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Original Article

An Analysis of Structural Break in Capital Account Balance in Post-Liberalised Indian Economy

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Abstract

This paper examines the trend of India's capital account balance over the period 1991–2022 and investigates the presence of a structural break during the global financial crisis of 2007–09. The study applies the Chow breakpoint test to detect possible breakpoints in the capital account balance. The macroeconomic variables taken for the analysis are capital account balance, exchange rate, gross external debt, foreign direct investment, gross domestic product, gross fiscal deficit, inflation, interest rate and crude oil prices. The empirical study finds no structural break in India's capital account balance during 2007-09.

Keywords: *Structural Break, Chow Breakpoint Test, Economic uncertainties*

Introduction

Structural breaks refer to sudden and significant changes in a time series due to policy reforms, financial crises, or external shocks. Structural break in India's capital account balance may be associated with economic reforms in the year 1991, the global financial crisis (2007–09) and demonetization (2016). Capital account records flow of capital between residents of a country and the rest of the world. Balance on capital account became more important after the economic reforms initiated in 1991. India observed significant changes in the inflow of capital after liberalisation. These capital inflows contributed to financing the current account deficit but also exposed the Indian economy to external shocks and global financial instability. Thus, the capital account balance became very susceptible to changes in domestic policies and global economic uncertainties. It became very important to understand the dynamics of capital account balance in the aftermath of domestic policy changes and global economic uncertainties. Arora et al. (2010) observed that global financial crisis in 2007 affected Indian economy. There was sudden outflow of capital in short term after 2007. As a consequence, rupee depreciated. They further observed that India contained the impact of this crisis by proper implementation of monetary and fiscal policy. Basu (2020) studied structural break in India's economic growth from 1950 to 2018 by applying Bai Perron method. He observed structural breaks in the year in 1964, 1978, 1990 and 2004.This study aims to examine the presence and timing of structural breaks in capital account balance by applying Chow Breakpoint test in post-liberalised Indian economy.

Literature Review

Camba-Crespo et al. (2021) study structural breaks in current account in 181 countries from 1980 to 2018 by applying Lee and Strazicich's test and the Heckman selection model. The result finds 212 significant structural breaks and 341stability spells. It was observed that lower income countries are more vulnerable to structural breaks. It was further observed that a rise in real interest rate or depreciation of domestic currency reduces the risk of structural breaks. It was also found that high economic growth and large amount of foreign exchange reserves are very helpful in preventing the structural breaks.Arouri et al. (2015) analysed the behaviour of real exchange rate and real current account deficit from 1975 to 2011 and found that an appreciation of rupee widens current account deficit.

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As a consequence, capital inflow increases in Indian economy. Chakraborty et al. (2010) analyses the structural breaks in current account balance and capital account balance of the Indian economy from 1970-71 to 2008-09 by applying Bai and Perron test. Result finds structural breaks in the year 1993-94 and 2003-04. Suresh & Shylajan (2015) analysed structural breaks in India's macroeconomic variables by applying Narayan and Popp method. Result found structural break in trade and finance in the year 1994-95 and structural break in GDP in the year 1996-97.Kohli (2011) studied the dynamic management of India's capital account during global financial crisis 2007. It was observed that capital control was very effective in balancing the exchange rate and price stability. Shah & Patnaik (2005) observed that capital flows have shaped the currency regime and the currency regime has shaped capital flows. The implementation of the currency regime has led to large capital outflows in the form of reserves accumulation by the RBI. They further observed that key goal of liberalization was to increase national output by the inflow of foreign capital. It was also observed that India needs a macroeconomic framework to manage current account deficit and increase domestic investment by using foreign capital. Verma (2009) examines the impact of savings, investment and inflow of foreign capital on India's growth process during 1950-2005 by using ARDL method. It was found that inflow of foreign capital affects India's GDP growth both in the long run and the short run. It was also found structural breaks in GDP in the year 1964 and 1984.

Data and Methodology

Data

The variables taken for the empirical study are Capital Account Balance (CAPAB), Exchange rate (ER), Gross External Debt (GED), Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Gross Fiscal Deficit (GFD), inflation, Interest Rate (IR) and Crude Oil Prices (COP). Annual data of these variables taken from 1991 to 2022. The source of data is Database on Indian economy, RBI.

Methodology

The Chow Breakpoint Test has been applied to detect the structural break in capital account balance.

Linear regression model for the full sample period:

$$Y_t = \alpha + \gamma X_t + \varepsilon_t \quad (1)$$

Where,

Y_t = Dependent Variable

X_t = Vector of regressors

ε_t = Error term

Capital Account Balance is taken as dependent variable. Exchange rate, Gross External Debt, Foreign Direct Investment, Gross Domestic Product, Gross Fiscal Deficit, inflation, Interest Rate and Crude Oil Prices are taken as regressors.

Suppose, structural break occurs in the year T_S. Then sample will be divided in two sub-periods:

Period 1: t = 1, 2, 3, …..,T_S

Period 2: t = T_S +1, ….. , T

Regression equations for both sub-periods:

$$Y_t = \alpha_1 + \gamma_1 X_t + \varepsilon_{t1} \quad (2)$$

$$Y_t = \alpha_2 + \gamma_2 X_t + \varepsilon_{t2} \quad (3)$$

H_0: There is no structural break in CAPAB

H_0: $\alpha_1 = \alpha_2$ and $\gamma_1 = \gamma_2$

H_1: There is a structural break in CAPAB

$$F = \frac{[RSS_p - (RSS_1 + RSS_2)]/k}{(RSS_1 + RSS_2)/(T - m - n)}$$

Where,

RSS_P = Residual Sum of Squares (RSS) from the pooled regression

RSS_1 = RSS from sub-sample regression 1

RSS_2 = RSS from sub-sample regression 2

m = Number of parameters estimated in regression equation 1

n = Number of parameters estimated in regression equation 2

K = m + n

T = Total number of observations

Analysis of Empirical results

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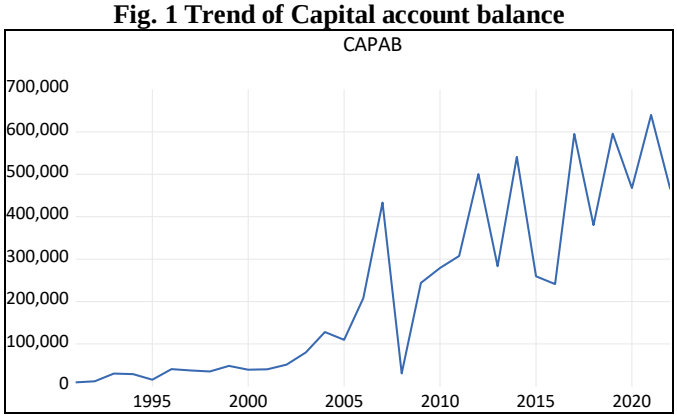
Fig. 1 Trend of Capital account balance



In the fig. (1), capital account balance has suddenly risen in the year 2007 and it has sharp fall in the year 2008. CAPAB again sharply rises in the year 2009. Overall, CAPAB has rising trend from 1991 to 2022.

Table 1 Coefficients of Regression equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	228242.0	319931.5	0.713409	0.4828
ER	-4771.035	5682.427	-0.839612	0.4098
GED	-0.134652	0.085486	-1.575127	0.1289
FDI	1.266827	0.216658	5.847140	0.0000
GDP	0.037146	0.016585	2.239704	0.0351
GFD	-0.214321	0.081737	-2.622095	0.0152
INFLATION	-11811.39	10742.56	-1.099494	0.2829
I R	3545.087	9396.191	0.377290	0.7094
COP	8.607291	12.50649	0.688226	0.4982
R-squared	0.915024	Mean dependent var		224262.1
Adjusted R-squared	0.885468	S.D. dependent var		208690.8
F-statistic	30.95825	Durbin-Watson stat		1.713672
Prob(F-statistic)	0.000000			

Regression equation for capital account balance

CAPAB = 228242.02 - 4771.03* ER - 0.13*GED + 1.26*FDI + 0.037*GDP - 0.21*GFD - 11811.38*INFLATION + 3545.08*IR + 8.60*COP (4)

Table 2 Chow Breakpoint Test: 2007

F-statistic	0.380492	Prob. F(9,14)	0.9256
Log likelihood ratio	7.002105	Prob. Chi-Square(9)	0.6369
Wald Statistic	3.424428	Prob. Chi-Square(9)	0.9451

H_0 : No structural break in the year 2007

Since, p-value of F-statistic is 0.9256. Therefore, null hypothesis can not be rejected. It shows that there is no structural break in capital account balance in the year 2007.

Table 3 Chow Breakpoint Test: 2008

F-statistic	0.455123	Prob. F(9,14)	0.8813
Log likelihood ratio	8.212466	Prob. Chi-Square(9)	0.5129
Wald Statistic	4.096108	Prob. Chi-Square(9)	0.9050

H_0 : No structural break in the year 2008

Since, p-value of F-statistic is 0.8813. Therefore, null hypothesis cannot be rejected. It shows that there is no structural break in capital account balance in the year 2008.

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Table 4 Chow Breakpoint Test: 2009

F-statistic	1.774134	Prob. F(9,14)	0.1622
Log likelihood ratio	24.35348	Prob. Chi-Square(9)	0.0038
Wald Statistic	15.96721	Prob. Chi-Square(9)	0.0676

H_0 : No structural break in the year 2008

Since, p-value of F-statistic is 0.1622. Therefore, null hypothesis cannot be rejected. It shows that there is no structural break in capital account balance in the year 2009.

Conclusion

This paper analyses the trend of India's capital account balance over the period 1991–2022 and investigates the presence of a structural break during the global financial crisis of 2007–09. The study includes the variables capital account balance, exchange rate, gross external debt, foreign direct investment, gross domestic product, gross fiscal deficit, inflation, interest rate and crude oil prices for the analysis. The Chow Breakpoint test has been applied to detect possible breakpoints in the capital account balance. The empirical analysis finds no structural break in India's capital account balance during 2007-09. This analysis will offer valuable insights to researchers and policymakers for formulating effective strategies to manage India's capital account balance in the situation of global economic uncertainties.

References

1. Arora, D., Rathinam, F. X., & Khan, M. S. (2010). India's experience during the current global crisis: A capital account perspective. *Policy Research Institute, Ministry of Finance, Japan, Public Policy Review*, 6(5), 807-836.
2. Arouri, M. E. H., Dar, A. B., Bhanja, N., Tiwari, A. K., & Teulon, F. (2015). Interlinkage between real exchange rate and current account behaviors: Evidence from India. *Journal of Applied Business Research,* 31(4), 1199–1204. https://doi.org/10.19030/jabr.v31i4.9295
3. Basu, D. (2020). Revisiting India's growth transitions. *UMass Amherst Economics Working Papers*. 284. https://doi.org/10.7275/16097049
4. Camba-Crespo, A., García-Solanes, J., & Torrejón-Flores, F. (2021). Current-account breaks and stability spells in a global perspective. *Applied Economic Analysis,* 30(88), 1–17. https://doi.org/10.1108/AEA-02-2021-0029
5. Chakraborty, D., Mukherjee, J., & Sinha, T. (2010). The structural relationship between current and capital account balance in India: A time series analysis. *Munich Personal RePEc Archive*, https://doi.org/10.2139/ssrn.1615266
6. Kohli, R. (2011). India's experience in navigating the trilemma: Do capital controls help? *ICRIER'S WORKING PAPER 257*.
7. Shah, A., & Patnaik, I. (2005). India's experience with capital flows: The elusive quest for a sustainable current account deficit. NBER WORKING PAPER SERIES 11387, 1-33.
8. Suresh, K., & Shylajan, C. S. (2015). Structural breaks and unit roots in Indian macroeconomic variables. *Theoretical and Applied Economics*, XXII, 4(605), 145–150. http://www.ectap.ro/articol.php?id=1139&rid=121
9. Verma, R. (2009). Household, private and public savings and investment, foreign capital inflows and GDP growth in India with structural breaks 1950–2005. *Research Online, University of Wollongong*, 1-28. https://ro.uow.edu.au/commpapers/2080