

A Quantitative Analysis of Trade Linkage and Financial Integration between India and Europe (Germany and UK)

Abstract

In the present scenario, no country can survive in isolation. Globalization has become the norm for progress and development. It has interwoven economies with each other in more than one way which has fostered the trade and financial linkage between the nations. In the present study, an attempt has been made to examine the trade linkage and financial integration between India and Europe (Germany and UK) taking into account secondary data for the period 2001 to 2016 by using linear regression method. The study found that financial linkage between India and Germany is very small whereas it has followed the path of sharp rises and falls in case of India and UK.

Keywords: Globalization, Exports, Imports, Bilateral FDI Flows, Trade Linkage and Financial Linkage.

Introduction

Globalization has fostered both trade linkages and financial integration between the nations. Many countries including India has abolished restrictive protectionist policies in 1991 and opened their borders to foreign trade flows and finance, cognizant of the fact that though the economy would reap the benefits but at the same time be susceptible to external shocks. Movement of finance from one country to another affects capital, which in turn has a bearing on output. This is apparent from 2007-09 global financial crises which caused a downward spiral of world economy. Therefore present scenario of globalization has led various nations move in tandem with each other. Consequently, there is significant interest among Policy makers and thinkers to study spillover effects of trade and financial integration. Against this backdrop, the study attempts to examine the financial linkage between India and Europe.

Review of Literature

Economic integration between various nations has deepened over the last few years and considerable research has been undertaken. Fiess (2007) examined data for the period 1965 to 2002 for Central America and US and found that the remittances which were used as an indicator of financial linkage had a strong effect. Herrero et.al (2008) evaluated the impact of trade and financial association on harmonious movement of business cycles between Spain and EU, G& except Germany before 1970 and Latin America from 1960 to 2000 and did not find an instance of financial linkage. Kandil (2011) analyzed data for the time period 1970 to 1986 and 1987 to 2007 for five regional groups: Andean, Caribbean, Central America, LAC7 and Mercosur by using correlation coefficients in real growth. The study revealed that despite efforts at integrating economies more during 1987-2007, trade and financial linkages were not as strong as they were during 1970 to 1986. Caporale et al (2012) considered six Latin American Nations (Argentina, Brazil, Chile, Mexico Peru and Venezuela) and four largest world economies (USA, Europe, Japan and China) for the time period 1980 to 2011 to study both short and long run linkages. Ghosh and Karmakar (2014) discussed about the trade environment linkages, trade crisis, financial and institutional reforms, relationship between stock market and development and economic growth. Their results revealed that trade flows have comparatively more influence than financial flows.

Objectives of the Present Study

1. To examine trade linkages between India and Europe.
2. To identify financial integration between these economies.



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Data Source and Methodology

The secondary data for the period 2001 to 2016 has been used given by World Bank.

Trade linkages have been analyzed using data on exports and imports for each of these countries with India from Department of Commerce Export Import Bank for the duration 2001 to 2016. The formula used to calculate trade linkages is

$$T_{IND,i,t} = \frac{X_{IND,i,t} + M_{IND,i,t}}{GDP_{IND,t} + GDP_{i,t}}$$

Where,

$T_{IND,i,t}$ = Trade Linkage between India and country i

$X_{IND,i,t}$ = Exports from India to country i in the year t

$M_{IND,i,t}$ = Imports from country i to India in the year t

$GDP_{IND,t}$ = Real GDP of India in the year t

$GDP_{i,t}$ = Real GDP of country i in the year t

The data on bilateral FDI flows has been taken to see the existence of financial integration. UNCTAD bilateral FDI Statistics has been used for bilateral FDI flows data between India and the said nations.

For the duration for which bilateral FDI statistics were not available we forecasted the values by using the method of linear regression and assuming that available FDI flows are at current prices.

$$Y_{i,t} = \alpha + \beta_1 GDP_{i,t} + \beta_2 I_{i,t} + \beta_3 E_{i,t}$$

Where,

Results and Interpretation

Germany

$Y_{i,t}$ = Foreign Direct Investment in country i in the year t

$GDP_{i,t}$ = GDP at current prices in country i in the year t

I = Total Investment in country i in the year t

E = Yearly average exchange rate in country i in the year t

The financial linkages between India and other countries have been calculated by using the formula

$$F_{IND,i} = \frac{I_{IND,i,t} + I_{i,IND,t}}{GDP_{IND,t} + GDP_{i,t}}$$

where,

$F_{IND,i}$ = Financial Linkage between India and country i

$I_{IND,i,t}$ = FDI flow from India to country i in the time period t

$I_{i,IND,t}$ = Fdi flow from country i to India in the year t

$GDP_{IND,t}$ = Real GDP of India in the year t

$GDP_{i,t}$ = Real GDP of country i in the year t

The impact of trade and financial linkages was again estimated by making use of linear regression

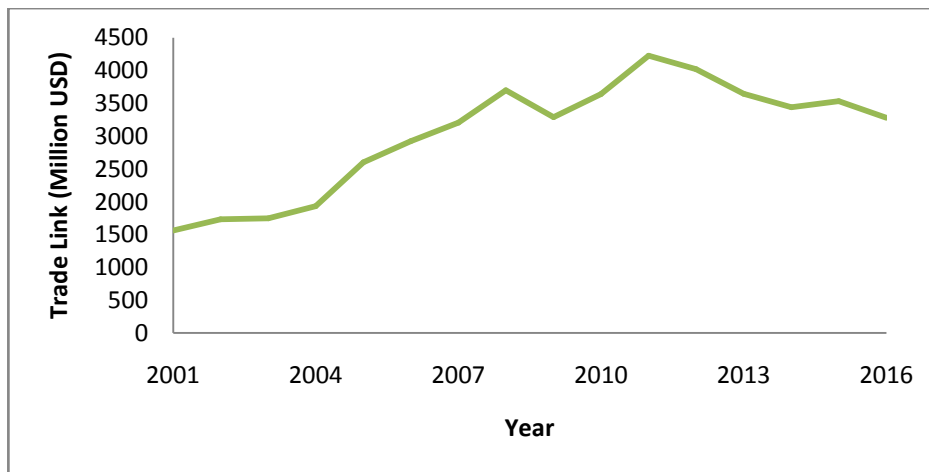
$$Real\ GDP_{IND} = \alpha + \beta_1 TL_{IND,i} + \beta_2 FL_{IND,i}$$

Where,

$TL_{IND,i}$ = Trade Linkage between India and country i

$FL_{IND,i}$ = Financial Linkage between India and country i

Figure. 1 Trade Linkage between India and Germany

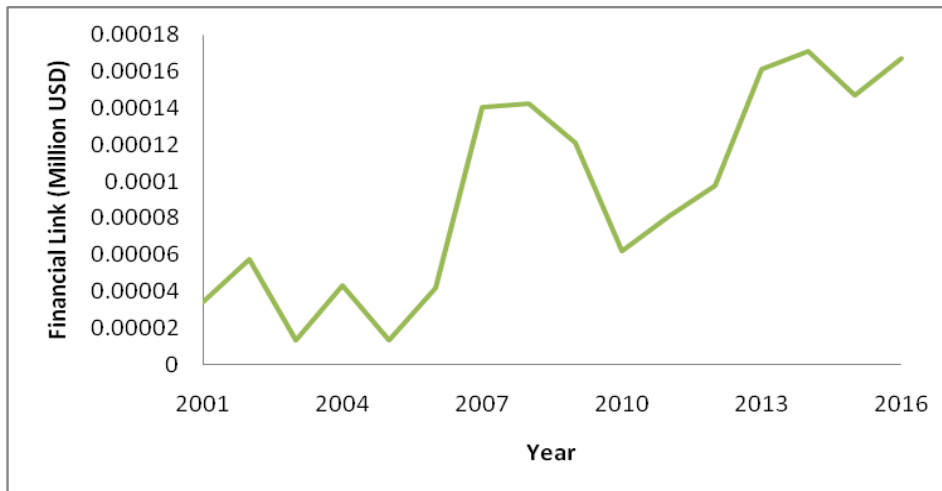


Source: Author's Calculation

On an average trade association between India and Germany is 3029.317 with a standard deviation of 858.9431. It was lowest in 2001 and highest in 2011 and since then has been decreasing

consistently. During the time period under consideration, the value of imports from Germany to India is 85059.08 million USD and exports are 148362.4 million USD.

Figure 2. Financial Linkage between India and Germany



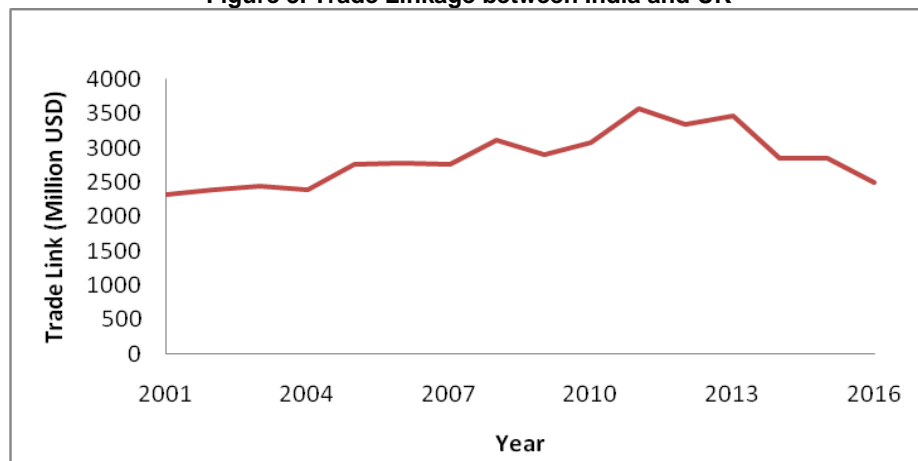
Source: Author's Calculation

Following the trend of previous countries, financial linkage between India and Germany is very small with a mean of 0.0000934 and standard deviation of 0.0000567. This association has seen some sharp dips and rises with it being maximum in 2014 and minimum in 2003. The FDI from India to Germany is relatively more compared to FDI from Germany to India. In fact, the latter was negative in the years 2003 and 2009.

The real GDP of Germany follows a zigzag pattern while that of India appears to be relatively stable. Germany reaches its highest GDP value in 2014 and India in 2016. The trade linkage between the two economies had a very large and positive impact on business cycle in India whereas financial linkages also had a positive effect albeit low.

UK

Figure 3. Trade Linkage between India and UK



Source: Author's Calculations

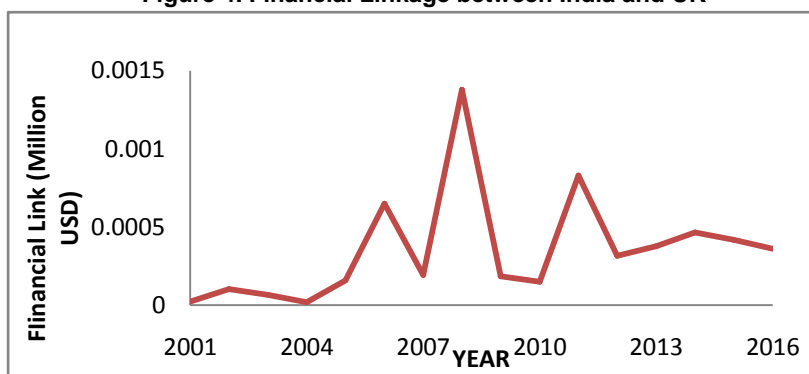
The average trade linkage between the two countries is 2846.378 with a standard deviation of 387.0328. It was highest in 2012 and lowest in 2001 and has been falling since 2014. On an average India exported 6412.241 million USD and imported 4642.602 million USD worth of goods and services from 2001-2016. The difference between the exports to and from UK is 28314.22 for the time period under study.

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. correlate India_GDP GER_GDP in 1/16
(obs=16)
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	India_~P	GER_GDP
India_GDP	1.0000	
GER_GDP	0.8344	1.0000

India_GDP	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
TL_GER	409.1526	111.2451	3.68	0.003	168.8222	649.4831
FL_GER	4.34e+09	1.68e+09	2.58	0.023	6.99e+08	7.98e+09
_cons	-297268.4	274708.6	-1.08	0.299	-890740.3	296203.4

Figure 4. Financial Linkage between India and UK



Source: Author's Calculations

The average for financial association between India and UK is 0.0001021 with a standard deviation of 0.000498. It has followed the path of sharp rises and falls with the highest in 2009 and lowest in 2002. The flow of FDI from UK to India was negligible in 2001 and 2002 and except for 2008 when it was highest that is 4850 million USD it has always been less than FDI in India from UK.

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. correlate India_GDP UK_GDP in 1/16
(obs=16)
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	India_~P	UK_GDP
India_GDP	1.0000	
UK_GDP	0.7314	1.0000

India_GDP	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
TL_UK	594.5307	288.6282	2.06	0.060	-29.01252	1218.074
FL_UK	6.77e+09	2.24e+09	3.02	0.010	1.93e+09	1.16e+10
_cons	-1035895	767833.5	-1.35	0.200	-2694699	622908.1

The real GDP of UK was maximum in 2014 and has since been declining. India however, has not experienced a drop for such a long period though it has always remained less. The real GDP of the two countries are correlated to quite an extent as evidenced by the high value of 0.7314.

Conclusion

The study mainly focused on estimation of trade and financial linkages between India and Europe and employed correlation and regression techniques. The analysis revealed that there is trade linkage between India and Germany which was lowest in 2001 and highest in 2011 and since then it has been decreasing consistently and financial linkage between the two is very small whereas there is significant trade linkage between India and UK and financial linkage has followed the path of sharp rises and falls

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