

# Credit Allocation to Diverse Sectors of Indian Economy: An Empirical Investigation of Foreign Banks Entry

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## Abstract

Efficient credit allocation is essential for developing countries as accessibility of capital is limited for economic growth. Foreign banks have better access to the international market and support in meeting credit requirement of various sectors and industries in developing countries. Foreign banks are known for cherry picking behavior, lending strategy to be profitable that affects some sectors of the host economy adversely. Thus, this study attempts to measure the impact of foreign banks entry on the credit allocation to diverse sectors in the Indian economy. The study uses panel data, considering bank groups as cross sections and years from 1996 to 2015 as time series data. The study uses GLM estimator and Panel ARDL estimator for analysis and to check the robustness of the estimator respectively. The findings show that the growth of the sector attracts more bank credit. However, in spite of the growth in the agriculture sector, there is a reduction in credit supply by foreign banks. All the bank groups reduce their lending during high NPAs. The study finds a negative impact of foreign banks entry on the credit allocation to the agriculture, services, and industrial sector of Indian economy. The need of the hour is to revisit the policy on foreign banks that enhance credit information and abide by more foreign banks entry in the rural areas.

**Keywords:** Credit Allocation, Foreign Banks, Indian Economy, Panel Data

## 1. Introduction

Efficient credit allocation is important for developing countries since they do not have enough capital to support their economic growth (Levine, 2005). Foreign banks have better access to the international market. Hence, they can supply sufficient credit to meet the needs of various sectors and industries (Levine, 1997; Hermes & Lensink, 2004). On the flip side, foreign banks have the disadvantage with regards to information of borrowers in the host economies. Hence, they ignore firms with soft information and pick a few potential borrowers and

lend them which is considered as *cherry-picking or cream skimming* (Mian, 2006; Sengupta, 2007); this further affects the lending decisions of the domestic banks, and it reduces overall credit in the market (Detragiache, *et al.*, 2008; Gormley, 2010). These way foreign banks affect the credit allocation to different sectors of the host economy (Kim, 2010).

The entry of foreign lender induces high competition in the host credit market that also affects the net output of the firms (Gormley, 2014). However, the rise in competition reduces credit supply to an economy (Petersen & Rajan, 1995) due to the hesitation of foreign banks to

supply credit to sectors with high NPAs and fewer profits (Detragiache, *et al.*, 2008). Foreign banks adopt cream skimming approach to capture the potentially profitable firms and lend them while ignoring the small and non-profitable firms (Dell'Ariccia & Marquez, 2004; Mian, 2006; Sengupta, 2007; Detragiache, *et al.*, 2008). Thus, the impact of foreign banks on the credit supply in the host economy is inconclusive. Therefore, the present study analyses the impact of foreign banks entry on the credit allocation to the various sectors of the Indian economy.

India has adopted a restrictive policy towards the entry of foreign banks. Although the first foreign bank has been operating in India since 1853, the existence of foreign banks is sensed after the financial liberalization. The Narasimham Committee on the Financial System (1991) recommended Government of India to liberalize more foreign banks alongside full-fledged financial sector reforms to boost competition and build institute level field for the min India. There are forty-four foreign banks entered from 25 host countries in India with over 300 branches by the end of 2015. Moreover, RBI has incentivized foreign banks to enter as Wholly Owned Subsidiaries (WOS) and provided them national treatment. The studies in the Indian context argue that foreign banks entry have a negative impact on Indian credit markets. The entry of foreign banks in the Indian districts has reduced credit access (Gormley, 2010). The presence of foreign banks affects the credit allocation in the Indian economy especially to the short maturity loans (Ghosh, 2012).

## 2. Review of Literature

The studies on a foreign banks entry in the host nations have focused upon various determinants of the credit allocation to sectors as an effect of the presence of foreign lender. Though the findings of different studies on the same objectives differ from country to county, all of them agreed that banks' credit allocation depends upon the creditworthiness of the borrowers. To find the creditworthiness of the borrowers, information about the performance of the firm is the key to lending. The discussion on the determinant is delivered below.

<sup>1</sup>Hard information means the documents that represent the ownership, performance of the firms, such as audited balance sheet, credit rating information etc. Soft information indicate the unaudited information about the businesses gained through interaction with the owner.

### 2.1 Information Asymmetry

The studies argue that foreign banks have information disadvantage of borrowers in the host countries (Berger, Klapper & Udell, 2001; Mian, 2006; Sengupta, 2007) that lead to adhering to hard information<sup>1</sup> for lending. Moreover, the collecting soft information from the businesses, considered as client lending relationship needs time for foreign banks. Even if foreign banks collect soft information for lending, it is difficult for them to convince their head office. Thus, foreign banks adopt cherry picking or cream skimming behavior for lending in the host market (Dell'Ariccia & Marquez, 2004; Sengupta, 2007). This leads to a decline in the overall credit availability for lending in the credit market of the host country (Detragiache, *et al.* 2008; Gormley, 2010).

### 2.2 Competition and Growth

Another factor highlighted in the literature is foreign banks competing with the incumbent local lenders. Foreign banks entry raises competition in the banking sector that adversely affects the credit availability to the SMEs (Petersen & Rajan, 1995; Clarke, *et al.*, 2005). Foreign banks have an advanced credit rating and screening technology that foster to weed out opaque small business firms (Mian, 2006; Beck & Peria, 2010; Lin, 2011) Stiglitz (2002) claims that foreign banks willingly do not lend to small and less-profitable firms. This affects those sectors where the profitability of firms is less such as agriculture sector (Kim, 2010).

### 2.3 NPAs

Banks recycle the deposits and convert it into credit. If this credit becomes NPA, then it affects banks credit cycle. Banks need to provide more provisions for bad loans with the rise in NPAs, hence it impact on banks' profitability also (Rajan & Dhal, 2003; Rajeev & Mahesh, 2010). Moreover, a study on determinants of credit risk in Indian banks, Thiagarajan *et al.*, (2011) found that lagged NPAs are strongly associated with the rise in NPAs. Thus, already having NPA in the particular sector is more likely to create more NPAs. Hence, banks

hesitate to provide credit to the sectors where high NPA exists.

## 2.4 Crisis

Foreign banks also mitigate credit access to business firms during the economic downturn (Rodrik & Velasco, 1999; Morgan & Strahan, 2003). However, the results of studies by Dages, *et al.*, (2000) and Crystal, *et al.*, (2002) are not inconsistent with this view. Haas and Lelyveld (2006) studied on 250 banks during 1993 to 2000 in Eastern and Central Europe; the results showed that Greenfield foreign banks do not contract their credit during crisis whereas domestic banks do in the host country. However, Clarke, *et al.*, (2002) argued that SMEs are less prone towards a financial crisis hence foreign banks have changed their behavior for lending to SMEs.

## 3. Hypotheses

H<sub>1</sub>: Credit allocation to the agriculture sector declines following foreign banks entry in India.

H<sub>1a</sub>: Credit to agriculture sector is reduced due to competition among banks in India.

H<sub>1b</sub>: Credit to agriculture declines with the rise in NPAs.

H<sub>1c</sub>: Credit to agriculture increases with the growth in the agriculture sector.

H<sub>1d</sub>: There is no difference among bank groups for the credit disbursement to the agriculture sector.

H<sub>2</sub>: Credit allocation to services sector declines following foreign banks entry in India.

H<sub>2a</sub>: Credit to services sector is reduced due to competition among banks in India.

H<sub>2b</sub>: Credit to services sector declines with the rise in NPAs.

H<sub>2c</sub>: Credit to services sector increases with the growth in the services sector.

H<sub>2d</sub>: There is no difference among bank groups for the loan disbursement to the services sector.

H<sub>3</sub>: Credit allocation to industry reduces following foreign banks entry in India.

H<sub>3a</sub>: Credit to the industry is reduced due to competition among banks in India.

H<sub>3b</sub>: Credit to industry declines with the rise in NPAs.

H<sub>3c</sub>: Credit to industrial sector increases with the growth in the industry.

H<sub>3d</sub>: There is no difference among bank groups for the credit disbursement to the industry.

## 4. Research Methodology

The study attempts to analyze the impact of entry of foreign banks on the credit allocation to various sectors such as agriculture, industry, and services sectors of Indian economy.

### 4.1 Data

The study uses panel data that consists of 4 bank-group wise cross section data for 20 years from 1996 to 2015. Thus, the expected observations are 80. However, our panel data is an unbalanced panel hence the adjusted observations are 56 (See Table 1). Moreover, three panels are formed for three different sectors, i.e., agriculture, services, and Industry.

### 4.2 Econometric Model

The Impact of foreign banks entry is measured by developing the model based on different Industry-wise variable and bank group-wise variables to measure individual industry-wise impact of foreign banks entry. The model is as follows:

Credit to the various Sectors<sup>2</sup> = f(The Performance of the Sector, Intermediary Ratio, Loan Quality, Loan to Priority Sector, Labour Intensity, Competition, Dummy Variables of Each Bank Group)

$$CA_{bt} = \beta_1 A\_GDP_t + \beta_2 NIM_{bt} + \beta_3 CD_{bt} + \beta_4 NPA_{bt} + \beta_5 DUM_{bt} + \beta_6 CRI_t$$

$$CI_{bt} = \beta_1 I\_GDP_t + \beta_2 NIM_{bt} + \beta_3 CD_{bt} + \beta_4 NPA_{bt} + \beta_5 DUM_{bt} + \beta_6 CRI_t$$

$$CS_{bt} = \beta_1 S\_GDP_t + \beta_2 NIM_{bt} + \beta_3 CD_{bt} + \beta_4 NPA_{bt} + \beta_5 DUM_{bt} + \beta_6 CRI_t$$

CA-Credit to Agriculture sector by different bank-groups for the year t, CI- Credit to the Industrial sector

<sup>2</sup>Agriculture, Industry, and Services sector

<sup>3</sup>The results of Panel ARDL estimator is not presented in this paper due to lack of space. However, one can contact authors for the detailed results.

by different bank-groups for the year  $t$ , CS- Credit to Services sector by different bank-groups for the year  $t$ , A\_GDP- Agriculture component of GDP, I\_GDP- Industry component of GDP, S\_GDP- Service component of GDP, NPA- Non-Performing Assets, NIM- Net Interest Margin, CD- Credit to Deposit ratio, DUM- dummy 1 for foreign bank group and 0 for the other bank groups, CRI- crisis dummy 1 for 1997-1999 & for 2008-2010 and 0 for the rest of years. The subscripts,  $b$  – banking groups and  $t$  – yearly time period.

Our model is for the credit allocation to three sectors, agriculture, services, and Industry. The first model for agriculture depicts that credit allocation to agriculture sector by four bank groups such as SBI and its associates, nationalized banks, foreign banks, and private banks for  $t$  years.

### 4.3 Estimator used to analyse panel data

The study uses a Generalised Linear (GLM) estimator for panel data to test the mentioned hypotheses. The Autoregressive Distributive Lag (ARDL) for panel data is used to check the robustness of our estimator and the results are in the same line with GLM estimator<sup>3</sup>.

## 4.4 Variables and Expected Sign

All the variables are explained in Table 1 Operational definition of the variables.

## 4.5 Expected Sign

### 4.5.1 Growth of the sectors

The growth rate of the sectors is used as a proxy for measuring the performance of these sectors. It is plausible that banks allocate more credit to sectors which have a better performance. Therefore, the expected coefficient is positive.

### 4.5.2 NIM

It is believed that as the competition in the banking sector become intense, the net interest margin reduces. This further effect on the lending decision of the banks. High competition reduces credit supply from banks (Petersen and Rajan, 1995) that foster less credit allocations to various sectors. Thus, a negative sign is anticipated.

### 4.5.3 Credit-deposit Ratio

The primary role of any bank as an intermediary is to disburse credit more effectively. Thus, when the credit to deposit ratio

**Table 1.** Operational definition of the variables

Variable	Description	Measures
CA	Credit to Agriculture Sector/GDP	Credit allocation to Agriculture sector
CI	Credit to Industry/GDP	Credit allocation to Industry
CS	Credit to Services Sector/GDP	Credit allocation to the Services sector
A_GDP	Agriculture component of GDP	Agricultural Growth
I_GDP	Industry component of GDP	Industry Growth
S_GDP	Services component of GDP	Services Growth
NIM	Net Interest Margin	Competition in the Banking sector
CD	Credit-Deposit ratio	Intermediary function
NPA	Non-Performing Assets	Loan Quality
DUM	Dummy for bank groups	To identify foreign bank group
CRI	Dummy for crisis	Economic Crisis

Source: Author's definition

increases, the credit allocation to various sectors rises. The anticipated sign for this variable is also positive.

#### 4.5.4 NPA

Non-performing asset represents the quality of loans in a bank. In the case of persistent high NPAs to the banks, they hesitate to disburse loans even in the case of priority sectors. Thus, the expected sign for NPA is negative. Furthermore, it is believed that high competition led to reduced overall lending in the economy (Petersen and

Rajan, 1995) as banks may improve higher screening techniques and hesitate to disburse credit to less profitable firms (Detragiache, et al., 2008). Thus, the anticipated sign for this variable is positive.

#### 4.5.5 Crisis

Banks are believed to cut down credit supply during economic or financial crisis period, especially foreign banks (Rodrik and Velasco, 1999; Morgan and Strahan, 2003). Thus, the expected sign for this variable is negative.

**Table 2.** Summary statistics of the variables

	CA	CI	CS	A_GDP	I_GDP	S_GDP	NPA	NIM	CD
Mean	0.024	0.101	0.119	0.153	0.203	0.616	3.126	3.049	69.941
Median	0.021	0.093	0.109	0.151	0.203	0.618	1.565	2.952	73.236
Maximum	0.064	0.227	0.251	0.196	0.207	0.664	10.505	4.357	91.510
Minimum	0.000	0.019	0.024	0.118	0.196	0.562	0.416	1.967	46.380
Std. Dev.	0.022	0.066	0.074	0.026	0.003	0.033	2.814	0.602	12.472
Observations	56	56	56	56	56	56	56	56	56

Source: Author's calculation using E-View 9 software. CA-Credit to Agriculture sector, CI- Credit to the Industrial sector, CS- Credit to Services sector, A\_GDP- Agriculture component of GDP, I\_GDP- Industry component of GDP, S\_GDP- Service component of GDP, NPA- Non-Performing Assets, NIM- Net Interest Margin, CD- Credit to Deposit ratio

**Table 3.** Correlation matrix of the variables

	CA	CI	CS	A_GDP	I_GDP	S_GDP	IM	CD	NPA	DUM	CRI
CA	1										
CI	0.953	1									
CS	0.944	0.920	1								
A_GDP	-0.083	0.038	-0.017	1							
I_GDP	-0.021	-0.003	0.008	0.168	1						
S_GDP	0.084	-0.039	0.017	-0.995	-0.262	1					
NIM	-0.468	-0.561	-0.510	-0.033	-0.024	0.036	1				
PL	0.569	0.383	0.530	-0.365	0.086	0.355	-0.001				
CD	-0.368	-0.419	-0.410	-0.722	-0.175	0.729	0.312	1			
NPA	-0.179	-0.001	-0.134	0.836	0.074	-0.833	-0.022	-0.522	1		
DUM	-0.626	-0.624	-0.662	0.000	0.000	0.000	0.831	0.455	0.133	1	
CRI	0.023	-0.016	0.011	-0.394	0.215	0.366	-0.105	0.236	-0.351	2E-17	1

CA- Credit allocation to Agriculture sector, CI- Credit allocation to Industry, CS- Credit allocation to Services sector

**Table 4.** Results of bank-group-wise credit allocation to Agriculture sector, services sector, and Industry of the Indian economy

Variable	Credit to Agriculture	Credit to Services	Credit to Industry
Growth of the particular sector	0.067 (0.462)	0.625* (3.615)	1.310* (2.956)
Non-Performing Assets (NPA)	-0.001 (-0.553)	-0.003 (-0.902)	-0.0001 (-0.037)
Credit Deposit ratio (CD)	-0.0001 (-0.438)	-0.003* (-2.923)	-0.001 (-0.99)
DUMMY (For Foreign Bank)	-0.041* (-4.077)	-0.063** (-1.922)	-0.052*** (-1.646)
Net Interest Margin (NIM)	0.010 (1.504)	-0.012 (-0.599)	-0.033 (-1.568)
Crisis	0.003 (0.486)	-0.001 (-0.041)	-0.008 (-0.402)

\* represents significant level at 1%, \*\* at 5%, \*\*\* at 10%. Source: Authors' calculation using Panel GLM estimator in E-View 9 software

## 5. Results and Findings

Table 4 shows the results of Generalised Linear Model (GLM) estimator. The significant result that is more relevant for the study is the coefficients of the dummy variable of foreign banks entry. All the coefficients for a foreign bank are negative that indicates the negative impact of foreign banks on credit disbursement to the important sectors of Indian economy. Thus, all the developed hypotheses cannot be rejected. This shows the credit availability by foreign banks has reduced to Agriculture, Industry, and Services sector of Indian economy. The positive sign for the growth of the sectors indicates that hike in credit lending over the years due to the increase in the growth of Agriculture, Services, and Industry. However, the co-efficient for agriculture is statistically not significant. The negative sign for NPA represents that more stress on the assets leads to a decrease in the lending irrespective of the sector. All the coefficient of NPA for different sectors are statistically not significant. Moreover, high competition among banks also leads to a fall in credit supply to any sector of the economy that is seen from the results in Net Interest Margin (NIM). However, the coefficients of NIMs are also statistically not significant. The result of CD ratio is negative that is opposite of our anticipation. However, the results are statistically not significant for most of the sectors. The statistically insignificant results for crisis

variable are mixed that cannot determine any effect of the crisis on the credit disbursement by banks in India.

The results indicate the negative impact of foreign banks credit disbursement to the important sectors of Indian economy. We infer these results as high competition among banks, high NPAs in the particular sectors and foreign banks entry are the reasons for the reduction in the credit accessibility for the crucial sectors of Indian economy. The growth in the particular sector is found to be essential for credit availability from different banks in India.

## 6. Implication

Though incentivized foreign banks have not preferred to enter as a WOS in India. Moreover, foreign banks are restricted to open their branches in the tier V and tier-VI cities in India due to security reasons. There are regulations of licensing foreign banks to restrict them to enter in a large number and foster them to enter a metro city or tier I cities. Foreign banks should be allowed to open their branches in rural areas and if required should be compelled to enhance credit supply to the agriculture and allied sectors of the economy. RBI has to maximize the credit information to foreign banks that will encourage them to allocate more credit to SMEs irrespective of the sectors in the economy. Thus, by enhancing the credit access to the firms and allocating credit in increasing

manner to various sectors of the economy will prosper Indian economy.

## 7. Conclusion

The study investigates the impact of foreign banks entry on the credit allocation to agriculture, services, and industry in Indian economy after 1995. The study uses panel data and analyzed through panel data econometrics estimators. The empirical study finds that foreign banks entry affects the credit allocation to the various sectors of Indian economy negatively. The need of the hour is a toostrong policy by the central bank that enhancesaccess to credit information and compels foreign banks in the rural areas in India.

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