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Liberalisation and Current Account Balance: An Empirical Evaluation

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Abstract

An empirical relationship is examined between the Current Account Balance (CAB) and liberalisation expressed in terms of Financial Openness (FO) and Trade Openness (TO) for a quarterly period of January 2000 to March 2016. The primary domain of this study encompasses the evaluation of impact of Financial Openness and Trade Openness on CAB, over a select period of time (long run and short run), through the Auto Regressive Distributed Lag model (ARDL). ARDL model was developed and tested empirically, in order to anticipate the likely existence of stationarity associated with the time series data over the study period. Empirical results suggested that both the selected variables (FO and TO), have significant impact on CAB in long run whereas in case of short term, it was observed that only TO had significant impact on CAB. Therefore, researchers concluded that policy makers should focus more on Trade Openness to increase the exports over a short as well as long period of time. Similarly, on import basis government should concentrate more on FDI inflows over long run, which shall lead to an increase in employment level and productivity that shall finally act as an impetus to increase the exports from India to the rest of world.

Keywords: Current Account Balance (CAB), Financial Openness (FO), Trade Openness (TO) and Auto Regressive Distributed Lag model (ARDL)

JEL Qualification: C32, C55, C58, C87, F21, and F38

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1. Introduction

The classical axiom of trade order paradox, reflects that the quantum of trade order problem encompassing the (Current Account) and financial liberalization (Capital Account) is apparently reflected in the Balance of Payment (BOP).This phenomena has become more dynamic after the experience of South American countries - Argentina, Chile and Uruguay, followed opposite trade order in the early 1980s. The entirely opposite strategies adopted by Argentina, Uruguay and Chile reflected the altogether a different experience of opening up the capital account and current account, which finally resulted in a deep economic recession and the problem of liberalization. This, Southern-Cone experience prompted a greater concern on the issue of the adequate order of liberalization all across the world. As consequent of this southern countries experience, four major issues related to liberalization evolved in the global economy during the early 1980s.

Firstly, it was believed that in context of liberalization, some serious strategic initiatives need to be taken up, as if liberalization is not sufficiently addressed, it will not fully eradicate all biases, present in the economy. Thus, the question of welfare effect of partial reforms will become a critical issue. While in contrary to this assumption, other preposition suggested that almost anything can happen as a consequent of a partial reform to the welfare and the well-founded inference is that the liberalization of some markets only will be welfare improving. (Krueger (1983b), Michaely). Secondly, the question of liberalization speed became equally important, as in the absence of market inadequacies and externalities, the liberalization of markets would be attained over a very short period of time. Thirdly, relationship between liberalization and stabilization became a critical issue to understand the success or failure of liberalization reforms, thus as a consequent of this most of liberalization efforts in global economy were undertaken in combination with major stabilization programs (Krueger (1978, 1981, 1983a), and Jaime de Melo (1982), reflective impact of restrictions and controls over liberalization revealed a rise in the fiscal deficit and inflation. Lastly, it was observed that in an economy, the order of liberalization (i.e., which market should be liberalized first) also became important.

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There seems to be a generalized agreement among authorities for the order of liberalization. For instance, liberalization of financial account should be followed by opening up the domestic capital markets, which essentially requires that on ab-initio basis the drastic reduction in the fiscal deficit should be attained first followed by liberalization of economy.

This study sought to analyse the relative impact of trade liberalisation and finance liberalisation over CAB. Conventionally, CAB is assume to be an important signal of competitiveness and the level of imports and exports of a country. CAB, is believe to occur in an economy, when a country's government, businesses and individuals import more of goods and services than its exports. A larger quantum of CAB, usually implies some kind of imbalance in the economy resulting in decline of competitiveness or increase in depreciation of the exchange rate over a period of time. In India, the volume of negative Current account has increased often during study period. Trade Openness, measures the total trade in goods and services. Conversely, de-jure and de-facto are the measures of determining a country's degree of Financial Openness i.e. the Chinn-Ito index (based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). measured by IMF) and the gross foreign assets (sum of foreign assets and foreign liabilities) respectively. In case of Indian Economy, the Chinn- Ito index is found to be a constant i.e. 1.16883 over a select period of time.

The existing literature on the order of liberalization of current and capital account in context of balance of payment, has been reviewed critically and grouped into three broad categories. Primarily, on the initial basis it is believed that a significant relationship exists between real exchange rate behavior and macroeconomic stability during the liberalization efforts. Some of the previous studies appear to support a claim that the Financial Openness will generate destabilizing capital flows and high volatile in Real Effective Exchange Rate of Index (REERI). Therefore, liberalization of capital account should take place, only when trade reforms have successfully been initiated. Which finally results in consolidation of the new production structure in an economy. However, other authors have argued that before the trade reforms, implementation of freely floating exchange rates with full convertibility, is likely the most appropriate way to avoid the undesirable real exchange rate movements. Thus, finally it can be concluded that according to this line of argument, capital account should be liberalized first over the others. While, primary focus of second line of thought, appears to be related to welfare effects of particular orderings, where analytic emphasis was laid upon the probable values of cross elasticities and indirect welfare effects. Whereas, third argumentative instance selectively emphasizes over the problem of adjustment of costs and the provisions for adjustment assistance through cheaper foreign credit. Unlike others, some authors appears to believe that greater availability of cheaper foreign credit can be obtained through Financial Openness resulting in more equilibrium in the adjustment process. However, some authors were of opinion that the likely impact of cheaper foreign credit will be selectively undesirable as some likely "wrong" signals would prevail in an economy, thus capital flows should be avoided during the transition phase of trade reforms.

2. Review of Earlier Studies

The empirical studies that analyse the effect of trade liberalisation and financial liberalization on current account balance are still quite limited and eccentric. At this point, the empirical literature could be divided into two broad categories, studies testing the causal relationship and the impact of Financial Openness (FO) on current account balance (CAB) and studies testing the relationship and the impact of trade liberalisation (TO) on current account balance (CAB).

Jamel Saadaoui (2013)[1], investigated the impact of capital account openness on medium run current account imbalances for industrialized and emerging countries and revealed a positive impact of capital account openness on CAB of industrialized countries. While, it was observed to be negative in emerging countries, due to an upward pressure on domestic investment rates. On the other hand, Sarısoy (2006), explored the relationship between net private capital inflows and the current account for same countries and concluded that the behaviour of capital inflows is different in developing countries as compared to industrial countries. Furthermore, it was observed that capital inflows cause current account imbalances in developing countries, excluding the industrial countries.

Similarly, Bilge Gürsoy (2013)[2] and Wong and Carranza (1999), tested the bi-directional causality between Current Account (CA) and Financial Openness (FO) in Central, Eastern and South eastern Europe (CESEE) countries and four emerging economies (Argentina, Mexico, Philippines and Thailand) respectively. They concluded that current account instability is caused by a high level of capital mobility in all the selected emerging countries. However, in case of CESEE countries, financial account granger-causes current account of only two CESEE countries. Similarly, Edwards Sebastian, (2004), investigated the relationship between the mechanism of sudden stop of capital inflows and current account reversals. This study revealed that restricting capital openness does not reduce the possibility of suffering a current account reversal. Similarly, Robert C. Tatum (2010), attempted the same study and concluded that an increase in balance of payment deficit is caused due to trade liberaliza-

tion, but an open capital account reduces the magnitude of these deficits.

Anna Lo Prete (2012)[3], analysed the effect of trade-related policy choices and financial development on current account imbalances in OECD countries, through the pooled regression model. This study explored a negative and significant role of legal origins and natural openness, financial development on CAB. However, Ashok Parikh (2002), examined the impact of trade liberalisation on economic growth and trade balance of forty two developing countries of Asia, Africa and Latin America. This study revealed a positive impact of liberalisation on CAB. While, on the other hand Yalda Sadat Amini (2012) et al., tempted the same study for Iran only by using Auto Regressive Distributed Lags (ARDL) model. The econometric analysis suggested a significant positive impact of trade liberalization on economic growth in long run as well as in short run but on the current account balance, it had an insignificant impact. Similarly, Gairuzazmi M Ghani (2011), analysed the impact of Trade Openness over exports, imports and GDP per capita of organisation of the Islamic Conference member countries by using Panel Regression Model, revealed that ratio of Imports, Exports, GDP per capita and trade over GDP has not improved after trade liberalisation. Siong Hook Law (2009), examined the impact of Trade Openness (TO) and capital flows on financial development in developing countries, by using a Generalised Method of Moments (GMM) estimation technique, empirical results revealed that opening of both the trade and capital accounts have a statistically significant and positive impact on financial development. Some empirical evidences, also suggested that Trade Openness leads to improved financial development through institutional quality and competition channels.

3. Need of Study

The major reflection of previous studies suggested that the capital account openness and Trade Openness are the major determinants of CAB. Many empirical studies in past have been taken to analyse the impact of capital inflows on current account balance for different countries. Similarly, the impact of Trade Openness on CAB has been analysed for different countries. But, no one has attempted to study the impact of both type of liberalization altogether on CAB. Thus, in order to address this research issue, present study is designed and carried out in context of India.

4. Objectives of Study

- To analyse the impact of Trade liberalisation on CAB of India.
- To analyse the impact of Financial Openness on CAB of India.
- To evaluate the effect of financial and Trade Openness jointly on CAB of India.

5. Research Hypotheses

For the purpose of this study, null hypotheses have been formulated as follows:

- **Ho1**: Trade Openness and current account balance are independent to each other.
- **Ho2:** Financial Openness and current account balance in India are independent to each other.
- **Ho3:** FO & TO (jointly) and current account balance are independent to each other.

6. Empirical Model and the Econometric Methodology

The quarterly time series data related to select variables of this study were used for the development of empirical model and subsequent testing of model specifications. Quarterly time series data spanned over period of January 2000 to March 2016, was used in empirical estimations. The data for all variables were retrieved from the website of Reserve Bank of India. All variables have been taken in millions of US dollars.

The basic model is represented as given below:

$$CAB_t = \beta_0 + \beta_1 TO_t + \beta_2 FO_t + u_t \quad (1)$$

Here, CAB, TO and FO represents current account balance, Trade Openness and Financial Openness in USD million. The subscript (t), represents indexes time, while error-term u is assumed to be independently and identically distributed.

In this study, analysis has been carried out by examining the properties of time series data. Initially, the stationary of the series is tested in order to avoid the problem of spurious regression and to ensure the validity of the usual test statistics. Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP), unit root test of stationarity has been used at appropriate differencing and this appropriate number of differencing is called order of integration. The equation for ADF Test is expressed as:

$$\Delta y_t = \beta_1 + \beta_2 t + \delta y_{t-1} + \alpha i \Sigma \Delta y_{t-I} + \varepsilon_t \quad (2)$$

Here, *yt* is the variable of interest *(CAB, TO and FO)*, Δ is the differencing operator, *t* is the time trend and ε, is the white noise residual of zero mean and constant variance. $\beta 1$, $\beta 2$, δ, and αi are the set of parameters to be estimated. Thereafter, ARDL model has been applied to test the short and long run impact of TO and FO on CAB. The ARDL Equation for CAB is expressed as:

$$CAB = \beta_1 TO + \beta_2 FO + \beta_3 CAB_{(t-1)} + \beta_4 TO_{(t-1)} + \beta_5 FO_{(t-1)} + u_t \quad (3)$$

Here, β_1 and β_2 represent the impact of FO and TO in long run, while β_3, β_4 and β_5 represent the short run impact of TO and FO on CAB.

7. Analysis and Empirical Results

The results of the ADF and PP unit root tests are shown in Table 1, which indicates that TO and FO are found to be stationarity at first difference only, whereas CAB is found to be stationarity at level as well at their first difference in both the cases. While in case of some select variables, the stationarity was found at I(0) and one at I(1). Therefore, ARDL model has been used to analysis the impact of TO and FO on CAB in long run and short run as well. To apply the ARDL Model and to obtain valid test statistics, researchers selected the appropriate lag lengths for "unrestricted" Error-Correction Model (ECM). The Criteria used for the selection of lag length for "unrestricted" Error-Correction Model has been explained in Table 2. The criterion suggested for the lag selection as given by Akaike's Information Criterion (AIC), Schwartz's Bayesian Criterion (SBC) and Hannan-Quinn information criterion (HQ) carries one lag, whereas the criteria suggested under the sequential modified LR test statistic states nine lags. As, these criterion do suggest different lag lengths. Therefore, researchers has employed the residual autocorrelation LM test, normality test and dynamic stability test in order to ensure the efficiency and reliability of ARDL model at lag one and selected the optimal lag of one (K=1). The subsequent results of efficiency and reliability of ARDL model revealed that all the assumptions of ARDL model are thoroughly satisfied. The Co-integration equation in relation to the finally developed ARDL model by using one lag order for dependent variable i.e. CAB is expressed as:

$$D(CAB) = C(1)*D(FO) + C(2)*D(TO) + C(3)*CAB(-1) + C(4)*FO(-1) + C(5)*TO(-1) + C(6) \quad (4)$$

Table 1. Unit Root Test Results

	With Intercept				With Intercept and trend			
	ADF		Phillips-Perron		ADF		Phillips-Perron	
	Level	I Diff	Level	I Diff	Level	I Diff	Level	I Diff
CAB	-2.87 (0.05)**	-10.14 (0.00)***	-2.722 (0.07)*	-22.76 (0.00)***	-3.72 (0.02)**	-10.06 (0.00)***	-3.63 (0.03)**	-23.28 (0.00)***
TO	-1.03 (0.73)	-5.78 (0.00)***	-0.94 (0.77)	-5.68 (0.00)***	1.79 (0.69)	-5.77 (0.00)***	-1.36 (0.86)	-5.66 (0.00)***
FO	0.76 (0.99)	-6.29 (0.00)***	0.66 (0.99)	-6.15 (0.00)***	-2.74 (0.22)	-6.34 (0.00)***	-2.54 (0.31)	6.17 (0.00)***

Note- *, **, *** Indicates significance level at 10%, 5% and 1%
Source: Computations over Eviews - 9

Table 2. Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-525.543	NA	26890350	19.94503	20.05656	19.98792
1	-522.589	5.461731	24983257*	19.87131*	20.02001*	19.92849*
2	-522.522	0.121399	25885624	19.90651	20.09239	19.97799
3	-522.391	0.232497	26759482	19.93930	20.16235	20.02508
4	-522.032	0.622979	27430600	19.96349	20.22372	20.06357
5	-520.762	2.157410	27173030	19.95329	20.25069	20.06765
6	-519.394	2.270376	26825660	19.93942	20.27400	20.06809
7	-518.520	1.418817	26986939	19.94416	20.31592	20.08712
8	-518.197	0.512103	27727895	19.96971	20.37864	20.12696
9	-515.359	4.390698*	25918331	19.90035	20.34646	20.07190
10	-515.350	0.014098	26965496	19.93774	20.42102	20.12358
11	-514.976	0.549954	27682831	19.96137	20.48183	20.16151
12	-514.963	0.017767	28821897	19.99864	20.55627	20.21308

* Indicates lag order selected by the criterion
Source: Computations over Eviews - 9

The results of the ARDL model developed in this study are stated in Table 3. The estimation results achieve during the empirical testing of ARDL model provided a strong sign of significant optimistic impact of Trade Openness on Current Account Balance.

Whereas, it was observed that FO had a significant affirmative impact on current account balance in long run only. The coefficient of error-correction term (Z), is negative and very significant. This is what researchers do expect to result, if there is co-integration between selected variables. The magnitude of Z implies that nearly 65% of any disequilibrium between CAB, FO and TO is corrected within one period (quarterly).

The brief summarization of results of hypothesis testing is as stated below:

- ***Ho$_1$**: Trade Openness and current account balance are independent to each other- Rejected in long run as well as in short run. (refer table-3)*
- ***Ho$_2$**: Financial Openness and current account balance in India are independent to each other -Rejected in long run but accepted in short run. (refer table-3)*
- ***Ho3:** FO & TO (jointly) and current account balance are independent to each other.- Rejected. (refer table-4)*

Furthermore, in order to test the combined effect of TO and FO on CAB, ARDL bound test has been applied. The empirical testing of ARDL model developed in this study for long run relationship was done, based upon the Wald test by commanding the restrictions on long-run estimated coefficients of one period lagged level of the selected variables (to be equal to zero). The results obtained by normalizing the FO and TO on CAB in long run are shown in Table-4:

The above table shows the results of ARDL bound test (F-statistic = 5.62) exceeded the critical value at 10%, 5% and at 1% as well. Therefore, researchers concluded that there is a strong evidence of well-established long- run relationship between the CAB, FO and TO.

8. Conclusion

In order to understand the impact of the liberalization of TO and FO on the current account balance, this study primarily focussed upon the four basic issues related to liberalisation followed by its empirical testing. The empirical reviews suggested that financial and trade liberalisation are the main determinants of CAB. Empirical studies like Edwards, Sebastian, (2004), investigated the impact of capital openness restriction on current account problem and concluded that restricting capital openness does not reduce the possibility of suffering a current account reversal. In continuation of this, the present study has found the positive impact of Financial Openness on CAB of India in long run only, as depicted through the empirical results. Whereas, Trade Openness was found to have a negative impact on CAB, in short run as well as in long run too. Similar results were also reflected in previous studies like - Anna Lo Prete (2012), but entirely opposite to the results of study conducted by Ashok Parikh (2002). Finally, FO and TO were found to have a negative impact

Table 3. Empirical Testing of ARDL Model

Short Run					**Long Run**			
Variable	**Coeff.**	**Std. Er**	**t-Stat**	**Prob.**	**Coeff.**	**Std. Er.**	**t-Stat**	**Prob.**
FO	0.019	0.016	-1.18	0.241	0.023	0.007	-3.40	0.00***
TO	-0.116	0.034	3.422	0.00***	-0.135	0.025	5.37	0.00***
CAB(-1)	0.311	0.113	2.739	0.00***	**Cointeq**= CAB - (0.0234*FO			
Coin. Eq(-1)	-0.651	0.121	-5.36	0.00***	-0.1350*TO + 1951.680)			
C	1951.68	1634.9	1.194	0.237				
Durbin-Wat. stat	1.895821	Breu.-Godfray .Serial	0.493898 (0.4850)	R-squared		0.715824		
Jarque-bera	1.609 (0.447)	Hete. Test:White	1.640131 (0.1272)	F-Statistic		50.37886 (0.000)***		

Note- *, **, *** Indicates significance level at 10%, 5% and 1%
Source: Computations over Eviews -9

Table 4. ARDL Bound Test

Test Statistic	**Value**	**Degree of Freedom**	**Critical Values Bounds**				
			Significance	**10%**	**5%**	**2.50%**	**1%**
F-statistic	5.627104	2	I0 Bound	2.63	3.1	3.55	4.13
			I1 Bound	3.35	3.87	4.38	5

on CAB of India, when measure jointly. Therefore, researchers conclude that, any developing economy like India should focus more on foreign direct investment inflows and exportable surplus to attain the accelerative momentum of economic growth and development.

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