828
Inflation	0.0606***	0.007033	8.61	0	0.046783 0.074352
Exchange Rate	0.585***	0.08391	6.97	0	0.420211 0.749134
Exports	-0.113**	0.038142	-2.96	0.003	-0.18771 -0.03819
Interest Rate	0.0519***	0.004432	11.72	0	0.043232 0.060604
_cons	0.283***	0.02676	10.59	0	0.230935 0.335831
Number of countries	57				
No. of Instruments	42				
AR(1)	0.0496				
AR(2)	0.371				
Hansen test	0.255				
Sargan test	0.000				
t statistics in parentheses (* p<0.05, **p<0.01, *** p<0.)					

The table mentioned above shows all variables are significant on level $P < 0.05$, and all variables co-efficient signs explain the direction of their relationship with capital flight. External debt, country risk, and exports have a negative relationship with capital flight. Country risk carries a different interpretation because of its variable's reversal nature. This variable explains that if there is more country risk, there would be more capital flight. The country risk index is generated following the ICRG methodology in

which 0 means more risk and ten means low risk so this negative sign means otherwise. The result of country risk is consistent with a study that reported that a negative relationship of capital flight and financial risk was confirmed that concludes that the relationship between two variables depends on the residents and non-residents (Dooley, 1988). Economic freedom index and capital flight have a significant positive relationship because free trade and business policies ease the outgoing of capital with different methods. This index comprises different factors, and those factors were studied with capital flight and possessed a positive relationship, but the overall economic freedom index has never been studied with capital flight. However, The relationship between fiscal policy and capital flight has been discussed in a study, and it has shown a positive and significant relationship of taxation and external debt with capital flight (Lensink, et al., 1998). Trade openness is another aspect of the economic freedom index, and it is an essential factor in driving capital flight from developing economies (Yalta, et al., 2012). So the results of the economic freedom index have the same results as the above two mentioned studies.

FI index and capital flight have a positive relationship that means more financial inclusion causes more capital flight. The financial inclusion index is based on factors already studied in capital flight, e.g., financial liberalization, globalization, and financial literacy. Under Hot money theory of Cuddington says many social, economic, and financial explanations of capital flight; moreover, the flaws in all these factors facilitate capital flight from developing countries. Financial inclusion is basically how many people are aware of the financial institutions and are included in any country's financial process (Dev & weekly, 2006). In this study, the financial inclusion index includes all those factors that shared the surprising results with capital flight, so it became important to discuss them in one index. Financial liberalization and capital flight have been discussed in the literature, proving to be positively significant. However, the result should be the other way because financial liberalization facilitated the trade, but it facilitated the “flight of capital” (Lensink, et al., 1998). Globalization and financialization of the world economy have exacerbated and, in some cases, directly contributed to capital mobilization out of Africa. Under globalization, capital is highly mobile and will search for ways to maximize returns and avoid taxes and government regulations (Petersen, 2004).

The relationship of globalization with the capital flight was meant to be the other way because we generally associate “ globalization” as a positive indicator for the economic situation. However, it is facilitating capital flight, so it has become a negative thing. GIC index is also positively related to capital flight. The role of governance, institutions, and corruption has already been discussed by (Osei-Assibey, et al., 2018), which stated that corruption is significant in sub-Saharan Africa’s capital flight. Another study has investigated the role of corruption as part of poor governance with the help of

the portfolio choice model of asset allocation, and it proves that corruption has a long-term effect on capital flight. (Simplice A. Asongu & Nwachukwu, 2016), have also studied the role of governance in capital flight and it established a strong relationship between two variables. China's sudden acceleration in the capital flight in 2005 (425billion\$); was because of the increased corruption, institutional false role, and transaction cost. Macroeconomic variables are always part of the analysis as control variables whenever the determinants of capital flight are analyzed. Since capital flight is a burning issue for developing and developed countries, the portfolio choice theory also says that macroeconomic context is essential for capital flight. All macroeconomic variables, including FDI, inflation, external debt and GDP growth, exchange rate, and fiscal deficit, are of more importance because all these factors altogether shape the decision making of investors whether money should be kept in home country or abroad (Lee, Ng, & Review, 2015). Another study has given special attention to the macroeconomic variables and capital flight co-movement, and the results were as expected, e.g., external debt, inflation, and fiscal deficit are positively related to capital flight (Imran, et al., 2018). But in this study exports, external debt carries a significant negative relationship with capital flight. A Study in Malaysia has also mentioned the negative relationship between external debt and capital flight because external debt is more of government activity, but capital flight is a private phenomenon (Liew, Mansor, & Puah, 2016). A book also confirms the negative relationship between capital flight and external debt (Khan & Ajayi, 2000).

In the second step, the effect of Capital flight is estimated on Economic performance. The result of the GLS technique is given below;

Table 4.5: GMM estimation results (2001-2019)							
Capital Investment Capital Flight							
Variables	Coef.	Std. Err.	z	P> z 	R-sq	F-stat	P value of Hausman Test
Random Effect	-0.58923	0.114951	-5.13	0.00	0.0704	0.0000	0.2936
Fixed Effect	-0.56611	0.11704	-4.8	0.00	0.0216	0.0000	
Foreign Direct Investment Capital Flight							
Variables	Coef.	Std. Err.	z	P> z 	R-sq	F-stat	Hausman Test
Random Effect	-1.15241	0.192467	-5.99	0	0.029	0.0000	0.1109
Fixed Effect	-0.87051	0.261383	-3.33	0.001	0.0103	0.0000	
Gross Domestic Product Capital Flight							
Variables	Coef.	Std. Err.	z	P> z 	R-sq	F-stat	Hausman Test
Random Effect	-0.2488	0.156757	-1.59	0.113	0.0424	0.0024	0.102
Fixed Effect	-0.20247	0.154175	-1.31	0.189	0.0024	0.1128	

This table shows that three of the variables used as a proxy of economic performance are negatively related to capital flight. The more is capital flight. The trimmer will be the economic activity. (Kant, 1996), suggests that foreign direct investment and capital flight have a negative relationship with capital flight, and this study also has the same outcome. This study employed both random effects and fixed effect, and if the p-value is greater than .05, we use random effect and otherwise. Based

on the value of the Hausman test, we used the random effect model, and with that, GDP is insignificant for capital flight.

5. CONCLUSION

The model of this study is of two steps, in the first step, capital flight is dependent, and in the second step, capital flight is independent. The GMM estimation technique was employed for the first step, with annual data from 2001 to 2019. The result from the GMM confirmed the existence of a significant relationship of all determinants with the capital flight. In the first step, the determinants are not simple factors, but these are indices made up of several factors using the mean arithmetic approach. The results showed that the country risk index, corruption governance and institution index, financial inclusion index, and economic freedom index were the main determinants of capital flight in developing economies during the study period. The analysis includes five macroeconomic variables are included in the analysis, e.g., external debt, exchange rate, interest rate, inflation, and exports.

Exports, external debt, and country risk negatively correlate with capital flight, and all other variables have a significant positive relationship. In the second step, capital flight has a significant relationship with the three economic performance measures: GDP, FDI, and capital investment. There is a negative relationship between GDP, Capital investment, and FDI with capital flight. This result shows that if capital flight activity is increasing, then the economic activity is suffering. According to the study's findings, the government should strengthen the Anti-Corruption Commission and the judiciary to strengthen the fight against corruption, transparency, accountability, and reduce capital flight. In addition, the government should reduce its external borrowing to avoid creating uncertainty and, as a result, capital flight. Instead, the government should concentrate on increasing domestic revenue and borrowing for investment. Also, the government should put in place modalities to ensure strict capital controls, deepen the financial market and maintain overall macroeconomic stability as a recipe to reduce capital flight. Also, as a recipe for reducing capital flight, the government should put in place modalities to ensure strict capital controls, deepen the financial market, and maintain overall macroeconomic stability. For the future, the impact of coronavirus on a capital flight should be researched furthermore kidnapping rate can also be studied in the context of developed economies as it was studied in developing economies (Okafor, Ede, & Economics, 2021).

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