

**FOREIGN DIRECT INVESTMENT (FDI) IN FINANCIAL SERVICES:
IMPACT ON INDIA'S ECONOMIC GROWTH**

BY

ANIKET SURU



O.P. JINDAL GLOBAL
Institution of Eminence Deemed to be
UNIVERSITY
A Private University Promoting Public Service

**JINDAL SCHOOL OF INTERNATIONAL AFFAIRS
SUBMITTED
IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE DEGREE OF
DOCTOR OF PHILOSOPHY
TO**

O.P. JINDAL GLOBAL UNIVERSITY SONIPAT, HARYANA

JULY 2024

UNDER THE GUIDANCE OF

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Name: Jasmeet Kaur Lamba

Designation: Professor

University Name: JSIA

Co- Supervisor

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**University Name: University
of Utah**

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This is to certify that the thesis titled “ Foreign Direct Investment (FDI) in Financial Services: Impact on India’s Economic Growth” is being submitted by Aniket Suru in fulfilment for the Award of DOCTOR OF PHILOSOPHY in (JGU School) to the O.P. Jindal Global University, Sonipat. Thesis has been corrected as per the evaluation reports dated 16/07/2024 and all the necessary changes / modifications have been inserted/incorporated in the thesis.

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LIST OF ABBREVIATIONS

ABEP:	Annual Branch Expansion Plan
AIC:	Akaike information criterion
ANBC:	Adjusted Net Bank Credit
ARC:	Asset Reconstruction Companies
ADF:	Augmented Dickey Fuller
CDs:	Convertible Debentures
CIC:	Credit Information Companies
DBOD:	Department of Banking Operations and Development
DFS:	Department of Financial Services
DIT:	Department for International Trade
DPIIT:	Department for Promotion of Industry & Internal Trade
ESG:	Environmental, Social and Corporate Governance
ETDs:	Exchange Traded Funds
EU:	European Union
FDI:	Foreign Direct Investment
FIFP:	Foreign Investment Facilitation Portal
FII:	Foreign Institutional Investors
FPE:	Final prediction error
FTA:	Free Trade Agreement
FVCI:	Foreign Venture Capital Investment
IVCU:	Indian Venture Capital Undertaking
GCC:	Gulf Cooperation Council
GDP:	Gross Domestic Product
GLS:	Generalised Least squares
GMM:	Generalized Method of Moments
GNP:	Gross National Product
HQ:	Hannan-Quinn information criterion
MHA:	Ministry of Home Affairs

NCD: Non-Convertible Debentures
NHAI: National Highways Authority of India
NPA: Non-Performing Assets
NRI: Non-Resident Indian
NTPC: National Thermal Power Corporation
OECD: Organisation for Economic Co-operation and Development's
ONS: Office of National Statistics
PIS: Portfolio Investment Scheme
PSL: Priority Sector Lending
PP: Phillips Perron
QFIs: Qualified Foreign investors
RBI: Reserve Bank of India
RI: Restrictiveness index
SC: Schwarz information criterion
STRI: Service Trade Restrictiveness Index
UK: United Kingdom
VCF: Venture Capital Fund
VECM: Vector Error Correction Model
UN: United Nations
UNCTAD: United Nations Conference on Trade and Development
VAR: Vector Autoregression
VECM: Vector error correction method
WGI: World Governance Indicators
WOS: Wholly Owned Subsidiary

ABSTRACT

The research analyses the current Foreign Direct Investment (FDI) volumes between UK and India, assesses barriers impacting financial services inflows to India and estimates the impact of these inflows on India's GDP. The total FDI volumes and the financial services volumes between the two countries are insignificant compared to their global volumes. These insignificant financial services volumes are attributed to onerous FDI requirements relating to wholly owned subsidiary set up, mandatory branch opening policies which require prior approval from the RBI, priority sector lending which mandates foreign banks adhere to strict lending limits to weaker sections of society and branch expansion plans which requires foreign banks to adhere to annual expansion limits across different tiers defined. These barriers have an impact on the financial inflows in India. The impact of financial services inflows on India's GDP between 2001 and 2020 is estimated using Johansen's cointegration and Vector Error Correction Mechanism (VECM). The empirical findings suggest that in the long run, financial services inflows and India's GDP is positively correlated. A 1% rise in financial services imports from the UK increases India's GDP by approximately 0.12%. In the short run, a change in the financial services inflows negatively impacts the change in India's GDP. Thus, policymakers should focus on further deregulation to increase the overall FDI inflows and inflows in the financial services sector. This research is useful for policymakers and think tanks given the recent focus on the UK-India trade deal with a view to doubling UK-India trade over the next decade. The research can be expanded in future to assess the impact on GDP by including inflows from other sectors including telecommunication and retail.

Keywords: FDI, Financial services inflows, GDP, Vector Error Correction Method, UK-India

CHAPTER 1: INTRODUCTION

1.1 Background

India and the UK share a colonial legacy that draws the two countries together, yet also leaves friction points of perspectives and sensitivities. The recent UK Governments under Blair, Brown and Cameron era tried to develop closer ties with India due to its economic credentials. Yet these efforts have not yet materialised to strengthen the ties between the two countries. Although trade has increased, corresponding volumes have not increased proportionally thereby causing UK exports to lag and thus increase trade deficit. (Scott, 2017). Furthermore, the recent changes in geopolitical situation including China's rise in the Asia Pacific and Russia recent invasion of Ukraine has highlighted the need for the United Kingdom to align with a country with similar values. The United Kingdom and India share common values in terms of Democracy and Civil Right liberties, with UK being one of the oldest democracies and India being the world's largest democracy and one of the only strong democracies in the Asia Pacific region. Thus, from a current politics of relationship perspective, there is an incentive for both English speaking democratic countries to enhance cooperation due to its common goals of anti-terrorism and anti-jihadism concerns. Further UK-India relations will be reshaped due to the UK's decision to leave the EU as part of Brexit. (Scott, 2017).

Although the Indian Government initially perceived the Brexit vote an unfortunate international development leading to increased instability and a weakening of the West, India soon concluded that there were policy advantages in favour of both countries as part of the UK being outside the EU. One of the key advantages was the prospect of an FTA between India and the UK and an ability to independently negotiate immigration of Indian skilled labour to the UK Chaudhuri (2020). From UK's perspective access to India without a common EU framework was considered easier and quicker to implement. In addition to Brexit, the last decade has witnessed a geopolitical shift due to China's rise which has altered the which has altered the distribution of global power resulting in China's

increasing assertiveness in world affairs. Combining this with Brexit, has underlined the need for the U.K to build stronger economic and political partnerships with non-EU countries (HM Government, 2021). The UK's tilt toward Indo Pacific to shape its Foreign and Trade policy is symmetrically aligned in India's interest, as India endeavours to restrain the aggressive rise of China, reduce its dependence on trade with China and increase trade relations with the UK. Taking these factors into consideration, over the last few years, UK and India have initiated further efforts to deepen ties between the two democracies. U.K's 2030 roadmap includes commitments to deepening ties in trade and other key areas. One of the goals of the 2030 roadmap is to deepen the economic relationship through an Enhanced Trade Partnership and negotiate a Free Trade Agreement with a view to doubling UK-India trade over the next decade (British high Commission New Delhi, 2021). The strategic objective of an FTA between the two countries is shared on both sides.

FTA and FDI are generally considered a driving factor to economic growth. Li & Liu (2005) identified that significant endogenous relationship exists between FDI and economic growth from the mid-1980s onwards. FDI not only directly promotes economic growth by itself but also indirectly does so via its interaction terms. Nevertheless, empirical evidence is rather mixed, reporting a positive, neutral, or even negative relationship of FDI with growth (Baiaashvili & Gattini, 2020) however studies have shown that as part of the proposed FTA, reduction or removal of tariffs will significantly enhance trade gains for India. This estimate of India's potential export gains was analysed using compound annual growth rate by using ARDL framework. The study estimated short run and long run impact of the FTA on India's export to the UK using analytical framework and concluded that UK's tariff imposition on India's exports was found to be negative and significant and removing these tariffs would boost the trade gains for India Manocha, & Bhasin (2022). Similarly, analysis of a proposed FTA between EU-India highlighted that India would enjoy positive welfare effects of a trade deal albeit with some trade diversion. However, the proposed FTA could lead to labour intensive production being relocated to India. Khorana & Narayanan, B. G. (2017).

Sun & Heshmati (2010), highlighted that international trade, considered an important mean significantly contributes to economic growth by opening domestic economy to the global level.

Study conducted by Bhardwaj (2017) highlighted that trade competitiveness between India and UK supports the FTA. India and UK have a high complementarity in the Trade pattern and dissimilarity in their export in the third country based on trade complementarity and trade similarity indices. The study further indicated that this would enhance trade if FTA were signed between both the countries and India. Bhardwaj, M. (2017). A Free trade Agreement (FTA) between the two countries would encompass obligations that affect trade in goods and services among other topics. A subset of Goods and Services can be categorised across:

- **Goods:** Clothing, Medicinal & Pharmaceutical products, Crude Oil, Precious Metals, Cars amongst other products.
- **Services:** Business Services, Travel Services, Telecommunication Computer & Information services, and **Financial Services.**

Notwithstanding multiple challenges of agreeing a FTA, positive intentions between UK and India can produce gainful outcomes on a trade deal (Palit, 2019)

1.2 Significance and Objectives of the Study:

From India's perspective, the UK is often seen as a route to Europe for multinational Indian companies, however there are more Indian companies in the UK than in the rest of Europe combined (British high Commission New Delhi, 2021). Indian government entities NTPC and NHAI have issued over \$3.5 billion of rupees denominated bonds in the UK since 2016. Additionally, both Governments have committed an anchor investment of up to £120 million each in the India-UK Sub Funds under the National Investment and Infrastructure Fund. Furthermore, UK will invest £160 million across 75 start up enterprises to support the Start-up India initiative. From a cultural perspective, the

Indian Diaspora in the UK is one of the largest ethnic minority communities with approx. 1.5 million people of India origin, equating to 1.8% of the population and contributing 6% of the country's GDP – as of 2011. (High Commission of India London, 2019). Although UK and India are considered 5th and 6th largest economies in the world, trade relations between the two countries have miniscule. UK's total trade (across all countries) as at the end of Dec 2020 accounted for £1,154 billion, in which goods contributed to approximately 64% of total trade whereas services contributed 36%. UK's trade numbers with India were relatively low total trade in goods and services between the UK and India was in the range of £21 billion, equating to 1.8% of UK, total trade with India (Department for International Trade, 2021).

Table 1.1 – UK's Trade with the World

2020	Goods	Services	Total	Total with India
Import	427.5 (37%)	153.8 (13%)	581.3 (50%)	£13.2 (2.3%)
Export	311.5 (27%)	260.2 (23%)	571.7 (50%)	£7.9 (1.4%)
Total	739 (64%)	414 (36%)	1,154 (100%)	£21.1 (1.8%)

Source – Department for International Trade, values in billion

UK's total FDI (inward and outward FDI) in 2019 was £3,057 Billion. The outward stock of foreign direct investment (FDI) from the UK in India was £15.3 billion accounting for 1.0% of the total UK outward FDI stock. And the inward stock of foreign direct investment (FDI) in the UK from India was £9.5 billion accounting for 0.6% of the total UK inward FDI stock.

Table 1.2 – UK’s Total FDI with India

2019	EU	Non-EU	India	Total
Outward Stock of FDI (From UK)	£602 (40%)	£880.7 (59%)	£15.3 (1%)	£1,498 (49%)
Inward stock of FDI in the UK (In UK)	£681 (43.6%)	£868.5 (55.7%)	£9.5 (0.6%)	£1,559 (51%)
Total	1283 (42%)	1749.2 (57.2%)	24.8 (0.8%)	£3,057 (100%)

Source – Department for International Trade, values in billion

Similarly, from India’s perspective, India’s import and export to the UK contributed to a miniscule 1.26% and 2.8% respectively of the total trade volumes.

Table 1.3 – India’s Trade with the UK

2020-2021	UK trade	Global
Import	£3,726 (1.26%)	£296,568 (100%)
Export	£6,134 (2.8%)	£219,405 (100%)
Total	£9,860 (1.91%)	£515,973 (100%)

Source – Ministry of Commerce (Department of Commerce). Values in GBP £ Million

Furthermore, Financial Services FDI between the two countries is insignificant compared to UK’s FDI deals with rest of the world. From 2016-2019, the Financial Services Imports from India to the UK was in the range of 0.5-0.8%, whereas the Financial

Services Exports to India from UK was in the range of 0.1% of UK's total financial services exports.

Table 1.4 – Financial Services FDI between UK and India

Financial Services FDI	2016	2017	2018	2019
Services Import (From India)	£762	£982	£884	£1,238
Services Export (To India)	£207	£203	£238	£268

Source – Office of National Statistics (ONS). Values in GBP £ Million

These statistics highlight that there is a significant potential for Trade increase between the fifth and sixth largest economies. There have been few studies conducted on the impact of FDI in Goods however there has been limited research related to Services and its impact on India's economy, particularly from a Financial Services Sector perspective. Thus, this research will focus only on financial services FDI, all other categories within goods & services will not be considered for this research and will be part of future research. The research aims to be useful to policy makers and think tanks of both countries. Given the focus on UK-India FTA, this research will aim to estimate the impact of foreign direct investment in financial services on India's GDP per capita. The research will aim to achieve the following key objectives:

1. Assess the current FDI state (in Financial Services) between UK-India.
2. Identify reasons for the current (low) trade volumes between UK-India.
3. Propose areas of deregulation and policy enhancements to improve trade deals.
4. Calculate the impact on GDP/per capita of policy enhancements.

1.3 Organisation of the Thesis

The dissertation consists of eight chapters. chapter two will review the current state of FDI between UK and India to analyse the existing FDI volumes between the two countries. The first part of this chapter will focus on UK's FDI volumes with the world to analyse the volumes from a global perspective, which will be followed by review of UK's FDI volumes with India. The purpose of this will be to assess the percentage of UK's FDI with India compared to global volumes. Similar to this section, the next part of this chapter will focus on India's FDI volumes with the world to assess the volumes from a global perspective, followed by a review of India's FDI volumes with the UK. The aim will be to assess the percentage of India's FDI with the UK and compare it to India's global volumes. The final part of the chapter will review the volumes related to financial services inflows between UK and India. Following on from the review of the FDI volumes, the final section will highlight the gaps (if any) between the FDI volumes with a view to analysing the rationale for these inconsistent volumes in the financial services inflows from UK to India.

Following on from the analysis of the current state, chapter three will include the exiting literature related to the FDI inflows between UK-India to analyse rationale for current low volumes and any gaps in the existing literature. In addition to this literature, the chapter will also review the determinants of FDI inflows and its impact on an individual country and region. The purpose of this is to analyse the FDI impact not just between UK-India but review it from a global context with a view to understanding how the impact on each country differs based on its institutional and economic parameters, which will be useful in the current research. Chapter 2 will then focus on the literature review related to FDI in services sector and analyse its impact on GDP. Similar to the earlier literature review, this section will include studies related to different countries and regions, to understand a global perspective. The next section will include literature specific to FDI in financial services and how it impacts a country's GDP. The chapter will aim to include at least a few literature reviews related to each region i.e., Asia, Middle East, Europe and Americas. These studies will be in addition to the literature specifically available for UK-India FDI. The final section will highlight the gaps in the existing literature with a view to defining the rationale for the existing research. Chapter four will present the research methodology. The methodology chapter will include the research question to be addressed

and present the hypothesis for the research. The chapter will then focus on the core methodology used in the research both from a qualitative and a quantitative perspective and present a description of the variables used in the study. The chapter will conclude with the details of the quantitative model used in the study and the external applications used to perform the quantitative modelling.

The part of the thesis will focus on barriers of FDI inflows and the statistical estimation of the impact on India's GDP. Chapter five will aim to review the barriers impacting the inconsistent financial services inflows from UK to India. The first section will focus on assessing the FDI approval routes i.e., assess requirements for firms to enter in India either via an automatic route or government route. The next section will review the requirements for firms to set up a wholly owned subsidiary and align with the funding requirements specified by India's central bank, i.e., Reserve Bank of India. This section will include the rigid funding requirements faced by overseas firms in India. Following this, the next part of the chapter will include mandatory requirements for banks to provide funding to certain section. This will be described under the priority sector lending requirements, which is a form of lending mandated by the RBI for foreign, private and public sector banks to lend credit to the weaker sections of the society that are classified as the priority sectors. The final section will focus on the mandatory branch opening requirements, which includes opening a minimum number of branches in different metropolitan, urban and semi-urban centres. The chapter will conclude by providing recommendations to deregulate the barriers faced by foreign banks to operate in India. Whilst chapter five will use qualitative research model, chapter six will utilise quantitative models.

Chapter six will assess the econometric impact of financial services inflows on India's economic growth, which will be measured by GDP. An econometric model will be designed to estimate this impact. The chapter will be split across three phases to design an optimal model. Phase one of the chapter will define the pre checks required to shortlist a model. These pre checks will include stationarity tests, lag length test and trend and constant checks. Based on the pre checks outcome, phase two will focus on the model selection and estimation. In case of model selection, various models will be reviewed to

select an optimal model to estimate the short run and long run relationship between the variables. The final phase of the chapter, phase three will focus on conducting goodness of fit and specification tests to ensure the model shortlisted in phase two does not provide spurious regression results. The goodness of fit test will include tests for autocorrelation, heteroskedasticity, stability and normality. Based on the outcomes of the phase three results, the shortlisted model will be finalised. The final part of the chapter will provide indicate the statistical impact of financial services imports on GDP.

Following on the qualitative and quantitative chapters, chapter seven will provide conclusions for the research and will suggest possible future research which can be useful to policymakers, think tanks and individuals. The final chapter eight will provide the conclusion and highlight the research summary.

CHAPTER 2: CURRENT FDI VOLUMES BETWEEN UK-INDIA

2.1 Introduction

UK and India are the fifth and sixth largest economies in the world according to IMF however as highlighted in the introduction FDI relations between the two countries have been modest at best. This chapter aims to assess the existing FDI volumes between UK and India. The chapter is organised across three key sections:

- UK's FDI overview – This section will focus on UK's FDI volumes with the world to provide a global overview and context of UK's FDI volumes. Following on from this, UK's FDI volumes with India will be reviewed to analyse the volumes between the two countries. The data for this section is retrieved from ONS.
- India's FDI overview – Similar to the above section, this section will focus on FDI volumes but from India's perspective with the world and with the UK. The data for this section is retrieved from India's Department for Promotion of Industry and Internal Trade.
- UK-India Financial Services Volumes – Following on from the above sections, this section will focus on the current volumes between UK and India specific to Financial Services. The data for this section is retrieved from Office for National Statistics (ONS).

2.2 UK FDI Trends

This section focusses on two key parts. The first section reviews UK's FDI with the world to provide a context for the FDI volumes. This is done for both inward and outward FDI from UK's perspective. The second section reviews UK's FDI with India to compare volumes against UK's world FDI. UK's FDI volumes with the world have witnessed a consistent growth since 2011. In 2011, UK's total FDI with the world was £1866.7 Million, which increased by 6% to £1986.4 Million in 2012. Similarly for the years from 2013 until 2020 there was a consistent rise in UK's FDI, with the total FDI

increasing by 1% in 2013, 4 % in 2014, 1% in 2015, steep increase of 16 % in 2016, 12% in 2017, 10 % in 2019, and 9 % in 2019 and 2020.

Furthermore, UK's FDI with the world have been relatively consistent between inward and outward FDI. In 2011, UK's Inward FDI accounted for 40% whereas outward FDI accounted for 60% of the Total FDI – representing £748.7 Million for Inward FDI and £1,118 Million for Outward FDI out of total FDI of £1866.7 Million. Over the last 9 years, since 2012, UK's inward FDI percentage have been consistent between 46% in 2012 to 54% in 2020. The years in between have been relatively consistent with 2013 witnessing 46% inward FDI volumes, 2014-2016 representing approximately 48% FDI volumes and years 2017-2020 representing 50%, 52% ,50% and 54% respectively for the 4 years. Similarly, the outward FDI volumes have been consistent between 2011 – 2020 with 2011 representing 60% of the Total FDI volumes – highest in the last 10 years, 2012 - 2013 represented 54% outward flow, whereas 2014-2016 represented approx. 52% FDI flow. The last four years from 2017-2020 represented outward FDI flow of 50%, 48%, 50% and 46% respectively. The table below represents UK's World FDI flow.

Table 2.1 – UK World FDI – inward, outward data

Year	Inward	Outward	Total	% Change in Total FDI
2011	748.7 (40.1%)	1118 (59.9%)	1866.7 (100%)	N/A
2012	912.9 (46%)	1073.5 (54%)	1986.4 (100%)	6.4%
2013	918.5 (45.7%)	1090.6 (54.3%)	2009.1 (100%)	1.1%
2014	1013.3 (48.4%)	1078.7 (51.6%)	2092 (100%)	4.1%
2015	1032.5 (48.8%)	1084 (51.2%)	2116.5 (100%)	1.2%
2016	1187.3	1274.6	2461.9	16.3%

	(48.2%)	(51.8%)	(100%)	
2017	1392.5 (50.4%)	1369.1 (49.6%)	2761.6 (100%)	12.2%
2018	1572.8 (52%)	1453.1 (48%)	3025.9 (100%)	9.6%
2019	1640.4 (49.9%)	1647.4 (50.1%)	3287.8 (100%)	8.7%
2020	1929.2 (53.7%)	1660.9 (46.3%)	3590.1 (100%)	9.2%

Source: Department for International Trade. Values in GBP £ Billion.

- **Year:** Represents the year.
- **Inward:** UK's Inward FDI volumes with the rest of the world in GBP Million.
- **Outward:** UK's Outward FDI volumes with the rest of the world in GBP Million.
- **Total:** Total FDI volumes with the world in GBP Million.
- **% Change:** Percentage change in the Total FDI compared to previous year.

In contrast, UK's FDI volumes with India over the similar period have been trivial and inconsistent. In 2011, the total FDI between the two countries was £16.4 Billion which represented only 0.9% of UK's total FDI. This FDI volume subsequently declined in the next 3 years between 2012-2014. In 2012, The FDI volumes declined to £7.2 Billion which represented a year-on-year decline of 56% and only represented 0.4% of UK's total FDI. Similarly in 2013 and 2014, UK's FDI volumes with India declined to £5.2 Billion, and £5 Billion a year-on-year fall of 28% and 4% respectively. For both these years UK-India FDI represented only 0.3% and 0.2% of UK's total FDI, which was the lowest volume in the last 10 years.

The years from 2015-2017 witnessed a rise in the Total FDI volumes between the two countries although the total percentage did not exceed 0.7% of UK's total FDI for the 3 years. In 2015, the FDI volumes between the two countries increased to £14.7 Billion, representing an increase of 195% over the previous year however these volumes were still

only 0.7% of UK's total FDI. In 2015 and 2016, the FDI volumes between the two countries were consistent at £15 Billion and £15.8 Billion representing 0.6% of the UK's FDI volume. The final 3 year between 2018-2020 witnessed another growth spur. In 2018 the volumes increase to £26.1 Billion an increase in 65% over the previous year however still only representing 0.9% of UK's total FDI. Whilst 2019 witnessed a decline of 4.6% to £24.9 Billion, it was nonetheless higher than the FDI volumes from a couple of years ago. Finally, the volumes increased in 2020 to £25.5 Billion however in line with the previous low volumes, the percentage of FDI between the two countries to UK's total FDI stagnated at around 0.8%. Over the last 10 years the percentage of UK's FDI volumes with India to UK's total FDI volumes has been less than 1% in the last 10 years, with 2011 and 2018 witnessing a highest of 0.9% and 2014 witnessing a low of 0.2%. The below table represent the data for the last 10 years.

Table 2.2 – UK – India FDI

Year	Total FDI	% Change	% of UK's Total FDI
2011	16.4	N/A	0.9%
2012	7.2	-56.1%	0.4%
2013	5.2	-27.8%	0.3%
2014	5	-3.8%	0.2%
2015	14.7	194.0%	0.7%
2016	15	2.0%	0.6%
2017	15.8	5.3%	0.6%
2018	26.1	65.2%	0.9%
2019	24.9	-4.6%	0.8%
2020	25.5	2.4%	0.7%

Source – Department for International Trade. Values in GBP £ Billion.

Table Description:

- **Year:** Represents the year.

- **Total FDI:** FDI between UK and India.
- **% Change** – % Increase or Decrease in FDI from previous year.
- **% of UK's Total FDI** – UK India FDI as a percentage of UK's total FDI.

From UK's perspective, outward FDI with India has contributed more towards the total FDI in the last 10 years compared to the inward FDI. In 2011, the outward FDI was in the range of £13.6 billion which declined to £5.1 Billion in 2012 and further declined to £3.5 billion in 2013 and £3.1 Billion in 2014. For the 4 years between 2011-2014, the outward FDI volumes with India represented 1.2%, 0.5%, 0.3% and 0.3% of the UK's total FDI volumes. For the similar timeframe between 2011-2014, inward FDIs contributed £2.8 Billion i.e., 0.4% of the UK's total volumes. The inward FDI volumes further declined in 2012 and 2013 to £ 2.1 Billion and £1.7 Billion respectively which represented only 0.2% of the FDI volumes between UK-India. The FDI volumes increased only slightly in 2014 to £1.9 Billion.

The next 3-year period between 2015-2017 was similar to the previous 4-year period in terms of percentage split between the inward and outward FDI. In 2015, the outward FDI increased to £12.1 Billion (from £3.1 Billion in 2014), although this did not increase the contribution share in UK's total FDI, the volumes increased to a modest 1.1%. The trend was similar in 2016 and 2017 which witnessed a share of 1% in UK's total FDI volumes which amounted to £13.2 billion and £13.6 Billion respectively. The inward FDI volumes for the similar period between 2015-17 demonstrated a similar trend to the previous 4-year period, inward volumes stagnating at around 0.3% in 2015 and 0.2% in 2016 and 2017 which accounted to £2.6 Billion, £1.8 Billion, and £2.2 Billion respectively.

The final 3 years between 2018-2020 witnessed a slight change in the split between inward vs outward FDI. Over these 3 years, Inward FDI increased to £11.6 Billion in 2018, £9.2 Billion in 2019 and £10.6 Billion in 2020, which increased the share of volumes to 0.7%, 0.6% and 0.5% respectively for the 3 years. Although the Inward FDI increased this did not witness a decline in the outward FDI, with the outward FDI remaining relatively constant at 1% in 2018, 2019 and 0.9% in 2020 which accounted to £14.5 Billion, £15.7

Billion, and £14.9 Billion respectively. The table below represents the split between UK India inward and outward FDI.

Table 4.3 – UK India FDI – Inward, Outward Data

Source	Year	Inward	Outward	Inward (% of UK FDI)	Outward (% of UK FDI)
	2011	2.8	13.6	0.4%	1.2%
	2012	2.1	5.1	0.2%	0.5%
	2013	1.7	3.5	0.2%	0.3%
	2014	1.9	3.1	0.2%	0.3%
	2015	2.6	12.1	0.3%	1.1%
	2016	1.8	13.2	0.2%	1.0%
	2017	2.2	13.6	0.2%	1.0%
	2018	11.6	14.5	0.7%	1.0%
	2019	9.2	15.7	0.6%	1.0%
	2020	10.6	14.9	0.5%	0.9%

Department for International Trade. Values in GBP £ Billion.

Table Description:

- **Year:** Represents the year.
- **Inward:** UK's Inward FDI volumes India.
- **Outward:** UK's Outward FDI volumes India.
- **Inward (% of UK FDI)** – UK India Inward FDI volumes as a percentage of UK's Total FDI.
- **Outward (% of UK FDI)** – UK India Outward FDI volumes as a percentage of UK's Total FDI

Thus, reviewing the section above, the FDI volumes between the two countries highlight two potential issues – a) inconsistent volumes and b) low FDI volumes between UK and

India. The one positive trend witnessed is that the FDI inward volumes increased in the last 3 years between 2018-2020, thus slightly increasing the total share of UK's FDI volumes.

2.3 India FDI trends

Similar to the above section, the below section focusses on FDI volumes from India's perspective. India's Department for Promotion of Industry and Internal Trade publishes FDI statistics for every financial year. These FDI statistics are measured across two key vectors.

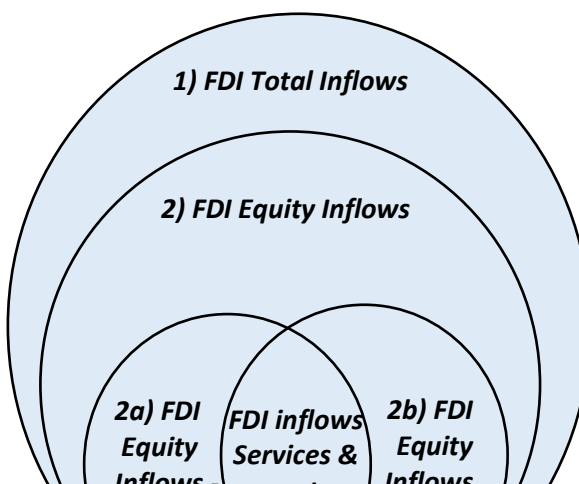
1. *FDI – Total inflows*: This includes Total FDI flows including Equity Inflows, Re-invested earnings, and other capital.

2. *FDI – Equity inflows*: Excludes the amount remitted through RBI's NRI scheme. Equity inflows are then presented across sector and country specific analysis. FDI Equity Inflows are a subset of the FDI Total Inflows. FDI equity inflows are further split into:

- a. FDI equity inflows across service sectors (includes financial services, banking, and other areas).
- b. FDI equity inflows from the UK.

Both FDI Equity Inflows across Services Sectors and FDI Equity Inflows from the UK are subsets of FDI Equity Inflows. For simplicity the below diagram represents the different FDI inflows and how they are related.

Figure 2.1 – FDI inflows overview



From 2010-11 to 2020-21, India's total FDI inflows (Table 2 a) with the world increased from USD \$34,847 million in 2010 -11 to USD \$81,722 in 2020 - 21 million, an approximate increase of 134% over the last 10 years. On an annual basis the FDI total inflows depicted a consistent increase over the previous years. In 2011-12, FDI inflows increased by 34% over previous year which has been the best increase since 2010-11 until 2020-21. Although 2011-12 witnessed a record increase, 2012-13 FDI volumes decreased by 26% over previous years. Post 2012-13, FDI Total inflows increased every year although the increase has not been consistent in terms of volumes i.e., 2013-14 witnessed an increase of 5% over previous years, whereas 2014-15 and 15-16 witnessed a double-digit growth of 25% and 23% respectively. The next 3 years from 2016-17 until 2018-19 witnessed a single digit growth in FDI Total inflows of 8%, 1% and 2% respectively. The final two years 2019-2020 and 2020-2021 again witnessed double digit growth of 20% and 10% in the FDI Total Inflows.

FDI equity inflows volume has been in line with the total FDI inflows e.g., 2011-12 witnessed an increase of 64% over previous year, the best in the last 10 years (similar to FDI Total Inflows). Similarly, 2012-23 witnessed a decrease of 36% in line with a decrease of 26% for the FDI Total Inflows. The remaining years were similar reflecting either a single digit growth over previous years or a double-digit growth. From India's perspective, FDI equity inflows contributed heavily toward the Total FDI inflows. Over the last 11 years, FDI equity inflows have been consistently above 60% of the FDI Total

Inflows, the highest being 75% in 2011-12 and the lowest being 60% in 2019-2020. The Table below summarises the India's FDI total inflow and FDI equity inflows.

Table 2.4 – India - World FDI Inflows

Year	A) FDI <u>Total</u> Inflows		B) FDI <u>Equity</u> Inflows		
	A) FDI Total Inflows	A) % Growth over previous year	B) FDI Equity Inflows	B) % Growth over previous year	B) % of FDI Total Inflows
2010-11	34,847	N/A	21,383	N/A	61%
2011-12	46,556	34%	35,121	64%	75%
2012-13	34,298	-26%	22,423	-36%	65%
2013-14	36,046	5%	24,299	8%	67%
2014-15	45,148	25%	29,737	22%	66%
2015-16	55,559	23%	40,001	35%	72%
2016-17	60,220	8%	43,478	9%	72%
2017-18	60,974	1%	44,857	3%	74%
2018-19	62,001	2%	44,366	1%	72%
2019-20	74,390	20%	44,366	13%	60%
2020-21	81,722	10%	59,636	13%	73%

Source – Department for Promotion of Industry and Internal Trade. USD \$ Million

Table Description:

- **Year:** Represents the financial year of the data.
- **FDI Inflows Total:** Represents the total FDI inflows to India from all countries and all sectors.
- **FDI Inflows Total: % Growth over previous year:** Represents the percentage change in total FDI inflows to India from all countries and all sectors including equity inflows, re-invested earnings, and other capital.

- **FDI Equity Inflows:** Represents the FDI inflows to India from all countries and all sectors however excluding the amount remitted through RBI's NRI scheme.
- **FDI Equity Inflows: % Growth over previous year:** Represents the percentage change in total FDI inflows to India from all countries and all sectors however excludes the amount remitted through RBI's NRI scheme.
- **% of FDI Total Inflows:** FDI equity inflows as a percentage of FDI total inflows.

FDI equity inflows are further categorised across Services Sector (Banking and Finance) and Country (UK).

1. *FDI Equity Inflows across Service Sector (Table 2b)* - Service Sectors including Financial, Banking (and other areas) contribute the maximum percentage of FDI Equity inflows across all sectors. The percentage of Service Sector has been relatively consistent compared to the FDI volumes across other area. The 11 years from 2010-11 until 2020-21 witnessed a consistent year on year double-digit growth except for a couple of years in 2013-14 and 2020-21. For three years 2011-12 and 2012-13 witnessed a year-on-year increase of 15% and 22% respectively, with an increase of 9% in 2013-14. The next 6 years from 2014-15 until 2018-19 year of year increases of 11%, 17% 20%, 15%, 21% and 18% respectively. The final year in 2020-21 witnessed a smaller increase in year-on-year growth of 8% however this can be attributed to the COVID lockdowns around the world.
2. *FDI Equity Inflows from the UK (Table 2b)* - According India's Department for Promotion of Industry and Internal Trade, FDI Equity inflows from the UK to India lagged Mauritius (28%), Singapore (22%), USA (8%), Netherlands (7%), Japan (7%) and USA (6%) for the cumulative Inflows between April 2000 – March 2021. The FDI Equity Inflows from UK have been inconsistent with volumes fluctuating over the last 11 years. In 2011-12 FDI inflows from UK increased by a staggering 190% over previous year however the next year in 2012-13, it declined by 86% over the previous year. The following year in 2013-14 witnessed a rise of 198%, best in 11 years only to be followed by another decline of 55% in 2014-15 and 38% in 2015-16. The next two years 2016-17 and 2017-18 were similar in trend to the

previous year few years. In 2016-17, the FDI inflows from the UK increased by 65% over 2015-16 however the following year in 2017-18 witnessed another decline of 43% over the previous years. The last 3 years from 2018-2020 witnessed a positive FDI year on year growth albeit of varying levels of 60% in 2018-19, 5% in 2019-20 and rising to 44% in 2020-21. In terms of contribution of FDI equity inflows from UK to India has been relatively low and largely inconsistent ranging from a high of 22% to a low of 2%. The first 2 years, 2010-11 and 2011-12 witnessed a reasonable share of FDI Equity inflows from the UK at 13% and 22 % respectively. The following year in 2012-13 witnessed a drop to 5% before recovering again to 13% in 2013-14. However, since 2014-15 until 2020-21, the percentage of FDI equity inflows from the UK witnessed a consistent decline 5% in 2014-15 and a record low of 2% in 2015-16. The next five years between 2016-17 until 2020-21 witness volumes of 2% in 2017-18 and 3% for 4 years – 2016-17, 2018-19, 2019-2020 and 2020-21. The Table below summarises the FDI Equity Inflows across Services Sector and from the UK.

Table 2.5 – FDI Equity Inflows across Services Sector and from the UK

Year	A) FDI Inflows Total	B) FDI Equity Inflows	C) FDI Equity Inflows - Services	C) % FDI Equity Inflows Services	D) FDI Equity Inflows – from UK	D) FDI Equity Inflows UK - % Increase or Decline	D) % of FDI Equity Inflows from UK
2010-11	34,847	21,383	3,296	15%	2,711	N/A	13%
2011-12	46,556	35,121	5,216	15%	7,874	190%	22%
2012-13	34,298	22,423	4,833	22%	1,080	-86%	5%
2013-14	36,046	24,299	2,225	9%	3,215	198%	13%
2014-15	45,148	29,737	3,253	11%	1,447	-55%	5%
2015-16	55,559	40,001	6,889	17%	898	-38%	2%
2016-17	60,220	43,478	8,684	20%	1,483	65%	3%
2017-18	60,974	44,857	6,709	15%	847	-43%	2%
2018-19	62,001	44,366	9,158	21%	1,351	60%	3%
2019-20	74,390	44,366	7,854	18%	1,422	5%	3%
2020-21	81,722	59,636	5,060	8%	2,043	44%	3%

Source – Department for Promotion of Industry and Internal Trade. USD \$ Million

Table Description:

- **Year:** Represents the Financial year.
- **FDI Inflows Total:** Represents Total FDI inflows to India from all countries and sectors.
- **FDI Equity Inflows:** Represents the FDI inflows to India from all countries and all sectors however excluding the amount remitted through RBI's NRI scheme.
- **FDI Equity Inflows – Services:** Represents the FDI Equity inflows to India across Service Sector including Financial, Banking (and other sectors).

- **% of FDI Equity Inflows Services:** FDI Equity Inflows Services as a percentage of FDI Equity Inflows.
- **FDI Equity Inflows – from UK:** Represents the FDI Equity inflows to India from UK.
- **% of FDI Equity Inflows from UK:** FDI Equity Inflows from UK as a percentage of FDI Equity Inflows.

UK India Trade in Financial Services

The section below focusses only on the volume of Financial Service trade between UK and the world and compares it with India. This is evaluated for both UK Financial Services imports and exports in the last 5 years since 2016.

Financial Services Imports to the UK have been consistently increasing from 2016 to 2021, except in 2020 when the volumes declined (this could be attributed to COVID 19 measures). In 2016, the total Financial Services imports to the UK were £3,466 Million, although India's share was mere £89 Million which attributed to 2.6% of UK's total volumes. In 2017, UK's total imports increased by 18% to £4,093 Million. An increase in the UK volumes was reflected in the slight increase in India's share which increased to £117 Million, up by 32% from previous year although the percentage of UK's share remained relatively low at close to 3%. The years 2018 and 2019 portrayed a contrasting view from India's perspective. In 2018, UK volumes witnessed a 16% rise in total Financial Services imports however India's share declined to £116 Million a decline by 1%, with India's share dropping to 2.5% of UK volumes. Similarly for 2019, UK's total volumes increased by approximately 38% to £6,519 Million, however India's share declined further by 22% and only accounted to approximately 1.4% of UK's volumes. In 2020, UK's total volumes decreased by 15% to £5,558 Million however India's volumes increased to £104 Million and increase of 16%, however again India's percentage share of UK was relatively low at close to 2%. Thus the 3 years between 2018-2020 highlighted an inverse relationship between UK's total volumes for Financial Services and India's share in UK's volumes. In 2021, UK's Financial Services volumes increased by 35%, which reflected into a 7%

increase of India's input to £111 Million although India's share of UK's volumes declined further to 1.5% one of the lowest in the 6 years between 2016 – 2021. Thus, it is evident that the Financial Services imports between the two countries are largely erratic with no clear trend emerging over the last 6 years. The only noticeable trend observed is India's low volumes in UK's share of the total volumes. The table below depicts the Financial Services volumes between the two countries.

Table 2.6 – Financial Services (F.S) Imports to UK From India

Financial Services (F.S) Imports to UK From India					
Year	F.S Imports to UK	F.S Imports to UK % Change	F.S Imports to UK (From India)	F.S Imports to UK (From India) % Change	% of India's F.S Imports to UK
2016	3466	N/A	89	N/A	2.6%
2017	4093	18.1%	117	31.5%	2.9%
2018	4732	15.6%	116	-0.9%	2.5%
2019	6519	37.8%	90	-22.4%	1.4%
2020	5558	-14.7%	104	15.6%	1.9%
2021	7479	34.6%	111	6.7%	1.5%

Source - Office of National Statistics (ONS) Value in Million

Table Description:

- **Year:** Represents the year of the data.
- **F.S Imports to UK (Total):** Financial Services imports to the UK from the world.
- **F.S Imports to UK (Total) % Change:** Represents the percentage change in Financial Services imports to the UK from the world.
- **F.S Imports to UK (From India):** Financial Services imports to the UK from India. This is a subset of F.S imports to the UK (Total).

- ***F.S Imports to UK (From India) % Change:*** Represents the percentage change in Financial Services imports to the UK from India.
- ***% of India's F.S Imports to UK:*** Share of India's percentage in UK's total volumes.

Similar to the above section the following section focusses on Financial Services (F.S) exports from the UK to the world and with India. One noticeable different between the F.S imports and exports from the UK is that the exports from the UK over the last 6 years have been relatively inconsistent compared to the F.S imports to the UK over the same period. Additionally, the percentage share of F.S exports from the UK to India is higher than the F.S imports to the UK from India. In 2016, UK's total Financial Services exports was £2,689 Million, out of which £171 Million was with India which represented 6% of India's share. In 2017, UK's total F.S exports reduced by 6% to £2,535 Million however this was inversely related to relationship with India volumes. F.S volumes from UK to India increased by 6% to £193 Million and amounted to approximately 7% share of India's Financial Services. Although in 2018 UK's F.S exports with the world increased by approx. 63% to £4,121 Million this was only partially reflected in volumes with India i.e., witnessing an increase of approx. 7% to £193 Million but the percentage of F.S Exports from UK to India declined to 5%. The years between 2019-2021 were largely inconsistent as well, with 2019 witnessing a 6% increase in F.S exports from UK with the world however UK's F.S exports to India declined by 4% and thus reducing UK's share in India to 4%. In 2020 and 2021, the trend between the UK and India was similar i.e., both countries witnessed a declined in the volumes. In 2020, UK's F.S exports from the UK to the world declined by 9% to £3,976 Million, this was reflected by a decline in UK's F.S exports to India by 3% totalling to £180 Million with UK's share at 4.5%. In 2021, UK's F.S exports with the world further declined by 10% to 3,592 million and with India by 20% to £145 Million with UK's share in India subsequently declining to 4%. Thus, similar to Financial Services imports it is evident that the Financial Services exports between the two countries were inconsistent over the last 6 years. The table below depicts the Financial Services volumes between the two countries.

Table 2.7 – Financial Service (F.S) Exports to India from UK

Year	F.S Exports from UK	F.S Exports from UK % Change	F.S Exports from UK to India	F.S Exports from UK to India % Change	% of F.S Exports from UK to India
2016	2689	N/A	171	N/A	6.4%
2017	2535	-5.7%	181	5.8%	7.1%
2018	4121	62.6%	193	6.6%	4.7%
2019	4373	6.1%	185	-4.1%	4.2%
2020	3976	-9.1%	180	-2.7%	4.5%
2021	3592	-9.7%	145	-19.4%	4%

Source - Office of National Statistics (ONS) Value in Million

Table Description:

- **Year:** Represents the year of the data.
- **F.S Exports from UK (Total):** Financial Services exports from UK to the world.
- **F.S Exports from UK (Total) % Change:** Represents the percentage change in Financial Services exports from UK to the world.
- **F.S Exports from UK to India:** Financial Services exports from UK to India. This is a subset of F.S Exports from UK.
- **F.S Exports from UK to India % Change:** Represents the percentage change in Financial Services exports from UK to India.
- **% of F.S Exports from UK to India:** Share of UK's percentage in India's total volumes.

Thus, the above sections have reviewed the FDI volumes between UK and India and compared these volumes to the rest of the world, from both UK and India's perspective. In addition, the above section also reviewed the financial services volumes between the two countries. The data analysis highlights a consistent theme of inconsistent volumes between UK and India and the relatively low percentage of FDI between the two countries however it does not reflect the rationale for these inconsistencies ('why'). The next chapter

aims to review the barriers impacting the flow of FDI between the two countries with a focus on financial services domain.

CHAPTER 3: LITERATURE REVIEW

The proposed research topic of FDI in financial services between UK and India is a recent development which has been possible due to UK's recent departure from the European Union on 31 Jan 2020 (Brexit). Brexit gave UK the ability to negotiate its own FTA, which was not possible prior to the UK being part of the EU. UK's tilt towards Indo-Pacific and its focus on strategic relationship and collaboration seem to alter the foreign policy challenges faced post-Brexit. U.K's exit from EU will cultural and economic impacts around the globe (Manocha). Although in the near future India may witness volatility in trade policies with the UK, final outcome can be unfolded in the long run post Brexit (Satapathy & Pareek, 2019). Furthermore, FTA between India and UK will increase India-UK trade by 26% per annum. UK's exports to India will increase by 33% p.a. while the UK's imports from India will increase by 12% per annum (Banga, 2017).

The recent Brexit timelines has a few positives and certain limitations from a literature review perspective. From a positive prescriptive there has been very limited academic research conducted in the last three years which focusses on the advantages of an FTA between UK India and its impact on the Indian economy. Furthermore, the context of financial services between the two countries has very rarely been considered till date. This means that from a research perspective, there is potential for significant scope for research on this topic to analyse the impact of the FDI between the two countries with a focus on the financial services sector. The flip side of this is that due to limited academic research conducted in the last three years' literature review specific to this topic is harder to find which focuses on UK-India, financial services, and impact of GDP all three components in one literature review document. There is literature available which focusses on individual components of the topic, rather than all three components at the same time, e.g., UK-India FDI but across all sectors, or financial services impact on India's GDP but from a global perspective (not just UK). Thus, an attempt has been made to review all the different literatures available across different components to address the issue of limited academic documents focussing specifically on the proposed research topic.

Given the above, the first part of the literature review section focusses on review of the FDI determinants in India and for other countries. This is required to analyse what parameters will be suitable from India's perspective, which will be added as a model parameter to analyse the impact on GDP. Given that FDI in India is a well discussed topic, there is literature available on this section. The second part of the literature review focusses on analysing the impact of FDI on the GDP of global economies. Various studies conducted globally and focussing specifically on Asia, Europe, Africa, Middle East are reviewed to analyse FDI impact on specific countries across various continents. The literature review then moves to India, where the impact of FDI in services is reviewed extensively, including financial sector which is considered under the services sector. The following section then focusses on FDI in financial services specifically and its impact on India's GDP. This includes FDI from various countries and not just the UK, which provides a good understanding of the broader context. The final section covers literature review which challenges the existing research's hypothesis that FDI's has a positive impact on the GDP.

3.1 FDI inflows determinants

The following section aims to review existing literature to analyse key determinants for FDI inflows into India either support the proposed research or analyse gaps in the existing research. India's economic reforms in 1991 was one of the main factors for the FDI inflows to increase over the next two decades. In a study conducted by Kumar (1998) few years after the economic reforms the study found that that the policy liberalisation had played a key role in increasing FDI inflows in India, albeit the inflows were still smaller compared to the country's potential and competitors in Asia and other continents. The policy liberalisation may not have increased FDI inflows significantly however it helped avert India's decline. The policy liberalisation further helped the Indian economy by diversifying the FDI inflows into services and energy sector from a complete concentration in the manufacturing sector. The study found that the inflows from US and Asia had increased although inflows from Europe and UK were relatively lower. This is the same case more than two decades later when US and Asia dominate FDI inflows as opposed to significant contribution from UK and Europe. The study recommended further policy

liberalisation measures to attract efficiency seeking FDI inflows in India due to its advantages such as large domestic markets, relatively well functioning capital markets, vast labour pool, lower wages compared to other countries and future economic growth. Whilst this study was conducted in 1998, most of the analysis and recommendations are still valid more than two decades later with the key focus on policy liberalisation to attract more FDI inflows in different sectors. The proposed research aims to understand why the FDI inflows from UK have not increased in the last three decades.

Banik, Bhaumik, & Iyare (2004) further analysed the FDI inflows to India, China, and the Caribbean. The study acknowledged some of the established findings that macroeconomic indicators such as market size, export intensity, institutional quality and governance of the source and destination countries are the main factors relevant in the contribution of FDI inflows. The study however extended further to define a neighbourhood model concept. The concept of the neighbourhood model was an evolution to the psychic distance model used by the Swedish economists Johanson and Wiedersheim-Paul and later elaborated by many authors. The psychic model defined was a static concept where the foreign investments and decisions are explained by the psychic distance between the two countries, i.e., home and host country. The neighbourhood concept takes into consideration gravitational attraction between two continents or countries based on similar culture, language, and roots. The research found that even though Latin American and Caribbean countries are geographically closer to the developed countries, they have not been able to take advantage of the proximity potentially due to cultural differences. From a UK India perspective, due to the similarity in the governance structures (i.e., democracy) and the languages it can be deduced that the neighbourhood concept is quite applicable and is relevant to the FDI inflows in addition to the macroeconomic factors.

Lokesha & Leelavathy (2012) reviewed the determinants of India's FDI inflows and outflows from a macro perspective. The determinants were categorised across key factors – policy framework, market size, economic stability, and political factors. Each of these categories were further split into multiple determinants. The policy framework included not just liberalised trade and industrial policy but also included foreign exchange policy, intellectual property regime and government's tax policy. From a market size

perspective, the size of the market and growth prospects of the economy were categorised as the key determinants. The economic stability aspect included debt-GDP ratio, inflation rate, balance of payment deficit and infrastructure capabilities. debt to GDP ratio has an inverse relationship the FDI inflows, the lower the debt ratio the higher the positive impact on FDI inflows. Increasing the debt causes the ratio to go higher which would deteriorate the financial situation of the country. India's debt to GDP ratio has fallen over the last three decades from 38.7 percent in 1990-91 to 17.6 percent in 2003-04. An inflation rate within the range expected from the central bank would be positive to the FDI inflows. Similar to the debt-GDP ratio, a large deficit in the balance of payment is inversely proportional to FDI inflows. Finally, the political factors including government stability are the key determinants for the inflows. The study highlighted that high labour cost deters FDI inflows. The availability of cheap labour not only encourages investors to locate part of their supply chain or business model to the host countries but also maximizes return on their investments. Thus, the cost of capital is directly proportional to the domestic consumptions. The study was in line with some of the other research done earlier and it reiterated the fact about having a liberalised trade and economic policy for FDI inflows.

In line with Loksha & Leelavathy's work, Zheng (2013) studied the variations in inward FDI patterns in the case of India and considered the impact of dual attributes of economic development and geographical location not just from the recipient country i.e., India's perspective, but it also considered the economic development and geographical location from a host country perspective. The study used Generalised Least squares (GLS) model which employed panel dataset at an aggregate country level. The study highlighted that India's FDI inflow patterns vary over time depending on the country's economic development phase and the geographical location of the host country. i.e., whether the host country is a developed country or a developing country. FDI inflows to India from the West are more likely for efficiency and English language purposes, whereas inflows from the east are more likely due to the cheaper labour for efficiency purposes. For the purpose of this research, it can be assumed that the geographical location is constant since it deals only with the UK, which gives India UK relationship an added benefit of the common language. The study further iterated that the FDI inflows to India will also depend on UK's

economic development phase. In addition, these inflows are dependent on India's factor endowment pattern. Simplistically the factor endowment pattern represents the resources available at India's disposal mainly in areas of labour, land, money and entrepreneurship to determine its comparative advantage. The study concluded that the economic and structural transformations play a key role in the FDI patterns and recommended policy liberalisation to attract FDI which in turn would lead to higher economic growth. Thus, work conducted by Zeng endorsed the work conducted by some of the predecessors regarding the liberalisation of policies. Whilst these studies focussed on the services sector, there was limited input regarding the liberalisation of policies specifically for the financial sector, which will be the scope of the proposed research.

Shin's study (2014) of India's FDI inflows categorised India's FDI regime into three phases; anti FDI (period from 1969-75), selective FDI (1975-91) and pro FDI (post 1991). In the selective FDI phase, the government discussed opening up of India's FDI as opposed to relying on commercial borrowing for foreign technology which was essential for the survival of the country. However, in this phase, Indian party politics and lobbying against the FDI inflows hindered the complete opening of the Indian economy to FDI inflow. The transition from the selective phase to pro FDI phase was momentous due to the weakening of India's current account deficits which meant a near collapse of the Indian economy, thus forcing a consensus of policy liberalisation amongst Indian political parties. Thus, the study conducted by Shin concluded that in addition to the established macroeconomic factors, interests and ideas of different political groups are determinants for the policy liberalisation associated with FDI inflows. Furthermore, competition between different provincial states has additionally impacted the FDI inflows in a positive manner. This study is quite supplementary to the current research undertaken since further opening India's FDI inflow for financial services sector could potentially lead to disagreements within different political parties at the state level which will need to be catered to since this may have an impact on India's GDP.

The study conducted by Teli (2014) on similar lines postulated that India adopted a conservative FDI approach before 1991 due to the closeness of the economy, however post 1991 India's liberalized FDI policies attracted significant inflow increase compared

to the previous decade, which aligns with Shin's analysis of pro FDI approach post 1991. The study further highlighted that based on UN statistics, India was classed as a favoured FDI destination after US and China. The study of FDI Inflows for a period of more than twenty years from 1991 to 2012 highlighted an exponential increase in FDI inflows from 1991-92 to 2012. The share of direct foreign investment increase as well and that of portfolio investment stood at 66 % and 34% respectively. From a services sector FDI perspective, Mauritius and Singapore topped the list for FDI inflows in India. This study can be considered as a complementary study to the proposed research since it identifies that UK does not rank in the top FDI inflows however it does not provide any specific policy recommendations to increasing UK's FDI inflows into India, which the proposed research aims to address.

Dua & Garg (2015) conducted an analysis of macroeconomic factors impacting the FDI inflows, used cointegrating VAR with exogenous variables and concluded that FDI inflows are positively impacted due to the macroeconomic factors: depreciating exchange rate, higher domestic returns and output, better infrastructure, and higher foreign exchange reserves to import ratio. Whilst depreciating rupee attracts FDI inflows due to increase in purchasing power of the home country, higher domestic interest rates in India indicate better return for foreign investors. Higher domestic returns and output is considered a positive to inflows implying that FDI inflows are market seeking since higher domestic output leads to higher economic activity further leading to greater investments and thus more FDI inflows. Similar to higher domestic output, higher foreign output is considered beneficial to inflows. Higher foreign output indicates greater company profitability which translates into more liquidity available for foreign investors to invest in India. Higher foreign exchange reserves to import ratio also provides a healthy assessment of India's economic environment which in turn is realised in the positive credit worthiness of the country which has positive influence on the inflows. Interestingly the research highlighted that trade openness has a negative impact on FDI inflows since trade openness increases the tariffs in nature. Finally, the study concluded that whilst India is one of the favoured destinations for FDI inflows, it indicates that India competes with other emerging countries in receiving FDI inflows i.e., global FDI flows to other emerging economies directly

reduces the FDI inflows to India due to diversification of FDI away from India. Although the macroeconomic determinants are consistent with some of the earlier research, the trade openness point and the increase in tariff will be further analysed in the proposed research on financial services.

Further study conducted by Massand & Gopalakrishna (2017) postulated the fact that in the first half of 2015, India received the highest FDI inflows in the world ahead of economies such as US and China, a consequence of the liberalisation of the FDI policies. From a sectoral FDI perspective, although India has liberalised most of the FDI sectors, however the government has still retained maximum restrictions of either seventy-four percent via a government route or forty-nine percent via the approved route. With the current liberalisation approach, there were forty-four foreign banks with three hundred branches operating in India with a seventy-four percent and twenty percent cap for private sector and public sector respectively. The authors further studied the motives behind bank FDI inflows into India using generalized method of moments, a dynamic panel model. The authors used country wise panel data and bank FDI data for more than ten years from 2001. The research concluded that the bank FDI and overall FDI are correlated i.e., banks that serve clients in their home country follow the clients and serve them in the host country. Thus, geographical location model offers the banks additional profit-making opportunities which in turn positively contributes to the India economy. In order to attract additional FDI inflows in banking, the authors recommended further policy liberalisation to increase the private banking sector cap and simultaneously reduce entry barriers for foreign banks to operate in India. The research is supplementary to the proposed research since it will aim to identify aims to reduce barriers.

Mishra and Jena (2019) conducted a similar study to analyse the determinants of bilateral flows from UK and other western countries into India using five versions of gravity model technique, one basic and four augmented model. The study used world development indicators from 2001-2012. The authors concluded that common language, distance and common border are essential attributes to the FDI inflows. The research stated that more distance between host and home country would reduce the FDI inflows. The study elaborates that these attributes are in addition to the already researched and accepted

macroeconomic factors and institutional and infrastructure factors. The macroeconomic factors including market size of host and source country, high inflation rate and real interest rate are positive determinants of the FDI inflow. Similarly, from an institutional and infrastructure perspective, good telecommunication network, degree of openness high globalisation Index and economic freedom index all contribute positively to the FDI inflows. The researchers concluded that in order to attract more FDI inflows, India should frame economic policies to strengthen the economic growth and per capita income which in turn contribute FDI inflows. Thus, the research by Mishra and Jean can be considered complimentary to the proposed research since the proposed research aims to identify barriers in the policy for increasing FDI inflows in the banking sector from UK and aims to recommend suggestion for reducing the barriers.

The literature review around FDI inflow determinants highlighted a common conclusion that macroeconomic factors are essential determinants for the FDI inflows. The macroeconomic factors analysed will be used as a starting point for defining the model in the proposed research to identify which parameters impact the inflows and are necessary for policy liberalisation. A summary of the literature review is presented in the table below.

Table 3.1 – Determinants of FDI inflow

Author (s)	Determinants of FDI inflows
Kumar (1998)	Favourable Policy liberalisation impacting FDI inflows
Banik, Bhaumik, & Iyare (2004)	Neighbourhood model concept between two continents or countries based on similar culture, language, and roots.
Lokesha & Leelavathy (2012)	Policy framework including market size, economic stability, and political factors.
Zheng (2013)	Economic development phase, geographical location of host country & endowment pattern (resources available)
Shin's study (2014)	Interests and ideas of different political for the FDI policy liberalisation and macroeconomic factors.
Teli (2014)	Favourable FDI policies.

Dua & Garg (2015)	Macroeconomic factors including exchange rate, domestic returns and output, better infrastructure, and foreign exchange reserves to import ratio.
Massand & Gopalakrishna (2017)	Favourable Policy liberalisation to increase the private banking sector cap and reduce entry barriers for foreign banks.
Mishra and Jena (2019)	Macroeconomic factors, institutional/infrastructure factors and distance between host and home country.

3.2 FDI impact on GDP (global)

FDI inflows not only have a positive effect on the economic growth of the country but also positively impacts the capital formation, technology spill overs, innovation, and upskilling/acquisition know-how. (Temiz & Gokmen, 2014). Over a period of four decades there have been significant research conducted in areas of FDI advantages to either support or disagree with the productivity aspect. Caves (1974); Globerman (1979); Subrahmanian and Pillai (1979) were the first few to establish positive FDI and productivity link using time series data. These findings were accepted and supported by Lall and Mohammad (1983), Demsetz (1983), Hughes (1984) Morck et al. (1988), Blomström and Wolff (1989) and Dreux (1990), Davies and Lyons (1991), Lichtenberg and Siegel (1992) all of whom reiterated the positive link and identified that technology gap between host and home countries is reduced post FDI. In the late nineties a variety of researchers across various conditions tested this theory and Cantwell (1995), Kokko (1996), MacDuffe and Helper (1997), Blomström and Sjöholm (1999), Helpman (1999), Barrell and Pain (1999), Sjöholm (1999), Aitken and Harrison (1999) all effectively came to the conclusion that better economic relations with global firms enable learning opportunities to the domestic firms which in turn reduced innovation cost and thus increases total factor productivity of the domestic firms. Blalock (2002), Haskel et al (2002), Rasiah (2002), Driffield et al (2002) found spill over from foreign firms in different

industries to inter industry and vertical spill over which had a positive effect on productivity. Kundra (2009), Nilekani (2009), Chackochen and Ramalingam (2012), Sahu and Solarin (2013) Barbera et al. (2013) agreed with the earlier researchers indicating that FDI helps local firms by leveraging enhanced technological equipment due to FDI spill over effects.

There have been extensive studies conducted across the world with an aim to analyse the FDI's impact on the economic growth of selected countries. From a European context perspective, Kosztowniak (2016) analysed relationship between FDI and GDP to verify whether a causality relationship exists between the FDI and GDP. The researchers used vector error correction model and variance decomposition model to analyse data for a period for twenty years from 1992- 2012. The study confirmed bidirectional causality between FDI and GDP. Interesting the study noted that the impact of GDP on FDI is higher than the impact of FDI on the GDP of the country. Although the study did reaffirm conclusion regarding policy liberalisation to attract more FDI inflows in addition to policy enhancements related to employment growth and increasing the productivity of domestic firms.

Similarly Comes et al (2018) studied the impact of FDI on Economic Growth for seven Eastern and Central European countries with a GDP per capita under \$25,000 - Romania, Bulgaria, Croatia, Czech Republic, Hungary, Slovakia, and Slovenia for six years from 2010-2016 using fixed effect model and panel data. The study concluded that a bi-directional causal relationship exists between FDI and GDP and postulated that higher FDI increases savings capacity for a country and thus reduces any savings constraints. Additionally, it reduces commercial constraints by expanding country's import abilities. The study also reemphasised the impact of FDI on technological transfers and spill overs between different sectors thereby impacting the economic growth. The study found this was dependent on skilled human capital including educational qualifications, effectively emphasising that higher the educational level of the workforce, higher is the impact of FDI on the economy. The FDI inflows and its impact on economy also depended on the commercial openness of the country. Analysing the data for seven countries and analysing the heterogeneity per year and country the researcher conducted an empirical study and

concluded that the FDI inflows have a positive impact on the GDP, thus recommending that policy makers implement conducive policies that increases FDI flows. Interesting the researcher did not consider the impact of location or neighbourhood model to see if the distance played any significant role in the FDI inflows and its impact of GDP since the seven countries analysed were within close neighbourhood.

Moving to Asia, Choong & Lam (2010) studied the determinants of FDI inflows into China and Malaysia and found that there were three key variables which had a statistically significant impact on the FDI inflows market size, openness of the country and literacy rate. The market size drives the rationale for the foreign investors to invest in a host country and is investors are attracted to countries with a growth prediction, which augments the research done till done. The openness of the country depends on the policy liberalisation and FDI inflows are attracted to countries with more liberalised economic reforms. Finally, the literacy rate and human capital development has a significant statistical impact on the FDI inflows. The findings suggested that enhanced educational policy and labour expansion policies are required to raise the human capital in the country. The study concluded that there exists a unidirectional causality from market size, degree of openness and literacy rate into FDI inflows for China and Malaysia.

Singh (2017) further analysed the impact of FDI on productivity and hence economic growth since productivity is a key source in economic growth. The study found that FDI inflows have significant benefits to the host economy in terms of technology spill over and transfer, upskilling of resources due to new techniques and competition and export marketing access. The study also identified that firms that are imbued with FDI promote employment faster as compared to non FDI firms. FDI increases productivity of firms in most instances with the exceptions of a couple of scenarios i.e., family-owned firms and firms that employ unskilled labour. Similarly, Bao & Chen (2018) analysed the impact of foreign multinational entry into host countries and how domestic firms respond to foreign competition. Bao & Chen studied the impact of multinational investments for more than thirty-five thousand entities around the world using specific measures related to each sectoral firm. The study highlighted that in the long run FDI inflows help domestic firms increase productivity, implement innovative approaches, and

alter their product composition. The study however highlighted U-shaped link between productivity in the initial stages and productivity growth, indicating that both the tails (right and left) upgrade productivity through product dropping and innovation respectively. The U shape link and the potential effects could be used by policy makers to decide the timings of the new economic policy implementation. In the case of Vietnam, Nguyen (2020) studied the relationship between FDI, foreign aid, exports of goods and services and economic growth. The study used secondary time series data for a period of twenty-one years from 1997-2018 and used a linear approach in the correlation and regression analysis. The study reiterated that FDI inflows contributed positively to the economic growth due to availability of additional capital, upskilling of existing labour market, better employment opportunities, increase in productivity and technological spill over into vertical sectors and cross sectors. The study concluded that the effect of FDI (and foreign aid, export of goods and services) has a causal relationship with the economic growth at a one percent significance level.

Whilst The above section reviewed literature related FDI's impact on productivity and economic growth across multiple countries and continents, the next section will focus on literature FDI in services and its impact on the GDP. A summary of the literature review is presented in the table below.

Table 3.2 – FDI impact on productivity, GDP (global)

Author	FDI impact on productivity, GDP (global)
Temiz & Gokmen, 2014).	Positive impact on economic growth.
Caves (1974), Globerman (1979), Subrahmanian and Pillai (1979)	Positive FDI and productivity link.
Lall and Mohammad (1983), Demsetz (1983), Hughes (1984) Morck et al. (1988), Blomström and Wolff (1989) and Dreux(1990), Davies and Lyons (1991), Lichtenberg and Siegel (1992)	Positive link between FDI and productivity since technology gap between host and home countries is reduced post FDI.

Cantwell (1995), Kokko (1996), MacDuffe and Helper (1997), Blomström and Sjöholm (1999), Helpman (1999), Barrell and Pain (1999), Sjöholm (1999), Aitken and Harrison (1999)	Increase in total factor productivity of the domestic firms due to spill over from foreign firms to domestic firms which reduced innovation cost of domestic firms.
Blalock (2002), Haskel et al (2002), Rasiah (2002), Driffield et al (2002)	Positive effect on productivity due to spill over from foreign firms across industries.
Kundra (2009), Nilekani (2009), Chackochen and Ramalingam (2012), Sahu and Solarin (2013) Barbera et al. (2013)	Positive impact due to FDI spill over effects, i.e. that FDI helps local firms by leveraging enhanced technological equipment.
Kosztowniak (2016)	Bidirectional causality between FDI and GDP. Impact of GDP on FDI higher than the impact of FDI on the GDP of the country.
Comes et al (2018)	Bidirectional causal relationship between FDI and GDP.
Singh (2017)	Positive impact of FDI on productivity of firms except family-owned firms and firms that employ unskilled labour.
Bao & Chen (2018)	Positive impact of long run FDI inflows on firms productivity due to innovative approaches, and alteration of product composition
Nguyen (2020)	Causal relationship between FDI and economic growth.

3.3 FDI in services and impact on GDP

From a services sector perspective including the financial sector, Basu, Chakraborty and Reagle (2003) explored causality linkage between FDI and growth

in twenty-three developing countries using panel cointegration approach. The study further investigated the liberalisation impact on the FDI and GDP relationship. From a long run perspective, the study found that cointegrating relationship exists between FDI and GDP. The effects of the FDI inflows depended upon the state of the economy, whether the state was considered an open economy or a closed economy. In case of open economies, the study found a bidirectional causality between FDI and GDP, whereas in the case of completely closed economies the long run causality was unidirectional from GDP to FDI, thus concluding that these variables do not have bidirectional causality under restrictive investment and trade regimes. However, given that India is not considered a completely closed economy it can be inferred that there is a bidirectional causality between FDI and GDP. The study however did not extend to finding the estimated impact on growth due to the causality between FDI and GDP for open economies at each country level.

Hansen and Rand (2006) stated that various studies have indicated a positive association between FDI and economic growth however they acknowledged that is still some ambiguity around the causality direction between FDI and GDP. To negate this ambiguity, Hansen and Rand analysed the relationship for thirty-one countries for thirty years from 1997-2000. The study used econometric models, mean group estimator and concluded that FDI has a positive impact on the economy growth in the long run. The study addressed the heterogeneity issue of FDI's impact on GDP and found no significant differences between the different continents thus implying that in theory FDI impact on economies in Africa should be equal to the FDI impact on economies in Asia and Latin America and vice versa. Finally, the paper concluded that, irrespective of the development stage of the country FDI has a significant impact on the economic growth of the country in the long run. Similarly, Ozturk (2007) studied the nexus between FDI and growth. Whilst the study acknowledged that several studies appeared to support the convention idea that FDI inflows have a positive impact on the economic growth, the overall evidence is rather mixed with regards to labour costs, openness of the economy, economic and fiscal incentives. The study however reiterated the established facts that skilled labour, well-functioning capital markets, infrastructure developments, economic policy liberalisation and political stability are the key determinants of the FDI inflows. The study concluded

that FDI impacts growth positively through various modes such as technology transfer and spill over and capital formation via growth of domestic financial institutions.

Wijeweera, Villano & Dollery (2010) similarly analysed the impact of FDI on the economic growth of forty-five countries from 1998 to 2004. The study acknowledged the differing views of how causality models run between FDI and GDP, i.e., whether FDI increases GDP growth or whether GDP growth increases FDI inflows. The researchers used stochastic frontier model to analyse whether inflows impact economic growth due to productivity and efficiency gains. The research stated four key findings: FDI has a positive impact on the economic growth of a country only in instances of highly skilled labour. FDI inflows in itself do not induce any efficiency gains since the benefits incurred due to the inflows will need to be absorbed by the skilled labour. FDI inflows has an inverse relationship to corruption and finally trade openness impacts economic growth in a positive manner. The authors recommended policy implementations to reduce corruption, enhance education levels will have a positive impact on FDI inflows.

Kotrajaras, Tubtintong & Wiboonthutikula (2011) studied the impact of FDI on economic growth for a group of fifteen Asian countries according to their economic development cycle. The study used cointegration methods along with panel data analysis. The research found that FDI inflows had a positive impact on economic growth for high income and middle-income countries. These countries have the macroeconomic factors in place such as having a well-developed financial system, well developed institutions and infrastructure abilities and good governance. Corruption and education attainments are the key differentiators between high income and middle-income countries which reduces the impact of FDI inflows on the economic growth. Thus, the research confirmed that although FDI inflows have positive effects on the GDP for countries with good economic credentials, middle income and lower income countries need to implement policy that enables them to invest more in education, infrastructure whilst at the same time reducing corruption.

Sen (2011) investigated whether FDI growth causes the GDP to grow and concluded that FDI is a propagator of economic growth and has a positive impact on GDP via favourable effect on service sector growth. Sen conducted the study using

macroeconomic variables and annual data from 1970 to 2008 and highlighted that services sector was the best performing sector across services, agricultural and other industries. From a service sector perspective, trade and transport sector grew the fastest followed by financial services sector, with financial services sector lagging the trade sector from a growth perspective. The study highlighted this as an anomaly of the Indian financial services sector. The author highlighted that over dependence on the service sector FDI has a danger since this sector has a multiplier effect on the economy i.e., negative shock in the financial sector will have a spill over effect into other sectors and a risk of facing unfavourable trade terms in the future. The study concluded that there was a positive relationship between FDI and the services sector, which in turn has a positive relationship on the GDP. Whilst the study is helpful for the proposed research, it does not explicitly identify the impact of FDI in financial services on the GDP from a quantitative perspective.

Comparing the FDI effects on the economic growth on India and China, Agrawal & Khan's (2011), using a modified growth model extended from a basic growth model, the study covered the period from 1993-2009. The study used ordinary least square model of regression using independent variables human capital, FDI, gross capital formation and labour force, with GDP as a dependent variable. The study concluded that a one percent increase in FDI would result in 0.07% increase in GDP of China and 0.02% increase in GDP of India, highlighting that China's growth is more affected by FDI than India's growth and that FDI is not a statistically significant variable for growth prediction compared to other variables. The author highlighted that China has a higher impact on GDP due to its market size, government incentives, developed infrastructure. Whilst this may be accurate it does not reflect India's democratically credentials and as highlighted by Shin (2014) in the above section, FDI inflow approvals in India are influenced and dominated by regional political parties which further impact GDP growth as opposed to China's one-party system.

Dash and Parida (2013) studied the relationship between three variables FDI, economic output and the services trade for both imports and exports using co-integration and VECM causality test and analysed relationship both at the aggregate level and the sector level for services sector and manufacturing sector. The study concluded that a long-term relationship exists between FDI, economic output and services trade which is either a

bidirectional, complementary or a unidirectional relationship. There was a causal bidirectional relationship between FDI and economic output as well as services exports and economic output. A complementary relationship exists between service exports and FDI whereas a unidirectional relationship exists between FDI and service exports for both services sector and the manufacturing sector. The study identified cross sectoral spill over between manufacturing output and service sector outputs and vice versa. A similar study conducted by Kumar (2014) reiterated the fact that FDI in India picked up significantly since the liberalization of reforms and opening up of Indian economy in 1991. The study analysed the FDI inflow trend into India and the relationship between FDI, FII and India's GDP. The paper discussed the increase in FDI flow from US \$ 4029 million in 2000-01, to US\$ 36396 million on 2013. Additionally, the study highlighted that the year-on-year growth increased by 24.2% in April- May 2013, equating to US \$3.95 billion from US \$3.18 Billion in April-May 2012. Despite the increases in numbers the study highlighted that India's FDI volumes lack behind compared to some of the other Emerging Market countries like China. The study finally concluded that the FDI and GDP have a positive correlation whilst FII and FDI also share a positive correlation.

Mohapatra & Gopalaswamy (2016) conducted a comprehensive study to analyse the relationship between FDI (inflows and outflows) and the domestic Investment for thirty-two countries across a period of seventeen years from 1996-2012, focussing on the 2008 Global Financial Crisis as well. The study used Pedronis panel cointegration test to identify a long run relationship between domestic investment and both FDI inflows and FDI outflows. The study found that these variables were integrated of the first order. Mohapatra & Gopalaswamy further applied panel VECM to test causality between these variables and found a joint long run relationship between FDI inflows, FDI outflows and domestic investments, which meant that the domestic capital formation is augmented in Emerging Markets due to the FDI flows. Finally, the researchers used fully modified OLS (FMOLS) and dynamic OLS (DOLS) model and concluded that in the long run FDI inflows and outflows have a crowding out effect on the domestic investments. Thus, the authors recommended that policy makers focus on policies related to both FDI inflows and outflows due to the different impact of these variables in the long run. Further analysing

the 2008 Financial crisis the authors concluded that as expected due to the crisis there was a negative impact of the FDI inflows to emerging markets, however there was little impact for the FDI outflows due to these crises. Thus, the authors recommended investor protection policies for FDI inflows to cater to crisis scenarios whilst policies to incentivize the domestic firms to invest abroad since FDI outflows also enhances growth. Finally, Sengupta & Puri (2020) studied the pattern of FDI into India and its neighbours - Pakistan, Nepal, Bangladesh and Sri Lanka and explored the causality between FDI and gross domestic product (GDP). The results showed that the different economic policies of the respective countries had a role to play in explaining the difference in the quantum of the flow and there is an association between FDI and GDP, and in all the cases, FDI is instrumental in enhancing the economic growth of the countries included in the study.

Whilst the studies above focussed on FDI in services sector and its impact on the GDP, the study included financial sector as part of the services sector as opposed to focussing only on the financial sector. Additionally, the work above focussed on identifying the causality link, however the proposed research aims to determine the quantitative impact of FDI inflows on India's GDP. The next section will focus on the FDI outputs and its benefits to the economy, including technological spill over, productivity enhancements to analyse whether FDI in financial services from the UK will be beneficial to India. A summary of the literature review is presented in the table below.

Table 3.3 – FDI in services and impact on GDP

Authors	FDI in <i>services</i> and impact on GDP
Basu, Chakraborty and Reagle (2003)	Bidirectional causality between FDI and GDP in case of open economies.
Hansen and Rand (2006)	Positive impact of FDI in services on the economic growth in the long run.
Ozturk (2007)	Positive impact through technology transfer and spill over and capital formation.
Wijeweera, Villano & Dollery (2010)	Positive impact of FDI in services on the economic growth of a country only in instances of highly skilled labour.

Kotrajaras, Tubtimtong & Wiboonchutikula(2011)	FDI inflows have a positive impact on economic growth for high income and middle-income countries.
Sen (2011)	FDI is a propagator of economic growth and has a positive impact on GDP via favourable effect on service sector growth
Agrawal & Khan's (2011)	Increase in FDI would result in increase in GDP.
Dash and Parida (2013)	Causal bidirectional relationship between FDI and economic output.
Kumar (2014)	FDI and GDP have a positive correlation
Mohapatra & Gopalaswamy (2016)	Long run relationship between FDI inflows and domestic investments.
Sengupta & Puri (2020)	FDI is instrumental in enhancing the economic growth

3.4 FDI in financial services and impact on GDP

Specific to financial services, Francois and Schuknecht (1999) explored linkages between financial services trade and growth calculated as GDP by developing an analytical model and using cross country growth regressions. The studies focus was services trade, openness of financial services regime and its impact to attract foreign financial firms to contribute to the domestic market. The study using data from several sources for ninety-three countries for years from 1986-1995 and postulated that trade formalization through financial market integration has long term effects on the economic growth due to increased financial competition. Francois and Schuknecht found positive relationship between the four variables a) financial sector's competition and openness and between b) growth and financial sector competition. Based on these linkages the author inferred causal link between openness and competition and competition and growth, which indicated significant positive net effects. The study revealed that changing from a closed economy to an open economy would lead to changes in the growth rates between 1.3 to 1.6 %. Whilst this study is closest to the proposed research, the study was based on data until 1999 which is outdated given the recent geopolitical changes due to Brexit and India's continued economic growth in the last two decades.

Similarly, Verikios and Zhang (2001) postulated that Trade Liberalisation of Financial Services leads to economic gains by removing barriers to the establishment of new operations and by liberalising the operations of existing operators. Verikios and Zhang used general equilibrium model to assess the effects for nineteen regions of the world and pointed that for the world, the one-off gains were estimated to be at least 0.09 per cent of combined GNP. The study found that the removal of market access barriers for come from three sources: resource allocation efficiency, higher returns for stock capital and more product variety. Regions with higher barriers aim to gain more from policy liberalisation, thereby reducing the costs. Additional benefits of lowering barriers result in more outward FDI, additional income generation from FDI and price reduction due to increased competition. Mattoo, Rathindran and Subramanian (2001) measured financial services trade liberalization and its impact on economic growth via policy-based measures of the openness of a country's services regime. The authors used cross-country growth regressions to test whether the openness of the policy regime in services had an impact on long run economic growth. The study revealed long run growth performance and that countries with fully open financial services (and telecom) sectors grow up to 1.5 percentage points faster than other countries. The proposed research aims to use this as supplementary research and aims to use quantitative measures to calculate the impact of FDI on India's GDP per capita.

Choong, Yusop, and Soo (2004) further studied the impact on FDI on GDP focussing on financial sector for a set of Asian countries to analyse the relationship between FDI and GDP, FDI led GDP and GDP attracted FDI using multivariate cointegration procedure and error correction model. The study indicated that financial sector development is essential in the host country to ensure maximum advantage of the benefits of the FDI inflows. Given the similarity in terms of FDI impact growth across various countries, the study found that there is potentially a common financial development variable included since the economic growth is positive regardless of the country's economic policies and domestic attributes. Finally, the research concluded that a well-developed financial sector is a source of comparative advantage in order to absorb FDI benefits and its impact on economic growth.

Similarly, Suliman, & Elia, (2014) examined relationship between FDI, economic growth and financial development – which used equity market size and bank credit to private sector banks as proxy variables for financial development. The study used structural cointegration model with a vector error correction model and found a causal bidirectional relationship between FDI and equity markets and a unidirectional causality between FDI and economic growth. From a long-term perspective these variables cointegrated highlighting that established evidence that well-developed financial sector is a precondition for the positive impact of FDI inflows on the economy. The positive effects of the equity markets have a spill over effect into other sectors. The result highlighted a causal relationship between FDI and economic growth in the short term. Thomas (2016) analysed the impact of FDI on India's GDP and stock market movements for a period of fifteen years from 2000-2015. The study tested the correlation for India's GDP and stock market indices Sensex and nifty which are considered as representative of the Indian Stock market. The study concluded that FDI flows have a dominant effect on both the stock market and the GDP. The study noted that FDI is preferred over the foreign institutional investments due to its multi-dimensional role in the development of economy as it leads to new capital format, technological spill over and innovation and upskilling and efficiency of the businesses.

Khatun (2016) modelled analysed the impact of financial services trade mainly banking and insurance sector on the economic growth for India and other BRIC countries thirty-two years from 1990-2012 using Pedroni's panel cointegration approach using vector error correction mode and vector auto regression procedures to identify a long run relationship. The study identified cointegration between the financial services trade and economic growth in the long run and a causal relationship between these variables for all BRIC countries however the causal relationship identified was unidirectional both in the short run and in the long run. Although the study reiterated the policy liberalisation recommendation for financial services trade to increase the sectoral cap in FDI and the unidirectional causality identified was different from some of the other research which found a bi-directional causality between financial service trade and economic growth. The

study did not go further to analyse the quantitative impact of the financial services trade inflows impact of the economic growth.

Cheng & Degryse (2010) studied the relationship between financial markets and growth for twenty-seven provinces in China for seven years from 1995-2003. For financial markets, the authors used formal institutions i.e., banks and a combination of formal/non formal institutions i.e., non-banks to assess the relationship with four variables bank deposit, bank credit, non-bank deposit, non-bank credit. The analysis found that increase in bank deposits and bank credit directly impacts the economic growth. In instances of bank loan ratio to GDP an increase in the ratio from the lowest to the highest point increases the country's GDP by 8.5%. Interestingly the fourteen provinces which had foreign bank presence witnessed more pronounced impact of the bank deposits and credits on the economic growth. Contrastingly the development of non-banks does not impact the economic growth. This is due to banks having the advantages of commercialisation, entry deregulation and liberalisation over non-banks. Overall, the development of the banking sector has a statistically significant impact on the GDP. Whilst the specific research is focussed on China, this is complementary to the proposed research undertaken since it shows the impact of foreign banks on the economic growth of the country. A summary of the literature review is presented in the table below.

Table 3.4 – FDI in financial services and impact on GDP

Authors	FDI in financial services and impact on GDP
Francois and Schuknecht (1999)	Positive relationship between the financial sector's competition and openness and growth
Verikios and Zhang (2001)	the one-off gains were estimated to be at least 0.09 per cent of combined GNP.
Mattoo, Rathindran and Subramanian (2001)	Long run growth performance with fully open financial services sectors grows up to 1.5 percentage points faster than other countries.

Choong, Yusop, and Soo (2004)	Positive impact of FDI on economic growth.
Similarly, Suliman, & Elia, (2014)	Unidirectional causality between FDI and economic growth. Causal relationship between FDI and economic growth in the short term.
Thomas (2016)	FDI flows have a dominant effect on both the stock market and the GDP.
Khatun (2016)	Causal relationship between financial services trade and economic growth in the long run.
Cheng & Degryse (2010)	Positive impact of banking sector development on the GDP.

3.5 FDI and limited impact on GDP

Whilst the above studies highlighted the positive impacts of FDI on GDP growth, there have been relevant studies over the last four decades which have contradicted the positive impact on productivity and the impact on GDP. As early as the eighties, Gulati and Bansal (1980) rejected the hypothesis and found no statistically significant link between FDI and productivity. Similarly, Ward (1987), Agrawal and Nagarajan (1990) Morck et al (2000) and Djankov and Hoekman (2000), Morck and Yeung (2003, Sasidharan (2006) and Zahra (2006) all rejected the productivity link however this was mainly in the context of family firms due to low risk-taking abilities.

Chakraborty and Basu (2002) analysed the FDI inflows in India and its impact on the economic growth to identify two-way causality linkage. The study used structured cointegration model using vector error correction mechanism to evaluate the relationship in the long run and the short run. In the long run there exists a relationship between FDI and GDP due to the existence of two vectors which are cointegrating between GDP, FDI. From a short run perspective, parsimonious vector error correction model was analysed to understand the implications between FDI and growth. The study contrastingly found

evidence which disagreed with the established research till date i.e., the GDP in India is not impacted by FDI, the causality is other way round, higher GDP leads to higher FDI inflows in India. Additionally, the research established that the trade and policy liberalisations impact on FDI inflows has benefits in the short run and does not explicitly state the benefits in the long run. Finally, FDI inflows leads to lower labour cost indicating that FDI is labour displacing i.e., impacting increasing domestic unemployment. Whilst these conclusions are directly opposed to some of the earlier work conducted, the proposed research aims to analyse these scenarios for financial sector inflows.

In the case of eleven countries analysed in East Asia and Latin America Zhang (2001) postulated that FDI's impact on a country's economic growth is not always positive. The FDI impact on a country's economic growth depends on domestic factors and macroeconomic stability. The domestic factors included areas such as education, trade liberalisation and human capital reforms. In the case of Turkey, Aga (2014) analysed the impact of FDI on the economic growth using independent variable GDP and the dependent variables FDI, domestic investment and trade liberalisation for thirty-two years from 1980-2012. The study used ordinary least square for empirical analysis and Johansen cointegration technique which found no cointegration and long run relationship between these variables. Similarly, from a causality perspective, the study used vector autoregression model and found no causality linkage between GDP and FDI and GDP and domestic investment in the long run, however the study found a one-way causality linkage from GDP to trade liberalisation. In the short run, the study observed a casualty linkage between FDI and GDP however this was statistically insignificant. In the short run, FDI inflow in Turkey helps alleviation the capital issue thereby assisting domestic investments which in turn has a positive impact on the economic growth. Further there was a significant and positive impact of domestic investment on the economic growth of the country and a significant and negative impact of trade liberalisation on the economic growth. The case of Turkey highlighted mixed and varied results from an economic impact perspective with no impact of FDI on the economic growth due to statistically significant causality linkage between the two variables. This is another case of varied results which the proposed

research aims to address in the case of India but specifically from a banking FDI perspective.

Studies conducted by Hussein (2009) in the case of six GCC countries in the Middle East - UAE, Kuwait, Kingdom of Saudi Arabia, Bahrain, Qatar, and Oman analysed the impact of FDI on the economic growth of the respective countries. The study utilised growth theories and statistically techniques to test for relationships between FDI and GDP and noted that the GCC countries received relatively minor proportions of FDI inflows compared to Asia countries, only countries such as UAE and recently Saudi Arabia were the exception to this rule. The FDI inflows to these countries have not increased significantly since the 1990s indicating that the region has been lagging its peers in terms of FDI. The FDI inflows received by the GCC countries do not positively contribute to the GDP of the respective economies, thereby reducing the capital formation in the region. The capital formation is mainly a function of the domestic public and private funds. The study further postulates that due to limited absorption capacity the FDI inflows may exhibit negative impact in certain scenarios. In the case of Malaysia, Karimi and Yusop (2009) analysed the causal relationship between FDI and economic growth. The study used Toda Yamamoto methodology and bound testing for causality impact and analysed the data for thirty-five years from 1970 to 2005. The study did not find any causal evidence between FDI and growth and vice versa thereby asserting that there does not exist any long-term relationship between FDI and GDP. Whilst the study did acknowledge the positives of FDI inflows on the technological spill overs and productive increase in domestic firms, it is difficult to deduce how these inputs did not impact the economic growth in the long run.

Saini, Baharumshah & Law (2010) investigated the relationship between FDI, economic freedom and economic growth for eighty-five countries across different continent using generalised method of moment system estimator. The study notes past research which identified the positive impacts of FDI on the economic growth of a country, however it acknowledges the mixed results in terms of causality and the impact to the economy. In addition to the macroeconomic determinants that impact FDI inflows, the absorption capacity of the recipient country is critical in understanding the impact. The absorption capacity enables the recipient country to absorb the benefits of FDI either due

to skilled labour or technological innovations. The research uses economic freedom as a one aspect of absorptive capacity and highlights that countries that promote the economic freedom gain significantly from the FDI inflows and the presence of multinational corporations.

Rawat, B. (2012) studied impact of FDI inflows from UK, USA and Japan on India's economic growth from the financial year commencing 2002 until the end of financial year 2011. The study used correlation and multiple regression model to check the statistical significance of the results. The study concluded that FDI from UK does not significantly affect India's GDP. Similarly, Das & Das (2012) examined the empirical association between FDI and GDP in India during twenty-year period from 1991-2010 using time-series regression model. The study found that FDI had a marginally significant negative impact, on India's economic development during this period thus rejecting previous studies indicating positive impacts of FDI on economic growth. The authors highlighted the allowing only FDI inflows does not warrant economic growth and a minimum level of development is required to absorb the foreign capital, which can otherwise be detrimental to the state of India's economic development since this capital will not be translated into capital formation causing higher inflationary pressure. Whilst the researcher specifies that only FDI inflows will not enable growth this is in line with discussions regarding FDI determinants that require economic prospect as a requirement for home countries to invest FDI into host countries. The author concludes that underutilisation of capital can turn FDI inflows into watered capital which is correct only if the proposed study assumes that there will not be economic growth in the country, and it will only rely on FDI inflows which stands contrary to the assumptions.

More recently Baiashvili and Gattini (2019) studied the impact of FDI inflows on economic growth across low-, middle- and high-income countries. The study across one hundred and eleven different economies (developed/developing and emerging markets) utilised panel GMM techniques and concluded that FDI benefits do not accrue evenly across countries. The study detected an inverted U-shaped relationship between countries' income levels and the size of FDI impact on growth i.e., FDI had a larger impact in higher middle-income economies, as opposed to higher and lower income countries. Whilst the

research provides concrete conclusions, the study averaged the impact of growth across different income level countries, which can skew the results since different countries within a group will have different institutional characteristics.

Recently Acquah & Ibrahim, M (2020) analysed the relationship between FDI, economic growth and financial sector development for forty-five countries in Africa for a period of thirty-six years from 1980-2016. The authors used two system generalised methods of moments and acknowledged the ambiguity around deducing a clear relationship pattern between the three variables, however the study found that in most cases FDI had a positive impact on the economic growth of the country. A point to be investigated further was the assertion that the ambiguity in FDI and economic growth studies is linked to the model attributes and the precise definitions used by researchers. This could explain the variability of recommendations across the topic. Contrastingly the study found that the financial sector reduces the positive effect of FDI on the economic growth of the country. The authors re-examined the causal relationship between these variables in a study one year later under the same conditions using a granger non causality test and found causality link between FDI and economic growth and financial sector development and economic growth. A summary of the literature review is presented in the table below.

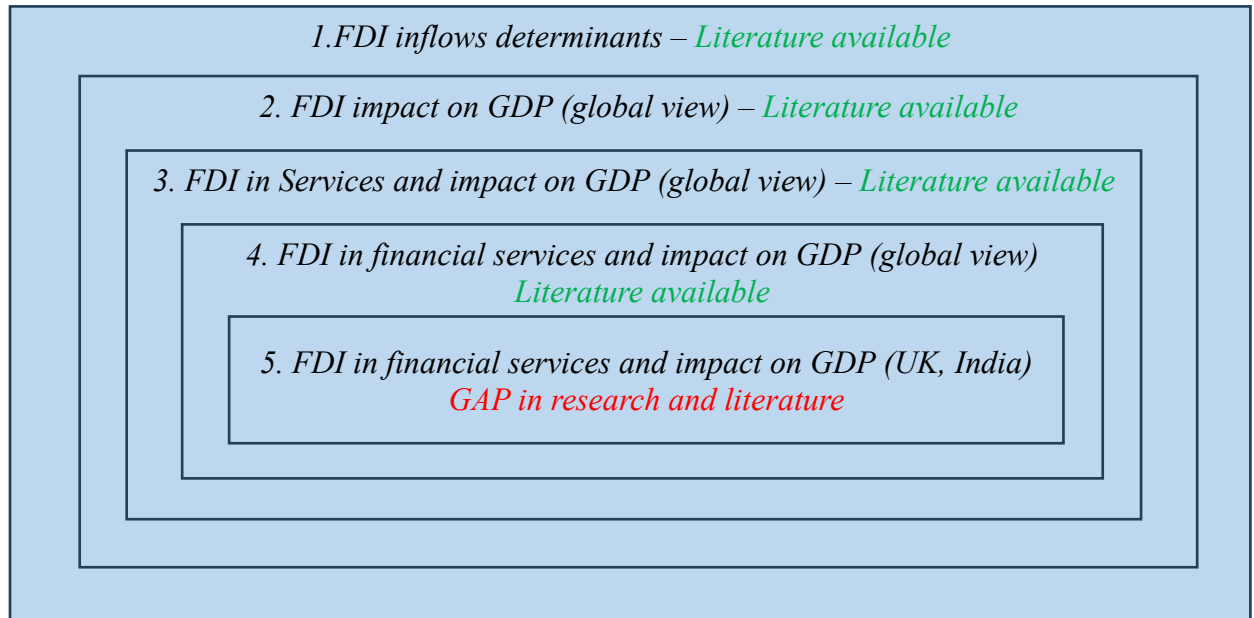
Table 3.5 – FDI’s limited impact on GDP

Authors	FDI’s limited impact on GDP
Gulati and Bansal (1980)	No statistically significant link between FDI and productivity.
Chakraborty and Basu (2002)	GDP in India is not impacted by FDI, the causality is other way round, higher GDP leads to higher FDI inflows in India.
America Zhang (2001)	FDI’s impact on a country’s economic growth is not always positive.
Aga (2014)	Causality between FDI and GDP in the short run, however no impact in the long run.
Hussein (2009)	FDI inflows received by the GCC countries do not positively contribute to the GDP of the respective economies.

Karimi and Yusop (2009)	No long-term relationship between FDI and GDP.
Saini, Baharumshah & Law (2010)	Mixed results in terms of causality and the impact to the economy. Countries that promote the economic freedom gain significantly from the FDI inflows.
Rawat, B. (2012)	FDI from UK does not significantly affect India's GDP.
Das & Das (2012)	FDI had a marginally significant negative impact, on India's economic development.
Baiashvili and Gattini (2019)	FDI had a larger impact in higher middle-income economies, as opposed to higher and lower income countries.
Acquah & Ibrahim, M (2020)	Financial sector reduces the positive effect of FDI on the economic growth of the country.

Following on from the literature review across different topics, the below figure summarises the literature reviewed and gap in the available literature.

Figure 3.1 – Summary of available literature



Thus, the above sections reviewed literature across various research areas including the determinants of FDI inflows, impact of FDI on GDP globally and for countries across Asia/Africa/Europe/Middle East, impact of FDI (Services) on the GDP of India and other countries, FDI (banking services) and impact on India's GDP and finally research focussed on challenging the notion that FDI inflows bring benefits to the economic growth of the country. Whilst each study has been analysed and critiqued, there is a gap highlighted in the research which focusses on FDI (banking services) between UK India and its impact on India's GDP.

The next chapter will focus on defining the research methodology that was used for the study.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

The purpose of this chapter is to present the research approach that was used in the study. The first part of the chapter focusses on the research questions that the thesis aimed to address, research hypothesis and the variables used in the study. There were six variables used in the study GDP, financial services inflows, exports, interest rate, restrictiveness index, regulatory governance indicator and control of corruption. These variables were sources from various government agencies and international organisations and are described in the first part of this chapter. The second part of the chapter focusses on the methodology used in the study. For the purpose of this study, a mixed methodology approach was used, i.e., qualitative methodology to analyse the barriers impacting financial services inflows and quantitative methodology used to analyse the impact of financial services inflows on India's GDP. The quantitative approach used regression analysis, which is described in the second part of this chapter. The chapter concludes with a section summarising the key points around the methodology and data analysis.

4.2 Research question and hypothesis

This section aims to identify the research questions and the associated hypothesis for the research questions. There are two questions that the research aimed to address. The first is to assess, what are the reasons for the low trade volumes especially in financial services between UK and India? As highlighted in chapter 1, the trade volumes between UK and India are relatively low compared to the global volumes. In terms of the financial services trade and inflows to India, the trade volumes are miniscule compared to UK's global volumes. Thus, the research will assess if there are any barriers impacting the financial services inflows. In line with this part of the research question, the following hypothesis has been developed.

H_0 (null hypothesis) = There are no significant barriers impacting the FDI inflows.

H_A (alternate hypothesis) = There are significant barriers impacting FDI inflows.

The second question that the research aimed to achieve is to analyse, what is the impact of impact of financial services imports on India's GDP? As discussed in chapter 2, the impact of FDI inflows on a country's GDP varies across different regions and nations. There are a few literatures which have highlighted a positive impact of FDI inflows on the GDP a particular country, whilst a similar number of research have stated the negative impact of these inflows on a country's GDP. Thus, the research will aim to assess the impact of financial services inflows on India's GDP. In order to address this research question, the following hypothesis is developed.

H_0 (null hypothesis) = There is no statistically significant impact of financial services inflows on India's GDP.

H_A (alternate hypothesis) = There is statistically significant impact of financial services inflows on India's GDP.

The next part of the chapter will focus on the methodology that was used to analyse these research questions.

4.3 Data Collection

The next phase of the research methodology focussed on data collection used for the research. The data collection methods available for this research were either the primary data collection through conducting interviews, surveys, observations/ focus groups or secondary data analysis based on the reports and data published by organisations. Primary data analysis entails the researchers collecting the data for analysis and quantitatively combining multiple studies results to draw a conclusion. Secondary data analysis entails using the published data by individuals not involved in the collection of data to analyse the results Church (2002). Secondary data analysis has become more prevalent due to technological advances that have made it easier to collect, compile and archive the data, which makes it easily accessible to researchers and hence has become more prevalent.

Secondary analysis is a practical method to analyse results when a systematic method is employed with procedural and evaluative steps Johnston (2014). An increase in the volume of available data over the last ten to twenty years has encouraged renewed interest in using secondary data to investigate research issues. Universities have encouraged students to utilise secondary data to explore different objectives based on their tier studies, which has resulted in the increased use of secondary data. Additionally professional practitioners have utilised the large national databases to explore issues related to their research studies, which has been motivated by encouragement from government agencies to utilise varied analyses within their databases Windle (2010). Secondary data not only offers advantages in terms of cost and effort but also addresses some of the difficulties faced in gathering reliable primary data. Secondary data can be used as a substitute or complement for primary data. There has been particular focus on the shortcomings of using primary data Cowton (1998).

Although there are advantages of using secondary data, there are certain limitations of using this data as well. The key challenge was sourcing the data from multiple sources, which at times provided slightly inconsistent results, e.g., financial services inflows and exports data from ONS, UNCTAD and RBI provided different results in terms of the financial year and currency. Thus, at times a single source had to be selected for the data. Additionally, some of the data sources were expensive since these were conducted by private organisations and think tanks, which in a way was similar to one of the drawbacks of the primary data sources. However, despite these issues, secondary data was selected for two main reasons. Government institutions and think tanks have a better scope of collating the data on a global scale across multiple decades, as opposed to an individual conducting the data analysis. Similarly, the policy documents released by the UK and India governments are documented by the government agencies which is hard for an individual to replicate. In addition to these aspects, the use of secondary data sources had no ethical issues since the data was collated from either government organisations or non-profit think tanks organisations.

From a data perspective, the secondary data collected consisted of two segments. The first segmented consisted of policy documentation and official communication related

to the trade aspect and the macroeconomic conditions of the country, which were either published by central banks or the government agencies. From UK's perspective, the reports, and official publications from the ONS and Department of International trade were reviewed. The FDI policy circular, produced by the Ministry of Commerce and Industry Government of India was reviewed since it provided the government's stance regarding the requirements of FDI in India. The policy document was analysed to assess the general conditions on FDI, in terms of eligibility to invest in India, the entities into which FDI inflows can be approved and the entry routes for investment. The policy was further reviewed to assess the FDI investment caps, other entry conditions on investments and to review the prohibited and permitted sectors within financial services and banking sector. In addition, the data related to the procedure for government approvals was sourced from the FDI circular. To complement this, another secondary source of data, the master circular on foreign investment in India was used for research purposes. This data sources were used for assessing the pricing guidelines and modes of investment under foreign direct investment scheme.

The data related to UK was sourced from the trade and investment factsheets produced by the Department of International Trade. The factsheet which are produced every quarter were used as a source for reviewing the sectoral data between the two countries. Similarly, from India's perspective, a combination of the RBI official communications and policy documents released by the government were relied upon. The Factsheet on foreign direct investment, published by the Department For Promotion of Industry and Internal Trade were reviewed for twenty years. The factsheets were produced quarterly and provided an overview of the cumulative FDI inflows into India, split across equity inflows, reinvested earnings, and other capitals. The factsheets which were produced on a quarterly basis also provided FDI information by each country in terms of the cumulative equity inflows. In addition to the country split the factsheet provided the sector split for FDI which included sectors across financial services, telecommunications, pharmaceuticals, and other heavy industries. Although the factsheets also included FDI data related to each state in India, this was not used for the research.

The secondary data to analyse the barriers impacting India's FDI was sourced from RBI's three master circulars. The first source was the master circular on priority sector lending. This secondary source was used to review the categories under priority sector and assess the targets and sub targets for each priority sector. The master circular also provided the source for the computation framework used to assess the priority sector target limits, i.e., the computation of adjusted net bank credit. In addition to using the policy documents published by India and UK, policy guidelines and frameworks issued by the OECD and World Bank were studied for secondary data sources. The services trade restrictiveness index published by the OECD was used as a secondary data source to identify which policy measures restricted trade across UK and India especially in the financial sector. The STRI policy barriers were sourced for UK and India and compared across the two countries to highlight the differences impacting trade. The STRI value from 0 to 1 was studied for each policy attribute with 0 highlighting the policy as completely open, whereas 1 highlighted the policy as completely closed.

The second source of secondary data was the statistical data published by either the government departments or think tanks. There were seven variables used in the research and the data for each of these was sourced from various sources. The seven variables were GDP, financial services inflows, exports, interest rate, restrictiveness index, world governance indicator and control of corruption. Each of these variables were sourced from different sources due to the lack of a central source for economic data. Quarterly GDP data was sourced from the Federal Reserve Bank of St Louis, whereas financial services inflows data for 2005 to 2009 was sourced from UNCTAD and for the years 2016 to 2020 was sourced from ONS. The quarterly exports data, quarterly interest rate data, and STRI from 2001 to 2020, was sourced from IMF, RBI and OECD respective. In terms of the final two variables regulatory quality and control of corruption, World Bank publishes this data as part of a broader World Governance Index. The variables GDP, financial services imports from UK to India, total exports from India to UK, interest rate, restrictiveness index (R.I), World bank Governance Indicators (WGI) and control of corruption were classified into endogenous and exogenous variables. GDP, financial services imports from UK to India, total exports from India to UK and interest rates were categorised as endogenous variables

whilst the remaining three variables, i.e., restrictiveness index, WGI and control of corruption were categorised as exogenous variables. A summary of the variables data sources is provided in the table below:

Table 4.1 – Variable data source

Data	Source
GDP	Federal Reserve Bank of St Louis
Exports	International Monetary Fund
Financial services imports	United Nations Conference on Trade and Development - UNCTAD, Office for National Statistics - ONS
Interest Rate	Reserve Bank of India
Restrictiveness Index	Organisation for Economic Co-operation and Development
Regulatory quality	World Bank
Control of corruption	World Bank

The rationale for selecting the variable as such was based on the literature review conducted till date (as discussed in literature review section) which highlighted that GDP, imports, exports and interest rates have a degree of dependence on each other. Although various researchers disagreed on the impact of these variables with one another (i.e., positive, or negative), most of them concluded that the variables had a causality relationship between themselves. Similarly, the three exogenous variables were selected as such based on the limited literature study asserting that RI and WGI impact the GDP. Whilst the studies highlighted that these variables could impact the FDI import and export, the impact of these variables on GDP was not clear. The rationale on why these variables were shortlisted and how the variables were sourced from is described in the section below. GDP was selected as the dependent variable to represent economic growth. GDP is the most widely used measure to measure an economy's growth and measures market production (Bergheim, 2008). GDP growth rate is used to indicate the economic condition of the country (IMF). GDP's simplicity makes it easy to use however there is an increasing

acknowledgement that it does not consider all aspects relevant for modern society i.e., governance, eco-system, policymakers and public (Giannetti et al 2015). Further GDP does not measure national wellbeing (Bergheim 2008, Costanza et al 2009). Whilst there have been alternative indicators like Human Development Index and GNP which have been proposed as alternatives to GDP, all these indicators have their own issues in terms of measurement. Given there was no one indicator, which was completely devoid of criticism, GDP was used as a proxy for measuring India's economic growth.

FDI inflows from UK to India (financial services) was included since the research hypothesis and premises are based on analysing the impact of financial services imports from UK to India on India's GDP. FDI inflows data was available from multiple sources across UNCTAD, World bank, ONS and RBI. UNCTAD's statistics data centre provided a comprehensive data set across international trade in services categorising the data set across exports and imports by service categories, trading partners and yearly patterns. Although UK's dataset with other countries was exhaustive, financial services data from UK to India was patchy and was available only from 2005 to 2009. Similarly, World bank's data set was comprehensive, however it does not include financial services sector data between UK and India. Amongst all the dataset's reviewed, RBI's data set was well presented and included data from April 2000 until March 2023. RBI's data set which was produced for each financial year and was also presented in the annual and quarterly factsheets. The dataset included total FDI inflow and was categorised across cumulative amounts of FDI inflows and cumulative amount of FDI equity inflows. Cumulative amount of FDI inflows included equity inflows from all countries plus reinvested earnings and other capital earnings however it excluded the remittances received through RBI's NRI scheme. FDI equity inflow was split across top 10 countries and across different sectors including services sector (includes banking, insurance, outsourcing and other sectors). The FDI inflow data was further split across each state. Thus, RBI's factsheet contained trade information from the UK, however it did not provide the data intersecting UK and financial sector services. The data available from RBI's factsheet was either by country or by services and thus made it unfeasible to use the data for the purpose of this specific research data set. Similar to India's RBI, UK's Department of International trade publishes trade

and investment factsheet, which provided the data statistics between UK and India trade details. The trade and investment factsheet provided specific data with respect to financial services between UK and India and was further retrieved from the Office of National Statistics. Thus, financial services data was retrieved from DIT and ONS, however the main issue was that this data is only available from 2016 to 2019. In line with the data available from all the various sources, the best approach identified was to retrieve the UK India financial services data from UNCTA from 2005 to 2009 and from the ONS from 2016 to 2019, which give a dataset for nine years. For the years in between from 2001 to 2005 and 2009 to 2016, there was no data available for UN India financial services either from UNCTAD, World Bank, RBI or the ONS. The data for missing years was estimated based on the available data for nine years, i.e., for the nine years a percentage of FDI inflows to GDP was calculated and a median identified for these nine years. This median was used to calculate the FDI inflows as a median percentage of the GDP for those years, thus compiling a complete data set. Related to exports and economic growth, Mahmoodi & Mahmoodi (2016) studied the impact of foreign direct investment and exports on economic growth. The study found that in the short run there is a bidirectional causality between exports and economic growth, whereas in the long run there is causality from FDI and export to the economic growth of a country. Similar to the research conducted by Mahmoodi & Mahmoodi (2016), various research highlighted in the literature review section indicated either a positive or a negative impact of exports on the economic growth of a country. Thus, the exports variable was selected to analyse the impact of this variable on India's GDP. The exports dataset was retrieved from the IMF, which provided a comprehensive view of India's exports.

Interest rate was selected as a variable in the analysis due to its potential impact on economic growth. Studies conducted by Bhat, Laskar (2016) highlighted a negative relationship between interest rate and economic growth. Mohanty (2012) highlighted that interest rate increases have a negative impact on the economic growth. The effects are lagged over two quarters and the overall impact of interest rate changes and inflation persists through 8-10 quarters. Bhunia's (2016) work on inflation and its relation to

economic growth highlighted a long run and unidirectional causality from economic growth to interest rate. Shaukat, Zhu, & Khan (2019) examined the mechanism through which interest rates have a negative impact on the economic growth for 38 countries from 1996-2015. The researchers concluded that interest rates have an inverse relation with economic growth through foreign and local investments, trade openness and corruption. Interest rate rise through various channels are detrimental and restrict the economy's ability to achieve higher growth rate. For a country to attain higher growth rate, a low interest rate environment is required. The literature demonstrates that there is an impact of interest rate on economic growth which supports the rationale for including this variable in the research. Interest rate data was retrieved from RBI's publication which provided the quarterly data from early 2000s. It is anticipated that the interest rate variable will have a negative impact on India's GDP.

Services Restrictiveness Index – Services trade restrictions negatively impacts both the service import and exports (Nordas & Rouzet, 2015) whilst liberalisation is a major source of economic gains (Francois & Hoekman, 2010). Service sector liberalisation has proven to impact long term performance in the financial sector (Mattoo, Rathindran, & Subramanian, 2001). Thus, trade openness was selected an independent variable to assess impact on economic growth. There was no universally agreed definition of trade openness, however the services trade restrictiveness index from OECD provided a comprehensive methodology highlighting policy restrictions across 40 countries, including India and 34 OECD countries. STRI is developed across various industries however for the use of this research we only considered STRI for financial services and commercial banking. OECD's restrictiveness index score varies between 0 and 1, with zero classified as a completely open economy, and 1 classified as a completely closed economy. In theory no country evaluated has a perfect score of 0 or 1 and the index value ranges between 0.06 and 0.55, with an average of 0.19. The index data was retrieved from OECD. OECD has published the data for every year since 2010. Prior to 2010, the data was published for 1997, 2003 and 2006, the working assumption is that the index published for 1997 is valid until the next data is published until 2003. India's restrictiveness index has reduced in 2006 to 0.313 from a high of 0.552 in 1997 and 0.512 in 2003. Since 2006, the reduction in the index has

been gradual with 2020's index at 0.264. Contrastingly UK's Index has been close to 0 (0.002) since 2010.

Regulatory quality index: An effective regulatory regime has a strong causal link with economic performance of a country (Jalilian, Kirkpatrick & Parker, 2007), with an effective regulatory reform correlated to 0.15 increase in GDP growth rate (Haidar, 2012). Regulatory quality index is included as an independent variable to analyse impact on India's GDP. World Bank Governance Indicators (WGI) measures and aggregates indicators across six governance categories: regulatory quality, rule of law, control of corruption, voice and accountability, political stability, and government effectiveness. For this research only the regulatory quality index was selected, and other indicators were excluded. World Bank defines regulatory quality as the perception and ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The data for this variable was retrieved from World Bank's site. India's Regulatory Quality Index has varied from 26.09 in 1997 to 49.52 in 2021 (higher the index value is considered good). Contrarily from UK's perspective, the Regulatory Quality Index was 99.457 in 1997 and 90.865 in 2021. The difference in the Index between the two countries is significant.

The final variable selected is the control of corruption to analyse impact on economic growth. Intuitively, corruption should have a negative impact on the economic growth of the country, there is ample literature available to support this hypothesis. Corruption detracts investors, reducing public spending expenditure thus distorting resources which further impacts economic growth. Corruption has shown to have a statistically negative relationship with economic growth (Grabova, 2014). Contrasting studies conducted by Huang (2016) analysing the impact of corruption on economic growth of thirteen Asia Pacific countries highlighted that corruption is not bad for economic growth of all thirteen countries. The study found positive causality from corruption to economic growth for South Korea suggesting that "grease the wheel" approach is supported in South Korea. Anti-corruption policies devised by policymakers may not always be effective in promoting the country's economic growth Huang (2016). This research aims to utilise the literature review and attempts to analyse the impact of

corruption in the short run and its impact on India's economic growth. To include this variable, the index control of corruption which has been published by the World Bank as part of its World Governance Indicators is selected. The index takes values from 0-100, with higher the value a better indicator of a country's control over corruption. World Bank has published control of corruption index since 1996 on an annual basis, this data is used over a quarter since control of corruption has limited impact every quarter. India's control of corruption index has been in the range of 40 over the last few years, whereas UK's index has been around the 94-95 level. It is estimated that corruption will have a negative short-term impact on GDP. Thus, the following table provides a summary of the variables used and the expected impact on India's GDP.

Table 4.2 – Timeseries description

Time Series	Type	Expected result
Financial services imports	Endogenous	Positive or Negative effect
Exports to UK	Endogenous	Positive effect
Interest Rate	Endogenous	Positive or Negative effect
Restrictiveness Index	Exogenous	Negative effect
World Governance Indicator	Exogenous	Positive effect
Control of Corruption	Exogenous	Positive effect

4.3 Methodology

The section below highlights the rationale behind the methodology selected for the purpose of this research. The two research questions identified above were varied in nature, one focussed on analysing the barriers in financial services inflows, whereas the other question had a statistical focus in estimating the impact on India's GDP. In order to analyse both these question, the study reviewed the two traditional research methodologies, qualitative and quantitative methodologies. Qualitative research, which focusses mainly on the non-numeric research was not considered appropriate for the second research question, i.e., to estimate the impact of financial services inflows on GDP. Whilst, quantitative research, focussed on the numerical and an objective stance, this was similarly not an

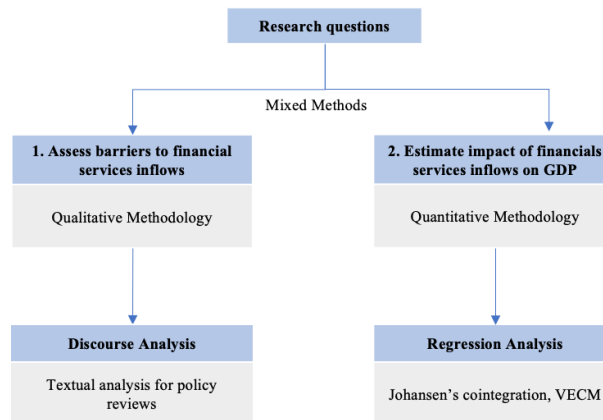
optimal methodology for the first research question, which aimed to analyse the barriers in financial services inflows. Thus, given the different nature of the research questions and the aims of the research, a single traditional methodology was not considered suitable. Thus, a mixed research method was selected which included using both qualitative and quantitative models during the different phases of the research. Mixed method study, which incorporates both quantitative and qualitative methods of analysis in single research, enables researchers to analyse complex problems using qualitative analysis in addition to using data, charts, and statistical analysis. Creswell, J. W. (1999). Mixed methods research is considered as a natural complement to qualitative and quantitative methods, due to its methodological pluralism which frequently results in better research results. Although there are some commonalities between quantitative and qualitative methods, mixed method's offering as a pragmatic alternative will ensure it will be more successful in the future since more researcher's study and help and advance its research. The two main types of mixed research methods: mixed model designs and mixed method designs which are based on a recursive eight step process. Mixed model approach mixes qualitative and quantitative approaches within or across the stages of the research process, whereas mixed method includes a quantitative and qualitative phase across the overall research study. The eight steps in a mixed method are 1) Determining the research question 2) Determining the validity of mixed research for the research problem 3) Determine mixed method vs mixed model approach for the research question 4) Data collection 5) Data Analysis 6) Data interpretation 7) Data legitimacy and 8) Final conclusions Johnson & Onwuegbuzie (2004).

Mixed method, which is considered as a third method, in addition to quantitative and qualitative methods plays a significant role in the social science research. Mixed method which emerged due to the limitations of sole use of quantitative and qualitative is now considered as an alternative to the two models. The pragmatism offered by the mixed methods model enables research to analyse research questions using different approaches and aims to achieve solutions which cannot be offered by the quantitative or qualitative models. Doyle, Brady, & Byrne (2009). Onwuegbuzie, Johnson, & Collins (2009) promoted using mixed research as a model by studying a framework for combining

qualitative and quantitative analysis. The authors justified this across seven key steps. The first step analysed multiple topologies using qualitative, quantitative, and mixed research methods, which was done in the context of social science domain. The second step analysed data using both qualitative and quantitative techniques, in an attempt to yield at least one of the five generalization types. The third step, which was based on the frameworks built by various researchers compared and contrasted the paradigms across qualitative, quantitative and mixed research. In doing so, three quantitative paradigms, one quantitative and one mixed research paradigm was assessed. The paradigms considered for qualitative models were critical theory, participatory and constructivism, whereas post positivism and pragmatism were considered for quantitative and mixed research models respectively. Furthermore, these paradigms were considered across seven issues and three axiomatic aspects. The seven issues classified were across knowledge type, knowledge accumulation, quality assessment/goodness of fit, values, ethics and inquirer posture and training. Simultaneously, the three axiomatic components were classified as methodological foundation, ontological and epistemological. The final part of step three was to link each of these paradigms to data analysis strategy. The fourth step of the study identified similarities in goals between qualitative and quantitative models, further refuting claims that analysis must be based on either of the two models – quantitative or qualitative. Thus, it highlighted both models qualitative and quantitative can be used simultaneously without many considerations toward the individual model perspective. The final step analysed eleven mixed research paradigms which were linked to strategies related to mixed analysis. This step identified mixed analysis in the field of social science, thus promoting mixed research as a key methodology.

In line with the various literature studies, a mixed methods approach was considered appropriate for this research and hence selected as a methodology. Given the mixed methods approach, the first part of the research problem which focussed on analysing the barriers impacting financial services inflows used a qualitative methodology, whilst the second part of the research question which analysed the impact of financial services on GDP utilised a quantitative methodology. A summary of the approach is highlighted below.

Figure 4.1 – Research approach



For qualitative methodology analysis, a range of options were considered to assess policy barriers. The options considered were stakeholder interviewers, questionnaires for relevant participants to highlight the key bottlenecks of FDI in financial services and focus group. Given the nature of the topic, most of these options were eliminated and were not considered suitable for the analysis. This was because based on an initial sample set it was evident that these responses from stakeholder interviews and questionnaires were divergent across different participants which made it unable to find common themes across policy issues. Thus, the approach selected was to rely on discourse analysis was selected to review the policy documents impacting the FDI policies from India and the UK. The documents considered and reviewed were mainly from two different external sources:

- Policy papers including documents released by the respective Governments to indicate the current FDI policy of both countries, the strategic vision of the country and the economic data released by the respective central banks to indicate the FDI data in Banking between the two countries and
- Academic papers published in the last 10 years.

The documents selected from the above two sources were mainly in digital form mainly in set of electronic articles. The two sets of documents were reviewed via different

approaches. For policy papers published by official government sources, the approach was to read the entire set of documents/data which was the preferred strategy. For academic papers the approach was to first review a subset of information, mainly the abstract of each paper to assess whether the paper's contents were relevant to the research. In cases where the abstract was relevant to the current research the second phase was to review the entire sections of the academic papers published. Once the data review was completed for both policy papers and academic papers, the next step was to categorise the relevant information into smaller relevant chunks, with each chunk labelled with a descriptive label and code. Following on from this any new policy papers or academic papers reviewed were then compared against these chunks of data and the descriptions to assess whether there was any further new information – which was then added to the relevant smaller chunk with the descriptive label. Once all the data was assessed from both policy papers and academic papers and all the information was coded, a theme was identified and described based on each cluster. There were four key clusters/descriptions which were identified for the purpose of the research. WOS and funding requirements, Priority Sector Lending (PSL), Foreign banks branch authorisation and Branch Expansion plan. Following the review of all the relevant policy papers and academic papers, when a theoretical saturation had reached – i.e. there was no new relevant information pertaining to a specific section or category, the section was considered to be established and validated. For each of the following sections, saturation was reached Onwuegbuzie, Leech, Collins (2012) when :

- Introduction section: No new conceptual or theoretical framework identified in subsequent sections.
- Method section: No new instruments or procedures identified in subsequent sections
- Results section: No new findings emerged in subsequent results section
- Reference list of each work: Saturation reached when no new reference on the topic.

Following the above steps and when saturation was reached for the relevant sections, the relevant sections of the literature review were document, and the theme/code was used as

a name of the section and subsection. Essentially to summarise the following methodology was followed

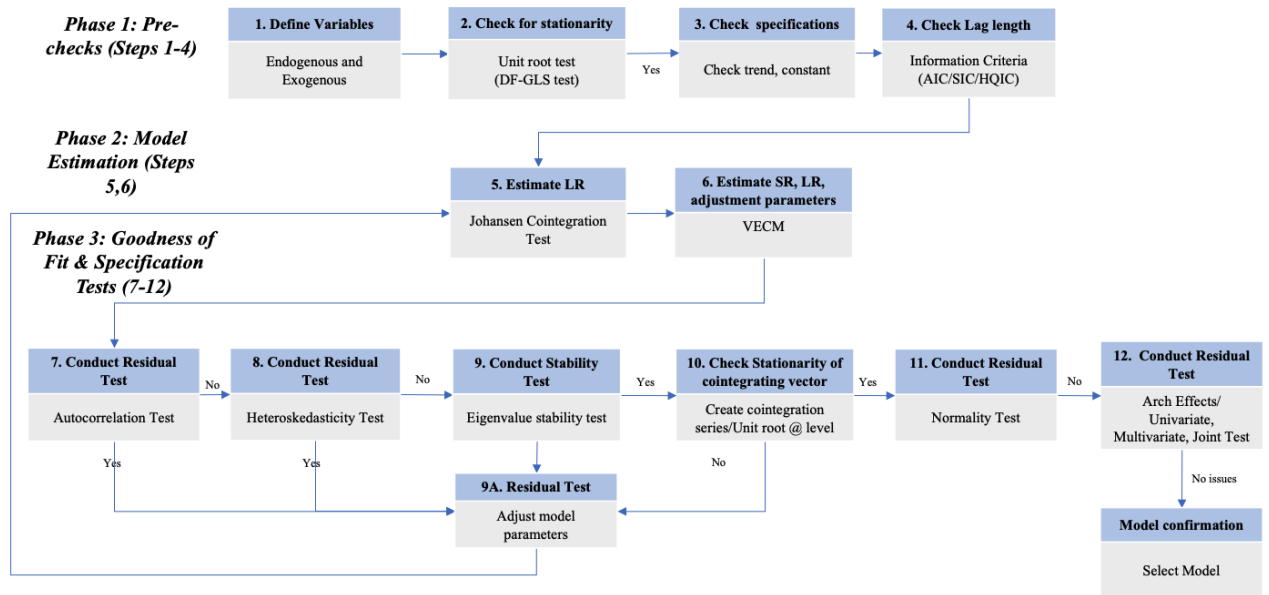
1. Step 1: Document collation - policy papers and academic papers.
2. Step 2: Review documents based on different approaches for policy papers and academic papers.
3. Step 3: Categorise the relevant information into smaller relevant chunks, with each chunk labelled with a descriptive label and code.
4. Step 4: Compare new data against the identified chunks of data to identify any new information.
5. Step 5: Identify themes identified based on the clusters
6. Step 6: Identify whether theoretical saturation reached
7. Step 7: Document the relevant sections of the literature using the theme and codes identified.

Similarly, from a quantitative analysis perspective, in order to estimate the impact of financial services imports and other variables on GDP, regression analysis was used. This involved the use of statistical equation to predict the impact of the variables on GDP. Regression techniques have long been central to the field of econometrics, Sykes(1993). The regression analysis was conducted using vector error correction mechanism (VECM). VECM was selected since it captured the long run and short run relationship between GDP and the explanatory variables – financial services inflows, exports, interest rates, restrictiveness index, world governance indicators and control of corruptions. Johansen's cointegrating equation was selected to analyse the number of cointegrating vectors which were used as an input to the VECM. The quantitative methodology was categorised across three phases. The first phase of the methodology detailed the pre-condition and checks required to select the appropriate methodology. This included classifying the variables as endogenous or exogenous variables, analysing the variables for their stationarity qualities, selecting the constant-trend specification, and finally estimating the lag length required for the effective execution of the model. Once the preconditions were selected, the second phase of the methodology focussed on the actual model estimation. There were two main

components to estimating the model. The first component was to analyse the long run relationship between GDP and the endogenous variables, whilst the second component was to analyse the short run relationship between GDP and the variables whilst also estimating adjustment parameters to analyse the tendency of the variables to return to equilibrium in the long run. The model also calculated the long run relationship between variables.

On shortlisting the model, the final phase of the methodology focussed on conducting residual and stability tests to ensure that the shortlisted model satisfied the requirements around autocorrelation, heteroskedasticity, normality, univariate, and multivariate properties. There were multiple models shortlisted which failed the residual and stability test. At every stage, when a shortlisted model failed to satisfy all the residual and stability tests, the parameters were iterated, and the entire model selection start from phase 1 to phase 3. After multiple iterations, a model was shortlisted which met all the conditions related to residual and stability test. An overview of the model selection is highlighted in the flowchart below which highlights the tests that were carried out in phases one, two and three.

Figure 4.2 – Research methodology overview



The analysis of the quantitative part was done across three applications – excel, eViews and R-studio. Excel was used for basic calculations, i.e., calculating the log values of the variables GDP, financial services imports, and exports. In case of the other variables the logs values were not calculated since the variables were either percentages or an index value and hence a log value was not the most feasible option. The second software eViews was used for calculating the regression and modelling results. The unit root test was conducted in eViews using DF-GLS methodology and using the AIC and SIC models. Following on from these on these results, the optimal lag length and constant/trend specification was selected. The second phase of the modelling, i.e., calculating Johansen's cointegrating equation and the vector error correction method was also conducted in eViews, due to the simplicity of the application. The final part of the analysis was to check for goodness of fit and specification tests, most of the tests related to these were conducted in eViews. The autocorrelation test, heteroskedasticity test and normality tests were conducted in eViews however the arch effect/multivariate test was conducted in Rstudio due to the limitation of eViews to illustrate the results of these tests.

4.5 Conclusion

The chapter focussed on detailing the research methodology used in the thesis. The research questions aimed to assess the rationale for the low financial services inflows to India and estimate the impact of financial services inflows on India's GDP. In terms of the data collection, the research used secondary data sources focussing on government policies, central bank's communications, and the data collated from OECD, World Bank, ONS and RBI. The research used mixed methods to address these two research questions since neither only qualitative nor quantitative models could address both research questions. From a quantitative research perspective, regression analysis was used to estimate the impact of financial services inflows on India's GDP. Finally in terms of the data analysis tools, the study used two external applications eViews and R-Studio to calculate the econometric impact of the variables on the GDP.

Following on from the research methodology the next section will analyse the barriers impacting the financial services inflows in India.

CHAPTER 5: IMPACT OF BARRIERS ON FINANCIAL SERVICES INFLOWS

5.1 Introduction

The previous chapter focussed on the FDI volumes between UK and India and compared it with the global volumes. Whilst chapter concluded that the volumes between the two countries are miniscule compared to UK's volumes with the world, it did not identify the rationale for the low volumes between the two countries. This chapter aims to identify the FDI barriers leading to low FDI volumes.

The chapter is organised across four sections. The first section reviews India's current FDI policy for financial services and aims to highlights any policy barriers. The second section focusses on foreign firm's requirements to set up entities in India via the concept of wholly owned subsidiary which is the only method of incorporation available for firms. This section will review the relevant literature across research papers to analyse the pro and cons of this structure. The final section of the chapter focusses on requirements for foreign banks to establish operations in India. These requirements include capital and funding requirements, priority sector loan commitments, annual branch expansion requirements and finally governance requirements. Each of this section is reviewed from a literature perspective to analyse the barriers impacting the FDI volumes into India. The chapter aims to conduct literature review from the research papers published on the relevant topics in addition to the policy papers and data published from three key sources a) Organisation for Economic Co-operation and Development's (OECD) services trade regulatory database, b) Reserve Bank of India's (RBI) policy papers and c) RBI official communications.

5.2 FDI approval route

According to India's Consolidated Policy Circular of 2020, which is updated on a regular basis, FDI investment in finance can be achieved either via an automatic route or

government route. Under the automatic route, foreign firms do not require any prior government approval and can invest up to a certain limit prescribed by the government whereas under the government route foreign firms require explicit prior approval from the government. The decision on how firms can invest in India via either an automatic route or government route depends on policy guidelines for different sub sectors i.e., in case of private sector banking, foreign firms can invest up to 49 percent via the automatic route and between 49-74 percent via the government route, with 74 percent the maximum allowed investment in private sector banking. Similarly, in case of infrastructure companies in the securities market, which consists of stock exchanges, commodity exchanges, depositories and clearing houses, foreign firms can invest up to 49 percent under the automatic route. In case of public sector banking, however India's FDI policy is rigid with maximum allowable foreign investment of 20 percent permitted via the government route. Contrastingly in case of credit information companies (CIC) and asset reconstruction companies (ARC), India's FDI policy is generous with foreign investment of 100 percent permitted via the automatic route. Credit Information companies are firms that provide credit reports to organisations, e.g., CIBIL, Experian and Equifax, whilst ARC can be considered as a financial institution that buys Non-Performing Assets (NPA) either from other financial institutions or banks.

Table below summarises different investment eligibility and the approval routes for Financial Services sub sector.

Table 5.1 – Automatic vs Government route

Financial Services Sub Sector	Max Investment	Route (Automatic/Government)
Private Sector Banks	74%	- Automatic route up to 49% - Government route over 49% - 74%
Infrastructure companies in the Securities Market	49%	Automatic route up to 49%
Public Sector Banks	20%	Government route up to 20%

Credit Information Companies (CIC)	100%	Automatic route up to 100%
Asset Reconstruction Companies	100%	Automatic route up to 100%

Source: Consolidated Policy Circular (India)

Whilst there is no formal approval process required for automatic route, there is a comprehensive approval process required in case of government route. An application is required to be submitted to the Department for Promotion of Industry & Internal Trade (DPIIT) which mandates the following steps:

1. Firms are required to submit a FDI proposal online through the foreign investment facilitation portal (FIFP) along with the relevant documents. This application is then received by the Department for Promotion of Industry & Internal Trade.
2. If firms do not send the proposal documents electronically, DPIIT requests these firms to send the physical documents within seven days allocating a maximum time limit of fourteen days. In situations where DPIIT do not receive the requested documents after fourteen days, the proposal is considered as closed.
3. In case of open applications, DPIIT transfers the FDI application to the Department of Financial Services (DFS) within two days and requests a response from the DFS in four weeks. If additional security clearance is required on the proposal, DPIIT sends a request to the Ministry of Home affairs (MHA) to provide an approval in six weeks. If this timeframe is not feasible, MHA will provide revised timeframes by when the approval can be expected.
4. The intended end to end approval process is estimated to take approx. 10 weeks for proposals not requiring security clearance and approx. 12 weeks for proposals requiring security clearance.

Whilst the above section summarises the FDI approval route for a government route, the reality on the ground is that the ambiguity around implementation of these policies and the timescales associated cause barriers to entry for foreign firms.

5.2.1 FDI approval route – literature review

In line with the FDI approval process, Bajpai, & Sach (2000) reviewed the issues associated with FDI in India and highlighted seven factors which impact the FDI volumes a) Restrictive FDI regime 2) Lack of transparent policies, procedures, and timelines 3) Centralised decision making and lack of initiative at the state level 4) Inadequate liberalisation associated with exit barriers 5) Prohibitive labour laws 6) Financial sector reforms and 7) High corporate tax and tariffs. India's FDI regime is restrictive with allowed foreign ownership varying between 49 percent to 100 percent. Under the government route a long list of approvals is required. There is no rationale for having these limits in place and these should be scrapped in favour of 100 percent investment under the automatic route. The approval route can exist for certain sensitive sectors and industries which require government approval. From a banking perspective, the author suggests that India should negotiate reciprocal investment rights, however given that these investment rights already exist with the UK, it can be inferred that any limits on the banking sectors should be scrapped as well for the automatic route of 100 percent investment. The government should ease the FDI outflow requirements so that firms can participate in joint venture firms overseas. Further liberalisation of FDI rules and infrastructure procedures is required. In addition to the restrictive regime there is lack of clarity around the transparent sectoral policies and clear guidelines on the approval time required. The FDI policies are under the centralised remit of the central government. However, the state governments should be empowered to act as agents of change and be involved in decision making at a faster pace. This model is replicated across Brazil and China where state governments of Sao Paulo and coastal provinces in China take the lead in pushing reforms and chasing for approvals from the central government.

From an exit barrier perspective, FDI reforms till date have focussed on removing barriers related to FDI inflow but not many reforms have been implemented to reduce exit barriers. Companies need to be able to freely exit the markets as and when required. There should be some mandatory safeguards and checks in terms of exit barriers however overly regulating the exit barriers has led to this being a major deterrent for FDI. Firms need to be

able to undertake restructuring as appropriate. Additionally, India's hiring and firing labour laws are stringent and organisations are not allowed to close units or make employees redundant without the approval of the state government. The law was introduced to protect employees from unfair dismissals however this has added an extra layer of red tape for organisations wanted to get rid of unwanted staff, further impacting hiring of staff in required areas. This policy has become a job for life policy for employees which is similar to the government job which needs to be address. In the GCR1999 ranking for hiring and firing practises, India was ranked low in the list of countries for its ability to hire and retrench staff. Bajpai, & Sach (2000).

Financial sector reforms need to be implemented for increasing the FDI flows in India. The government nationalised all the banks more than three decades ago, similar to actions undertaken by France, Mexico and Chile however these actions need to be reversed now. There has been partial liberalisation in terms of government exiting the ownership of public sector banks however this has not yet been completed. Government's investment in the public sector banks diverts attention and resources from FDI development. Additionally, the public sector banks owned by the government create a monopoly in the financial services sector, which should be reduced. Bajpai, & Sach (2000). Finally, from a tariff and taxation perspective, Indians tariff rates and the corporation tax rates are highest in the world. High tariffs are a dampener for FDI inflows for labour intensive businesses. Tariff rates of between 0 to 20 percent similar to that of East Asian economies need to be implemented to increase FDI flows. Finally, India's corporation tax for foreign companies is highest at 40% with an additional 2 % surcharge at the highest level of the tax bracket. This is a major disincentive for foreign firms to invest in India. Bajpai, & Sach (2000).

Chanda (2005) assessed constraints related to financial services trades and highlighted that India's domestic policies constraints impact FDI mainly from a market access and national treatment perspective. Firms face a constraint around the maximum prescribed limit of investment along with the type of entity/structure to enhance their operations in India. From a banking perspective, the maximum cap for investments is restricted at 74 percent via a government approved route. Additionally, the structure of the foreign entity must be incorporated via a wholly owned subsidiary. Foreign banks can be

denied licenses if they exceed 15 percent of the total assets owned by foreign banks in the Indian banking system. In addition to the onerous regulations mandated for foreign banks, they are not given the same treatment as national banks, the treatment is classified as near national treatment. The public banks have access to fixed deposit scheme provided by the commercial banks for the use of their surplus funds, which is not available to foreign banks. Additionally due to government banking of public sector banks, there is a degree of monopoly in the banking sector which constraints the foreign banks growth in India. Finally, from a tax perspective, foreign banks are charged a higher corporation tax with most Asian countries charging between 10-20% corporation tax. Thus, the studies agreed with the review conducted by Bajpai, & Sach (2000).

Chanda & Gupta (2011) analysed the liberalisation of service sector and financial institutions in India. The study highlighted that the implementation of positive economic reforms has strengthened the financial system to allow foreign banks entry into India. These measures included introduction of prudential framework, capital adequacy requirements such as BASEL, deregulation of interest rates, direct credit liberalisation policies, removing entry barriers for foreign firms by allowing up to 74 percent investment via the government route as opposed to a mandatory cap of 20 percent decades ago and finally allowing foreign banks to operate via a wholly owned subsidiary structure as opposed to only via branches, which increases risk to the banks and the financial system. Although these policies have helped increase the flow of FDI and reduce the bottlenecks in the economy, there are constraints which need to be addressed. Government's ownership of the public sector banks diverts attention from the government's focus of increasing FDI flows, a view highlighted by Bajpai, & Sach (2000) and Chandra (2005). The public sector ownership structure creates a monopoly and hinders the entry and growth of foreign banks in India. Additionally, the banking system is currently fragmented, and the acquisition stakes of foreign banks are restricted in India, which should be addressed. Finally, the regulatory and prudential framework must be enhanced for the banking sector, which will further assist increase in the FDI flows to India.

Mukherjee, A., & Goyal, T. M. (2013) acknowledged India's increasing FDI inflow, with service sector being the highest recipient of inflows. The study also

acknowledged the reforms undertaken till date to liberalise the FDI sector however asserted that these reforms have fallen short in achieving India's full potential. The study achieved two objectives of analysing FDI flow patterns and trends and assessing India's international agreements to review the degree of openness. The degree of openness assessment was done using Fink and Molinuevo (2008) framework to review barriers and analyse the level of openness in the services sector. The study reiterated that there are operating restrictions and regulatory barriers for foreign firms' investment in India, despite the policy liberalisation implemented till date. FDI should be delinked from domestic regulation since this is an issue related to market access. The proposed policies should not differentiate foreign banks and domestic banks, thus implementing consisting framework across the two sectors. Mukherjee's (2015) analysis of services sector concluded that India in a major exporter of services, however its competitiveness is restricted to a selected few sectors and domains due to the barriers faced by the services sector. The author suggested policy liberalisation to increase the FDI volumes in India.

Finally, the section reviews the OECD's service trade restrictiveness index database, which provides information on trade restrictions across financial services (and other sectors). The regulatory database, which is composed for forty-five countries consists of regulations which impact the liberalisation of FDI inflows across the financial services sector. The regulatory database includes non-financial sectors as well, however for the purpose of this chapter non-financial sectors are out of scope since the thesis only focusses on financial services. The database is categorised across five policy areas: restrictions on foreign entry, discriminatory measures, regulatory transparency, barriers to competition and restrictions to movement of people.

OCED's database highlight barriers across twenty-one areas including foreign entry restrictions, maximum percentage cap that can be acquired by foreign firms in public sector banks and restrictions around number of branches. The review highlights that screening exists without any clear economic interest; a point highlighted by the earlier research work as well. For foreign banks to offer deposit taking, lending and payment services a commercial presence of the bank is required. Further there are stringent criteria for foreign banks to obtain licenses and there are limits applied on the maximum licenses

that can be granted to foreign banks. From a cross border perspective, there are cross border limitations on the transfers that can be conducted by customers. Finally, from a governance perspective, there is a requirement to have a majority of nationals/residents in the board of directors whilst having at least one resident and national in the board of directors. Additionally, managers of the firms must be residents as well.

In terms of discriminatory measures that database highlighted eight barriers impacting the FDI volumes. These barriers varied from public procurement policies regarding explicit local preference for suppliers and favourable competition towards local domestic firms. There are further loan and deposit restrictions around foreign currency, capital raising restrictions and restrictions on lending to non-residents for domestically licensed banks. The final barrier under the discriminatory measure was the deviation of accounting rules from international standards. From a regulatory barrier perspective, the key barriers around the publicly available licensing criteria, rationale for license denial and the timeframe for approval or denial of licenses. Although there are public criteria available regarding the licensing, final decision to approve the license lies with the RBI and it does not provide any specific reason for denial which makes it harder for foreign firms to invest in India. Finally, the timeframe around the licensing process is variable and there is no fixed time limit for license approvals.

The final two sections focussed on barriers to competition and restriction to movement of people. There were five policy issues highlighted in relation to competition barriers, which included limitations related to government owning at least one major firm in the sector (in case of India all public sector banks are owned by the government), policies around directed credit scheme (priority sector lending and branch opening policies which are discussed in details in the sections below) and regulation on interest rate, i.e. foreign cannot exceed the lending rate of India's State Bank by more than 300 basis points, i.e. 3% in case of debenture. Finally, restrictions to movement of people included policy constraints between intra-corporate transferees, contractual and independent services suppliers and there were limitations imposed on duration of stay for all three types, intra corporate transferees, contractual and independent services suppliers. Whilst this is considered as limitation in OECD's regulatory database this is the standard visa procedure

for foreign employees in all countries and hence can be excluded from the analysis of this review.

Based on the above qualitative categories in the database, OECD's composite indices (STRI index) are assigned to various policy categories to indicate either an open economy with a value of 0 or a complete closed economy with a value of 1. Most countries have a STRI index between 0-1 as opposed to an exact 0 or 1. The five policy areas, along with their relevant subcategories are compared across UK and India to identify differences between the two countries in terms of FDI openness. Table 4.2 below highlights the differences in policy areas for UK and India e.g., for restriction on foreign entity, India has twenty-one sub policy categories which are considered as closed as opposed to five policy categories for the UK. Similarly, for other policy attributes like discriminatory measures, India has a score of seven as opposed to UK's score of one and for regulatory transparency India has a cumulative score of six as opposed to UK's score of two. Contrastingly the difference between the two countries is minor across the two categories - restrictions to movement of people and barriers to competition. For the former, India has a score of six as opposed to UK's score of four, whereas for Barriers to competition, India's score of five is comparable to UK's score of four. Thus, it can be summarised that there are three policy areas which are the differentiating factor between the two countries, these are: restrictions on foreign entry, discriminatory measures, and regulatory transparency. The other two policy areas restrictions to movement of people and barriers to competition are not significantly different between India and UK and hence are assumed to be less in need for reforms.

Table 5.2 – Policy area differences between India and UK

Policy area	Policy areas considered closed		
	India	UK	Difference between India – UK
Restrictions on foreign entry	21	5	16
Discriminatory measures	7	1	6
Regulatory transparency	6	2	4
Restrictions to movement of people	6	4	2
Barriers to competition	5	4	1

Source: OECD

Similar to OECD's service trade restrictiveness index database, World Bank assesses the ease of doing business in countries using alternative indicators methodology (used as stopgap until a new methodology B-ready is developed). This methodology assesses each country's ease of doing business across three categories, opening, and incorporating a business, catering to ongoing operational needs of the business, and finally winding down or closing the business. Opening a business includes policies related to new business registration; business density i.e., number of businesses registered per 1000 people between the age group of 18-65, whilst operating a business includes policies related to day-to-day operations including tax, logistical supply including electricity. The final stage of closing the business determines policies related to liquidation and tax solvency. Applying this framework in the case of India indicated that in 2018 there were approximately 0.14 new businesses registered per 1000 people, lower than UK's 15.65 during the same reporting period. However, the percentage of early-stage entrepreneurial activity in India for 2017 and 2018 was 9.3 and 11.4 percent respectively. This was higher than UK's 8.4 and 8.2 percent during the same period and lower than that of the US at 13.6 and 15.6 percent during the same two years. The positive statistics around the percentage of entrepreneurial activities indicate momentum for growth in the sector, which will be eventually, be converted into higher business density. From an operating perspective India lags the UK in terms of services like legal framework for registration, electricity supply

index and other and finally, India's recently implemented tax solvency framework has simplified the process of opening a business due to solvency, however policy of closing a business needs further liberalization (World Bank).

The above section reviewed literature available on FDI barriers and supports the argument that whilst policy liberalisation till date has increased India's FDI volumes, they are still below India's growth potential due to restrictive barriers in places which need to be addressed by further policy liberalisation. Following on from the FDI approval either via automatic route or government route, foreign firms could establish new projects or carry out expansion in India either via branch mode or wholly owned subsidiary (WOS) mode. Branch mode constitutes branches which are part of the firm's head office, they are not separate legal entities and can transfer assets attributable to it to the foreign head office. However, following on from the global financial crisis RBI has now mandated that foreign firm's expansion into India can be carried out mainly via a wholly owned subsidiary (WOS). WOS is an Indian entity of the foreign bank which is registered and incorporated in India according to local laws and whose capital is held by the firm's Indian entity and cannot be transferred to the foreign entity (RBI, 2004). FDI expansion via WOS structure will require WOS eligibility check and approval by the RBI, this approval is different from the FDI approval process highlighted above.

5.3 WOS and funding requirements

The below section reviews literature related to wholly owned subsidiary and the funding structure including non-convertible debentures for foreign firms. Studies conducted by Desai, Foley, & Hines Jr (2004) to analyse the costs of shared ownership of different company structure highlighted that from a multinational firm's perspective, wholly owned subsidiary type is the most preferred type due to its ability to integrate activities across global locations, enable the use of technology transfer and ability to benefit from tax planning. The ability to trade between firms under the wholly owned structure contributed to the decrease in other structure types. Thus, from an organisation's perspective, it is considered an efficient structure to operate in global locations. Similarly,

Hebous & Weichenrieder (2010) conducted a review of two types of shared ownership structures wholly owned subsidiaries vs partially owned subsidiaries to analyse the benefits and cost structure of each ownership type. The study found that wholly owned subsidiaries are better able to avoid crisis due to its ability to access capital from the parent entity as a backstop. A financial crisis usually leads to a sharp currency devaluation. In a financial crisis situation banks are not able to fully pass on the domestic currency depreciation to clients for their banking products thus leading to financial difficulties and a requirement for raising additional funds. Kaminsky & Reinhart's (1999) work on twin crisis is applicable here since the authors state that banking sector problems are often preceded by the currency crisis and that the currency crisis further impacts the banking sector crisis, thus causing a spiral of the twin crisis. Given that sharp currency devaluations are associated with a credit crunch or banking crisis Hebous & Weichenrieder (2010) postulate that it is harder for multinational firms to access capital in the domestic market. This is in line with the Asian financial crisis of 1997, which had a significant impact on the macroeconomic stability of major Asian countries due to currency devaluation and devaluation of other assets. Similarly, the credit crunch scenarios of 2007 which caused the global financial crisis impacted firms' ability to raise additional funds. The study highlights that due to domestic currency depreciation, the firm's foreign debt value increases further impacting its ability to obtain loans. FDI inflows via wholly owned subsidiary have the advantage that these subsidiaries can access additional funding from the parent companies in times of such crisis, which is an advantage not just for the host country but also for the home country i.e., it is easier for multinational banking firms when they enjoy full control over the subsidiary in terms of financing. Partially owned subsidiaries or branch modes are not able to access funding from the home company which makes it harder for them to operate during the crisis. Additionally, the study indicates that due to wholly owned subsidiaries' more reliance on international debt shifting they are better at tax planning and efficiency strategies as opposed to a partially owned subsidiary.

In a relevant study conducted by Desai, Foley & Forbes (2008), the authors assessed how multinational firms respond to financial constraints caused by sharp domestic currency devaluations. The study found that multinationals firms increase sales and expand

economic activities during currency crisis as compared to most local firms mainly due to its ability to access funding from the parent firm. The study highlighted the role of multinational firms in expanding FDI inflows during currency crisis. The dual aspect of foreign firms' ability to expand its FDI inflow during currency depreciation and the funding protection offered to the wholly owned subsidiary by the parent company, indicates that a wholly owned subsidiary structure for banking FDI inflows for is the right policy liberalisation.

Despite the principle of WOS is appropriate for foreign banks to expand in India, there are potential issues regarding the implementation. As highlighted above the only way for WOS to raise funds in India is via the non-convertible debentures (NCDs), which has limitations around the interest rates offered by the NCDs. Although banks are allowed to raise funding via NCDs/debt markets the debt markets in India remain relatively weak compared to not just developed markets but emerging markets as well. Analysis of the Indian corporate bond market highlighted that the bond markets in India are characterised by issues of asymmetrical information, price transparency and liquidity issues. The Indian bond market is dominated by private placements as opposed to secondary markets due to inadequate or opaque credit ratings of these bonds. This further leads to lack of transparency in terms of market making prices and the depth of the products offered. The liquidity in the markets is impacted due to investors holding onto the corporate bonds until maturity as opposed to trading on the secondary markets. Thus, the bond markets are distinguished due to its shrinking products sets and the price transparency offered on these bonds, which makes it difficult to firms to raise funds in the capital markets. The study highlights that Indian capital market needs to be further developed for firms to efficiently raise money (Bose & Coondoo, 2003). Supporting the above study, Harrison, Love, & McMillan (2004) found that firms highlight financing constraints as one of the main issues in investing globally. The study highlighted that FDI inflows are impacted positively by reduction of financial constraints in the domestic economy. Further study conducted by Thomas (2006) highlighted liquidity as important dimension of the financial markets from a cost and resilience perspective. From a liquidity perspective, equity markets in India

responded better to negative price shocks however the bond market liquidity appeared weak when faced with negative price shocks in the economy.

In a similar study conducted on the neglect of the commercial bond market, the authors acknowledged that the financial market developments in infrastructure have positively impacted the equity and the gilt-edged markets, however the study highlighted that these benefits were not translated to the corporate bond markets which remained neglected compared to the equity markets in India. The study recommended improving financial structure infrastructure to develop the primary market issuances and secondary market trading of corporate bonds. (EPW Research Foundation, 2007). Rao & Babu (2010) reiterated the fact that well-functioning equity and debt markets are essential for the growth of the financial system, with a developed debt market highlighting the maturity and the development of the economy. Whilst the study acknowledged that the equity markets developed in advance of the debt markets and that India's equity market development was at par with the international level, the study highlighted that India's debt markets developments lagged the global markets. The issues of price asymmetry, transparency and lack of liquidity were the key reasons for lack of debt market developments. Although India's corporate bond market activity has picked up in recent years, the market still faces the issues of depth, liquidity and price transparency compared to other segments of the financial markets. Investors in India prefer over the counter trades as opposed to dealing on venues, which caused further issues of uniformity and completeness in analysing these transactions. In addition to implementing policies to develop corporate bond markets, the regulators should aim to provide corporate bond market data in a transparent manner (EPW Research Foundation, 2011).

Mukherjee & Nath K. (2012) analysed the Indian corporate bond markets and reiterated the fact that the bond market development is essential for funding requirements and for the growth of the economy. The study acknowledged that equity markets in India are well developed and in line with the international standards. The government bond market sector is well developed in the context of Indian economy with the central, state governments bonds and PSUs amount to 80% of the bond market volumes in India. The corporate bond market is essential for the financing requirements of firms and to relieve

financing pressure on the banks, however this sector is yet to be developed at par with the global economies. The main factors contributing the lack of a well-developed corporate bond markets include financial system infrastructure issues, market depth and volume issues which contribute to ambiguity in the market making pricing.

Dawar's assessment (2012) that the credit risks are concentrated into Indian banking sector due to a lack of well-functioning corporate bond market is aligned with the findings presented by earlier researchers. The study supported earlier work conducted by Mukherjee & Nath (2012) that the share of the Indian corporate bond market compared to the government bond market is abysmal. Furthermore, in a global context bond markets are well developed in Asian and Western countries and bigger than the equity markets whereas in India the corporate bond market is minuscule compared to its equity market. The study recommended policy reforms specifically designed for the enhancement of the corporate bond market. Bhattacharyay's work on the determinants of the bond market development highlighted the fact that the root cause of the Asian financial crisis in 1997 was the over reliance of firms on the banking sector for their financing requirements. This was because of the inability for the firms to raise funding in the corporate bond market due to lack of size and liquidity. The study concluded that the main determinants of the corporate bonds development included factors like size of the economy and the banking sector, phase of the economic development, interest rate and exchange rate variability. Bhattacharyay (2013).

Similarly, work conducted by Gwalani, & Bharati (2013) in analysing the corporate bond market in India and the liquidity issues highlighted that the reforms implemented by the government had not yet achieved its full potential in developing the corporate bond market segment due to liquidity issues. The authors used definition of turnover ratio to measure liquidity due to a lack of agreed single source to measure liquidity and found low liquidity as a root cause in development of the bond market. An analysis of the role of corporate bond market in the financial sector highlighted that high inflation volatility presents an issue in terms of the corporate bond sector development and the study recommended implementing creditor friendly policies and increasing the legal rights of borrowers. (Burger, Warnock, F. E, & Warnock, V.C (2015) Thukral, Sridhar & Joshi

(2015), analysed issues impacting the development of the corporate bond sector in India. The study highlighted that India's well-developed government bond market's share in the total sector outsized that of the corporate bond market segment. The author attributed the government bond sector's dominance to India's conservative bank-based economy and the central bank's ability to influence the markets. Thus, a small corporate bond market has led to cyclical issues where low participation in the corporate bond sector leads to lack of liquidity, which further results in an underdeveloped credit system mechanism, leading to further reliance on the banking system and the economy for the firms to raise funding.

Venugopalan (2014) analysed India's corporate sector debt portfolio and assessed the composition of debt in the corporate structure. The study also analysed the financial sector reforms implemented to develop the corporate bond market and the impact of the reforms on the liquidity and size of the corporate bond market. From a corporate debt financing perspective, the study highlighted that the most common form of financing were debentures and bonds, bank/financial institution borrowing, central and state government loans and short-term debt instrument issued by corporations e.g., commercial papers, loans between corporate entities, external commercial borrowings and deferred credit from suppliers. The author highlighted systemic issues which have contributed to the lack of a developed corporate bond markets in India. This includes utilisation of long-term debt, absence of short-term debt instruments uses, overreliance on banks for funding requirements and miniscule levels of debenture utilisations. The financial sector reforms implemented in the last two decades to strengthen the corporate bond market have thus been futile given the current state of the corporate bond market. The author highlighted that the issues in the corporate bond market segment not only constrained the ability of the firms to raise financing but also impacted the development of the financial markets. In order for the corporate bond market segment to be a viable source of fund-raising alternative to long term debt finance and banks loans, significant additional reforms need to be introduced to strengthen the corporate bond market.

Chaudhari, Raje, & Singh (2014), highlighted that a well-developed corporate bond market is required not only for corporate sector funding requirements but also to increase financial system stability and reduce the financial crisis risk, which in turn help in the

economic growth. The current state of the corporate debt market highlighted an absence of liquidity and the lack of well-functioning corporate bond market in India. The author highlighted three areas for concerns for the development of the corporate bond markets institutional and regulatory framework, lack of market participants and instrument. From a depth and efficiency of the corporate debt market, the author reiterated issues related to absence of a yield benchmark curve across various maturities, liquidity and infrastructure issues and low investor and issuer base further highlighting the corporate debt market segment.

Shubha & Das (2017) examined the patterns of eighty-five companies to analyse the corporate structure of the companies. The study supported research conducted by Venugopalan (2014), that main source of funding for these organisations is bank borrowings, followed by other borrowings, bonds and debenture utilisation and finally foreign borrowings. Given that more than seventy companies raised funding through bank loans, bonds and debenture markets do not constitute the bulk of fund-raising products. Shanmugam & Natarajan (2017) highlighted that as long the cost of borrowing and the convenience of borrowings are considered, corporates are agnostic about raising funding either via the corporate bond market or bank loans. Reiterating the fact that India lacks a well-developed corporate bond market, the author highlighted that financial reforms understand by the government till date have not helped the corporate debt market.

Thus, the literature review highlighted two policy perspectives, mandating the wholly owned subsidiary structure is the right approach for the foreign banks however the implementation and approval of WOS should be simplified. Furthermore, approval under a WOS structure does not indicate that foreign banks are treated like domestic banks. RBI stipulates the hierarchy of Indian banking structure with domestic banks at the top of the hierarchy, followed by WOS of foreign banks and eventually followed by branches of the foreign banks. The other policy implication being the lack of developed corporate debt market in India, which constraints firms fund raising abilities thus impacting the foreign firm's expansion growth in India. In addition to the barriers around funding there are mandatory requirements related to directed credit lending which are reviewed in the next section.

Table 5.3 – WOS and funding requirements

Author (s)	Summary
Desai, Foley, & Hines Jr (2004)	Wholly owned subsidiary type most preferred type of structure due to its ability to integrate activities across global locations.
Hebous & Weichenrieder (2010)	FDI inflows via wholly owned subsidiary have the advantage that these subsidiaries can access additional funding from the parent companies.
(Bose & Coondoo, 2003).	Indian corporate bond markets need to be further developed for firms to efficiently raise money.
Harrison, Love, & McMillan (2004)	Financing constraints one of the main issues in investing globally. FDI inflows positively impacted by reduction of financial constraints.
Thomas (2006)	Indian bond market liquidity appeared weak when faced with negative price shocks in the economy.
(EPW Research Foundation, 2007)	Financial market developments not translated to the corporate bond markets. Need to develop secondary market trading of corporate bonds.
Rao & Babu (2010)	Developed debt markets indicate maturity and development of the economy. India's debt markets lagged the global markets.
(EPW Research Foundation, 2011).	Need to further develop corporate bond markets in India.
Mukherjee & Nath K. (2012)	Corporate bond market essential for financing requirements of firms and to relieve pressure on banks. Sector yet to be developed in India.
Dawar's assessment (2012)	Credit risks concentrated into Indian banking sector due to a lack of well-functioning corporate bond market.
Mukherjee & Nath (2012)	Indian corporate bond market compared to the government bond market is abysmal.
Bhattacharyay (2013).	Inability for firms to raise funding in the corporate bond market and over-reliance on banks for root cause of Asian financial crisis in 1997.

Gwalani, & Bharati (2013)	Reforms implemented till date not yet achieved its full potential in developing the corporate bond market segment.
Burger, Warnock, F. E, & Warnock, V.C (2015) Thukral, Sridhar & Joshi (2015),	Small corporate bond market has led to reliance on the banking system and the economy for the firms to raise funding.
Venugopalan (2014)	Systemic issues contributed to the lack of a developed corporate bond markets in India thus overreliance on banks for funding requirements.
Chaudhari, Raje, & Singh (2014)	Well-developed corporate bond market required for corporate sector funding requirements and to increase financial system stability.
Shubha & Das (2017)	Main source of funding for organisations is bank borrowings, followed by bonds and debenture utilisation and foreign borrowings.
Shanmugam & Natarajan (2017)	Financial reforms implemented till date have not helped the corporate debt market.

5.4 Priority Sector Lending

Priority sector lending is a form directed lending mandated by the RBI for foreign, private, and public sector banks to lend credit to the weaker sections of the society which are classified as the priority sectors. The policy was first introduced in 1972, with the aim of financial inclusion in the country. Over the last five decades, the policy has evolved in terms of sectors and the prescribed limits however there has been no major revamp of the policy. In terms of minimum lending to the priority sectors, RBI has categorised agriculture, micro enterprises, and weaker section (defined as family income of less than Rs 1,20,000 per annum) as priority sectors considered essential to economic growth. Foreign banks have an obligation to comply with RBI's minimum lending requirements to these sectors in India. RBI mandates that foreign banks with greater than twenty branches allocate a total of 40 percent of the ANBC to lending to priority sector with further limits

set across the different sub sectors, i.e., eighteen percent of ANBC for the agricultural sector out of which ten percent is mandated for small and marginal farmers, 7.5 percent of ANBC to micro enterprises, twelve percent of ANBC to weaker sections of the society. For foreign banks with less than twenty branches, forty percent of ANBC is prescribed for total lending, out of which up to thirty-two percent can be in the form of export lending and not less than 8 percent can be for any other sector. The lending requirements are calculated using adjusted net bank credit (ANBC). Detailed calculation and explanation of ANBC is outside the scope of this thesis however a summary of ANBC is provided as per below:

$$ANBC = (a) \text{ Net Bank Credit} + (b) \text{ Investment in Non SLR categories}$$

$$(a) \text{ Net Bank Credit} = (d) \text{ Bank Credit} - (e) \text{ Bills Rediscounted}$$

- Bank Credit: Loans, Advances, Overdrafts provided by banks to its customers.
- Bill Rediscounted: Bill is discounted for the second time.
- Net Credit = Bank Credit – Bills Discounted.
- Investment in Non SLR categories: Non SLR categories stocks, bonds, commercial paper, mutual funds i.e., investments which are not part of the Statutory Liquidity Ratio (SLR- Liquid investments to deposits).

Table 5.4 – Priority lending limits

Type	Foreign banks with more than 20 branches more	Foreign banks with less than 20 branches
Total Lending	40% of ANBC	40% of ANBC (up to 32% can be in the form of export lending and not less than 8% can be for any other sector).

Agriculture	18% of ANBC, out of which 10% mandated for small and marginal farmers	N/A
Micro Enterprises	7.5% of ANBC	N/A
Weaker Sections	12% of ANBC	N/A

Data source: RBI

Additionally, RBI mandates that banks will not levy any loan or other charges for lending amount of up to Rs 25,000 to the priority sector and that the interest rate charged by the banks for lending purposes will be as per the Department of Banking Operations and Development (DBOD) directives. Banks are also mandated to keep a detailed record of all loan application requests by priority sector and the status of these requests i.e., either loan sanctioned, rejected, or disbursed which are required to be made available to the requested agencies. The stringent 40 percent lending to priority sector remains a key issue in foreign banks portraying into the country.

5.4.1 Priority sector lending – literature review

The Priority sector list first defined in 1972 was subsequently modified under the Narashimham committee recommendations, however the priority sector lending as it still stands has several issues with the key issue being lack of similarity between the various sectors under the priority sector lending list, which makes it hard to have a standard approach for all diverse sectors. Given the amalgamation of diverse industries are clubbed under one framework the author recommends two policy measures to improve the mandatory lending scenario in India, reduction in the mandatory credit offered to certain sectors and sections whilst at the same time offering temporary credit to newer sectors and industries. From a reduction perspective, credit lending should be reduced to sectors for marginal farmers, cottage industries and small trade and services. Dasgupta (2002). Roy (2006) acknowledged that whilst there has been an increase in bank credit across various sectors due to the strong performance of the Indian banking sector and the economic

growth, this credit expansion was not directly translated to other key sectors such as agricultural and small-scale industries, which were defined under the priority sector lending list. Mohan (2006) stressed the fact that agricultural credit plays a critical role in India in order to support farm production and whilst there has been an increase in agricultural credit and outreach, the feasibility of these institutions is being challenged due to several weaknesses that have crept into these. The author highlights a fundamental shift in dietary pattern consumption from cereal to non-cereal products especially in the rural areas due to which a further diversification is required under the single agricultural product category. The study highlights that that as opposed to having a single agriculture list, the initiatives should be disaggregated into further sub sections of agriculture and industries such as horticulture, aquaculture, pisciculture, dairying, sericulture, poultry, vegetables, meat and food processing.

Basu (2005) reiterated the fact that although the concept of priority sector lending aimed at increasing credit driven policies to increase financing access to the poor, these policies have not translated into implementation success since credit lending to priority sectors such as agriculture and small-scale industries have not achieved its intended outcome. The author highlights that in addition to policies specific to priority sector lending, policy transformation is required for the markets and institution perspective as well. Rao, Das, & Singh (2006) analysed lending of bank credit to small scale industries and highlighted that lending to small scale industries decreased from thirty-nine percent in 1992 to twenty-four percent in 2004, stressing that the support extended by banks to this sector is inadequate. Although the coverage and definition of the small-scale industry has constantly evolved to remove more products and commodities from the list, their share in bank credit has still decreased during the period of the study further highlighting that banks were unable to meet the working capital requirements of the small-scale industry defined under the priority sector lending list. The authors concluded that high correlation between bad loans in the small-scale industry is a factor in the low percentage of credit for this sector from a banking perspective. The banks' conservative approach meant that divert funds to industries with stable returns in a low-risk environment.

Mahadeva's (2009) work on the assessment of the priority sector lending policies stressed the failure of these policies at a grass root level. Although these policies have been expected to extend credit to the rural sector in principle the situation for people at the lowest level of administration has not witness any change in circumstances. Interestingly, the research states that impacted section of the society at the grass root level have not heard of these policies. Thus, it is impossible to expect change at the grass root level solely based on these credit policies without having the right framework such as relevant financial institutions, commercial or cooperative banks to support the sector. The author stressed that cooperative sector institutions are better prepared to support credit lending to agricultural and priority sector due to their expertise in these areas as opposed to foreign banks. The absence of cooperative banking sector in these areas has worsened the situation. The author finally concluded that the policy initiatives implemented were all supply side initiatives without any consideration given to demand side policies which are the drivers of the credit. Thus, in the best-case scenario a bank can offer to extend credit to the relevant sector however without the appropriate demand in place the farmer will not be in a position accept the credit supply offered by the local institutions. Thus, policies impacting demand side, in addition to supply side need to be implemented.

Uppal (2009) studied the priority sector credit advances for the year 2006-2007 across foreign banks, private banks, and public sector banks to analyse credit lending to priority sectors and assess whether each of these institutions had achieved the target set for the sector. Out of the twenty-nine foreign banks analysed, five big banks Abu Dhabi Commercial Bank, Bank of Tokyo-Mitsubishi, Citi Bank, HSBC Ltd. and Mizuho Corporate Bank failed to achieve the overall target limit, with seven banks unable to meet the target for credit lending to small scale industries. The foreign banks however did meet the share of credit export share. Comparing this with public and private sector banks, none of the public sector banks met the overall lending target, whereas 40 percent of the private sector banks met their targets. The study assessed the non-performing assets across foreign, private and public sector banks. Foreign banks had the lowest non-performing assets with public sector banks having the highest non-performing assets. This was due to public sector banks extending more credit to the agricultural sector than the foreign banks. Thus, the

conservative risk assessment of the agricultural sector prevented foreign banks from having higher non-performing assets. Finally, from a quantitative target perspective, the prescribed time limit to achieve the mandatory target for priority lending does not consider the demand side requirements of this credit, which should be addressed from a policy perspective. The study reiterates the fact that the policy implementation of priority sector lending has not achieved the desired results and highlights that foreign banks extend credit in their core business areas such as export credits, which aligns with their business model.

Similarly, Devaraja (2011) analysed credit lending supply to the agricultural sector and stressed that credit lending offered to the agricultural sector is inadequate due to banks hesitancy in offering credit to these sectors. The hesitancy arises due to banks inability to assess risks associated with these loans which will lead to non-performing assets. The author recommended uses of technology, product innovation and superior delivery methods to mitigate the issue of low credit lending to the agricultural sector. Additionally, development of cooperative banks and regional rural banks who have expertise in this area should be a policy initiative, will increase the flow of credit to the agricultural sector. The credit lending policies which were introduced in the 1970s, although have evolved over the last for decades, they have not been completely revamped. The macroeconomic elements however have evolved over this period including tighter prudential requirements for banks highlighting the need to increase profitability to combat the high regulatory costs, thus restricting banks' lending to low profit loans. In addition to external constraints, the priority sector list is an incorporation of different diverse sectors under one framework, which makes it harder to implement one size fits all policy. The priority sector list needs to be re-categorized to reduce the costs of fixing negative redistribution effects of inflation. The priority sector list should be revamped considering the demand side initiatives mainly from a growth and employment perspective. EPW research foundation (2011).

Salwan (2012) highlighted that although the priority sector lending policies are mandated their execution at the ground level is inadequate. This is since lending to the priority sector had increased the banks non-performing assets since the smaller sectors do not have the best management practises. The non-performing assets in turn reduced the bank's profitability which impacted lending to the priority sectors. Bhattacharya (2013)

analysed bank credit lending to the manufacturing sector within, a subset within the micro and small enterprises. Although the study acknowledged that there was a substantial increase in absolute credit offered by banks, the credit provided to micro and small enterprises manufacturing sector declined. The decline in the manufacturing sector was larger than the decline witnessed in the small and medium enterprise sector. Additionally, the credit offered to the manufacturing sector was offered to medium manufacturing firms as opposed to smaller firms. This evidenced the regression of credit to the small and micro enterprises and the manufacturing sector.

Beck's (2013) work on assessing the relationship between small and medium enterprise, financial deepening and economic development highlighted that although small and medium enterprises do not correlate with poverty reduction or faster economic growth, financial deepening has a positive impact on growth and reduces poverty. Thus, the author concluded that it is essential to differentiate within the small and medium enterprises between micro entrepreneurs and transformational entrepreneurs. This differentiating of the sectors is essential and relevant under the priority sector list to ensure adequate funding requirements for each sector are met. Based on a data set of eighty banks in India and surveys from ninety-seven bank lending officers, Kumar, Batra, & Deisting (2016) assessed the bank patterns towards priority sector lending. The study highlighted that banks had complied with the overall priority sector lending targets however they failed to meet the mandated sectoral targets and all of them failed to meet the lending targets for the agricultural sector and weaker sections. The study found a distinguishable pattern in banks' lending patterns certain sections of the priority sector in the urban areas rather than agricultural sector and other weaker sections. The urban area lending effect was due to better trained staff in these locations and borrowers' ability to access a larger network of branches in these urban areas. The sectors were selected based on banks objectives of higher profitability and lower default rates. Priority sector lending by banks was determined by three main attributes – size, performance, and ownership. The research found that bank size had a negative and a significant impact on banks' lending to the priority sectors. Thus, larger banks lend to large enterprises, while smaller banks have a comparative advantage in lending to smaller enterprises. Banks profitability had a positive

and significant relationship with banks' lending to priority sectors. Thus, the more profitable a bank the higher the chances of banks offering credit to the priority sectors. These results varied according to foreign, private, and public sector banks. Whilst the above determinants were correct for private sector and public sector banks, foreign banks demonstrated an inverse relationship between profitability and priority sector lending. The higher the profitability of the foreign bank the lower the lending to the priority sector. In case of foreign banks, size had no impact on the sector lending. The study assumed that the inverse relationship between profitability and priority sector lending in foreign banks was since foreign banks considered additional determinant – nonperforming asset to assess decide lending criteria for the priority sectors. The preference of the banks for lending to sectors in the urban areas is echoed by the study conducted Batra & Kumar (2017), who stated that banks prefer economically advanced states for lending to priority sectors and hence these advanced states receive higher per capita per PSL amount. This conclusion was based on an analysis for fourteen years from 1999 to 2013 across thirty-five states and based on a survey of ninety-seven lending officers. Rao (2014) appraised the performance of the banks in priority sector lending and concluded that whilst the performance of the banks had improved in lending to priority sectors, there have been substantial variations in meeting the sub target groups within the priority sector.

The literature reviewed have similarity in two key findings - the importance of financial inclusion policies such as priority sector lending is a critical tool to address the economic needs of the poor and rural section of the society. Whilst these policies are good in principle the implementation of the policies have failed at the grass root level. In addition to these policies, right framework and institutions are required for the execution of the policies. Expecting a foreign bank to contribute 40% of ANBC to the PSL, and 18% to agricultural sector, which is similar to the requirement for cooperative banks is not a sustainable requirement. This is due to the difference in the business structure of these banks. Foreign banks have little or no expertise in the agricultural sector and view this sector as a risky investment. From a cooperative sector perspective, lending to the rural and agricultural sector is their core business and they rely on the informal sector of connections to ensure the feasibility and viability of the credit offered to the sector, which

is lacked by foreign banks. Just as the cooperative sector banks cannot compete with foreign banks in the international business-like trading institutional instruments, foreign banks cannot compete with cooperative banks in terms of the credit lending to priority sectors mainly in terms of agriculture. Thus, a one size fits all policy will not yield the implementation results.

In addition to the financial policy of priority sector lending, foreign banks are mandated to open minimum number of branches in locations that are unbanked. The policy on branch authorisation is discussed in the following section.

Table 5.5 – Priority lending summary

Author (s)	Summary
Dasgupta (2002).	Diverse industries collated under PSL list, reduction required in mandatory credit offered to certain sectors and sections.
Roy (2006)	Credit expansion not directly translated to other key sectors such as agricultural and small-scale industries.
Basu (2005)	PSL policies not translated into implementation success since lending to priority sectors did not achieve its intended outcome.
Rao, Das, & Singh (2006)	Support extended by banks to the PSL sector is inadequate, lending to small scale industries decreased from 1992 to t 2004.
Mahadeva's (2009)	Implementation of priority sector lending policies inadequate at a grass root level.
Uppal (2009)	Conservative risk assessment of the agricultural sector prevented foreign banks from lending to PSL sector.
Devaraja (2011)	Lending offered to the agricultural sector is inadequate due to banks inability to assess risks associated with these loans.
EPW research foundation (2011).	PSL is an incorporation of different sectors under one framework, harder to implement one size fits all policy.
Salwan (2012)	Execution of PSL is inadequate at the ground level.

Bhattacharya (2013)	Credit provided to micro and small enterprises manufacturing sector declined.
Kumar, Batra, & Deisting (2016)	Banks failed to meet the mandated sectoral targets for agricultural sector and weaker sections.
Batra & Kumar (2017),	Banks prefer economically advanced states for lending to priority sectors.
Rao (2014)	Substantial variations in meeting the PSL target for sectors within the priority sector.

5.5 Foreign banks – branch authorisation

As part of the regulatory requirements mandated by the RBI, foreign banks cannot open a new place of branch, or change the location of the existing branch anywhere in India without prior approval from the RBI. In addition, foreign banks are mandated to open banks in unbanked areas to increase banking penetration and financial inclusion. The unbanked and banked areas are categorised into 6 tiers, with tier 1 comprising urban and metropolitan areas, tiers 2, 3, 4 comprising semi-urban centres (population between 10,000 and 100,000) and tiers 5 and 6 comprising rural centres (population <10,000). According to RBI's master circular on branch authorisation, in any given financial year at least 25% of the branches should be opened in tier 5 and tier 6 centres and the total number of branches opened in tier 1 centres cannot exceed the total number of branches opened in tier 2 - tier 6 centres. Banks are eligible to open branches in tier 2-tier 6 without any explicit approval from the RBI however any branch expansions in tier 1 requires explicit approval from the RBI. From RBI's perspective, ATMs are not considered as branches and hence should not be included in the branch computation and before opening the first branch, foreign firms need to allocate a capital of USD \$25 million. The table below summarises the different tier classification based on the relevant population.

Table 5.6 – Tiers for branch opening

Tiers	Centre	Population (as per 2001 consensus)
Tier 1	Metropolitan centre	>1,000,000
	Urban centre	100,000 – 999,999
Tier 2	Semi-urban centre	50,000 – 99,999
Tier 3	Semi-urban centre	20,000 – 49,999
Tier 4	Semi-urban centre	10,000 – 19,999
Tier 5	Rural centre	5000 – 9,999
Tier 6	Rural centre	< 5000

Source – RBI master circular on branch authorisation (2014)

In addition to the above requirement, RBI considers a wide range of topics while considering applications for new branches. This includes areas such as:

- Adequate banking facilities and services to be provided by the bank including its policy on items related to minimum balance, acceptance of deposit and credit provision.
- Reciprocity and treatment extended to Indian banks in the foreign banks home country and the diplomatic and bilateral relations between the two countries.
- Robust processes around new product launches and product pricing to ensure new products offer customers more choices as opposed to any indication of price collusions with other banks. The end objective of this being to enhance market competition as opposed to reducing it.
- Ensuring strong compliance culture, corporate governance code and robust risk management procedures.
- Estimated plans to open new branches mainly focussing on underbanked or rural areas within India. With regards to the estimate plans, banks are required to prepare an annual branch expansion plan (ABEP) and submit this to the RBI on a yearly

basis. The ABEP should include details regarding branch opening, closing or mergers of branches according to the 6 Tiers defined by RBI with Tier 1 comprising urban and metropolitan areas, Tiers 2, 3, 4 comprising semi-urban centres (population between 10,000 and 100,000) and Tier 5 and 6 comprising rural centres (population <10,000). In addition, ABEP is also required to include the following details.

Table 5.7– ABEP summary

Category	Explanation
Medium term Plan	Estimated three-year expansion plan to include details for a) branch openings b) expected deposit levels and c) expected customers to be onboarded.
Technology Details	Comprehensive plan for technology implementation in terms of a) Number of computerized branches b) Network connection details in terms of connectivity with other bank branches and core banking solution i.e., ability for customers to access banking services globally and c) ability to scale and upgrade key technical components.
Business Plan	The business plan section is expected to propose details regarding: - Services and products offered, product pricing, account opening processes and minimum balance requirements. - Customer services plan to ensure branch expansion does not adversely impact the level of customer service provided. - Statistics for customer complaints received in the last 2 years. - Priority Sector lending based on ANBC calculations (as per above) - Credit deposit ratio calculations i.e., deposits and advances per branch in various centres/tiers. - Relationship with affiliates, banks, and subsidiaries (if any) - Measures to address operational and scalability issues, risk management processes including audit plan and hiring processes.

	- Any compliance issues reported or penalty notices.
Branch Details	Details around branches opened in the last one year in different centres and branches yet to be opened in different centres based on previous approvals.
Financial Inclusion	Proposal to demonstrate financial inclusion by providing details regarding: - Ability to target multilingual customers by providing banking website and services in at least 3 languages English, Hindi and local language. - Banks initiatives for self-employment training, financial literacy and credit counselling. - Technology initiatives to include expansion of ATMs, kiosk and other banking infrastructure in rural areas.

The approval from RBI on the ABEP is valid for a year and once ABEP is approved, banks are required to open the branches within one year. In the event that banks cannot fulfil the commitments in a year for some genuine reason, banks will need to apply for another year extension by approaching either the Department of Banking Supervision, RBI or Department of Banking Operations and Development (DBOD, CO). The following section reviews the literature work around branch expansion plan.

5.5.1 Branch expansion plan – literature review

The concept of financial inclusion is key determinant of economic growth that plays an important role to reduce poverty. Marginalized sections of the society need to have access to mainstream financial products and services in order to achieve an inclusive growth. Whilst the concept of financial inclusion is key for India's growth, the policies enablers are driving financial inclusion are reviewed. The onerous requirements by foreign banks to adhere to cater to mandated annual expansion plan pose two issues from an economic perspective. First is the assumption that policy of bank branch expansion, a supply side initiative as opposed to a demand side initiative will enable financial inclusion for the poor in the rural areas and thus hence reduce poverty and increase the economic growth for the region. While there has been research to support this view by Khandker

(2005), Pitt and Khandker (1998), there has been significant research conducted to prove that bank branch expansion does not drive financial inclusion. The second issue of whether having a physical bank location is required even in rural areas, when the Indian population is tech savvy and has more mobile phone connections as opposed to bank accounts is analysed. Post Covid, banking services have gone digitally faster than any other service and a physical brick and mortar branch location is not a necessity for rural poor to have access to banking facility. The below section aims to critically review the literature to find support or contradiction to these points.

Kumar (2011) assessed the determinants of financial inclusion in rural India to assess whether the intuition that increase in branch network corresponds to the financial inclusion for the poor is valid. The author highlighted that credit penetration has weak causality relationship whereas a person's income level has a positive impact on both the credit and deposit level. The study highlighted the determinants of financial inclusion of are the factory numbers and employee base, which drive income drive income and employment opportunities, thus allowing the population to be more familiar with the banking products and activities and thus enabling financial inclusion. Thus, income levels and economic conditions are vital to financial inclusion, implying that structural and macroeconomic factors have a significant role in the deposit penetration and the needs of the rural population.

Assessing the demand side requirements Jalaludeen (2014) analysed whether demand side initiatives drive branch expansion plans. In a study focussed across one state in India (Kerala), the author examined the concentration of banks in the region using Herfindahl Hershman Index (HHI) and the firm concentration ratio (C4) to analyse the evolution of these indices. The study identified that banks expand and open new branches in areas where they already have a branch network, and the existing branches have significant business. Banks prefer this strategy over opening new branches in areas with better economic growth but no ability to convert this economic growth into business activities, due to a lack of a branch banking presence in these locations. Thus, it is evident that banking concentration does not take into account the state of the region or financial inclusion but considers profitability and its ability to expand its business. The author

concluded that although banks consider financial inclusion policy in terms of branch expansion, this has only marginally reduced disparity between different regions in terms of banking services reach and availability.

Kumar, Pal, R & Pal, R. (2019) analysed the use of financial services and financial inclusion in India with a view to determining whether bank expansion policy is driven by supply side or demand side initiatives. The study acknowledged that whilst banking services have a positive influence on the usage of financial service, its contribution is small compared to macroeconomic factors like education, income and employment, which influence demand for financial services. The study highlighted that demand side initiatives should drive financial inclusion policies as opposed to supply side initiatives, which demands banks having a physical branch presence in rural location. Schuetz, & Venkatesh (2020) reiterated that in order to achieve financial inclusion, four issues related to geographical access, exorbitant product and transaction costs, unsuitable banking products and improvement in financial literacy should be addressed for betterment of financial inclusion.

The above literature highlighted that expansion of bank branches does not drive financial inclusion since this is a supply side initiative as opposed to supply side initiative. Policies to increase employment, education are outside the scope of this research topic since the research focusses on issues related to FDI in banking between UK-India. Assuming the demand side initiatives are implemented, rural customers can be offered financial access to rural consumer via the use of technology thus reducing barriers for foreign firm expansion in India. Offering technological solutions over brick-and-mortar bank branch is a preferred way for organisations due to low cost. The situation Study conducted by Bashir, & Madhavaiah (2014) highlighted that younger consumers in India intended to rely on internet banking more often than branch banking due to its ease of use and better trusting purposes. The author asserted that banks should focus on increasing its presence via its digital banks by increase the usefulness of internet banking systems thus attracting them to internet banking.

Kochar (2019) evaluated the financial services delivery model in rural India via branchless banking. The study highlighted that in order to achieve financial inclusion,

governments of India and other emerging market countries are using local agents and mobile technology to facilitate cashless banking. As per the statistics provided by RBI, In March 2010, local agents also known as business correspondents accounted for 34,316 i.e., 51% of the banking outlets out of 67,694. The number of banking outlets increased to 586,307 in March 2016, out of which branchless outlets represented 91% of the banking outlet. The local banking outlet, which utilises mobile technology such as point of service instruments have the ability to reduce product costs and opportunity costs of providing these services to poor households and in utilising these services. In addition to cost reduction, the local agents change the behavioural household patterns of the households by reminding them to save. The author highlights that the size of the market affects the viability of the local agents, particularly in poor areas, which has a negative impact on household savings. To address these issues, in addition to its core focus on savings, local agents offer wide-ranging products including insurance products, loan repayment facilities, overdraft and small loans.

Singh (2014) et al highlighted the use of technology resources mobile phones and banking technologies in addition to post office outlets, fair price shops and business corresponds to increase the use of financial services products in the rural sector. From a rural perspective, one in seven individuals have access to banking credit products; on the other hand, 74% of the households and 40.5% of the rural population have access to mobile phones. Given the increase in mobile phone segment and the internet connectivity, three different technology models can be implemented as a substitute to bank branch requirements. The bank led technology model, developed by banks to offer financial products to customer. Joint venture model between telecom operators and banking providers to offer wallet accounts for banking products including savings, loans and money transfers and third-party models where telecom operators can create semi-closed wallets in conjunction with third party entities, that can be used to provide restricted services at authorised agents are alternatives to bank branch-based solutions. In addition, utilisation of post office can provide an alternative due to existing infrastructure in place and the employee's ability to offer basic financial facilities to rural households. Similarly, fair price shops, which have extensive access across India, can be used as an alternative. Given the

fair price owners familiarity with rural people, this can help build trust in the basic products that fair price stores can offer. Finally, the use of business correspondents can be enhanced to ensure better delivery of services to rural households.

Similarly, Singh (2017) analysed the role of technology in the financial inclusion and asserted that with technology as an enabler, basic banking services can be provided to rural areas to drive financial inclusion. Although the study highlighted issues with respect to technology adoption, it highlighted some successful initiatives like the electronic verification of customers, Aadhar payment bridge systems as examples of technology-based solutions enabling financial inclusion for the rural areas. Finally, Gibson, Lupo-Pasini, & Buckley (2015) highlighted that over one billion people globally do not have access to financial services products due to limited bank branches. The study highlights that the digital products offered by banks via local agents could address the issue of lack of bank branch access by rural household. This also negates the need for banks to have a brick-and-mortar infrastructure in place. The author recommended legal framework to deliver financial services products via agents to address the liability issues.

Thus, the above section highlights the issues related to the branch opening policies mandated for the foreign banks in India. Addressing the need for financial inclusion and providing banking products to rural household is key for the country growth however, the implementation of this policy should be addressed by technological and other initiatives as opposed to mandating banks to open physical branch outlets in rural areas. Finally, the phase post de-monetization has seen an exponential growth of digital finance in India, which should be capitalised upon.

Table 5.8 – Branch expansion plan summary

Author(s)	Summary
Khandker (2005), Pitt and Khandker (1998),	Bank branch expansion does not drive financial inclusion.
Kumar (2011)	Credit penetration has weak causality whereas a person's income level has a positive impact on both the credit and deposit level.

Jalaludeen (2014)	Branch expansion policy has only marginally reduced disparity between regions in terms of reach and availability.
Kumar, Pal, R & Pal, R. (2019)	Demand side initiatives should drive financial inclusion policies as opposed to supply side initiatives (e.g., branch expansion)
Bashir, & Madhavaiah (2014)	Consumers in India intended to rely on internet banking more often than branch banking .
Kochar (2019)	Financial inclusion, can be achieved by using local agents and mobile technology to facilitate cashless banking.
Singh (2014) et all	Financial inclusion can be achieved with technology, basic banking services can be provided to rural areas.
Gibson, Lupo-Pasini, & Buckley (2015)	Digital products offered by banks via local agents could address the issue of lack of bank branch assess.

5.6 Other requirements

In addition to branch opening requirements, WOS have restrictions around investments in subsidiaries and company takeovers. From an investment perspective, WOS are eligible to invest in another subsidiary, financial services institutions, or stock exchanges however the investment by WOS should not exceed either 10% of its paid-up share capital at an individual level or 20% of its paid-up share capital at an aggregate level. The cap of 10% at an individual level and 20% at an aggregate level does not include the treasury operations essentially for managing the risk exposure. The WOS will need explicit approval from RBI for participation in the equity offerings of the firms, with the cap still in place. Similarly for any mergers and acquisition (M&A) activities, an explicit regulatory approval is required with the maximum investment limit of 74% with strong Governance requirements.

From a corporate governance perspective, RBI mandates stringent criteria for the roles of Chairman, CEO and Board of Directors. From a Board perspective, the Board composition should consist of Non-Executive Directors and Independent Directors with

the former comprising at least two-thirds and the latter comprising at least one-third of the total Board of Directors. Additionally, 50% of the Directors should be Indian nationals/NRIs/PIOs and at least one-third of Directors should be resident in India – i.e., spend at least 182 days in the country. RBI also mandates that WOS should have a part time Chairman and the WOS will need approval from the RBI for the appointment or reappointment of the Chairman. Similarly, WOS will require approval from RBI for the appointment or reappointment of a full time CEO, who should be resident in India. In addition to all the above stringent preconditions, RBI states that it has the right to amend or add any other conditions in the guidelines, which may be deemed necessary.

Similar to the FDI mode and the mandatory requirements around this, RBI has mandatory conditions for foreign investments via the Foreign Portfolio Investments (FPI) scheme or the Foreign Venture Capital Investments (FVCI) mode.

5.7 Foreign Investments: FPI and FVCI

Investors are eligible to invest in India via the Portfolio Investment Scheme (PIS) which falls under the FPI. Portfolio Investment Scheme (PIS) allows three types of investors Foreign Institutional Investors (FIIs), Non-Resident Indians (NRIs), and Qualified Foreign investors (QFIs) to invest across different product sets. FIIs or sub accounts of FIIs can invest in shares, Convertible Debentures (CDs), and Exchange Traded Funds (ETDs). An individual FII can invest up to 10% of total paid up capital or 10% of the paid-up value of each series of convertible debentures, whilst the total limit of all FII cannot exceed 24% of the paid-up capital or paid-up value of each series of convertible debentures with the condition that FIIs cannot invest in certain types of companies e.g., Asset Reconstruction Company. In addition, FII have a requirement to open a specific account either a Foreign Currency Account and / or a Special Non-Resident Rupee Account (SNRR) with an AD Category – I bank. AD Category – I banks are banks authorised by RBI to carry out current and capital account transactions in foreign exchange and foreign securities. FIIs or sub accounts can also invest in ETDs however FIIs may need to open a separate account under their SNRR account for all transaction purposes related to ETDs.

In case of ETDs, FIIs are subject to standard position limits, margin requirements and adherence to collateral securities. FIIs are allowed to offer AAA rating foreign sovereign securities for derivative segments and AAA rating foreign sovereign securities and domestic government securities and cash for the equity segment. From a transaction perspective, FIIs and the sub accounts of FIIs are permitted to buy, sell, or short sell shares of companies however they cannot transfer shares either via private arrangement or by way of gift without explicit RBI approval.

Similar to FIIs, NRIs are allowed to invest in shares and convertible debentures however the maximum limit is restricted to 5% at an individual level and 10% at an aggregate level of the paid- up capital/ paid-up value of each series of debentures of listed Indian companies. The aggregate ceiling of 10% can however be increased to 24% by appropriate resolution approvals by the Board of Directors and notification to the RBI. Although there is an explicit requirement to open a dedicated bank account (similar to FIIs), the type of account varies, with NRIs expected to open an NRE/NRO account. NRIs are also eligible to invest in ETFs for buying and selling purposes. Contrastingly, QFIs are eligible to invest in equity shares through brokers by opening a single non- interest-bearing rupee account with an AD Category- I bank in India. QFIs also have a maximum limit of 5% and 10% of the paid-up capital at an individual level and an aggregate level. A summary of various investor type and the associated product, transaction and limits are summarised as below:

Table 5.9 – FPI and FVCI summary

Type	Products	Transactions	Limits	Specific Account
FII	Shares	- Buy, Sell, Short Sell (borrow shares to sell)	- 10%, - 24% (Total FIIs)	- Foreign Currency/ SNRR account
	CDs	- Buy, Sell	- 10 % (Individual), 24% (Total FIIs)	- Foreign Currency/ SNRR account

	ETDs	- Buy, Sell	- Derivative position limits and Margin requirements.	- SNRR A/c
NRI	Shares	- Buy, Sell, Short Sell – not permitted	- 5% (Individual) 10% (All NRIs)	- NRE/FCNR (B) for Repatriation - NRE/FCNR(B)/NRO for Non-Repatriation.
	CDs	- Buy, Sell	- 5% (Individual) 10% (Aggregate level)	- NRE/FCNR (B) for Repatriation. - NRE/FCNR(B)/NRO for Non-Repatriation.
	ETDs	- Buy, Sell	- Standard foreign investment limits.	- NRO for Non-Repatriation.
QFIs	Shares	- Buy, Sell	- 5% (Individual) - 10% (Aggregate level) extendable to 24% by passing a resolution.	- Non- interest-bearing rupee account

The other mode of foreign investment is through the Foreign Venture Capital Investment (FCVI) mode. FCVI investors can invest in Indian Venture Capital Undertaking (IVCU) or Venture Capital Fund (VCF). As per RBI guidelines, IVCU can be defined as an Indian incorporated entity whose shares are unlisted and VCF can be defined as a fund which has dedicated capital pool to invest in venture capital undertakings. FVCIs can invest in either equity linked instrument, debt, debt instruments, debentures of an IVCU or of a VCF or in units of schemes / funds set up by a VCF through initial public offer or private placement or by way of private arrangement or purchase from third party. Similar to FIIs, NRIs and QFIs under the PIS, FCVI investors are required to open a dedicated account either the Foreign Currency Account and/or Special Non- Resident Rupee Account with a designated branch of an AD Category – I bank. From a foreign investment

perspective, it can be highlighted that there are a couple of avenues for investors to invest in India either via the PIS mode or the FCVI mode however the different requirements for each mode have a potential to complicate investment decisions and eventually increase barriers to entry.

5.8 Conclusion

The chapter focussed on analysing the barriers that impact financial FDI inflow from UK into India. The barriers identified were across four areas: FDI approval route, capital funding requirement, priority sector lending and the foreign branch openings requirements. The FDI approval route mandates a maximum of 74% investment in financial services via the government route and 49% via automatic route. Whilst the automatic route requires no approvals from the government, the government route has additional validation process which adds to the lengthy approval process. The literature review suggested that there was no economic rationale for restricting the cap to 74% and hence should be deregulated. On approval of FDI set up, foreign banks are only allowed to operate in India via a wholly owned subsidiary structure (WOS). The WOS certainly has advantages in terms of the structure due to the ability of the foreign parent to support the subsidiary in terms of crisis. Additionally, WOS has advantages to the economy in case of a financial turmoil. Despite the WOS advantages, there is an opportunity to liberalise the implementation of WOS approvals since as highlighted in the literature there are significant steps to be completed for subsidiary approvals.

On approval of WOS, Foreign banks are required to invest the initial capital amount of Rupees 5 Billion from the parent entity via foreign exchange remittances. The initial amount cannot be funded from the Indian domestic market however foreign banks can raise the outstanding capital amount through non-equity capital instruments in Indian rupees either on a repatriation or non-repatriation basis. The only way to raise non-equity capital is by way of investments in Non-Convertible Debentures (NCDs). The study highlighted that the debenture and corporate credit market is not fully developed in India compared to some of the other western and emerging market countries, which is a barrier for firms to grow into India. Additionally, there are further onerous requirements around branch

opening and priority sector lending policies designed to enhance financial inclusion of the weaker section of the society. Although the aim of financial inclusion is required, the policies proposed and implemented do not increase financial inclusion as cited by the research.

Foreign banks can open branches in India however these branches need to be pre-approved by the RBI and there are mandatory limits on the minimum number of branches to be established in the rural and semi-rural areas. The branch expansion plan should be presented to the RBI on an annual basis and before opening the first branch, foreign firms need to raise a capital amount of USD \$25 million. Opening branches in rural areas has not shown to increase financial inclusion since branch opening policy is addressed at supply side. Further demand side policies need to be implemented to include financial inclusion. In addition, the use to technology to increase banking presence in these rural and semi-rural areas should be considered since post Covid the banking system has moved away from the world of brick and mortar to more digitally enabled system.

Priority sector lending policy mandates that foreign banks above 20 branches must lend to the agricultural sector, micro enterprises, and weaker sections of the society, which the foreign banks have not consistently achieved due to lack of expertise in the agricultural domain. The priority sector policy has been in place since 1972 with certain changes in sectors and limits over the last four decades, however this policy should be revamped to align sectors which are more homogenous as opposed to having varied sectors clubbed together under one priority sector area.

Finally, India's growth in FDI in the last two decades has been significantly, although this still has not met its own potential. In the last few years India has moved from a ranking of sixty three in World Banks ease of doing business category, which is a positive development. Thus, the policy liberalisation till date has certainly helped achieve further progress. In the case of India, with a population of more than 1.2 billion liberalisation of policy cannot be expected to happen overnight which the study acknowledges. Thus, policy liberalisation in areas of FDI inflow, capital funding requirements, priority sector lending and branch opening requirements can help increase India's FDI inflows.

The study has for now focussed on the qualitative elements of the research to analyse the low FDI inflows and the barriers for these low volumes. The next chapter will focus on quantitative aspect of the research to analyse the India's GDP growth based on key variables.

CHAPTER 6: IMPACT OF FDI ON INDIA'S ECONOMIC GROWTH

6.1 Introduction

The earlier chapters focussed on the qualitative aspect of the research to assess the current state of FDI in financial services between UK and India and to analyse the barriers for low volumes in financial services between the two countries. This chapter focusses on the quantitative aspect to analyse the percentage impact on GDP due to FDI inflows in the financial services sector. The chapter is split into three sections. The first section describes the pre-condition checks required for the optimal model selection. This is essential to ensure that the regression model to be selected meets the right criteria and the justification for the model. The second phase of the model is the model estimation using regression techniques. This model is used to estimate the impact of financial services inflows on GDP from a short run and long run perspective. The model output will also provide the adjustment coefficients to indicate the return back to equilibrium. The final section of the chapter will check for goodness of fit conditions to ensure that the model estimates is fit for purpose and the results estimated can be reliable for further use.

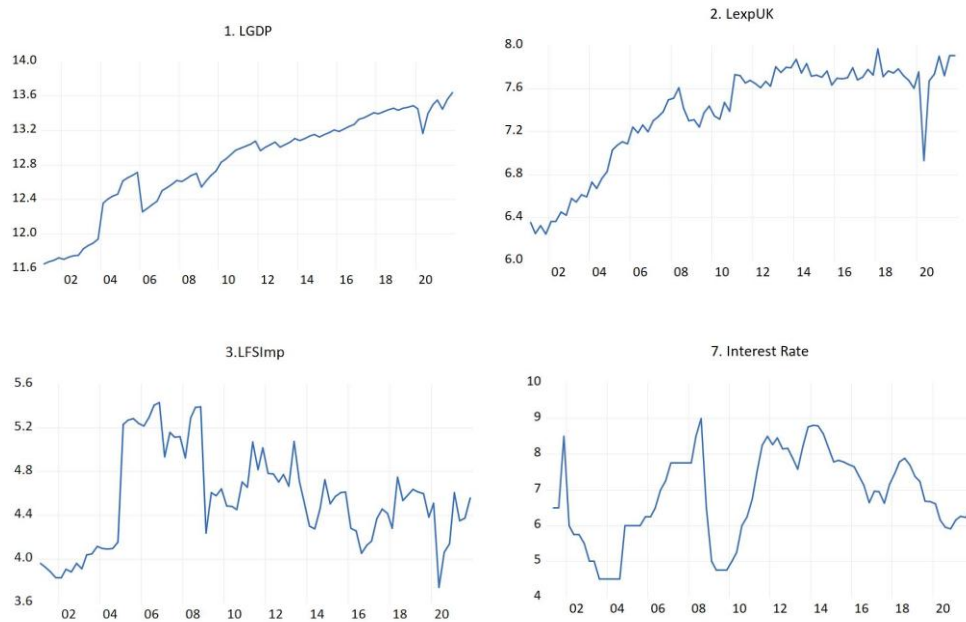
The next section focusses on the pre-estimation checks required for the model selection.

6.2 Pre-Estimation

The Pre estimation checks included three key tests which were conducted for the optimal model selection. This included checking for stationarity of the variables, selecting the trend and constant specification and selecting the optimal lag length for the model.

6.2.1 Stationarity Test

Figure 6.1 – Variables graphs



The graphs above highlighted the potential issue of non-stationarity in the variables indicating that the mean, variance, and autocorrelation of the variables could change over time whilst highlighting that the variable may not have stable or predictable behaviour. Thus, without converting the non-stationary variables to stationary time series using differencing technique, the model may not have predicted accurate results. This is because nonstationary timeseries cannot accurately reflect the underlying data patterns and the past observations of these variables would not be representative of the future values thus providing erroneous results. The differencing technique to convert nonstationary timeseries into stationary timeseries was conducted by unit root testing. Multiple studies conducted till date reiterate the importance of unit root testing. Unit root testing in time series is one of the fundamental steps in the construction of univariate and multivariate econometric models. The presence of unit root test in timeseries data is an important focus of research since the presence of unit root has implications for the selection of the correct econometric

model and for policy makers. The presence of unit root indicates that the time series is nonstationary, and differencing will reduce it to stationarity (Said & Dickey 1984). In case of variables based on time, unit root stationarity test is very important in research. The aim of the econometric test is to determine any trend in the data since financial and economic time series reveal trending or non-stationary behaviour. The testing for unit root is important to ensure that the regression model results are not fabricated. In summary a trended series is a non-stationary series with a unit root, whereas a non-trending series is stationary without unit root. Mushtaq (2011).

A wide range of statistical models including Augmented Dickey Fuller test, Phillips-Perron test, KPSS test, ADF-GLS and Ng Perron were considered to conduct unit root test. The selection of the model for estimating stationarity was based on the objective criteria of which model was best suited to longer series data and the lag lengths. All the econometric models were analysed to select the most appropriate model for this research. The key observation from reviewing the models was that there is no single model that can be considered the most optimal for stationarity test based on lag length criteria and model parameters. Each model had some observed drawback either based on length of time series or lag length. Analysing the ADF test, Montañés & Sansó (2001) highlighted that Dickey-Fuller test tends to reject the unit root null hypothesis, except when the break affects all the periods in a similar manner. Whilst Leybourne, Kim, & Newbold (2005) acknowledged that, Dickey-Fuller test variant is most applied unit root test, they highlighted that better modifications are available. Similarly, study conducted by Pesaran (2015) and Zivot (2006) highlighted that the problem of the ADF test is their dependence on the length of analysed timeseries, which has been acknowledged by the authors Dickey Fuller from the outset (Pesaran, 2015, Zivot 2016, Fuller 1979 as cited in Arltová & Fedorová 2016). An alternative to Augmented Dickey Fuller test, Phillips Perron, considered as a non-parametric test does not require researchers to specify model and lagged parameters in test regression. However, Phillips Perron is mainly designed for long time series testing due to its asymptotic conditions (Arltová & Fedorová 2016). Additionally in situations where the parameter in the autoregressive process (1) is close to one both, ADF and PP tests have shown to have low power and in some instances the invalid null hypothesis is not rejected,

which produces spurious regression results since it concludes the time-series to be non-stationary, when the time series is actually stationary - where the alternative hypothesis applies (Pesaran, 2015, Zivot 2016, Fuller 1979 as cited in Arltová & Fedorová 2016). Further studies have highlighted that the KPSS test also faces a similar drawback. Contrastingly ADF-GLS test eliminates these issues, however Arltová & Fedorová (2016) highlight that ADF-GLS' tests complicated construction and its limited representation in econometric software indicates the difficulty to use the ADF-GLS test. This issue around the limited representation of ADF-GLS test can be addressed by using eViews econometric software, which includes ADF-GLS test in the econometric calculations. In summary, for long time series (approx. 100), the power of the above tests increased with increasing length of time, i.e., ADF and PP test showed best results for smaller values of parameters. The power of both ADF test and PP test for <0.6 equals 1 and declined sharply afterwards. Whereas the power of ADF-GLS test was > 0.8 , when compared with ADF and PP test. (Arltová & Fedorová 2016). Thus, the ADF-GLS test was selected for stationary test based on power of test and its ease of use in eViews econometric model.

Selecting the ADF-GLS test for stationary test, hypothesis for stationary was defined as:

H_0 = unit root is present in the timeseries variable (non-stationary series)

H_A = unit root is not present in the timeseries variable (stationary series)

Under the AD-GLS test, the null hypothesis considered was that unit root was present in the timeseries variable, and the alternate hypotheses considered was that no unit root present in the timeseries variable. Thus, the first step as part of the unit root test was to conduct a regression analysis on all endogenous variables GDP, FDI financial services imports, total exports and interest rate. The variables were regressed and tested for statistical significance. The aim of the test was to analyse whether these constant and trend of each variable had a statistically significant coefficient for these values to be included in the unit root test. The first iteration of the test was conducted at level including both constant and trend. The variables were found to be non-stationary at level. This was based

on the absolute value of t-statistic for each variable being lower than the test critical value at 5%. The table below summarises the findings at levels.

Table 6.1 – Stationarity test at level

Variable	Null Hypothesis	t-statistic	Test critical value (5%)	Result
GDP	LGDP has a unit root	-2.228463	-3.084400	Non-Stationary I (0)
Financial services imp	LFSIMP has a unit root	-2.039979	-3.087600	Non-Stationary I (0)
Exports	LEXPUK has a unit root	-1.585364	-3.087600	Non-Stationary I (0)
Interest Rate	Interest Rate has a unit root	-2.523389	-3.090800	Non-Stationary I (0)

Since the variables were nonstationary at level, the next iteration was performed to analyse the variables at first difference. All variables were seen to be stationary at first difference. This was based on the absolute value of t-statistic for each variable being greater than the test critical value at 5%. The ADF-GLS test concluded stationarity at first difference for all exogenous variables:

Table 6.2 – Stationarity test at first difference

Variable	Null Hypothesis	t-statistic	Test critical value (5%)	Result
GDP	D (LGDP) has a unit root	-9.399669	-3.087600	Stationary I (1)
Financial services imp	D (LFSIMP) has a unit root	-6.700641	-3.094000	Stationary I (1)
Exports	D (LEXPUK) has a unit root	-13.97646	-3.087600	Stationary I (1)
Interest Rate	D (Interest Rate) has a unit root	-8.367934	-3.090800	Stationary I (1)

The next section focusses on the discussions to analyse the constant and trend specifications.

6.2.2 Constant and trend specification

Following on from the stationarity tests, the next step in the methodology was to analyse the constant and trend specification. The purpose was to analyse whether the model should use an unrestricted trend, restricted trend, unrestricted constant, restricted constant, or no trend specification. The unrestricted trend requires a presence of constant and trend in the first difference, i.e., short run part of the model, whilst requiring constant and trend in the cointegrating vector as well, which is the long run part of the model. The application of this specification is mainly for quadratic trends in level or original form, which rules out the possibility of applying this to the proposed research since the trend is not quadratic. The restricted trend specification indicates the presences of only constant in first differences, and constant and trend in cointegrating vector with the trend being stationary. The unrestricted constant indicates presence of only constant in the first difference and cointegrating vector. Restricted constant highlights no constant or trend in the first difference and only constant in the cointegrating vector. Finally, no trend specification, which is the most restrictive form of VECM indicates no constant or trend in first difference or in the cointegrating vector. To summarise the following table was used to shortlist the specifications required for the model.

Table 6.3 – Constant and trend specification

Specification	First difference (short run part of the model)	Cointegrating vector (long run part of the model)
Unrestricted Trend	Constant and Trend	Constant and Trend
Restricted Trend	Constant only	Constant and Trend
Unrestricted constant	Constant	Constant

Restricted constant	None	Constant
No Trend	None	None

A preliminary test to select the correct specification was conducted by reviewing the graphs below. The purpose of this was to shortlist the optimal constant and trend specification to be reviewed for the model estimation. From the graphs in figure 6.1, it was evident that GDP highlighted an upward trend. Thus, given the presence of a trend in the variables, both restricted constant and no trend options were eliminated. This was because neither of the two options include constant or trend in the short run. Further both specifications do not include trend in the long run part of the model. Similarly, the unrestricted trend specification was eliminated since it is applicable only to quadratic equations, whereas the current research focusses only on linear equations. Thus, there were two specifications which needed to be reviewed in further details – unrestricted constant and restricted trend. The first assumption was to start with unrestricted constant, given the trending nature of the GDP. The tests conducted using unrestricted constant highlighted a trend in the cointegrating vector, thus this option was deselected, and a restricted trend specification was selected.

6.2.3 Lag length estimation

The final step of the pre estimate phase was to determine the lag length required by the model. As highlighted by Zang, there are different criteria for choosing optimum lag length including Akaike's information criterion (AIC), the final prediction error (FPE), the Hannan-Quinn information criterion (HQIC), likelihood ratio (LR) test, and Schwarz's Bayesian information criterion (SBIC) and most time series causality studies use only one criterion to select optimum lag order (Zang 2013). Lag length estimation of autoregressive process timeseries is an important econometric exercise in economic studies. Akaike's information criterion (AIC) and final prediction error (FPE) were found to be superior to other lag length criteria for small sample sizes of sixty and below. This was because these criteria minimize the under-estimation chances and maximize the true lag length recovery

(Liew, 2004). Similar study conducted by Asghar & Abid (2007) acknowledged that determining the lag length of an autoregressive process is one of the key steps in defining a model. They study analysed the different lag length criteria Akaike Information Criterion, Schwarz Information Criterion, Hannan-Quinn Criterion, Final Prediction Error, Corrected version of AIC and compared these criteria by using Monte Carlo simulation under different conditions. The three conditions selected were normal errors, under non-normal errors and under structural break. The study highlighted that SIC is the most suitable for larger sample sizes, whilst no criteria can be useful for predicting shocks or regime shifts to the system.

Emerson (2007) reiterated the fact that number of lags must be determined before estimating the long run relationship using Johansen's cointegration estimation. The lag length selection can impact the results of the cointegration analysis significantly and different lag length criteria can lead to a different conclusion. Gredenhoff, & Karlsson's (1999) work on estimating the correct lag length selection in VAR models stressed the importance lag length choice on the results of the VAR model. The study reviewed the various lag length criteria to analyse the sensitivity of lag length estimation procedures using Monte Carlo stimulations. The researchers concluded that AIC and HQ were better suited tests in most cases. Thus, based on the above literature it is evident that there is no one criteria that is universally accepted by all researchers. The criteria depend on the sample size and other model parameters. With this in consideration, the lag length estimation was done using all available models. Three models Final prediction error, Akaike information criterion and Hannan-Quinn information criterion estimated the optimal lags at 2 while Schwarz information criterion estimated the optimal lag at 1.

Table 6.4 – Lag estimation

	FPE	AIC	SIC	HQ
Optimal Lags	2 lags	2 lags	1 lag	2 lags

Thus, for the model selection, a lag length of two was initially selected for Johansen cointegration test and the Vector error correction method. However, the lag length of two

highlighted residual issues in the model, the model demonstrated autocorrelation and heteroskedasticity which could provide spurious test results. Given the autocorrelated results for lag two, the lag length was changed to one in line with SIC's recommended lag length. This lag length resulted in autocorrelation results as well in the model. The results are described in the autocorrelation section under the goodness of fit section (phase three of the model). Similar results of autocorrelated models were observed for the lag length of three. Following a few iterations, a lag length of four was selected for the Johansen cointegration test and the VECM test. Lag length of three evidenced stability model results including the goodness of fit and residual test. To summarise, phase one of the model focussed on estimating three prerequisites for the model a) stationarity test b) constant and trend specification and c) lag length. The below table summarises the results of phase 1.

Table 6.5 – Preconditions summary

Prerequisites	Estimated outcome
Stationarity Test	Stationary variables at first difference
Constant and Trend specification	Restricted Trend
Lag length	4 in VAR (3 in VECM)

6.3 Model Estimation

Phase 2 of the methodology focussed on estimating the correct model for the analysing the impact of financial services imports on GDP. There were two tests that were conducted to analyse the impact:

- Cointegration test: The objective of this test was to estimate the long run relationship between variables.
- Vector error correction method (VECM): The objective of conducting the VECM was to estimate the short run relationship between the variables. The VECM test

also estimated the adjustment parameters which illustrated the tendency of the variables to return to equilibrium in the long run.

6.3.1 Cointegration test

Following on from the pre estimate phase, the next step was to check whether the variables GDP, financial services imports from UK, exports to UK and interest rate were cointegrated. The purpose of the cointegration test was to analyse whether these time series datasets move together and if there is any existence of long run relationship between these variables. The cointegration was conducted on non-stationary time series i.e., at level since as verified in the unit root test, all variables at level were nonstationary. The three test models Engle Granger, Phillips-Ouliaris and Johansen cointegration tests were reviewed to select the most appropriate model for the time series. Engle Granger and Phillips-Ouliaris are both residual based tests, however given the model issues that restrict the application for more than two variables, Johansen cointegration test was selected. Given the Johansen cointegration tests advantage of being designed for a multivariate system, the model has the potential of becoming the benchmark for uncovering cointegration (Poh, & Tan, 1997). Both Johansen cointegration tests i.e., trace test and max-eigen value tests were applied to the timeseries and a final lag of three was selected for estimating the equation(s). A lag of three was selected for the test, since using lags one and two highlighted an issue of autocorrelation which could mean spurious regression results. The cointegration test was conducted using both unrestricted constant and restricted trend specification since at the initial phase of the estimation the optimal specification was not known. These two potentially optimal specifications were used, however the unrestricted constant specification resulted in autocorrelation and heteroskedasticity issues hence was finally discarded. The final cointegration test was conducted using a lag length of three and restricted trend specification. As part of Johansen's cointegration test, the trace test was conducted to calculate cointegration across all the timeseries, with the hypothesis as:

H_0 = No cointegration or cointegrating vector present.

H_A = At least one cointegrating vector present.

Using the above hypothesis, the results of the trace test was reviewed to analyse the number of cointegrating equations. The null hypothesis for the first hypothesis in the sequence was rejected since the trace statistic of 106.2178 was greater than the critical value of 63.87610 at 5% level. However, in the next hypothesis the null hypothesis was not rejected since the trace statistic of 37.53189 was less than the 5% critical value at 42.91525. The outcome of the trace test indicated that there was one cointegrating vector at a 5% level. Summary of the trace test results are illustrated in the table below:

Table 6.6 – Cointegration summary (trace test)

Hypothesis	Trace Statistic	0.05 critical value	Prob	Outcome
H_0 = No cointegration or cointegrating vector present. H_A = At least one cointegrating vector present.	106.2178	63.87610	0.0000	Reject H_0 .
H_0 = One cointegration or cointegrating vector present. H_A = At least two cointegrating vectors present.	37.53189	42.91525	0.1557	Do not reject H_0 .

Following on from the trace test, maximum eigen value test was performed to check the number of cointegrating vectors. The maximum eigenvalue test and alternative hypothesis was:

H_0 = No cointegration or cointegrating vector present.

H_A = One cointegrating vector present.

In case of maximum eigen value test, the null hypothesis for the first hypothesis was rejected as well since the max-eigen statistic of 68.68592 was greater than the critical value of 32.11832 at 5% level. Similar to the trace test, the null hypothesis of the next iteration was not rejected given that the max-eigen statistic of 24.50170 was less than the 5% critical value at 25.82321. The outcome of the maximum eigen value test indicated that there was one cointegrating equation for lag length of three. Summary of the maximum eigen value test is illustrated in the table below:

Table 6.7 – Cointegration summary (eigen value test)

Hypothesis	Max Eigen Statistic	0.05 critical value	Prob	Outcome
H_0 = No cointegration or cointegrating vector present. H_A = One cointegrating vector present.	68.68592	32.11832	0.0000	Reject H_0 .
H_0 = One cointegration or cointegrating vector present. H_A = Two cointegrating vectors present.	24.50170	25.82321	0.0739	Do not reject H_0 .

Thus, both Johansen's trace test and maximum eigen value tests denoted one cointegrating vector at 5% level. In case of differing results between trace test and maximum eigen value tests, both results would have been selected and estimates would have been performed using both cointegrating vectors. However, this was not required in this instance due to

identical results from both tests. Using the cointegration vector, the vector error correction model was used to estimate the impact of financial services inflows.

6.3.2 Vector error correction method

Vector error correction method, which is an extension of the vector autoregression (VAR) was selected since it can deal with multiple equations with several endogenous and exogenous variables. VECM was used to identify the long run relationship, the short run relationship and the adjustment parameters. Long run relationship indicated that the variables GDP, financial services imports, exports, and interest rate move together over time with a stable distance between them. In the short run, these variables might diverge from the equilibrium, whilst the adjustment parameter estimated the tendency for these variables to return to equilibrium in the long run. The VECM model was estimated using 3 lags in VECM (4 lags in VAR) and using one cointegrating vector – as discussed in the pre estimates section. The first iteration of the VECM model was estimated using both unrestricted constant and restricted trend specifications, since at the initiation of the model estimate, there was no clear indication of the optimal specification. The goodness of fit test, which was part of phase three provided the stationarity of the cointegrating equations which concluded that the unrestricted constant was not optimal due to autocorrelation and heteroskedasticity issues. Thus, following on from this post check the restricted trend specification was applied to the VECM. To summarise, the final estimate was conducted using 3 lags in VECM, one cointegrated vector and restricted trend specification. The below results highlight long run cointegrating relationship, short run impact and adjustment coefficients between GDP and financial services imports, exports, and interest rates.

Table 6.8 – Long run coefficients

	Coefficients	Standard Error	t-statistic
LGDP	1		
Lfsimp	- 0.125376	0.05625	-2.22894

Lexp	- 0.980982	0.13412	-7.31421
Interest rate	0.085976	0.01252	6.86661
Trend	- 0.013822	0.00224	-6.16435
Constant	- 4.994809		

Table 6.9 – Short run coefficients for Δ LGDP

Explanatory variables	Coefficients	Standard Error	t-statistic
Δ LGDP _{t-1}	0.196404	0.12121	1.62041
Δ Lfsimp _{t-1}	-0.068373	0.04575	-1.49436
Δ Lfsimp _{t-2}	-0.050701	0.04909	-1.03272
Δ Lfsimp _{t-3}	-0.089903	0.04055	-2.21682
Δ Lexp _{t-1}	-0.567376	0.11366	-4.99198
Δ Lexp _{t-2}	-0.451657	0.11988	-3.76768
Δ Lexp _{t-3}	-0.310532	0.09104	-3.41109
Δ interest rate _{t-1}	0.082884	0.01966	4.21593
Δ interest rate _{t-2}	0.038004	0.01762	2.15682
RI	1.777384	0.28847	6.16135
WGI	0.009556	0.00334	2.85778
CC	-0.005172	0.00387	-1.33561

Table 6.10 – Short run coefficients for Δ Lfsimp

Explanatory variables	Coefficients	Standard Error	t-statistic
Δ LGDP _{t-1}	-0.475280	0.34435	-1.38022
Δ LGDP _{t-2}	-0.457307	0.34441	-1.32778
Δ LGDP _{t-3}	-0.049327	0.33785	-0.14601

$\Delta \text{Lfsimp}_{t-1}$	-0.486863	0.12999	-3.74545
$\Delta \text{Lfsimp}_{t-2}$	-0.140197	0.13948	-1.00515
$\Delta \text{Lfsimp}_{t-3}$	-0.281608	0.11522	-2.44415
RI	0.381571	0.81956	0.46558
WGI	-0.004078	0.00950	-0.42928
CC	0.017315	0.01100	1.57369

Table 6.11 – Adjustment coefficients

Equation	Coefficients	Standard Error	t-statistic
ΔLGDP	-0.680648	0.11981	-5.68112
ΔLfsimp	0.414710	0.34038	1.21838
ΔLexp	0.407135	0.21577	1.88689
$\Delta \text{interest rate}$	-0.191026	0.71382	-0.26761

The VECM model estimated is as per below:

$$\Delta \mathbf{Z}_t = \mathbf{v} + \alpha(\beta \mathbf{Z}_{t-1} + \gamma t + \varepsilon) + \phi_1 \Delta \mathbf{Z}_{t-1} + \phi_2 \Delta \mathbf{Z}_{t-2} + \phi_3 \Delta \mathbf{Z}_{t-3} + \delta_1 \text{RI} + \delta_2 \text{WGI} + \delta_3 \text{CC} + \mu t$$

where:

$$\Delta \mathbf{Z}_t = \text{Dependent variables/Endogenous variables} = \begin{bmatrix} \Delta \text{LGDP} \\ \Delta \text{Lfsimp} \\ \Delta \text{Lexp} \\ \Delta \text{interest rate} \end{bmatrix}$$

$$\mathbf{v} = \text{constant for short run in the VECM equation} = \begin{bmatrix} v_1 \\ v_2 \\ v_3 \\ v_4 \end{bmatrix} = \begin{bmatrix} -0.737233 \\ -0.675099 \\ 0.297851 \\ 0.348727 \end{bmatrix}$$

$$\alpha = \text{adjustment parameter} = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \end{bmatrix} = \begin{bmatrix} -0.680648 \\ 0.414710 \\ 0.407135 \\ -0.191026 \end{bmatrix}$$

$$\phi_1 = \text{lag 1 coefficients} = \begin{bmatrix} \phi_{1,1} & \phi_{1,4} & \phi_{1,7} & \phi_{1,10} \\ \phi_{2,1} & \phi_{2,4} & \phi_{2,7} & \phi_{2,10} \\ \phi_{3,1} & \phi_{3,4} & \phi_{3,7} & \phi_{3,10} \\ \phi_{4,1} & \phi_{4,4} & \phi_{4,7} & \phi_{4,10} \end{bmatrix}$$

$$= \begin{bmatrix} 0.196404 & -0.068373 & -0.567376 & 0.082884 \\ -0.475280 & -0.486863 & 0.821751 & 0.170840 \\ -0.036059 & -0.023638 & -0.356325 & 0.021763 \\ -0.366801 & -0.278490 & 1.152265 & 0.246380 \end{bmatrix}$$

$$\Delta \mathbf{Z}_{t-1} = \begin{bmatrix} \Delta \text{LGDP}_{t-1} \\ \Delta \text{Lfsimp}_{t-1} \\ \Delta \text{Lexp}_{t-1} \\ \Delta \text{interest rate}_{t-1} \end{bmatrix}$$

$$\phi_2 = \text{lag 2 coefficients} = \begin{bmatrix} \phi_{1,2} & \phi_{1,5} & \phi_{1,8} & \phi_{1,11} \\ \phi_{2,2} & \phi_{2,5} & \phi_{2,8} & \phi_{2,11} \\ \phi_{3,2} & \phi_{3,5} & \phi_{3,8} & \phi_{3,11} \\ \phi_{4,2} & \phi_{4,5} & \phi_{4,8} & \phi_{4,11} \end{bmatrix}$$

$$= \begin{bmatrix} 0.074820 & -0.050701 & -0.451657 & 0.038004 \\ -0.457307 & -0.140197 & 0.466165 & 0.012833 \\ -0.294896 & -0.009404 & -0.006030 & -0.008102 \\ -0.499427 & -0.204228 & 1.145987 & 0.003627 \end{bmatrix}$$

$$\Delta \mathbf{Z}_{t-2} = \begin{bmatrix} \Delta \text{LGDP}_{t-2} \\ \Delta \text{Lfsimp}_{t-2} \\ \Delta \text{Lexp}_{t-2} \\ \Delta \text{interest rate}_{t-2} \end{bmatrix}$$

$$\begin{aligned}\boldsymbol{\phi}_3 &= \text{lag 3 coefficients} = \begin{bmatrix} \phi_{1,3} & \phi_{1,6} & \phi_{1,9} & \phi_{1,12} \\ \phi_{2,3} & \phi_{2,6} & \phi_{2,9} & \phi_{2,12} \\ \phi_{3,3} & \phi_{3,6} & \phi_{3,9} & \phi_{3,12} \\ \phi_{4,3} & \phi_{4,6} & \phi_{4,9} & \phi_{4,12} \end{bmatrix} \\ &= \begin{bmatrix} 0.138966 & -0.089903 & -0.310532 & 0.027692 \\ -0.049327 & -0.281608 & -0.008385 & -0.011253 \\ -0.109427 & -0.028835 & -0.067263 & 0.007189 \\ 1.080288 & -0.066293 & 0.244759 & 0.034668 \end{bmatrix}\end{aligned}$$

$$\Delta \mathbf{Z}_{t-3} = \begin{bmatrix} \Delta \text{LGDP}_{t-3} \\ \Delta \text{Lfsimp}_{t-3} \\ \Delta \text{Lexp}_{t-3} \\ \Delta \text{interest rate}_{t-3} \end{bmatrix}$$

$$\boldsymbol{\delta}_1 = \text{restrictiveness index coefficient} = \begin{bmatrix} 1.777384 \\ 0.381571 \\ -0.555850 \\ -0.004600 \end{bmatrix}$$

$$\boldsymbol{\delta}_2 = \text{WGI coefficient} = \begin{bmatrix} 0.009556 \\ -0.004078 \\ 0.007759 \\ 0.017994 \end{bmatrix}$$

$$\boldsymbol{\delta}_3 = \text{control of corruption coefficient} = \begin{bmatrix} -0.005172 \\ 0.017315 \\ -0.009238 \\ -0.026794 \end{bmatrix}$$

$$\boldsymbol{\mu}_t = \text{Disturbance/error term}$$

The component $\boldsymbol{\beta}\mathbf{Z}_{t-1} + \boldsymbol{\gamma}t + \boldsymbol{\varepsilon}$ in VECM represents the cointegrating vector, where:

$$\beta = \text{long run coefficients } \beta = \begin{bmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_4 \end{bmatrix} = \begin{bmatrix} 1 \\ -0.125376 \\ -0.980982 \\ 0.085976 \end{bmatrix}$$

$$Z_{t-1} = \begin{bmatrix} LGDP_{t-1} \\ Lfsimp_{t-1} \\ Lexp_{t-1} \\ \text{interest rate}_{t-1} \end{bmatrix}$$

$$\gamma = \text{trend coefficient} = 0.013822$$

$$\varepsilon = \text{value of constant} = 4.994809$$

In equation form, the above VECM can be represented as:

$$\begin{aligned} \Delta LGDP = & v_1 + \alpha_1(\beta_1 LGDP_{t-1} + \beta_2 Lfsimp_{t-1} + \beta_3 Lexp_{t-1} + \beta_4 \text{interest rate}_{t-1} + \\ & \gamma t + \varepsilon) + \phi_{1,1} \Delta LGDP_{t-1} + \phi_{1,2} \Delta LGDP_{t-2} + \\ & \phi_{1,3} \Delta LGDP_{t-3} + \phi_{1,4} \Delta Lfsimp_{t-1} + \phi_{1,5} \Delta Lfsimp_{t-2} + \phi_{1,6} \Delta Lfsimp_{t-3} + \\ & \phi_{1,7} \Delta Lexp_{t-1} + \phi_{1,8} \Delta \text{exports}_{t-2} + \phi_{1,9} \Delta Lexp_{t-3} + \phi_{1,10} \Delta \text{interest rate}_{t-1} + \\ & \phi_{1,11} \Delta \text{interest rate}_{t-2} + \phi_{1,12} \Delta \text{interest rate}_{t-3} + \delta_{1,1} RI + \delta_{1,2} WGI + \delta_{1,3} CC + \\ & \mu_1 \end{aligned}$$

$$\begin{aligned} \Delta Lfsimp = & v_2 + \alpha_2(\beta_1 LGDP_{t-1} + \beta_2 Lfsimp_{t-1} + \beta_3 Lexp_{t-1} + \beta_4 \text{interest rate}_{t-1} + \\ & \gamma t + \varepsilon) + \phi_{2,1} \Delta LGDP_{t-1} + \phi_{2,2} \Delta LGDP_{t-2} + \\ & \phi_{2,3} \Delta LGDP_{t-3} + \phi_{2,4} \Delta Lfsimp_{t-1} + \phi_{2,5} \Delta Lfsimp_{t-2} + \phi_{2,6} \Delta Lfsimp_{t-3} + \\ & \phi_{2,7} \Delta Lexp_{t-1} + \phi_{2,8} \Delta Lexp_{t-2} + \phi_{2,9} \Delta Lexp_{t-3} + \phi_{2,10} \Delta \text{interest rate}_{t-1} + \\ & \phi_{2,11} \Delta \text{interest rate}_{t-2} + \phi_{2,12} \Delta \text{interest rate}_{t-3} + \delta_{2,1} RI + \delta_{2,2} WGI + \delta_{2,3} CC + \\ & \mu_2 \end{aligned}$$

$$\begin{aligned} \Delta Lexp = & v_3 + \alpha_3(\beta_1 LGDP_{t-1} + \beta_2 Lfsimp_{t-1} + \beta_3 Lexp_{t-1} + \beta_4 \text{interest rate}_{t-1} + \\ & \gamma t + \varepsilon) + \phi_{3,1} \Delta LGDP_{t-1} + \phi_{3,2} \Delta LGDP_{t-2} + \\ & \phi_{3,3} \Delta LGDP_{t-3} + \phi_{3,4} \Delta Lfsimp_{t-1} + \phi_{3,5} \Delta Lfsimp_{t-2} + \phi_{3,6} \Delta Lfsimp_{t-3} + \\ & \phi_{3,7} \Delta Lexp_{t-1} + \phi_{3,8} \Delta Lexp_{t-2} + \phi_{3,9} \Delta Lexp_{t-3} + \phi_{3,10} \Delta \text{interest rate}_{t-1} + \\ & \phi_{3,11} \Delta \text{interest rate}_{t-2} + \phi_{3,12} \Delta \text{interest rate}_{t-3} + \delta_{3,1} RI + \delta_{3,2} WGI + \delta_{3,3} CC + \\ & \mu_3 \end{aligned}$$

$$\begin{aligned} \Delta \text{interest rate} = & v_4 + \alpha_4(\beta_1 LGDP_{t-1} + \beta_2 Lfsimp_{t-1} + \beta_3 Lexp_{t-1} + \\ & \beta_4 \text{interest rate}_{t-1} + \gamma t + \varepsilon) + \phi_{4,1} \Delta LGDP_{t-1} + \phi_{4,2} \Delta LGDP_{t-2} + \end{aligned}$$

$$\begin{aligned} & \phi_{4,3} \Delta \text{LGDP}_{t-3} + \phi_{4,4} \Delta \text{Lfsimp}_{t-1} + \phi_{4,5} \Delta \text{Lfsimp}_{t-2} + \phi_{4,6} \Delta \text{Lfsimp}_{t-3} + \\ & \phi_{4,7} \Delta \text{Lexp}_{t-1} + \phi_{4,8} \Delta \text{Lexp}_{t-2} + \phi_{4,9} \Delta \text{Lexp}_{t-3} + \phi_{4,10} \Delta \text{interest rate}_{t-1} + \\ & \phi_{4,11} \Delta \text{interest rate}_{t-2} + \phi_{4,12} \Delta \text{interest rate}_{t-3} + \delta_{4,1} \text{RI} + \delta_{4,2} \text{WGI} + \delta_{4,3} \text{CC} + \\ & \mu_4 \end{aligned}$$

ΔLGDP , ΔLfsimp , ΔLexp and $\Delta \text{interest rate}$ represent the change in the variables in the short run between 2 consecutive time periods t and $t-1$. ΔLGDP , ΔLfsimp , ΔLexp and $\Delta \text{interest rate}$ were dependent on the adjustment that the variables will make in the short run, i.e. the adjustment coefficients α_1 α_2 α_3 and α_4 , the cointegrating vector $(\beta_1 \text{LGDP}_{t-1} + \beta_2 \text{Lfsimp}_{t-1} + \beta_3 \text{Lexp}_{t-1} + \beta_4 \text{interest rate}_{t-1} + \gamma t + \varepsilon)$. ΔLGDP , ΔLfsimp , ΔLexp and $\Delta \text{interest rate}$ were also dependent on the previous lags of short run variables and the exogenous variables RI, WGI and CC.

The equation $\beta_1 \text{LGDP}_{t-1} + \beta_2 \text{Lfsimp}_{t-1} + \beta_3 \text{Lexp}_{t-1} + \beta_4 \text{interest rate}_{t-1} + \gamma t + \varepsilon$ represents the cointegrating vector for ΔLGDP , ΔLfsimp , ΔLexp and $\Delta \text{interest rate}$. β_1 was restricted to one due to Johansen normalization for the VECM model. Since $\beta_1 = 1$ the cointegrating vector can be rewritten as:

$$\begin{aligned} & \text{LGDP}_{t-1} - 0.125376 \text{Lfsimp}_{t-1} - 0.980982 \text{Lexp}_{t-1} + 0.085976 \text{interest rate}_{t-1} \\ & + \gamma t + 4.994809 \end{aligned}$$

The above cointegration vector represented long run equilibrium between LGDP, Lfsimp, Lexp and interest rate. However, in the short run there were some errors/deviations, which highlighted that ΔLGDP , ΔLfsimp , ΔLexp and $\Delta \text{interest rate}$ did not remain at their long run equilibrium. Thus, the short run disequilibrium in any given time period is indicated as below:

$$\text{LGDP}_t + \beta_2 \text{Lfsimp}_t + \beta_3 \text{Lexp}_t + \beta_4 \text{interest rate}_t + \gamma t + \varepsilon = \text{error}$$

Expanding the short run disequilibrium equation to include values of β_4 provides the following results:

$$LGDP_t - 0.125376 Lfsimp_t - 0.980982 Lexp_t + 0.085976 \text{ interest rate}_t + \gamma t + \varepsilon = \text{error}$$

The term error was the short run disequilibrium from the cointegrating relationship. Based on the above short run equation, it was deduced that if:

$$LGDP_t - 0.125376 Lfsimp_t - 0.980982 Lexp_t + 0.085976 \text{ interest rate}_t + \gamma t + \varepsilon > 0, \text{ then } GDP_t \text{ was above its long run equilibrium value}$$

Similarly, if the value of the short run equation was:

$$LGDP_t - 0.125376 Lfsimp_t - 0.980982 Lexp_t + 0.085976 \text{ interest rate}_t + \gamma t + \varepsilon < 0, \text{ then } GDP_t \text{ was below its long run equilibrium value.}$$

Based on the above equations, the values of $LGDP_t$ $Lfsimp_t$ $Lexp_t$ interest rate_t were predicted to deviate up or down from the equilibrium position. The deviation would be based on the error values, i.e., the values of $Lfsimp_t$, $Lexp_t$ would be below its equilibrium value if $LGDP_t$ was higher than its equilibrium and the values of $Lfsimp_t$ $Lexp_t$ would be above its equilibrium value if $LGDP_t$ was below its equilibrium value. This is because if the value of $LGDP$ is higher than its equilibrium values, then the values of $Lfsimp_t$ $Lexp_t$ need to fall by that amount below equilibrium to achieve a return back to equilibrium. Conversely the value of interest_rate_t would be above its equilibrium value if $LGDP_t$ was above its equilibrium value. Thus the interest_rate_t value will need to higher than equilibrium in line with the increase in GDP 's value to achieve equilibrium. Thus, the model estimated that these variables were cointegrated in the long run, which means these variables would return to equilibrium in the long run.

The short run coefficients for $\Delta LGDP$ and $\Delta Lfsimp$ highlighted in tables 6.9 and 6.10 respectively indicated the impact of the lags of the explanatory variables on $\Delta LGDP$ and $\Delta Lfsimp$. The change in financial services inflows, i.e. $\Delta Lfsimp$ in the previous three

lags $\Delta \text{Lfsimp}_{t-1}$, $\Delta \text{Lfsimp}_{t-2}$, $\Delta \text{Lfsimp}_{t-3}$ had a negative impact on the change in GDP i.e. ΔLGDP , although only $\Delta \text{Lfsimp}_{t-3}$ had a statistically significant impact on ΔLGDP . Similarly, in case of exports change in exports for the last three lags ΔLexp_{t-1} , ΔLexp_{t-2} , ΔLexp_{t-3} had a negative impact on ΔLGDP . The negative impact for all three lags ΔLexp_{t-1} , ΔLexp_{t-2} , ΔLexp_{t-3} was statistically significant. In case of interest rate, only the lag one and two of the change in interest rate $\Delta \text{interest rate}_{t-1}$, $\Delta \text{interest rate}_{t-2}$ had a statistically significant impact on ΔLGDP . The final three variables, restrictiveness index (RI), quality of regulatory governance (WGI)) all had statistically significant impact on ΔLGDP , whereas control of corruption (CC) had a statistically insignificant impact on ΔLGDP . From a financial services inflow's perspective, the change in the financial services inflow for lag one and three, i.e. $\Delta \text{Lfsimp}_{t-1}$ and $\Delta \text{Lfsimp}_{t-3}$ had a statistically significant and negative impact on the change in financial services ΔLfsimp , whereas the change in financial services inflows for lag two $\Delta \text{Lfsimp}_{t-2}$ had a statistically insignificant impact on ΔLfsimp . The final three explanatory variables, restrictiveness index (RI), quality of regulatory governance (WGI) and control of corruption (CC) all had statistically insignificant impact on ΔLfsimp . The other variables, i.e., change in exports ΔLexp_{t-1} , ΔLexp_{t-2} , ΔLexp_{t-3} and the change in interest rate i.e., $\Delta \text{interest rate}_{t-1}$, $\Delta \text{interest rate}_{t-2}$, $\Delta \text{interest rate}_{t-3}$ were estimated for the change in financial services inflows ΔLfsimp however they were not statistically significant in all instances and were not directly relevant to the study hence have been added to the appendix.

The convergence of the variables LGDP_t Lfsimp_t Lexp_t interest rate_t back to the equilibrium value was determined by the adjustment coefficients. The adjustment

coefficients were highlighted with the vector $\begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \end{bmatrix}$. These coefficients indicated the

convergence speed towards long run equilibrium, i.e., indicated the proportion by which the disequilibrium would be corrected when the LGDP_t Lfsimp_t Lexp_t interest rate_t deviated from the long run equilibrium. In order for the VECM model to be correctly specified and to ensure that the long run equilibrium is restored, the magnitude and the signs of the adjustment coefficients were considered important. The effect of the

adjustment coefficients and the cointegrating vector on ΔLGDP , ΔLfsimp , ΔLexp and $\Delta\text{interest rate}$ was indicated as per below for each equation/variable:

For ΔLGDP : $\alpha_1(\beta_1\text{LGDP}_{t-1} + \beta_2\text{Lfsimp}_{t-1} + \beta_3\text{Lexp}_{t-1} + \beta_3\text{interest rate}_{t-1} + \gamma t + \varepsilon)$

For ΔLfsimp : $\alpha_2(\beta_1\text{LGDP}_{t-1} + \beta_2\text{Lfsimp}_{t-1} + \beta_3\text{Lexp}_{t-1} + \beta_3\text{interest rate}_{t-1} + \gamma t + \varepsilon)$

For ΔLexp : $\alpha_3(\beta_1\text{LGDP}_{t-1} + \beta_2\text{Lfsimp}_{t-1} + \beta_3\text{Lexp}_{t-1} + \beta_3\text{interest rate}_{t-1} + \gamma t + \varepsilon)$

For $\Delta\text{interest rate}$: $\alpha_4(\beta_1\text{LGDP}_{t-1} + \beta_2\text{Lfsimp}_{t-1} + \beta_3\text{Lexp}_{t-1} + \beta_3\text{interest rate}_{t-1} + \gamma t + \varepsilon)$

To ensure convergence, it was essential that signs the were correct for adjustment coefficient. The adjustment coefficient signs on the cointegrating vector coefficients signs, were deduced as below:

For α_1 , β_1 coefficient was restricted to 1. Given the convergence condition:

$$\frac{\partial \Delta\text{LGDP}_t}{\partial \text{LGDP}_{t-1}} < 0, \text{ thus } \alpha_1 \text{ should be } < 0$$

which indicated that α_1 should be negative and significant.

Similarly for the other coefficients $\alpha_1, \alpha_2, \alpha_3$, the conditions were highlighted as below.

For α_2 , β_2 coefficient was -0.125376. Given the convergence condition:

$$\frac{\partial \Delta\text{Lfsimp}_t}{\partial \Delta\text{Lfsimp}_{t-1}} < 0, \text{ thus } \alpha_2 \beta_2 \text{ should be } < 0.$$

Since β_2 was negative, α_2 was deduced to be positive and significant to satisfy the convergence conditions.

For α_3, β_3 coefficient was -0.980982. The convergence condition was

$$\frac{\partial \Delta \text{Lexp}_t}{\partial \Delta \text{Lexp}_{t-1}} < 0, \text{ thus } \alpha_3 \beta_3 \text{ should be } < 0$$

Since β_3 was negative, α_3 was deduced to be positive and significant to satisfy the convergence conditions.

Finally, for α_4, β_4 coefficient was 0.085976. The convergence condition was

$$\frac{\partial \Delta \text{interest rate}_t}{\partial \text{interest rate}_{t-1}} < 0, \text{ thus } \alpha_4 \beta_4 \text{ should be } < 0$$

Since β_4 was positive, α_4 was deduced to be negative and significant to satisfy the convergence conditions.

In case of GDP, the model highlighted that if GDP was above its equilibrium value, the negative adjustment coefficient would ensure that the GDP value would decrease in the next time period. If GDP is above equilibrium ($\text{LGDP}_t + \beta_2 \text{Lfsimp}_t + \beta_3 \text{Lexp}_t + \beta_3 \text{interest rate}_t + \gamma t + \varepsilon$) is positive and α_1 is negative. Thus $\alpha_1 (\text{LGDP}_t + \beta_2 \text{Lfsimp}_t + \beta_3 \text{Lexp}_t + \beta_3 \text{interest rate}_t + \gamma t + \varepsilon)$ was negative overall, thus deducing that ΔLGDP was negative and will be converged back to equilibrium. If the GDP is above equilibrium, it means that the cointegrating vector will be positive and the adjustment parameter is negative, thus the overall effect would be negative, and GDP would fall.

In case of Lfsimp and Lexp, given that α_2 was positive, i.e. 0.414710, the overall equation $\alpha_1 (\text{LGDP}_t + \beta_2 \text{Lfsimp}_t + \beta_3 \text{Lexp}_t + \beta_3 \text{interest rate}_t + \gamma t + \varepsilon)$ was positive, thus deducing that ΔLfsimp was positive. α_3 was positive as well, thus deducing the overall equation to be positive with $\Delta \text{exports}$ positive as well. If the GDP is above equilibrium, both Lfsimp and Lexp would be below equilibrium and the cointegrating

vector would be positive. Since GDP was above equilibrium and the adjustment parameters for both Lfsimp and Lexp were positive, the overall effect is positive. Thus, Lfsimp and Lexp will increase and converge to long run equilibrium.

Given that α_4 was negative, the overall equation α_4 ($\text{LGDP}_t + \beta_2 \text{Lfsimp}_t + \beta_3 \text{Lexp}_t + \beta_3 \text{interest rate}_t + \gamma t + \varepsilon$) was negative thus deducing that $\Delta \text{interest rate}$ was negative. If LGDP was above equilibrium, the interest rate would be above equilibrium, and the cointegrating vector would be positive. The adjustment parameter for interest rate was negative, thus the overall effect would be negative and interest rate will fall and converge back to equilibrium.

Additionally, if the disequilibrium was negative and GDP was below the long run equilibrium value, the negative coefficient value of α_1 would ensure that the overall effect was positive, highlighting that convergence toward equilibrium would happen automatically. The same mechanism would work for the variables Lfsimp, Lexp, interest rate and the associated change in variables - ΔLGDP , ΔLfsimp , ΔLexp and $\Delta \text{interest rate}$ respectively. The table below provides a summary of the adjustment coefficients.

Table 6.12 – Adjustment coefficients summary

Cointegrating equation	GDP	Adjustment coefficient	Change in variable
$(\text{LGDP}_t + \beta_2 \text{Lfsimp}_t + \beta_3 \text{Lexp}_t + \beta_3 \text{interest rate}_t + \gamma t + \varepsilon = \textit{positive})$	LGDP – above eq*	$\alpha_1 = -0.680648$	$\Delta \text{LGDP} = \text{negative}$
	Lfsimp – below eq	$\alpha_2 = 0.414710$	$\Delta \text{Lfsimp} = \text{positive}$
	Lexp – below eq	$\alpha_3 = 0.407135$	$\Delta \text{Lexports} = \text{positive}$
	Interest rate – above eq	$\alpha_4 = -0.191026$	$\Delta \text{interest rate} = \text{negative}$
$(\text{LGDP}_t + \beta_2 \text{Lfsimp}_t +$	LGDP – below eq	$\alpha_1 = -0.680648$	$\Delta \text{LGDP} = \text{positive}$
	Lfsimp – above eq	$\alpha_2 = 0.414710$	$\Delta \text{Lfsimp} = \text{negative}$

$\beta_3 \text{Lexp}_t +$ $\beta_3 \text{interest rate}_t +$ $\gamma t + \varepsilon = \textit{negative}$	Lexp – above eq	$\alpha_3 = 0.407135$	$\Delta \text{Lexports} =$ negative
	Int rate – below eq	$\alpha_4 = -0.191026$	$\Delta \text{interest rate} =$ positive

* *equilibrium*

Thus, to summarise the results, in case of long run estimates, a 1% rise in financial services imports and exports positively increases the GDP by 0.12% and 0.98% respectively, whilst a 1% rise in interest rate reduces the GDP by 0.08%. In case of short run estimates, $\Delta \text{Lfsimp}_{t-3}$, ΔLexp_{t-1} , ΔLexp_{t-2} , ΔLexp_{t-3} , $\Delta \text{interest rate}_{t-1}$, $\Delta \text{interest rate}_{t-2}$ had a negative impact on ΔLGDP . The adjustment coefficients highlighted that in case of GDP, approximately 68% of the disequilibrium will be corrected in the next time period whereas for Lfsimp, approximately 41% of the disequilibrium will be corrected in the next time period, although this is not statistically significant at 5%. For Lexp, approximately 40% of the disequilibrium will be corrected in the next time period, whereas in case of interest rate approximately 19% of the disequilibrium will be corrected in the next time period, however the results were not statistically significant in case of both Lexp and interest rate.

6.4 Goodness of fit & Specification Test

Following on from phase two of the methodology, the next phase of the methodology verified the proposed model for the goodness of fit tests. The purpose of this phase was to check that the model satisfied all the relevant conditions to produce reliable results. There were six tests applied under the goodness of fit phase. These included a) autocorrelation b) heteroskedasticity Test c) eigen value stability test d) stationarity test of the cointegrating vector e) normality test and finally f) arch effect and multivariate/joint test. Each of the tests are described in the section below.

The presence of Autocorrelation in the data can cause the statistical tests to generate erroneous results, which could impact the thesis. Thus, autocorrelation test was conducted to avoid any erroneous calculations. There were five autocorrelation tests that were considered: Lagrange Multiplier (LM) test, Durbin's *M* test, Durbin's *H* test, Breusch-Godfrey (BGF) test and Ljung and Box (*Q*). Islam & Erum (2019) compared the four tests in terms of their power for different sample sizes, autocorrelation levels and significance. The studies conducted by Islam & Erum (2019) to compare the tests in terms of power revealed that Durbin *M* test is the optimal option for hypothesis testing of no autocorrelation for all sample sizes. Power comparison revealed that Durbin *M* test was the best option for testing the hypothesis of no autocorrelation in dynamic models for all sample sizes, whereas Breusch-Godfrey's test was at times had slightly better performance than Durbin's *M* test in smaller sample sizes. Durbin *H* and the Ljung and Box *Q* were the least optimal tests in terms of power performance. LM test although slightly better for larger sample sizes, is used when it is easier to estimate the restricted model. Given that there is no autocorrelation test devoid of any side effects, the LM test was considered the most suitable for the purpose of this research and thus used in the study. In line with this, there were three autocorrelation tests that were conducted as part of phase three. The first two tests were conducted using lags one and two respectively. As highlighted in the section on lag length estimation, the proposed optimal lags were either one under the SIC model or two lags under FPE, AIC and HQ models. Thus, phases one and two were conducted using lag one, which produced desirable model results. The results for autocorrelation with lags one, using the hypothesis below are discussed:

H_0 = No serial correlation at lag *n*.

H_A = Serial correlation at lag *n*.

Table 6.13 – Autocorrelation results

Lag	Prob (lag 1)	Prob (lag 2)	Prob (lag 3)
1	0.0013	0.0014	0.2360

2	0.0113	0.4495	0.6938
3	0.4344	0.0324	0.6498
4	0.5035	0.2581	0.1001
5	0.7808	0.5677	0.4123
6	0.9350	0.7682	0.9538
7	0.4695	0.3462	0.5609
8	0.3746	0.2626	0.4128

The results demonstrated autocorrelation at lags one, hence the null hypothesis was rejected, and serial correlation was identified at lag one. Using similar approach, autocorrelation test was conducted using two lags since phases one and two estimated the model using two lags, which also produced desirable model results. Similarly using two lags, the LM test highlighted autocorrelation at lag one, thus rejecting the null hypothesis. Serial correlation was identified at lag one. Given that both lags one and two identified autocorrelation, both the lags had to be discarded since the model results using lags one and two could not be considered reliable. The final autocorrelation test was conducted using lag three. Using lag three, there was no autocorrelation detected thus accepting the null hypothesis. Thus lag three was considered the optimal lag length for the model estimation phase and all model calculations were conducted using lag three.

Following on from the LM autocorrelation test which provided optimal results for the model verification, the next goodness of fit model check was to analyse the variance of the standard errors. A condition of the model to be optimal was to ensure that error variance was homoscedastic and there no element of heteroskedasticity present in the model. Heteroscedasticity can be caused by specific factors such as model misspecification, lack of data transformation or due to outlier conditions. The violation of homoskedasticity assumptions leads to heteroskedasticity. Test such as Breusch-Pagan LM test, White's test, Glesjer LM test, Harvey-Godfrey LM test, Park LM test and Goldfeld-Quand test are used for testing for heteroskedasticity Birau (2012). Additionally, variation of error terms can be analysed by plotting the graphs of the data and variances to check for non-constant observations. However, for the purpose of this research, the VEC residual

heteroskedasticity test was applied to check for any heteroskedastic elements. The data observed that the p values of all the residuals were above the 0.05 values, thus rejecting any heteroskedasticity in the model data. Additionally, the eigen value test demonstrated the expected results of unit value for moduli of three variables, i.e., $k-r$ where k equals the number of variables and r equals the no of cointegrating vector.

Following on from the eigen value test, the resulting cointegrating vector was tested for stationarity. This test was similar to the test performed on the individual variables in the preconditions section however in this case the difference was the stationarity test was applied to the cointegrating vector. The stationarity test conducted using DF-GLS test concluded stationarity of the cointegrating vector. In addition to the DF-GLS test, ADF test and Phillips Perron root test was also applied to the cointegrating vector. All three test results highlighted stationarity, thus indicating that the model was fit was purpose and hence further tests (normality and arch tests) were conducted to test suitability.

Table 6.14 – Cointegrating vector stationarity test

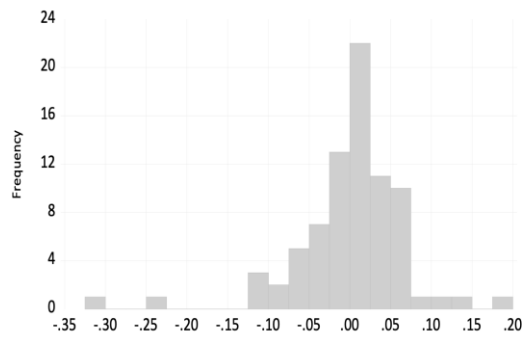
	t-Statistic
DF-GLS test statistic	-4.454994
1% level	-3.663600
5% level	-3.100400
10% level	-2.806000

The normality test conducted using Cholesky (Lutkepohl) which highlighted that the data was normally distributed for all lags except for the third lag. In order to further assess the absence of normality for the third lag, the variables data was reviewed to analyze any outliers which could cause normality.

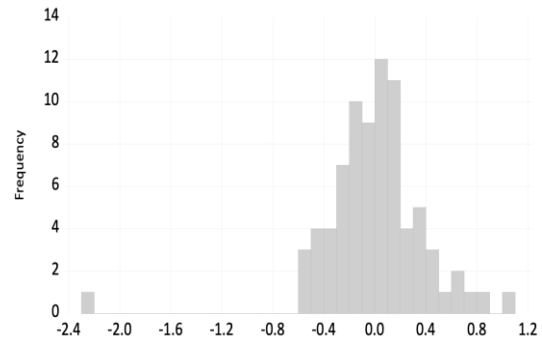
Figure 6.2 – Normality check

GDP

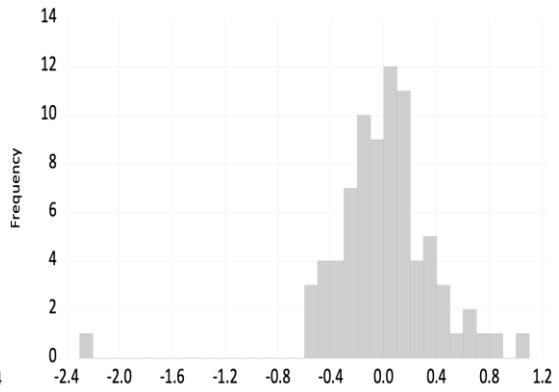
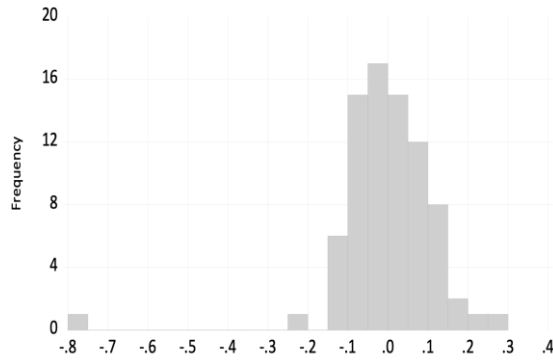
Financial services inflows



Exports



Interest rate



The graphs of all the variables GDP, financial services imports, exports and interest rate highlighted outliers in some instance however these outliers were very restricted to a few samples, which is common for any research of this type. Thus, the normality issues in lag three was not considered significant. In addition to the normality test, arch test was conducted to confirm that there were no arch in residuals. Thus, following from all the goodness of fit tests which included autocorrelation tests, heteroskedasticity test, eigen value stability test, stationarity test of the cointegrating vector, normality test and arch effect test, the model was considered an optimal model for the purpose of this research. Thus, the test results obtained from this model and discussed in the above sections hold true at the respective significance.

6.5. Conclusion

The chapter focussed on quantitative analysis to estimate the impact of fdi services inflows in the short run and long run. The adjustment coefficients were estimated to analyse the convergence to equilibrium. The results were estimated using Johansen cointegration and vector error correction models. The pre-condition checks were assessed for stationarity, constant and trend specification and the lag length checks to ensure that Johansen cointegration and vector error correction models were the optimal models. Additionally, the post condition checks concluded no autocorrection, no heteroskedasticity issues and no significant normality issues in the data, thus highlighting that the model was fit for purpose. The results estimated that a 1% rise in financial services imports and exports positively increases the GDP by 0.12% and 0.98% respectively, whilst a 1% rise in interest rate reduces the GDP by 0.08%. The next chapter presents the summary of the research findings.

CHAPTER 7: SUMMARY OF FINDINGS

7.1 Introduction

The chapter presents the key findings highlighted as part of the study. The findings are categorised across two areas, barriers related to financial services impacting the trade volumes between UK and India and the statistical impact of financial service inflows and impact on GDP in the short run and the long run. The first part focusses on barriers impacting financial services inflows are highlighted across four areas a) FDI approval route and the maximum investment cap in financial services b) restrictive fund-raising opportunities for foreign firms, c) stringent requirements regarding priority sector lending and d) mandatory branch opening requirements. The second part details the statistical findings of the impact of seven variables on India's GDP. These variables considered are financial services inflows, exports, interest rate, restrictiveness index, regulatory quality index, and control of corruption. Following on from the findings, the final section of the chapter will focus on scope for future studies which will help policymakers, think tanks and individuals.

7.2 Barriers impacting financial services inflows

The below section highlights barriers across four areas a) barriers related to FDI approval route and the maximum investment limit b) barriers for firms to raise capital in the Indian domestic market c) stringent requirements related to priority sector lending and finally d) barriers related to new branch opening. The below sections detail the barriers in detail.

7.2.1 FDI approval route and the maximum investment limit

The FDI approval requirements as currently defined are cumbersome, with the onus on the organisations to go through the government route vs the automatic route. The current

cap of up to 49% under the automatic route deters foreign investors from committing to banking expansions in India. Although the cap can be increased to up to 74% under the government route, this cap extension must be approved by the government. This means there are additional bureaucratic steps and legal approvals which not only increase the costs of financial institutions looking to expand in India, but also adds to the uncertainty and delayed timelines for executing the operations. The approval cap of up to 74% means that financial institutions then need to find a local partner or go into a joint venture relationship with a domestic firm to expand in India. Assuming, financial institutions progress through the first hurdle of receiving the approval for the government route and finding a domestic entity as a joint partner, they then need to set up a wholly owned subsidiary structure, which further increases the complexity and timeframe to expand in India. Firms and financial institutions need to assess their own eligibility to analyse whether they are eligible for the setup of a wholly owned subsidiary. Given the requirements from RBI, most firms would be eligible and required to setup the wholly owned subsidiary due to the two main requirements a) banks which are considered systematically important and are considered too big to fail and b) banks which have a complex structure, should be considered for WOS set up. Further on assessing the eligibility, the approval process for WOS mandated by the RBI is cumbersome with the central bank prescribing only a set of guidelines for approval. The RBI approval guidelines are useful for firms to manage the WOS application structure; however, the central bank clearly states that the guidelines published are not comprehensive and additional requirements or amendments can be added by the RBI as and when required. Further the central bank gives no reasons in case an application is declined, which makes it harder for firms to assess the clear requirements from RBI's perspective. Additionally, the timelines for the entire approval process are not clearly published in any formal communication which makes it harder for firms to plan for the end results. This contrasts with policies published by countries like US, UK, and Singapore - leading countries in financial services which state explicit approval timeframes from the individual central banks. Thus, there are multiple process steps that add to the uncertainty, complexity, and additional costs for firms to expand in India.

Whilst the policies published are well intended to ensure India's foreign policy and the stability of the domestic banking system are maintained, there is scope for improving the execution of these policies. The execution improvement can be considered around two key points, which are the FDI approval route and wholly owned subsidiary approval process. The FDI approval route of government vs automatic route is in principle a good policy to ensure that India's economy is not flooded with firms expanding from countries that are considered high risk from India's foreign policy perspective. In line with preserving this principle, the FDI approval route should be split across three tiers. Tier one should be countries which share warm and cordial relations with India and are looking to invest in India. The firms which are incorporated in countries assigned to this tier should be allowed to invest up to 100% in India, without the need to go through the domestic vs government route. The potential list of countries in tier one could include UK, USA, Singapore etc. The second tier should include countries which have relatively good relationship with India however there is a scope for improvement. The firms incorporated in these countries should be able to invest up to 100% under the government route and up to 74% in the automatic route. The countries in this tier could include countries like Canada. The final tier should be assigned to all the remaining countries which will require more checks to expand in India. All countries not listed in either tier one or tier two can be assigned to this list. Further the current rules around the FDI approval process, i.e., maximum investment caps under the automatic route and government route can remain for this tier. Thus, splitting the FDI approval route across different tiers allows the government and central bank to have a customised policy based on the risks faced by the country considering the foreign policy aspect and the stability of the banking system. Further the country tier list can be dynamic and can be changed by the government and the central bank depending on geopolitical changes. A summary of the proposal is as per below:

Table 7.1 – Proposed FDI approval route (based on country split)

Tier	Countries	FDI approval route
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Tier one	e.g., USA, UK, Australia	– Firms incorporated in these jurisdictions can invest up to 100%. – No segregation of automatic vs government route under this category
Tier two	e.g., Canada	– The current government route cap should be increased to 100% and automatic route cap should be increased to 74%. – Firms incorporated in these jurisdictions can invest up to 100% under the government route and up to 74% under automatic route.
Tier three	All other countries	– The current FDI approval route structure can remain as is, with a potential to deregulate this in the future based on the approach taken for tier one and tier two.

For each of the tiers highlighted above, there is a potential to further split the FDI approval route by entity, e.g., entity incorporation date, number of employees etc. The rationale behind this is that firms incorporated for several years with higher number of employees are considered lower risk from a foreign policy perspective as opposed to a recently incorporated firm with fewer employees in tier three background. Including an entity aspect will indicate a two-dimensional matrix structure for the FDI approval route based on the country tier and the entity type. An example of the proposal is as per below. This however this could be a secondary proposal in case if the country tier structure is considered too simplistic.

Table 7.2 – Proposed FDI approval route (based on country and entity split)

Tier	Countries	FDI approval route Firm Type A	FDI approval route Firm Type B	FDI approval route Firm Type C

Tier one	e.g., USA, UK, Aus.	- Firms incorporated in these jurisdictions can automatically invest up to 100%. - No segregation of automatic vs government route under this category	- Firms incorporated in these jurisdictions can automatically invest up to 100%. - No segregation of automatic vs government route under this category	- The current government route cap should be increased to 100% and automatic route cap should be increased to 74%. - Firms incorporated in these jurisdictions can invest up to 100% under the government route and up to 74% under automatic route.
Tier two	e.g., Canada	- The current government route cap should be increased to 100% and automatic route cap should be increased to 74%. - Firms incorporated in these jurisdictions can invest up to 100% under the	- The current government route cap should be increased to 100% and automatic route cap should be increased to 74%. - Firms incorporated in these jurisdictions can invest up to 100% under the government route and up to 74%	- The current automatic route cap should be increased to 74%. - Firms incorporated in these jurisdictions can invest up to 74% under automatic route.

		government route and up to 74% under automatic route.	under automatic route.	
Tier three	All other countries	- The current automatic route cap should be increased to 74%. - Firms incorporated in these jurisdictions can invest up to 74% under automatic route.	- The current FDI approval route structure can remain as is, with a potential to deregulate this in the future based on the approach taken for tier one and tier two.	- The current FDI approval route structure can remain as is, with a potential to deregulate this in the future based on the approach taken for tier one and tier two.

7.2.2 Capital raising restrictions

Similar to the FDI approval route, the principle around the policy of incorporating a wholly owned subsidiary is well intended. Research has shown the benefits of operating via a wholly owned subsidiary structure since it insulates the domestic economy from the global shocks as the WOS can access funding from its parent entity Hebous & Weichenrieder (2010). Thus, keeping in line with this policy, the implementation around this can be deregulated to ensure a risk-based approach depending on the firm's background. The proposed tier and firm matrix highlighted above should be used for the WOS approval structure with each type having WOS approval requirements based on their risk type, e.g., a firm incorporated in UK, USA with global operations and incorporated for

more than 20-25 years can have requirements related to risk management process and capital/funding requirements, whereas a firm incorporated in the same tier but newly incorporated can have requirements related to reputational and international rankings in addition to risk management processes and capital/funding requirements . A well-established entity based in tier one will be considered as a lowest risk entity with minimal requirements around the WOS incorporation whereas a recently incorporated entity based in tier three country list will be considered the highest risk entity with more regulatory requirements around the setup of a wholly owned subsidiary structure. Similarly, requirements for tier two country list and the firm type will vary based on the risk profiles. A summary of the proposed requirement is listed below:

Table 7.3 – Proposed WOS approval requirements (based on country and entity split)

Tier	Countries	FDI approval route Firm Type A	FDI approval route Firm Type B	FDI approval route Firm Type C
Tier one	e.g., USA, UK, Australia	- Risk Management processes & controls. - Capital and funding requirements.	- Risk Management processes & controls. - Capital and funding requirements.	- Reputation & international rankings. - Risk Management processes & controls. - Capital and funding requirements.
Tier two	e.g., Canada	- Risk Management processes & controls.	- Reputation & international rankings. - Risk Management	- Reputation & international rankings. - Risk Management

		- Risk Management processes & controls.	processes & controls. - Capital and funding requirements.	processes & controls. - Capital and funding requirements.
Tier three	All other countries	- Geopolitical & economic relations. - Reputation & international rankings. - Risk Management processes & controls. - Capital and funding requirements.	- Geopolitical & economic relations. - Reputation & international rankings. - Risk Management processes & controls. - Capital and funding requirements.	- Geopolitical & economic relations. - Reputation & international rankings. - Risk Management processes & controls. - Capital and funding requirements.

Following the approval of the foreign entity to set up operations in India, the entity has stringent requirements around funding. The initial capital requirements i.e., upfront investment amount of rupees five billion must be funded from the parent entity via foreign exchange remittances. This initial capital cannot be funded from the Indian domestic market. The outstanding amount required to set up operations can be raised in the domestic market. through non-equity capital instruments. The only way to raise non-equity capital is by way of investments in non-convertible debentures (NCDs) and the interest rate offered on the NCDs cannot exceed the lending rate of India's State Bank by more than 300 basis points (3%). These restrictive funding requirements deter foreign entities from expanding in India. Whilst the initial capital requirements can remain in place to ensure firms have adequate capital backing from their parent firms, there is a scope for deregulating stringent

rules related to borrowing outstanding capital amount. The foreign entities should be able to borrow in the primary markets or secondary markets without any interest rate restrictions mandated by the RBI. However, in order for foreign firms to borrow without any restrictions, the Indian domestic financial markets need to be strengthened. India's equity market development is at par with the international level however, India's debt markets developments have lagged the global markets. A well-functioning equity and debt markets are essential for the growth of the financial system, with a developed debt market highlighting the maturity and the development of the economy Rao & Babu (2010). Thus there are two growth areas required for the maturity of the Indian financial markets which are development of the products across secondary market and enhancing the end-to-end market infrastructure.

From a secondary market's perspective, the markets should be enhanced both from a product offering and pricing and liquidity perspective. There should be four areas of focus from a product offering perspective, development of the corporate bond markets, interest rate swaps markets, repo markets and the credit default swaps. The corporate bond market in India currently forms a miniscule percentage of the total bonds market. The issues related to the secondary bond market development were categorised across lack of liquidity and benchmark pricing. There is scope for the central bank to provide guidelines around benchmark pricing that can be used in the secondary bond markets. As liquidity in the corporate bond secondary markets is enhanced, there should be scope to bring in more issuers into the debt market. Given the lack of reliable benchmark alternative for short term and long-term corporate bonds, the pricing on these bonds lacks pricing transparency. Furthermore, the central banks could stipulate the firms to participate via the trading platforms or the request for quotes platforms, which would ensure better pricing transparency. Thus, improving the benchmark pricing and encouraging liquidity should in turn see more transactions in the corporate bond market domain. Enhancing the secondary markets is a long-term process and cannot be expected to develop overnight, however steps must be taken to shape the financial markets foundations. In addition to the corporate bond market, two products set – interest rate swaps and the repo markets should be further developed. The interest rate swap market development is essential for hedging purpose,

which at the moment is underdeveloped in India, except in some instances for basic vanilla products and certain currencies. Similarly, the repo market, which is used for short term funding requirements should be strengthened. In addition to the three-core product sets corporate bonds, interest rate swaps and repo markets, there is scope for improving the corporate default swaps (CDS) markets, which can hedge the underlying credit risk of the corporate bond. The development of the CDS markets should act as a booster for corporate bonds by hedging the underlying credit risk, which should in turn increase the investors' appetite for riskier issuers. Thus, this should help newer or high-risk firms raise liquidity in the Indian domestic markets.

Finally, from a market infrastructure perspective there should be rationalisation and synchronisation of different regulatory bodies. There are currently different regulatory bodies such as, RBI, Securities and Exchange Board of India, Pension Fund Regulatory and Development Authority. Each of these regulatory have a mandate around the industry or the product. Ideally there should be one regulatory body which has sub-functions focussing on the industry and product review, which would be similar to most developed world markets. In the event this is not possible. as a matter of last resort, the regulatory bodies should coordinate policies together with a view to issuing them simultaneously thus avoiding confusion in the markets.

Following on from the initial constraints faced by foreign firms to set up operations in India, the next barrier regarding mandatory lending to priority sector is an operational barrier i.e., requirement faced by firms to expand in India as opposed to the barriers during the initial set up phase.

7.2.3 Stringent priority sector lending requirements

The priority sector lending requirements for foreign banks, private sector and public sector banks which were originally introduced in 1972 have been modified over the last few decades, however the key principle around this policy is similar to when these requirements were first introduced in 1972. The central bank mandates foreign banks to lend a percentage of their ANBC to the priority sectors. Foreign banks with twenty or more branches have a mandate to allocate 40% of their ANBC to this sector. This total percentage of lending to priority sectors is further split across different sectors including agriculture, micro-enterprises, and weaker sections of the society. The RBI mandates that out of the total 40% commitment to priority sector, foreign banks must lend 18% of their ANBC to the agriculture sector, this 18% is further sub categorised across 10% lending for small and marginal farmers. Similar to this, foreign banks are required to contribute 7.5% of ANBC to the micro enterprises and 12% of ANBC to the weaker sections. Foreign banks with less than twenty branches have less onerous requirements regarding mandated lending to different sectors. Foreign banks with less than twenty branches should lend 40% of ANBC to the total priority sector lending. Out of this 40% ANBC, 32% can be in the form of export lending and at least 8% for the any other sector. The principle of priority sector lending is applicable to the private sector and public sector banks as well, although in some instances the mandated lending requirements according to the sectors may differ between foreign banks and private sector/public sector banks. There are two barriers associated with the priority sector lending. The first is that foreign banks have lending requirements which are relatively similar to public sector banks, which is a challenge given both these types of banks have different strengths and hence should target different market segments.

Foreign banks should be mandated to lend to the priority sector, however the lending requirements between foreign banks should be based on the bank's strength and business models. Foreign banks have no real strength in the agricultural sector in India and hence are not best placed to lend to this sector, despite the mandated requirements from the RBI. The less onerous requirements for foreign bank with less than twenty branches indicate that foreign banks could restrict their total branch numbers to less than twenty

branches to avoid the onerous requirements. Thus, the priority sector list should be modified to include mandatory lending to areas where the foreign banks have a comparative advantage. These include areas like export finance business and public infrastructure business. Both the areas are the forte of the foreign banks. Export finance lending should be increased for foreign banks having more than twenty branches. Given India's push on developing the infrastructure, foreign banks can provide funding for major infrastructure initiatives. Whilst these two new sectors are added, the agricultural lending requirement for the foreign banks should be removed or reduced significantly. Foreign banks have no lending experience to the agricultural sector and often view this sector as a high risk due to its ability to increase nonperforming assets. Agricultural lending should be the domain of co-operative banks due to their expertise in this area. Agricultural lending is based on relationship lending with the smaller section of the society, which is the domain of the cooperative and rural banks.

In addition, the lending requirements for foreign banks should be increased for renewable energy and social infrastructure development. Renewable energy lending comprises lending for purposes like solar based power generators, windmills, bio-mass power generators. Social infrastructure development lending comprises of social initiative such as school set ups, drinking water facilities and building/refurbishment of sanitation facilities. These areas are already included under the priority sector list however they are subcomponents of the main list and foreign banks do not have a specific target to lend to these initiatives. Both these initiatives fall under the environmental, social, and corporate governance (ESG) structure and there is a big push by all foreign banks to increase their footprint in this area. Thus, increasing lending to these areas should align with the banks' strategy of considering the ESG aspect.

To summarise, the priority sector list should be revamped to align it with the comparative advantages associated with foreign banks, private sector, and public sector banks. Suggested priority list for the foreign banks.

Table 7.4 – Proposed PSL list for foreign banks

Sector	Foreign Banks	Change
Total PSL	40%	- Similar to current requirements
Export finance	32%	- Similar to current requirements for foreign banks with less than 20 branches.
Renewable energy	Up to 8%	- Specific target for foreign banks under the PSL
Social infrastructure development	Up to 8%	- Specific target for foreign banks under the PSL
Housing	Up to 8%	- Specific target for foreign banks under the PSL
Public infrastructure lending	Up to 8%	- Potential new criteria for foreign banks
Agriculture and other sectors	N/A	- Similar to current requirements for foreign banks with less than 20 branches. - These requirements should be specific for public sector banks, rural and co-operative banks and private sector and given their expertise in this area in regard to relationship lending.

The second barrier faced by foreign banks related to priority sector lending is that this lending requirement is a supply driven policy as opposed to a demand driven policy. The implication is that in the best-case scenario, foreign banks may be willing to lend 18% of their ANBC to the agricultural sector (as per the current list), however there may not be sufficient demand for this borrowing from the agricultural sector. Thus, there should be further introduction of demand side policies, which will help the priority sectors to operate

efficiently. This will in turn stimulate demand from the priority sectors for additional funding for expansion and growth purposes.

The next section focusses on the fourth barrier faced by financial services firms to expand in India.

7.2.4 Barriers related to branch expansion

The final operational barrier faced by foreign banks is the mandated requirement to open new branches in India's rural and urban centres. Foreign banks are required to open at least 25% of their branches in rural areas, having a population of less than ten thousand people (classified as tier 5 and tier 6 cities). Additionally, RBI mandates that the banks cannot open a greater number of branches in urban and metropolitan areas (tier 1) as compared to semi-urban and rural centres. Further foreign banks require explicit approval from RBI for opening new branches in every urban and metropolitan area. The detailed plan around new branch opening should be provided to RBI on an annual basis, as part of its annual bank expansion plans. The approval from RBI on the annual branch expansion plan is valid for a year and once ABEP is approved, banks are required to open the branches within one year. The stringent branch opening requirements and the approvals restrict foreign banks from expanding in India to focus on their comparative advantage. Given the rigid constraints on bank opening policies, there are two areas of suggestions to reduce the barriers faced by foreign banks to expand in India. The first is around deregulating the physical branch opening requirement while the second is related to focussing on demand side policy initiatives, similar to priority sector list suggestion.

In terms of physical branch locations, mandating a bank to open a physical branch which adds to fixed operating costs should be replaced by the use of technology developments. With a burgeoning young Indian population more aligned with technological advances and mobile phones, there should be an increased focus to provide banking products via internet banking. There are currently 1.14 billion mobile subscriptions in India and with India's median population age of 28.2, the country is well versed with mobile technology. Furthermore, post Covid the use of branch banking has reduced not only in India but across the globe. These developments should be leveraged

by policymakers to reduce the over reliance on physical branch locations. The use of technology is a challenge for the elderly population who rely more on branch banking and less on mobile banking applications. This can be addressed by mandating that banks ensure the elderly population are trained on how to use the specific banking application. This can be done by banks via a temporary pop-up branch on a recurring basis. The capital spent by foreign banks to set up temporary pop-up branches (for a day) to address any mobile banking queriers will cost less than the capital required for setting up physical branch location.

In addition to reducing barriers for physical branch locations, there should be a focus on developing policies encouraging the stimulus of demand. The current branch expansion in rural areas is aligned with the view to enhance social inclusion for the poorer sections of the society. Whilst this policy requirements of social inclusion are understandable this policy focusses on supply side initiative as opposed to demand side initiatives as well. Mandating foreign banks to open branches in rural areas does not necessarily indicate that the branch will be used by the local population, since the local population may not have the means to avail the products offered by these banks. Thus, there should be more demand side policy initiatives such as setting up local economic zones, providing incentives for industries and firms to set up operations in this area, which will in turn increase employment thus stimulating demand. Thus, reducing these two barriers should help firms to expand in India.

Whilst the above section focused on finding impacting the barriers of financial inflows in India, the next section focusses on the findings related to the impact of the six variables on India's GDP.

7.2.5 Impact on GDP

The quantitative impact of the variables financial services inflows, exports, interest rate, restrictiveness index, regulatory quality governance (WGI) and control of corruption was estimated on GDP. The findings were categorised across three areas – short term impact of the variables on GDP, long term impact on GDP and the adjustment coefficients

– i.e. the time required for convergence to equilibrium. In terms of the short term impact the study concluded that change in financial services for lag three, i.e., $\Delta \text{Lfsimp}_{t-3}$ had a statistically significant and negative impact on ΔLGDP . Although the change in financial services for lags one and two also highlighted a negative impact on ΔLGDP , these results were not statistically significant. In case of exports, change in exports for the last three lags ΔLexp_{t-1} , ΔLexp_{t-2} , ΔLexp_{t-3} all had a statistically negative impact on ΔLGDP , whereas in case of interest rate, only the lag one and two of the change in interest rate, i.e. $\Delta \text{interest rate}_{t-1}$, $\Delta \text{interest rate}_{t-2}$ had a statistically significant impact on ΔLGDP . The final three variables, restrictiveness index (RI), quality of regulatory governance (WGI) all had statistically significant impact on ΔLGDP , whereas control of corruption (CC) had a statistically insignificant impact on ΔLGDP . In case of long run estimates, a 1% rise in financial services imports and exports positively increases the GDP by 0.12% and 0.98% respectively, whilst a 1% rise in interest rate reduces the GDP by 0.08%. The adjustment coefficients, i.e., the timeframe to revert back to equilibrium was estimated for GDP, financial services imports, exports, and interest rates. The results concluded that in case of GDP approximately 68% of the disequilibrium will be corrected in the next time period, whereas for financial services imports, exports, and interest rates, approximately 41%, 40% and 19% of the disequilibrium will be corrected in the next time period

7.3 Scope for further research

The idea for the current research was formulated based on two key aspects. The first aspect related to the recent geopolitical changes, i.e., China's and its ambition to challenge the current world order, which meant that the UK was looking for strategic partners in Asia Pacific to counter China's dominance. This was complemented by the fact that UK's recent departure from the EU meant that the UK was able to now execute independent trade deals with other countries, which was not possible until recently when UK was part of the EU. Thus, from a strategic objective, the UK's vision stated an urgency to sign a free trade agreement with India with a view to doubling the trade volumes between the two countries by 2030. In line with this vision, a current FTA is being negotiated between the two countries with to strengthen ties between the two countries. Given this

strategic vision from UK and India, idea for this research was formulated based on how this impending FTA between the two countries would impact India's economy especially from a financial services perspective. Thus, the research was initiated with the objective of assessing the barriers for FDI inflows in India and estimating the impact of financial services inflows on India's GDP. The first part of the objective was achieved by using qualitative research techniques. This included literature review assessing barriers related to FDI approval route, wholly owned subsidiary set up and other mandatory requirements around priority sector lending and branch expansion plan. These barriers were found to have a negative impact on investor confidence to expand inflows to India. The second objective of estimating the impact of financial services inflows and on India's GDP was accomplished using quantitative research. This was achieved via econometric modelling related to stationary tests, cointegrating equations and vector error correction mechanism which highlighted positive correlation between financial services inflows and estimated a 0.12% increase in India's GDP due a 1% increase in financial services inflows. Thus, from an overall goal, the research has accomplished the stated objectives. However as with all research related work, there is always scope for future work which can be studied by future researchers and academicians that will be useful for policymakers and think tanks.

There are three aspects that can be considered by researchers for any future studies. The first aspect is the proposed FTA between UK and India. The proposed FTA is expected to include key policy areas across tariffs, intellectual property, digital, small, and medium sized enterprises in addition to tariffs on goods and services. Researchers can assess the impact of goods trade between the two countries and estimate the impact on India's GDP. The study can be conducted at a combined goods level or alternatively there is scope for researchers to drill down into individual components within the goods segment to analyse the impact of each component e.g., manufacturing, beverages, clothing, pharmaceutical products etc on the country's GDP. This can be studied at the total trade component level or further split into imports or exports only depending on the researcher's objectives with a view to study the impact on India's GDP. This research can be similarly conducted from UK's perspective, i.e., to assess the impact of goods trade on UK's economy, which will be useful for relevant policymakers studying UK's growth. There is further scope to study

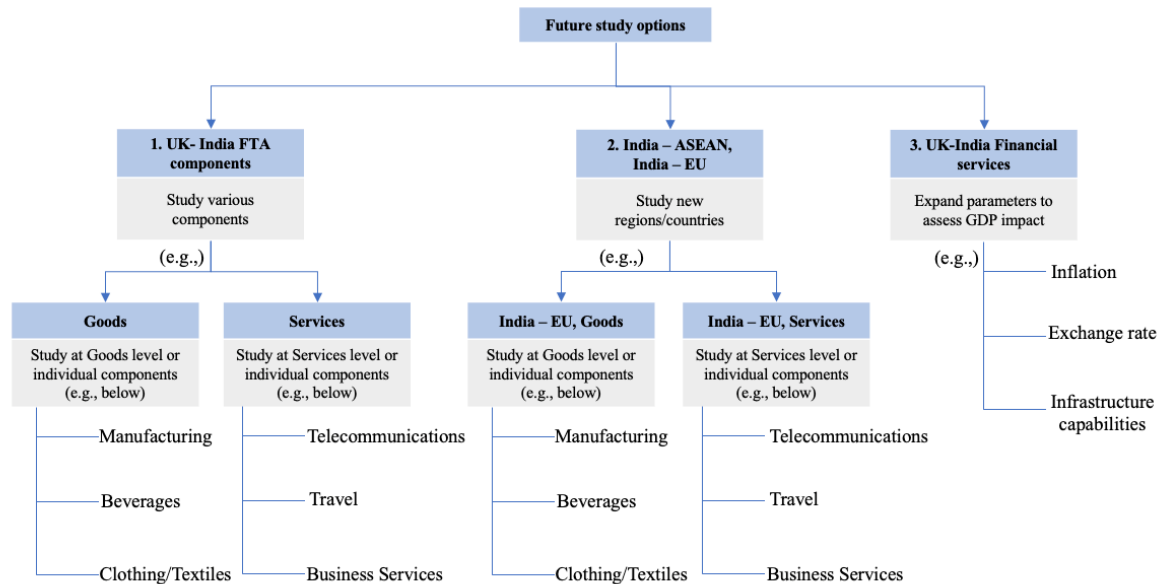
similar impact related to the services trade. Researchers can analyse the impact of services trade on India's GDP. This can be studied at a total services level or alternatively the study can be conducted at an individual component, i.e., analysing the impact of specific service sectors, such as telecommunications, travel, business services and its impact on India's GDP. This study can be conducted from UK's perspective to analyse its impact on UK's GDP as well.

The second dimension for future study is to estimate impact on India's economy by analysing trade relations across different regions or countries. From India's perspective there has been a recent push to review trade ties with ASEAN countries. Furthermore, over the last few years there have been ongoing discussions with the EU to agree a trade deal between EU and India. Given the importance of ASEAN and EU region and its impact on India, further research can be conducted to assess the goods and services impact on India's GDP. This could be reviewed from India's perspective or the regions' perspective depending on the objective of the researcher and his/her interest. This study will complement the existing research by analysing trade with different regions and country.

The final aspect for further research is related to the current research. Whilst the current research has retrieved data from all the relevant sources, the data limitations from these sources were an issue at times. In case of financial services inflows, the data was retrieved across two different sources, OECD, and UK's DIT. Whilst this has been satisfactory for now, in case of any future single source of data available, researchers can aim to use this central source to verify if the analysis and impact on GDP changes due to the revised data set. The same approach can be taken for other variables where the data is retrieved from multiple sources. Finally given the limited timeframe involved, this research focussed on seven key variables which were financial services imports, exports, interest rate, restrictiveness index, world governance indicator and control of corruption. Whilst this is a subset of parameters considered to impact GDP, this list is by no means fully exhaustive. GDP of an economy can be impacted by a significant number of additional parameters E.g., inflation, exchange rate, infrastructure developments. Thus, any future research can expand the scope of this current research to include additional variables and

assess the impact on GDP. A summary of the future scope for study options is highlighted below.

Figure 7.1 – Further studies overview



7.4 Conclusion

The chapter focussed on summarising the findings of the study. The findings were categorised across two study areas which included the barriers impacting financial services inflows and the impact of the key variables on India's GDP. There were four barriers identified during the course of this research, which were a) barriers related to FDI approval route and the maximum investment limit b) barriers for firms to raise capital in the Indian domestic market c) stringent requirements related to priority sector lending and finally d) barriers related to new branch opening. The chapter proposed suggestions to deregulate each of these barriers with an aim of increasing financial services inflow.

Following on from the qualitative findings, the following section focussed on the econometric impact of six variables on India's GDP both from a short-term and long-term perspective. The six variables analysed were financial services inflows, exports, interest rate, restrictiveness index, regulatory quality index and control of corruption. Similar to

any other research, whilst the current research was conducted there were certain limitations of this study. The limitations related to data constraints and the scope of the study. Considering this aspect, the final section of the chapter focussed on scope for future studies which could be useful for policymaker, think tanks and individuals.

The final chapter will summarise the finding of the thesis and highlight the concluding points related to the research.

CHAPTER 8. CONCLUSION

The chapter summarises the thesis findings, policy limitations and potential areas for future work. The research topic covered in this thesis was to analyse the impact of FDI inflows in financial services from the UK to India and its estimate its impact on India's GDP. This topic was considered relevant in the current geopolitical environment which is impacting the world governance and in turn relations between UK and India. The geopolitical events such as UK's departure from the European Union (Brexit) and China's rise to challenge the current world hegemony has meant that the UK is looking for new trade partners in Asia Pacific and specifically with India. Although UK and India are considered fifth and sixth largest economies in the world, trade relations between the two countries have been miniscule. In 2020, UK's total trade volumes with India were approx. £ 21 billion which equated to less than 2% of the global volumes. Similarly, from India's perspective, India's import and export to the UK contributed to a miniscule 1.26% and 2.8% respectively of the total trade volumes. In terms of the financial services FDI, the results were similar to the total FDI flow. From 2016-2019, the Financial Services Imports from India to the UK was in the range of 0.5-0.8%, whereas the Financial Services Exports to India from UK was in the range of 0.1% of UK's total financial services exports. The current volumes highlighted a scope for significant increase in FDI between the two countries. Additionally, as part of UK's 2030 vision it has committed to deepen its economic relationship with India through an Enhanced Trade Partnership and negotiate a Free Trade Agreement with a view to doubling UK-India trade over the next decade. Thus, this research was in line with the strategic vision of both countries. The research identified the rationale for the current low volumes between UK-India, mainly from a financial service sector perspective and proposed policy enhancements. The final part of the study estimated the impact of financial services inflows on India's GDP.

Chapter two further analysed the current state of FDI between UK and India from 2011. The chapter reviewed UK's FDI volumes with the world to provide a global overview and context of UK's FDI volumes. Following on from this, UK's FDI volumes with India were reviewed to analyse the volumes between the two countries. The data for

this section is retrieved from ONS. Similarly, India's FDI volumes with the world and UK were reviewed. Over the last 10 years the percentage of UK's FDI volumes with India to UK's total FDI volumes were found to be less than 1%, with 2011 and 2018 witnessing a highest of 0.9% and 2014 witnessing a low of 0.2%. According to India's Department for Promotion of Industry and Internal Trade, FDI Equity inflows from the UK to India lagged Mauritius (28%), Singapore (22%), USA (8%), Netherlands (7%), Japan (7%) and USA (6%) for the cumulative Inflows between April 2000 – March 2021. The FDI Equity Inflows from UK were found to be inconsistent with volumes fluctuating over the last 11 years. UK's financial services imports to India from 2016-2021 were similarly inconsistent highlighting a decrease of 6% in 2017, followed by a sharp increase of 63% in 2018, an increase of 6% in 2019, followed by declines of 9% in 2020 and 10% in 2021.

Chapter three of the research focussed on reviewing the existing literature related to UK-India trade and its impact on India's GDP. There was limited literature written in the last few years which focussed specifically between UK-India trade deals and its impact on the Indian economy. This was due to UK being part of the European Union (until recently), which meant it was unable to negotiate independent trade deals with other countries. Brexit gave UK the ability to negotiate its own FTA, which was not possible prior to the UK being part of the EU. Given this limitation on available literature, various literatures were reviewed across individual components i.e. literature related to FDI inflow determinants, FDI's impact on GDP from a global perspective, FDI in services and its impact on GDP and finally FDI in financial services and impact on GDP from a global perspective as well. From a FDI inflow determinants perspective, the main determinants were categorised across five key factors policy framework, market size, economic stability, and political factors and infrastructure facilities. FDI inflows were generally shown to have a positive impact on the economic growth of the country. It also showed to positively impact on the economy due to capital formation, technology spill overs and upskilling/acquisition know-how. Similarly, the consensus around FDI in services and specifically banking sector was positive as well however there were studies which argued otherwise i.e., to show either limited or negative impact of FDI on the GDP.

Chapter four highlighted the research methodology and the data variables and used in the study. There were six variables used in the study GDP, exports, financial services imports, interest rate, restrictiveness index, regulatory quality index and control of corruption. GDP was used a proxy to analyse the economic growth. Financial services imports from UK to India, exports from India to UK and India's domestic interest rates were considered to analyse the impact of these variables on India's GDP in the long run. The final three variables restrictiveness index, regulatory quality index and control of corruption were chosen to select the impact on India's GDP in the short run. The variables were sourced for central banks database, government databases or multi-lateral government organisations. Following on from the selection of the variables, a mixed research methodology was selected for the research. Qualitative methodology was used for analysing the impact of barriers on the financial services inflows in India, whereas quantitative methodology was used to analyse the impact of financial services inflows on India's GDP. The quantitative methodology used regression analysis and the methodology was categorised across three phases. Phase one consisted of the pre estimate checks to check for stationary and the lags for the variables. Following on from the pre estimate checks, phase two focussed on the estimation phase. The estimation phases used Johannsen's cointegration model to analyse the number of cointegrating equations between the different variables. The VECM model was then used to analyse the impact of the variables in the short run, long run and to assess the adjustment parameters. Phase three of the model focussed on the goodness of fit checks to ensure that the model estimated was fit for purpose. The goodness of fit tests included autocorrelation test, heteroskedasticity Test, eigen value stability test, stationarity test of cointegrating vectors, normality test and finally the arch effects and univariate and multivariate/Joint Test. Following the goodness of fit test, the model was selected, and the results estimated for the impact of financial services inflows on India's GDP

Chapter five focussed on assessing the investment regulations and barriers in India impacting the FDI inflows. The barriers identified were across four areas: FDI approval route, setting up a wholly owned subsidiary structure, capital funding requirement, priority sector lending and foreign branch openings requirements. The FDI approval requirement

of automatic route vs government route, meant that foreign firms first had to get explicit approvals for approvals. This is since under the automatic route, foreign firms could invest only up to 49% in private sector banks. Approvals over 49% and up to 74% have to be approved under the government route, which requires comprehensive approval process. In addition to the FDI approval route, foreign firms must operate in India only via a wholly owned subsidiary structure. Banks which are systematically important, have complex structures and limited overseas presence are all required to set up a wholly owned subsidiary structure. The eligibility assessment of a wholly owned subsidiary is conducted by the RBI, based on key factors including India's geopolitical and economic relations with the firms host country, reputation and international rankings of the firms and other risk management controls. Finally, in terms of funding requirements, foreign firms expanding into India have stringent capital requirements around initial capital and outstanding capital. In terms of initial capital, foreign firms must invest upfront amount of five billion rupees from the parent entity via foreign exchange remittances. This initial capital cannot be funded from the Indian domestic market. In terms of outstanding capital, foreign banks can raise outstanding capital amount through non-equity capital instruments only by way of investments in non-convertible debentures (NCDs). Also, RBI's requirement of maintaining a capital adequacy ratio of at least 10 percent initially for 3 years, which is above the minimum of 9 percent capital adequacy ratio recommended under Basel III frameworks adds to the onerous requirements for the foreign firms to expand in India. On approval of all the above criteria, foreign firms need to adhere to the operating requirements in India. These include additional mandatory requirements like priority sector lending and mandatory branch expansions. Under the priority sector lending, foreign banks must lend credit to the weaker sections of the society which are classified as the priority sectors, i.e. agriculture, micro enterprises, and weaker section (defined as family income of less than Rs 1,20,000 per annum). RBI mandates that foreign banks with greater than twenty branches allocate a total of 40 percent of the ANBC to lending to priority sector with further limits set across the different sub sectors, i.e., 18 percent of ANBC for the agricultural sector, 7.5 percent of ANBC to micro enterprises, 12 percent of ANBC to weaker sections of the society. In terms of mandatory branch opening policies, foreign banks cannot open

a new place of branch, or change the location of the existing branch anywhere in India without prior approval from the RBI. Foreign banks are mandated to open 25 percent of the branches in tier 5 and tier 6 centres and the total number of branches opened in tier 1 centres cannot exceed the total number of branches opened in tier 2 - tier 6 centres. Thus, there is scope for deregulating all steps of the FDI approval including the FDI approval route, wholly owned subsidiary set up structure and requirements around priority sector lending and mandatory branch opening. Following on from the qualitative research in chapter five, chapter six focussed on the quantitative aspect to estimate the statistical impact of financial services inflows on India's GDP.

The statistical impact of endogenous and exogenous variables on GDP was estimated using regression model. Exogenous variables considered were financial services imports, exports and the domestic interest rates, while the endogenous variables included restrictiveness index, regulatory quality index and control of corruption. In terms of pre-condition checks, tests were conducted to assess stationarity attributes for the endogenous variables – GDP, financial services imports, exports and interest rates. ADF-GLS test which was used for stationarity tests observed non stationarity for these variables at level, however all the variables were found to be stationary at first difference. Following the stationarity check, three lags were selected as optimal lag lengths, and a restricted trend specification was selected to analyse the VECM model. The VECM model was considered appropriate for this study since all variables highlighted stationarity at first difference. Using one cointegrating vectors, as per Johansen's cointegration model, the VECM estimated the short run impact, the long run impact, and the adjustment coefficients of the variables. The short run results highlighted that coefficient for ΔLGDP and $\Delta \text{Lfsimp}_{t-3}$ indicated that change in financial services inflows for lag three, i.e., $\Delta \text{Lfsimp}_{t-3}$ had a statistically significant and negative impact on the change in GDP, i.e., ΔLGDP . Although $\Delta \text{Lfsimp}_{t-1}$, $\Delta \text{Lfsimp}_{t-2}$ had a negative impact on the ΔLGDP , these results were not statistically significant. In case of exports ΔLexp_{t-1} , ΔLexp_{t-2} , ΔLexp_{t-3} had a statistically significant and negative impact on ΔLGDP , whereas in the case of change in interest rate, only $\Delta \text{interest rate}_{t-1}$ had a statistically significant impact on ΔLGDP . The three explanatory variables, restrictiveness index (RI), quality of regulatory governance

(WGI) and control of corruption (CC) all had statistically insignificant impact on ΔLfsimp and on the change in GDP, i.e., ΔLGDP . The adjustment parameters determined the convergence of the variables LGDP_t , Lfsimp_t , Lexp_t , interest rate $_t$ back to the equilibrium value. The results of the adjustment parameters concluded that in case of GDP, approximately 68% of the disequilibrium will be corrected in the next time period, whereas for financial imports 41% of the disequilibrium will be corrected in the next time period. Similarly, for exports 40% of the disequilibrium will be corrected in the next time period and in case of interest rates 40% of the disequilibrium will be corrected in the next time period. From a long run perspective, the study concluded that a 1% rise in financial services imports from the UK will increase India's GDP by approximately 0.12%, whereas a 1% rise in total exports will increase India's GDP by approximately 0.98%, thus highlighting that both financial services imports from UK and the total exports from India both have a positive impact on India's GDP. A rise in interest rate however denoted a negative impact on India's GDP, with a 1% rise indicating a 0.08% decrease in GDP.

The study achieved its initial objectives of analysing the barriers of financial services inflows to India and estimating impact of financial services inflows on India's GDP however similar to any other research, there is a scope for future studies. There are three aspects that can be considered by researchers for any future studies. The first aspect is to assess the impact of financial services inflows on India's GDP using alternative data sources and eliminating some of the data issues highlighted as part of the research. The second aspect is to assess the proposed FTA between UK and India and analyse the impact of total goods and/or services on GDP, either from UK's perspective or India's perspective. Alternatively, the study can be conducted at a sector level within goods and services domain e.g., to assess the impact of manufacturing or pharmaceutical sector on the country's GDP. Similarly, the research can focus on specific service sectors e.g., telecommunications, business services etc. The final aspect for future studies is to assess the impact of trade deals with other countries and its impact on India's GDP. India is currently negotiation trade deals with EU and other countries in Asia Pacific. Thus, the future study can focus on analysing the impact of total trade on the country's GDP. Alternatively, this study can focus on specific sectors within the goods and services sectors

to assess the impact on the GDP. The current research and any subsequent future study undertaken can be useful for policymakers, individuals and think tanks.

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APPENDICES

APPENDIX A: Unit root test on GDP D(_1__LGDP) using DF-GLS

Null Hypothesis: D(LGDP) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=11)

	t-Statistic
=====	
Elliott-Rothenberg-Stock DF-GLS test statistic	-9.399669
Test critical values 1% level	-3.648400
5% level	-3.087600
10% level	-2.794000
=====	

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals , Dependent Variable:

D(GLSRESID)

Method: Least Squares

Sample (adjusted): 2001Q3 2021Q4

Included observations: 82 after adjustments

Variable	Coefficient	Std.	Error	t-Statistic	Prob.
=====					
GLSRESID(-1)	-1.045421		0.111219	-9.399669	0.0000
=====					

R-squared	0.521700	Mean dependent var	0.000649
Adjusted R-squared	0.521700	S.D. dependent var	0.132398
S.E. of regression	0.091565	Akaike info criter	-1.931406
Sum squared resid	0.679122	Schwarz criterion	-1.902056

Log likelihood	80.18764	Hannan-Quinn crite	-1.919622
Durbin-Watson stat	2.002022		

APPENDIX B: Unit root test on D(LFSIMP) using DF-GLS

Null Hypothesis: D(_3_LFSIMP) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Automatic - based on AIC, maxlag=11)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-6.700641
Test critical values1% level	-3.656000
5% level	-3.094000
10% level	-2.800000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals, Dependent Variable:

D(GLSRESID)

Method: Least Squares

Sample (adjusted): 2002Q1 2021Q4

Included observations: 80 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-1.460514	0.217966	-6.700641	0.0000
D(GLSRESID(-1))	0.245553	0.176314	1.392698	0.1677
D(GLSRESID(-2))	0.240650	0.111818	2.152161	0.0345
R-squared	0.642000	Mean dependent var 0.002309		
Adjusted R-squared	0.632701	S.D. dependent var 0.426841		
S.E. of regression	0.258688	Akaike info criteri0.170390		
Sum squared resid	5.152798	Schwarz criterion 0.259716		

Log likelihood	-3.815612	Hannan-Quinn criter	0.206204
Durbin-Watson stat	1.933892		

APPENDIX C: Unit root test on D(LEXPUK) using DF-GLS

Null Hypothesis: D(_2__LEXPUK) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=11)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-13.97646
Test critical values1% level	-3.648400
5% level	-3.087600
10% level	-2.794000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Sample (adjusted): 2001Q3 2021Q4

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-1.413278	0.101118	-13.97646	0.0000
R-squared	0.706884	Mean dependent var		0.000293
Adjusted R-squared	0.706884	S.D. dependent var		0.278054
S.E. of regression	0.150539	Akaike info criter		-0.937068
Sum squared resid	1.835624	Schwarz criterion		-0.907717
Log likelihood	39.41978	Hannan-Quinn crite		-0.925284
Durbin-Watson stat	1.882346			

APPENDIX D: Unit root test on D(Interest_rate) using DF-GLS

Null Hypothesis: D(_7__INTEREST_RATE) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=11)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-8.367934
Test critical values1% level	-3.652200
5% level	-3.090800
10% level	-2.797000

*Elliott-Rothenberg-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Sample (adjusted): 2001Q4 2021Q4

Included observations: 81 after adjustments

Variable	Coefficient	Std.	Error	t-Statistic	Prob.
GLSRESID(-1)	-0.933857	0.111600	-8.367934	0.0000	
R-squared	0.466743		Mean dependent var		0.001812
Adjusted R-squared	0.466743		S.D. dependent var		0.818791
S.E. of regression	0.597918		Akaike info criteri		1.821541
Sum squared resid	28.60043		Schwarz criterion		1.851102
Log likelihood	-72.77241		Hannan-Quinn criter		1.833401
Durbin-Watson stat	1.856660				

APPENDIX E: Johansen Cointegration Test

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Sample (adjusted): 2002Q2 2021Q4

Included observations: 79 after adjustments

Trend assumption: Linear deterministic trend (restricted)

Series: _1__LGDP _2__LEXPUR _3__LFSIMP _7__INTEREST_RATE

Exogenous series: _8__RI _9__WGI _10__CONTROL_OF_COURRUPTION

Warning: Critical values assume no exogenous series

Lags interval (in first differences): 1 to 3

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Unrestricted Cointegration Rank Test (Trace)

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Hypothesized

No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
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None *	0.580815	106.2178	63.87610	0.0000
At most 1	0.266662	37.53189	42.91525	0.1557
At most 2	0.119085	13.03019	25.87211	0.7358
At most 3	0.037427	3.013480	12.51798	0.8749

=====

==

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

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Hypothesized

No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
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=====

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None *	0.580815	68.68592	32.11832	0.0000
At most 1	0.266662	24.50170	25.82321	0.0739
At most 2	0.119085	10.01671	19.38704	0.6171
At most 3	0.037427	3.013480	12.51798	0.8749

=====

==

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

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_1__LGDP	_2__LEXPUK	_3__LFSIMP	_7__INTEREST_@TREND(01Q2)	
-13.75448	13.49289	1.724480	-1.182551	0.190118
4.689532	9.113851	-4.694970	-0.485347	-0.219620
0.540017	-5.119039	2.605023	-1.242167	0.084055
-0.755099	-4.614263	-3.624129	0.405197	-0.013934

=====

==

Unrestricted Adjustment Coefficients (alpha):

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D(_1__LGDP)	0.049486	0.015220	0.002371	0.008697
-------------	----------	----------	----------	----------

D(_2__LEXPUK)	-0.029600	0.008633	0.018668	0.020674
D(_3_LFSIMP)	-0.030151	0.083934	-0.020905	0.016443
D(_7__INTEREST_	0.013888	0.101357	0.121502	-0.012763

=====

==

1 Cointegrating Equation(sLog likelihood 160.2355

=====

==

Normalized cointegrating coefficients (standard error in parentheses)

_1__LGDP	_2__LEXPUK	_3_LFSIMP	_7__INTEREST_@TREND(01Q2)
1.000000	-0.980982	-0.125376	0.085976
	(0.13412)	(0.05625)	(0.01252)
			-0.013822
			(0.00224)

Adjustment coefficients (standard error in parentheses)

D(_1__LGDP)	-0.680648
	(0.11981)
D(_2__LEXPUK)	0.407135
	(0.21577)
D(_3_LFSIMP)	0.414710
	(0.34038)
D(_7__INTEREST_	-0.191026
	(0.71382)

=====

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2 Cointegrating Equations Log likelihood 172.4864

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Normalized cointegrating coefficients (standard error in parentheses)

_1__LGDP	_2__LEXPUK	_3_LFSIMP	_7__INTEREST_@TREND(01Q2)
----------	------------	-----------	---------------------------

1.000000	0.000000	-0.419152	0.022419	-0.024895
	(0.08884)	(0.02470)	(0.00239)	
0.000000	1.000000	-0.299472	-0.064789	-0.011288
	(0.08688)	(0.02416)	(0.00234)	

Adjustment coefficients (standard error in parentheses)

D(_1__LGDP)	-0.609275	0.806411
	(0.12343)	(0.13829)
D(_2__LEXPUK)	0.447618	-0.320717
	(0.22741)	(0.25480)
D(_3_LFSIMP)	0.808323	0.358142
	(0.32455)	(0.36364)
D(_7__INTEREST_	0.284291	1.111146
	(0.73060)	(0.81861)

=====

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3 Cointegrating Equation(Log likelihood 177.4947

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Normalized cointegrating coefficients (standard error in parentheses)

_1__LGDP	_2__LEXPUK	_3_LFSIMP	_7__INTEREST_@TREND(01Q2)	
1.000000	0.000000	0.000000	-0.489570	-0.012073
			(0.16264)	(0.01000)
0.000000	1.000000	0.000000	-0.430590	-0.002127
			(0.11873)	(0.00730)
0.000000	0.000000	1.000000	-1.221485	0.030590
			(0.37545)	(0.02309)

Adjustment coefficients (standard error in parentheses)

D(_1__LGDP)	-0.607995	0.794274	0.020058
-------------	-----------	----------	----------

	(0.12343)	(0.14488)	(0.04787)
D(_2__LEXPUK)	0.457699	-0.416278	-0.042944
	(0.22494)	(0.26402)	(0.08723)
D(_3_LFSIMP)	0.797034	0.465155	-0.500522
	(0.32247)	(0.37849)	(0.12505)
D(_7__INTEREST_	0.349904	0.489172	-0.135403
	(0.69582)	(0.81670)	(0.26984)
=====			
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APPENDIX F: Vector Error Correction Estimates

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===	
Sample (adjusted): 2002Q2 2021Q4	
Included observations: 79 after adjustments	
Standard errors in () & t-statistics in []	
=====	
===	
Cointegrating Eq:	CointEq1
=====	
===	
_1__LGDP(-1)	1.000000
_2__LEXPUK(-1)	-0.980982
	(0.13412)
	[-7.31421]
_3__LFSIMP(-1)	-0.125376
	(0.05625)
	[-2.22894]
_7__INTEREST_RATE(-1)	0.085976
	(0.01252)
	[6.86661]
@TREND(01Q1)	-0.013822
	(0.00224)
	[-6.16435]
C	-4.994809

Error Correction:

D(_1__LGDPD(_2__LEXPUKD(_3_LFSIMP)D(_7__INTEREST_RATE)

=====

===

CointEq1	-0.680648 (0.11981) [-5.68112]	0.407135 (0.21577) [1.88689]	0.414710 (0.34038) [1.21838]	-0.191026 (0.71382) [-0.26761]
D(_1__LGDP(-1))	0.196404 (0.12121) [1.62041]	-0.036059 (0.21829) [-0.16519]	-0.475280 (0.34435) [-1.38022]	-0.366801 (0.72215) [-0.50793]
D(_1__LGDP(-2))	0.074820 (0.12123) [0.61718]	-0.294896 (0.21833) [-1.35070]	-0.457307 (0.34441) [-1.32778]	-0.499427 (0.72228) [-0.69146]
D(_1__LGDP(-3))	0.138966 (0.11892) [1.16859]	-0.109427 (0.21417) [-0.51095]	-0.049327 (0.33785) [-0.14601]	1.080288 (0.70851) [1.52474]
D(_2__LEXPUK(-1))	-0.567376 (0.11366) [-4.99198]	-0.356325 (0.20469) [-1.74078]	0.821751 (0.32290) [2.54488]	1.152265 (0.67717) [1.70159]
D(_2__LEXPUK(-2))	-0.451657	-0.006030	0.466165	1.145987

	(0.11988)	(0.21589)	(0.34057)	(0.71423)
	[-3.76768]	[-0.02793]	[1.36877]	[1.60452]
D(_2__LEXPUK(-3))	-0.310532	-0.067263	-0.008385	0.244759
	(0.09104)	(0.16395)	(0.25864)	(0.54239)
	[-3.41109]	[-0.41026]	[-0.03242]	[0.45126]
D(_3_LFSIMP(-1))	-0.068373	-0.023638	-0.486863	-0.278490
	(0.04575)	(0.08240)	(0.12999)	(0.27260)
	[-1.49436]	[-0.28687]	[-3.74545]	[-1.02160]
D(_3_LFSIMP(-2))	-0.050701	-0.009404	-0.140197	-0.204228
	(0.04909)	(0.08842)	(0.13948)	(0.29250)
	[-1.03272]	[-0.10635]	[-1.00515]	[-0.69820]
D(_3_LFSIMP(-3))	-0.089903	-0.028835	-0.281608	-0.066293
	(0.04055)	(0.07304)	(0.11522)	(0.24163)
	[-2.21682]	[-0.39479]	[-2.44415]	[-0.27436]
D(_7__INT_RATE(-1))	0.082884	0.021763	0.170840	0.246380
	(0.01966)	(0.03541)	(0.05585)	(0.11713)
	[4.21593]	[0.61467]	[3.05871]	[2.10344]
D(_7__INT_RATE(-2))	0.038004	-0.008102	0.012833	0.003627
	(0.01762)	(0.03173)	(0.05006)	(0.10498)
	[2.15682]	[-0.25531]	[0.25635]	[0.03455]
D(_7__INT_RATE(-3))	0.027692	0.007189	-0.011253	0.034668
	(0.01715)	(0.03089)	(0.04872)	(0.10217)
	[1.61475]	[0.23276]	[-0.23096]	[0.33930]

C	-0.737233 (0.17800) [-4.14168]	0.297851 (0.32058) [0.92911]	-0.675099 (0.50571) [-1.33495]	0.348727 (1.06054) [0.32882]
_8__RI	1.777384 (0.28847) [6.16135]	-0.555850 (0.51953) [-1.06991]	0.381571 (0.81956) [0.46558]	-0.004600 (1.71872) [-0.00268]
_9__WGI	0.009556 (0.00334) [2.85778]	0.007759 (0.00602) [1.28842]	-0.004078 (0.00950) [-0.42928]	0.017994 (0.01992) [0.90326]
_10__CON_OF_COR	-0.005172 (0.00387) [-1.33561]	-0.009238 (0.00697) [-1.32450]	0.017315 (0.01100) [1.57369]	-0.026794 (0.02307) [-1.16124]
=====				
===				
R-squared	0.452101	0.410516	0.478321	0.285397
Adj. R-squared	0.310707	0.258392	0.343694	0.100983
Sum sq. resids	0.371627	1.205360	2.999555	13.19188
S.E. equation	0.077421	0.139432	0.219954	0.461272
F-statistic	3.197467	2.698549	3.552934	1.547591
Log likelihood	99.59668	53.11929	17.10771	-41.39721
Akaike AIC	-2.091055	-0.914413	-0.002727	1.478410
Schwarz SC	-1.581174	-0.404531	0.507154	1.988292
Mean dependent	0.024467	0.019503	0.009232	0.004852
S.D. dependent	0.093252	0.161911	0.271506	0.486490
=====				
===				

Determinant resid covariance (dof	5.36E-07
Determinant resid covariance	2.03E-07
Log likelihood	160.2355
Akaike information criterion	-2.208494
Schwarz criterion	-0.019004
Number of coefficients	73

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APPENDIX G: Autocorrelation test using one lag

VEC Residual Serial Correlation LM Tests

Sample: 2001Q1 2021Q4, Included observations: 81

Null hypothesis: No serial correlation at lag h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	38.59416	16	0.0012	2.562578	(16, 199.2)	0.0013
2	31.60801	16	0.0112	2.062470	(16, 199.2)	0.0113
3	16.27548	16	0.4339	1.022508	(16, 199.2)	0.4344
4	15.29728	16	0.5030	0.958746	(16, 199.2)	0.5035
5	11.45638	16	0.7805	0.711294	(16, 199.2)	0.7808
6	8.434706	16	0.9349	0.519833	(16, 199.2)	0.9350
7	15.77256	16	0.4689	0.989689	(16, 199.2)	0.4695
8	17.17884	16	0.3741	1.081660	(16, 199.2)	0.3746

Null hypothesis: No serial correlation at lags 1 to h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	38.59416	16	0.0012	2.562578	(16, 199.2)	0.0013
2	62.95963	32	0.0009	2.108127	(32, 226.6)	0.0009
3	84.11622	48	0.0010	1.894802	(48, 221.6)	0.0011
4	104.9593	64	0.0009	1.790928	(64, 209.8)	0.0011
5	124.3687	80	0.0011	1.709355	(80, 195.7)	0.0015
6	126.6136	96	0.0198	1.399986	(96, 180.8)	0.0270
7	143.9006	112	0.0227	1.360288	(112, 165.4)	0.0359
8	166.5870	128	0.0124	1.389932	(128, 149.8)	0.0262

APPENDIX H: Autocorrelation test using two lags

=====

VEC Residual Serial Correlation LM Tests, sample: 2001Q1 2021Q4, included
observations: 80

=====

Null hypothesis: No serial correlation at lag h

=====

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	38.30236	16	0.0014	2.553713	(16, 183.9)	0.0014
2	16.05849	16	0.4489	1.008683	(16, 183.9)	0.4495
3	27.92664	16	0.0323	1.810609	(16, 183.9)	0.0324
4	19.21719	16	0.2576	1.217271	(16, 183.9)	0.2581
5	14.42408	16	0.5672	0.902100	(16, 183.9)	0.5677
6	11.64844	16	0.7678	0.723172	(16, 183.9)	0.7682
7	17.63671	16	0.3456	1.112471	(16, 183.9)	0.3462
8	19.12924	16	0.2620	1.211416	(16, 183.9)	0.2626

=====

Null hypothesis: No serial correlation at lags 1 to h

=====

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	38.30236	16	0.0014	2.553713	(16, 183.9)	0.0014
2	61.14043	32	0.0014	2.050296	(32, 208.1)	0.0015
3	81.86553	48	0.0017	1.846617	(48, 202.3)	0.0018
4	92.23955	64	0.0120	1.537643	(64, 190.2)	0.0137
5	109.5164	80	0.0159	1.461367	(80, 176.0)	0.0201
6	120.1799	96	0.0480	1.311638	(96, 161.0)	0.0649
7	132.1486	112	0.0939	1.212127	(112, 145.6)	0.1375
8	157.0185	128	0.0415	1.275557	(128, 129.9)	0.0840

*Edgeworth expansion corrected likelihood ratio statistic.

APPENDIX I: Autocorrelation test using three lags

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VEC Residual Serial Correlation LM Tests, Sample: 2001Q1 2021Q4, observations: 79

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Null hypothesis: No serial correlation at lag h

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Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	19.67338	16	0.2353	1.249237	(16, 168.7)	0.2360
2	12.71830	16	0.6932	0.791526	(16, 168.7)	0.6938
3	13.32039	16	0.6492	0.830437	(16, 168.7)	0.6498
4	23.55812	16	0.0996	1.512889	(16, 168.7)	0.1001
5	16.60557	16	0.4116	1.045110	(16, 168.7)	0.4123
6	7.831139	16	0.9537	0.480575	(16, 168.7)	0.9538
7	14.51678	16	0.5603	0.908152	(16, 168.7)	0.5609
8	16.59742	16	0.4121	1.044573	(16, 168.7)	0.4128

=====

Null hypothesis: No serial correlation at lags 1 to h

=====

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	19.67338	16	0.2353	1.249237	(16, 168.7)	0.2360
2	33.40623	32	0.3988	1.050864	(32, 189.7)	0.4020
3	48.80375	48	0.4405	1.019192	(48, 183.1)	0.4492
4	65.51813	64	0.4239	1.023648	(64, 170.6)	0.4427
5	81.48260	80	0.4328	1.011516	(80, 156.3)	0.4682
6	97.89890	96	0.4269	1.003600	(96, 141.2)	0.4876
7	109.0884	112	0.5602	0.930264	(112, 125.7)	0.6513

8	131.2050	128	0.4051	0.975330	(128, 110.1	0.5558
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*Edgeworth expansion corrected likelihood ratio statistic.

APPENDIX J: Heteroskedasticity test using three lags

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VEC Residual Heteroskedasticity Tests (Levels and Squares)

Sample: 2001Q1 2021Q4

Included observations: 79

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Joint test:

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Chi-sq	df	Prob.
335.8362	320	0.2604

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Individual components:

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Dependent	R-squared	F(32,46)	Prob.	Chi-sq(32)	Prob.
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res1*res1	0.215895	0.395801	0.9964	17.05571	0.9858
res2*res2	0.162087	0.278073	0.9999	12.80491	0.9990
res3*res3	0.293821	0.598103	0.9355	23.21187	0.8715
res4*res4	0.294251	0.599342	0.9347	23.24579	0.8704
res2*res1	0.156711	0.267135	0.9999	12.38017	0.9993
res3*res1	0.179624	0.314745	0.9995	14.19030	0.9973
res3*res2	0.171383	0.297319	0.9997	13.53927	0.9983
res4*res1	0.243098	0.461690	0.9881	19.20477	0.9637
res4*res2	0.205451	0.371703	0.9979	16.23064	0.9907
res4*res3	0.301908	0.621683	0.9199	23.85071	0.8498

APPENDIX K: Unit root test on cointegrating vector using ADF

Null Hypothesis: COINTEQ01 has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Fixed)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.887583	0.0008
Test critical values 1% level	-4.080021	
5% level	-3.468459	
10% level	-3.161067	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation, dependent Variable: D(COINTEQ01)

Method: Least Squares, sample (adjusted): 2002Q3 2021Q4

Included observations: 78 after adjustments

Variable	Coefficient	Std.	Error	t-Statistic	Prob.
COINTEQ01(-1)	-0.475746		0.097338	-4.887583	0.0000
C	0.112484		0.043972	2.558109	0.0125
@TREND("2001Q1")	-0.002706		0.000914	-2.960322	0.0041

R-squared	0.241701	Mean dependent var	-0.010016
Adjusted R-squared	0.221480	S.D. dependent var	0.160532
S.E. of regression	0.141644	Akaike info criter	-1.033301
Sum squared resid	1.504722	Schwarz criterion	-0.942658
Log likelihood	43.29873	Hannan-Quinn crite	-0.997015
F-statistic	11.95281	Durbin-Watson stat	2.282259

Prob(F-statistic) 0.000031

APPENDIX L: Unit root test on cointegrating vector using DF-GLS

Null Hypothesis: COINTEQ01 has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Fixed)

		t-Statistic
Elliott-Rootenber-Stock DF-GLS test statistic		-4.454994
Test critical values	1% level	-3.663600
	5% level	-3.100400
	10% level	-2.806000

*Elliott-Rootenber-Stock (1996, Table 1)

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Sample (adjusted): 2002Q3 2021Q4

Included observations: 78 after adjustments

Variable	Coefficient	Std.	Error	t-Statistic	Prob.
GLSRESID(-1)	-0.408854		0.091774	-4.454994	0.0000

R-squared	0.204855	Mean dependent var	-0.001565
Adjusted R-squared	0.204855	S.D. dependent var	0.160532
S.E. of regression	0.143148	Akaike info criter	-1.037135

Sum squared resid	1.577838	Schwarz criterion	-1.006921
Log likelihood	41.44828	Hannan-Quinn crite	-1.025040
Durbin-Watson stat	2.343110		

APPENDIX M: Unit root test on cointegrating vector using Phillips-Perron

Null Hypothesis: COINTEQ01 has a unit root

Exogenous: Constant, Linear Trend

Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-4.848693	0.0009
Test critical values 1% level	-4.080021	
5% level	-3.468459	
10% level	-3.161067	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.019291
HAC corrected variance (Bartlett kernel)	0.018705

Phillips-Perron Test Equation

Dependent Variable: D(COINTEQ01)

Method: Least Squares

Sample (adjusted): 2002Q3 2021Q4

Included observations: 78 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ01(-1)	-0.475746	0.097338	-4.887583	0.0000
C	0.112484	0.043972	2.558109	0.0125
@TREND("2001Q1")	-0.002706	0.000914	-2.960322	0.0041

R-squared	0.241701	Mean dependent var	-0.010016
Adjusted R-squared	0.221480	S.D. dependent var	0.160532
S.E. of regression	0.141644	Akaike info criter	-1.033301
Sum squared resid	1.504722	Schwarz criterion	-0.942658
Log likelihood	43.29873	Hannan-Quinn crite	-0.997015
F-statistic	11.95281	Durbin-Watson stat	2.282259
Prob(F-statistic)	0.000031		

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APPENDIX N: Normality test using three lags

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VEC Residual Normality Tests

Orthogonalization: Cholesky (Lutkepohl)

Null Hypothesis: Residuals are multivariate normal

Sample: 2001Q1 2021Q4

Included observations: 79

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Component	Skewness	Chi-sq	df	Prob.*
=====				
1	-1.398797	25.76233	1	0.0000
2	-0.898354	10.62602	1	0.0011
3	0.052691	0.036555	1	0.8484
4	-1.445153	27.49814	1	0.0000
=====				
Joint		63.92304	4	0.0000
=====				

Component	Kurtosis	Chi-sq	df	Prob.
=====				
1	9.029685	119.6754	1	0.0000
2	6.389438	37.81562	1	0.0000
3	2.963198	0.004458	1	0.9468
4	10.82907	201.7606	1	0.0000
=====				
Joint		359.2561	4	0.0000
=====				

Component Jarque-Bera df Prob.

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1	145.4378	2	0.0000
2	48.44164	2	0.0000
3	0.041013	2	0.9797
4	229.2587	2	0.0000

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Joint	423.1792	8	0.0000
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*Approximate p-values do not account for coefficient estimation

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APPENDIX O– ARCH test

ARCH test (univariate)

data: Residual of resids of LGDP equation

Chi-squared = 3.4589, df = 16, p-value = 0.9996

\$`resids of Exp`

ARCH test (univariate)

data: Residual of resids of Exp equation

Chi-squared = 20.611, df = 16, p-value = 0.1939

\$`resids of Imp`

ARCH test (univariate)

data: Residual of resids of Imp equation

Chi-squared = 10.827, df = 16, p-value = 0.82

\$`resids of Int`

ARCH test (univariate)

data: Residual of resids of Int equation

Chi-squared = 3.4759, df = 16, p-value = 0.9996

ARCH (multivariate)

data: Residuals of VAR object VAR

Chi-squared = 710, df = 800, p-value = 0.9899