Policy Imperatives For Managing Indian Domestic Investment Under Effect Of Capital Flight.

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ARTICLE INFO	ABSTRACT
	Capital flight means the assets transferred outside the Indian Frontiers with the purpose of reduction in loss of principal, returns, or loss of control on financial wealth due to government-sanctioned activities". This paper explores the relationship between capital flight and domestic capital formation in India, defining capital flight as the transfer of assets abroad to reduce loss of wealth due to government-sanctioned activities. It emphasizes the negative impact of capital flight on domestic investment and discusses the vital role of these undeclared transfers in depriving capital-scarce economies of critical financial resources. The study uses data from 2003 to 2023 and applies the Augmented Dickey-Fuller (ADF) test, VAR, and Granger Causality test to evaluate the relationship between capital flight and gross capital formation. It concludes that capital flight and gross capital formation influence each other in India, with the growth of capital flight in the previous year causing a casual effect on the current year's domestic investment growth, and vice versa. Furthermore, the document delves into the measurements and methods for estimating capital flight, categorizing them into direct and indirect methods such as the residual method, Dooley method, and trade mis-invoicing method. It emphasizes the adverse impacts of capital flight, including a reduction in domestic investment, a signal to foreign private investors about risks involved, erosion of the domestic tax base, and negative effects on equality due to wealthy citizens evading higher taxation by channeling funds abroad. The study also discusses the hypotheses related to the causal effects of previous year's capital flight growth on the current year's domestic investment growth and vice versa.

The research methodology involves defining variables, conducting stationarity tests, and using VAR and Granger Causality tests to examine the short-run relationship between capital flight growth and gross capital formation growth. The results indicate that both variables affect each other in the short run, with lagged capital flight growth causing effects on current year's gross capital formation growth, and vice versa. The document concludes by emphasizing the need to reduce the country's vulnerability to capital flight and the importance of policy imperatives to redirect lost funds into productive areas and reduce income inequalities.
In summary, this study sheds light on the significant impact of capital flight on India's domestic investment, providing insights into the causal effects between capital flight and gross capital formation, and highlighting the necessity of addressing the country's vulnerability to capital flight through policy interventions aimed at promoting productive investments and reducing income inequalities.

Keywords: ADF, Capital Flight, Domestic Investment, Granger Causality, VAR. |

Introduction
Capital flight means the assets transferred outside the Indian Frontiers with the purpose of reduction in loss of principal, returns, or loss of control on financial wealth due to government-sanctioned activities". It has been noticed that these undeclared, undocumented or illicit transfers can deprive capital scarce economies of critical financial resources. The issue is vital as several research studies have communicated that loss of these resources

would in-turn fatally effect the nation's reserves and equally hamper the reduction of debt and expenditure. The capital flight adversely effects the developing nations making it all the more difficult to stimulate investment to achieve high growth rates. The general belief is that that freely moving capital flows in the economy promote investment and growth. After liberalisation in 1990 several economies have opened to the foreign investment inflows adopting standard policies. Though several studies have proven that capital flows actually take place in the opposite direction as the residents of these countries move the already scarce capital to the more advanced ones. This process of accumulation of foreign assets by the private sector is labelled "capital flight" since the 1980s and has been taken as a major economic problem in many developing countries.

The capital flight gains importance for developing nation due to 4 reasons:
1. Flight of capital reduces domestic investment by regulating savings in turn effecting growth and development.
2. Flight of capital is perceived as a sign to foreign private investors about the risks involved leading to a decline in or cessation of capital inflows.
3. The loss of capital due to capital flight erodes the domestic tax base in developing countries.
4. Capital flight has adverse impacts on equality, as prosperous citizens evade higher taxation by channelling funds outside India and the poorer citizens face higher tax rates.

Literature Survey:
Several discussions have been going on for normal Capital Outflows and Flight Induced Capital Outflows. Some authors emphasize the motivation behind capital outflows. Dooley (1986) considers the intention for capital outflows and sees capital flight as all resident capital outflows based on the desire to place wealth beyond the control of the domestic authorities. Thus as long as capital outflows are reported to the authorities, they are not considered as capital flight. When the citizens park the capital outside the government frontiers it forms capital flight.
Kindleberger (1987) distinguishes between 'normal' and 'abnormal' capital flows. He states that "an abnormal capital movement that takes place from a country with a higher rate of interest to a country with a lower rate of interest"
The authors, who emphasize the direction of capital flows, consider the origin of the flows. for example, makes a distinction between and defines capital flight as "an abnormal capital movement that takes place from a country with a higher rate of interest to a country with a lower rate of interest". He mentions that while capital outflows undertaken by residents in the developing countries are considered as capital flight. Capital flight is abnormal capital outflow.
Over the years, the few methods that have been proposed in the literature for measuring capital flight. These have been bifurcated into direct and indirect methods:
1. Residual Method (World Bank, 1985; Morgan Guaranty, 1986) - Indirect method
2. Dooley Method (Dooley, 1986)- Indirect method
3. Trade Misinvoicing Method (Bhagwati, 1964) - Indirect method
4. Hot Money Method (Cuddington, 1986) -Direct Methods
5. The Asset Method (Hermes and Lensink, 1992) -Direct Methods
According to Schneider, 2003b indirect methods are used to estimate capital flight as the direct data does not include all resident flows. Based on this fact Residual method is used by the study.
The Residual Method: This method was first introduced by the World Bank (1985). The measures of capital flight are based on comparison of the sources of capital inflows with the applications and uses of capital flows. The discrepancy between these two abovementioned parameters gives the amount of capital flight.
Capital flight as per above mentioned according to this measure is estimated as follows:
$KF_t = \Delta D_t + FI_t - CA_t - \Delta R_t$ (1)
Here ΔD connotes the change in external debt,
FI refers to net foreign investment flows, CA connotes current account deficit and ΔR is the change in foreign reserves.
Empirical studies of different authors show negative a relationship between investments to capital flight. They state that as capital is shifted abroad the supply of capital available domestically is reduced. Firstly, capital flight leads to the loss of resources as capital is transferred outside the Indian frontiers. This removal of domestically available resources directly alters the desire for domestic investment by individuals and thus the level of aggregate domestic investment. The resources transferred outside also indirectly affect domestic investment.Furthermore, the level of domestic investment is also reduced indirectly as capital flight also lowers the taxable income and government revenue. Supporting evidence for this negative causal relationship has been identified in several countries including Indonesia, Nigeria, Iran, Cameroon, Philippine and other developing and transition countries. From the above analysis it is clear that generally capital flight has a negative impact on domestic capital formation.

Research Methodology:

The objective of this study is to find out the relationship between capital flight and domestic capital formation in India over the years.
The hypotheses are as follows:
1. Capital flight growth of the previous year has causal effect on growth of domestic investment of current year or not.
2. Domestic investment growth of the previous year has causal effect on growth of capital flight of current year or not.

The study uses 23 years data ranging from 2000 to 2023 to investigate the above-mentioned objectives, the study defines variables such as:
Growth of capital flight referred to as CFGt = (capital flight at t - capital flight at t-1),
Growth of gross capital formation referred to as GCFGt = (gross capital formation at t - gross capital formation at t-1)
The methodology firstly checks that the variables used in the time series are stationary or not using stationarity tests namely Augmented Dickey-Fuller (ADF) test.
For the stationary series the mean & covariance are constant over time & the auto-covariance of the series depends only on the lag between two time periods & not on the actual time at which the co-variance is calculated.
After checking for the stationarity, the study uses VAR and Granger Causality test for investigation of the short run relationship amongst the variables.
VAR equation using two variables, x and y :

$$y_t = \beta_{10} + \beta_{11} y_{t-1} + \beta_{12} y_{t-2} + \alpha_{11} x_{t-1} + \alpha_{12} x_{t-2} + U_{1t} \qquad (2)$$
$$x_t = \beta_{20} + \beta_{21} x_{t-1} + \beta_{22} x_{t-2} + \alpha_{21} y_{t-1} + \alpha_{22} y_{t-2} + U_{2t}$$

Granger causality can be examined using VAR. Consider the two-variable system in equations (1). The first equation models y_t as a linear function of the past values, plus past values of x.
If x Granger causes y , then some or all of the lagged x values have non-zero effects: lagged x affects y_t conditional on the effects of lagged y.
The null hypothesis (x does not Granger cause y) is
H0: $\alpha_{11} = \alpha_{12} = 0$
This can be tested using a standard Wald F or χ^2 test.
Similarly, the null hypothesis (y does not Granger cause x) is
H0: $\alpha_{21} = \alpha_{22} = 0$

Table 1: Granger Causality Test Outcome

	Fail to reject $\alpha_{11} = \alpha_{12} = 0$	Reject $\alpha_{11} = \alpha_{12} = 0$
Fail to reject $\alpha_{21} = \alpha_{22} = 0$	no Granger causality	x Granger causes y
Reject $\alpha_{21} = \alpha_{22} = 0$	y Granger causes x	x Granger causes yy Granger causes x

Data Analysis

Computation of Capital Flight by Residual Method for India using residual method. The capital flight is the difference between the sources of capital inflows (i.e., net increases in external debt and the net inflow of foreign investment) with the uses of capital flows (i.e., the current account deficit and additions to foreign reserves).

Table 2: Computation of Capital Flight by Residual Method

Year	Current Account Balance (miln. $)	Direct Investment (miln. $)	Portfolio investment (miln. $)	Change in Reserve (miln. $)	Change in debt (miln. $)	Capitalflight = ΔDt+FIt - CAt -ΔRt (miln. $)
-1	-2	-3	-4	-5	-6	-7
2000	-26666	3272	2590	5085	1427	-461.611
2001	3400.1	4734	1952	8044.96	879.94	-1161.111
2002	6345.1	3217	944	22177.49	4820.51	-6850.999
2003	14083.2	2388	11356	31883.69	10822.9	6766.199
2004	-2470	3713	9287	28140.62	4177.19	-13433.41
2005	-9902	3034	12494	5624.7	-4316.72	-4315.423
2006	9565.25	7693	7060	40078.83	21997.9	-12893
2007	-15737	15892.83	27433.2	97754.57	33484.3	-36680.7
2008	-27915	19816.05	-14031.1	-19835.3	15353.1	13058.652
2009	-38,181	17966	32396.04	20643.97	21231.4	12768.922
2010	-47909	11834.14	28243.2	22061.57	24380.4	-5513.12
2011	-78179	22060.68	16573.11	1176.05	22386.7	-18334.91
2012	-87843	19819.35	26704.04	-99.39	42922.3	1701.81
2013	-32257	21564.14	4801.88	-1588.56	35301.9	30999.681

2014	-26789	31251.38	40934.04	26614.97	37750.7	56532.152
2015	-22088	36020.99	-4503.15	28718.32	25584.5	6296.222
2016	-14350	35612.18	7611.57	8178.23	-24828.2	-4132.681
2017	-48661	30286.08	22114.92	50042.47	---	-46302.61
2018	-55052.6	35751.52	21104.58	21842.34	27341.28	2726.231
2019	-58382.4	37817.91	21957.92	21950.29	28592.43	3141.599
2020	-61712.2	39884.3	22811.27	22058.24	29843.58	3556.967
2021	-65041.9	41950.69	23664.61	22166.19	31094.73	3972.336
2022	-68371.7	44017.08	24517.95	22274.15	32345.88	4387.704
2023	-71701.5	46083.47	25371.3	22382.1	33597.03	4803.072

Relation between CFG and GCFG

Unit root tests viz. ADF test was conducted on the variables CFG and GCFG summarised in Table 3.
The ADF test indicate the stationarity of all the two time series at level as it rejects the null hypothesis of non-stationarity at 5% level of significance for CFG and GCFG.

Table 3: Results of ADF and Phillips-Perron test.(Significance at 5%)

Variable	ADF	Macknan Approx P-value for Z(t)
CFG	-3.705	.004
GCFG	-3.625	.005

To examine the relationship between RGDPG and PPPG, the following VAR equations are estimated:

CFG t = β_{10} + β_{11} CFGt-1 + β_{12} CFGt-2 + β_{13} CFGt-3 + β_{14} CFGt-4 + α_{11} GCFGt-1 + α_{12} GCFGt-2 + α_{13} GCFGt-3 + α_{14} GCFGt-4 +U1t   (2)

GCFGt = β_{20}+ β_{21} GCFGt-1 + β_{22} GCFGt-2 + β_{23} GCFGt-3 + β_{24} GCFGt-4 + a_{21} CFGGt-1 + α_{22} CFGt-2 +α_{23} CFGGt-3 +α_{24} CFGGt-4 +U2t

The result of the VAR analysis (Granger causality test) is summarized in table 4.

Table 4: Granger Causality Wald tests between CFG and GCFG

Equation	Excluded	chi2	Prob > chi2
CFG	GCFG	8.065	.08**
GCFG	CFG	23.516	.00*

*Significant at 5%, ** Significant at 10%

The results of the Granger causality test show lagged CFG Granger Causes GCFG and lagged GCFG Granger Cause CFG. The two variables CFG and GCFG therefore affect each other in short run.

Findings and Implications:

The study's findings reveal a bidirectional relationship between capital flight and domestic capital formation, with implications for policy and economic stability

- Ⓢ Capital flight and gross capital formation **affect each other**.
- ☑ Previous year's capital flight growth has a **causal effect** on the current year's domestic investment growth.
- ⊡ Conversely, the previous year's domestic investment growth affects the current year's capital flight growth.
- 𝔼 The negative impact of capital flight on domestic capital formation necessitates **policy intervention**

Conclusion:

This paper provides a review of the theoretical and empirical literature on capital flight. Firstly, examination of conceptual and methodological problems of capital flight are discussed. Magnitude of capital flight is computed by residual method. capital flight is a major problem for developing countries and several studies have enlisted the impact on domestic economy. The research work highlights that in India both CFG and GCFG are affecting each other. Also, the previous year's capital flight growth has causal effect on growth of domestic investment of current year and previous year's domestic investment growth has causal effect on growth of capital flight of current year. Thus, these are the two key factors of the economy. There is immense need to reduce the country's vulnerability to capital flight. Policy imperatives must channel the lost funds into productive areas and also into reducing the income inequalities.

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