

EXPLORING NON-LINEAR RELATIONSHIP BETWEEN FOREIGN OWNERSHIP AND FIRM PERFORMANCE

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Abstract

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This study aims to examine the impact of foreign ownership on the performance of Indian firms. Additionally, it also analyses the non-linear relationship of foreign ownership with firm performance. A panel data approach has been used in this study. Specifically, the fixed effect estimation technique is used to examine the relationship between foreign ownership and firm performance during the period 2009–2010 to 2018–2019. The foreign institutional shareholders and the foreign corporate bodies hold more shareholding than the foreign individual investors. The authors find that foreign institutional investors and foreign corporate bodies bear a positive relationship with the performance of Indian firms. Additionally, foreign ownership shows a non-linear relationship with firm performance. The results are robust across the various proxies of firm performance, and sub-samples based on foreign ownership.

Keywords: Firm Performance, Foreign Ownership, Foreign Institutional Investor, Foreign Corporate Bodies, Foreign Individual Investor

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1. INTRODUCTION

International investors have expanded their shareholdings in Indian companies significantly over the last two decades. Kang and Stulz (1997) and Ko, Kim, and Cho (2007) suggest that big, profitable companies with high growth potential are favoured by foreign investors. But have international investors increased the performance? Several studies indicate a positive response (Huynh, Nguyen, Nguyen, & Nguyen, 2020; Choi, 2020; Gu, Cao, & Wang, 2019). Ahmadjian and Robbins (2005) report that foreign

investors are correlated with a greater likelihood of corporate downsizing and disposal of assets whose intended effect is to improve firm performance (Shrivastav & Kalsie, 2017; Saini & Singhania, 2018a). This also contributes, in principle, to greater operational efficiency. Similarly, Baba (2009) shows that higher dividends are extracted by international investors, suggesting greater financial discipline and, consequently, greater firm efficiency. Another theory is that foreign investment shows substantial cross-sectional and time differences because, unlike domestic institutional investors that appear to be

more passive, foreign investors are fairly selective and tend to leave as soon as they build up equity stakes (Ahmadjian & Robbins, 2005; Nguyen, 2012). Conventionally, foreign investment streams from developed to developing markets, carrying relevant technical expertise, and presence in global investment markets. Foreign ownership progressively became an indispensable chunk of ownership structure in both public and private limited companies due to the affluent inflow of foreign investment. Earlier studies have concentrated on various aspects of ownership structure. Nevertheless, theoretic opinions are ambiguous and empirical confirmations demonstrate varied outcomes (Morck, Shleifer, & Vishny, 1988; Margaritis & Psillaki, 2010). The previous studies on the association between ownership structure and firm performance have frequently considered the executive ownership, large

investors' ownership, and the concentration of ownership structure. However, the empirical evidence on the effect of foreign ownership on firm performance is limited. For example, Doms and Jensen (1998) reveal that foreign companies perform better than domestic companies. Chari, Ouimet, and Tesar (2010) suggest that both investing and the investee companies witness enhanced valuation after the dealings. Arnold and Javorcik (2005), while analyzing Indonesian companies established that foreign ownership leads to enhanced productivity. Whereas, Petkova (2008) in a similar study on Indian firms conclude that foreign-owned plants witness higher productivity after three years of foreign investment. In recent years, foreign investors have intensely enlarged their shareholdings in Indian firms. Hence this study focuses on the impact of foreign ownership on firm performance.

Table 1. Changes in FDI policy after 2013

Sector/Industry	Previous Policy		2013 Revised Policy	
	Investment Cap	Approval Route	Investment Cap	Approval Route
Commodity Exchanges	49% (FDI & FII)	Government	49%	Automatic
	<ul style="list-style-type: none"> • FDI Cap: 26% • FII Cap: 23% 		<ul style="list-style-type: none"> • FDI Cap: 26% • FII Cap: 23% 	
Power Exchanges	49% (FDI & FII)	Government	49%	Automatic
	<ul style="list-style-type: none"> • FDI Cap: 26% • FII Cap: 23% 		<ul style="list-style-type: none"> • FDI Cap: 26% • FII Cap: 23% 	
Stock Exchanges, Depositories, Clearing Corporations	49% (FDI & FII)	Government	49%	Automatic
	<ul style="list-style-type: none"> • FDI Cap: 26% • FII Cap: 23% 		<ul style="list-style-type: none"> • FDI Cap: 26% • FII Cap: 23% 	
Asset Reconstruction	74% (FDI + FII)	Government	Up to 49%	Automatic
			49% to 100%	Government
Credit Information	49% (FDI & FII)	Government	74%	Government
	<ul style="list-style-type: none"> • FDI Cap: 24% 		<ul style="list-style-type: none"> • FDI Cap: 24% 	
Telecom Services	Up to 49%	Automatic	Up to 49%	Automatic
	Above 49% and up to 74%	Government	Above 49% and up to 100%	
Courier Services	100%	Government	100%	Automatic
Test Marketing	100%	Government	100%	Automatic
Petroleum Refining by Public Sector Undertakings	49%	Government	49%	Automatic
Defense Production	26% (Only FDI, No FII)	Government	26%	Automatic
			Above 26%	Government

Source: <https://www.india-briefing.com/news/2013-changes-indian-fdi-policy-7149.html/>

There are several motivations for conducting this study. First, most of the studies about the impact of foreign ownership have been conducted in the developed market. The studies in the Indian context are rare (Douma, George, & Kabir, 2006; Shrivastav & Kalsie, 2017; Saini & Singhania, 2018a). The present study adds to published studies by presenting new data on the relationship between foreign ownership and an emerging economy's firm results. Second, there are two FDI routes for foreign investment in India: 1) the Government Route: for investment in business sectors requiring prior approval by the Foreign Investment Promotion Board (FIPB); 2) Automatic Route: for investments in business sectors that do not need the government's prior approval. When interpreting recent changes in foreign investment policy, both distinctions are significant, as differences in foreign investment limits and routes of approval often differ from

industry to industry. To encourage FDI in the country after 2013, significant legal changes have taken place in India in recent years (Table 1). Hence, this study also analyses the impact of foreign ownership on the firm performance for the period before and after the initiation of legal reforms (before and after 2013). Third, the present study analyses the non-linear relationship between foreign ownership and the Indian firm's performance.

The dissimilarity in the market structure and unique FDI policies makes the Indian firms a piece of out-of-sample evidence and motivates us to study the impact of foreign ownership on the Indian firm's performance. Using a sample of 150 companies listed on the Bombay Stock Exchange¹ from 2009–2010 to 2018–2019, we found that

¹ It is intended to evaluate the performance of the BSE-listed 30 biggest, most liquid, and financially sound companies in key sectors of the Indian economy.

the shareholdings held by the foreign institutional investors and the foreign corporate bodies in Indian firms improve their performance. We make several contributions to the literature. First, most of the earlier studies (Kang & Stulz, 1997; Ko et al., 2007) have been conducted in developed countries. Further, this study also analyses the curvilinear relationship of foreign ownership with Indian firms' performance. For checking the robustness of the results, we analyzed these results by classifying the firms based on foreign ownership and time period. We find similar results after conducting the robustness test by estimating the proposed model through the generalized method of moments (GMM) technique. The endogeneity problem emerging from the incomplete observation of a company's market environment is the key challenge in establishing a causal relationship between foreign ownership and company results (Himmelberg, Hubbard, & Palia, 1999). This generates a missing variable bias that may result in the effect of foreign ownership being overstated. Our first approach is to use a fixed-effect model to resolve this issue of endogeneity. Fixed effect panel regression is an acceptable process, given that unnoticeable firm characteristics remain unchanged over the entire estimation duration (Himmelberg et al., 1999; Adams & Ferreira, 2008). Besides, foreign investors will likely respond to these changes, thereby establishing a complex connection between the corporate impact and the level of foreign shareholdings. The use of instrumental variables is thus important. But because it is not always possible to classify exogenous instruments (Himmelberg et al., 1999; Bhagat & Bolton, 2008; Larcker & Rusticus, 2010), we use the dynamic approach to panel data suggested by Arellano and Bond (1991) and enhanced by Arellano and Bover (1995) and Blundell and Bond (1998), which treats the variables' past realizations as future resources. Our results indicate that foreign investors have contributed to Indian companies' success.

As follows, the remaining part of the paper is discussed. The literature review on the topic is dealt with in Section 2. The data and the method of estimation are discussed in Section 3. Regression analysis findings are stated and addressed in Section 4. Section 5 discusses the results. The study's conclusion is given in Section 6.

2. LITERATURE REVIEW

Foreign vs. domestic ownership is among one of the most debatable issues in the finance literature focusing on the impact of various types of ownership on corporate performance. Foreign investors due to their huge international exposure can effectively deal with cost and risk while deciding on equity partners (Padmanabhan & Cho, 1996; Jiang & Yamada, 2011). Foreign investors prefer companies that disclose more information and lack information asymmetry. Oversized and well-established companies would have less information asymmetry and are usually targeted by foreign investors (Dahlquist & Robertsson, 2001). Foreign equity-owned companies are endowed with superior technology, executive expertise as well as quality financial resources. Agency theory suggests that huge foreign stakeholders may act as active

monitors and lessen the agency cost leading to firm enhancement (Easterbrook, 1984; Jensen, 1986; Jiang & Yamada, 2011). Earlier researchers have tried to answer the question of whether foreign-owned firms perform better than domestically controlled firms. Grant (1987) demonstrated a positive relationship between foreign ownership and the UK firms' profitability (Wiwattanakantang, 2001; Wei, Liu, & Liu, 2005; Yudaeva, Kozlov, Melentjeva, & Ponomareva, 2003; Aydin, Sayim, & Yalama, 2007; Choi, Sul, & Min, 2012; Nakano & Nguyen, 2013). The higher ownership of foreign institutions leads to higher firm valuations (Ferreira & Matos, 2008). High foreign ownership stocks outperform low foreign ownership stocks (Huang & Shiu, 2009). Notwithstanding, there is a general accord that foreign ownership positively affects the firm performance, there are some conflicting studies. For example, Kim and Lyn (1990) reveal that foreign-owned US firms perform worse than domestically owned firms. However, Ananchotikul (2006) argues that large foreign investors may chase their prospective personal benefits at the expense of other shareholders. Phung and Le (2013) found that foreign ownership hurts firm's performance due to lack of effective monitoring, information asymmetry, and weak governance due to dispersed foreign ownership. In the Indian context, the findings are ambiguous. Chhibber and Majumdar (1999) found that the extent of a foreign firm's control over a domestic firm is directly linked with the degree of resource commitment and technology transfer to the domestic firm. Sarkar and Sarkar (2000) reported that foreign ownership has a positive effect on a firm's performance. Douma et al. (2006) revealed that foreign institutional ownership has a positive and significant impact on Tobin's Q. Pant and Pattanayak (2010) concluded that FIIs are strategic investors and their shareholding results in higher productivity of a firm. Similarly, Shrivastav and Kalsie (2017) revealed that higher foreign ownership enhances performance. Khanna and Palepu (1999) find that foreign institutional investors provide valuable monitoring, in Indian domestic financial institutions.

Additionally, Akimova and Schwödauer (2004), in the Ukrainian market demonstrated a significant non-linear relationship of ownership with performance. Besides, Ferris and Park (2005) find a curvilinear relationship between firm value and the shareholding of foreign investors in Japan. Firm value increases and then declines when the foreign ownership increases beyond 40%. They argue that manager-owner foreigners with their increased ownership may lead to entrenchment effects and put their interest ahead of the interest of the other shareholders. Gurbuz and Aybars (2010) found that foreign ownership enhances the firm's performance in Turkey up to a certain level after which it adversely affects ROA. Confirming results are found by McConnell and Servaes (1990), Hermalin and Weisbach (1991), and Kole (1995). Claessens, Djankov, and Lang (2000) provide further evidence that the block holders of financial institutions largely expropriate minority shareholders. This finding is contrary to the arguments of Admati and Pfleiderer (1994) and Mahrt-Smith (2000) that equity ownership by informed financial institutions benefits firms as informed creditors mitigate

information asymmetry. Morck, Nakamura, and Shivdasani (2000), however, do not examine how the values of Tobin's Q are affected when a firm is largely owned by foreign investors. It might be that there exists a nonlinear relation between foreign ownership and the performance of Indian firms. Thus, we hypothesize a concave relation between foreign ownership and firm performance. As foreign equity ownership increases, the influence of Indian financial institutions will correspondingly decrease. The foreign investors' monitoring will likewise increase. This will discourage the value-destroying policies of banks. At high ownership levels, it is assumed that both ownership and managerial control are closely associated. It might be that increased levels of foreign ownership will allow foreign owner-managers to become entrenched and pursue non-value maximizing managerial activities. Zeckhauser and Pound (1990) describe the issue of the "poor performance-attracts-large-shareholders" phenomenon, whereby foreign investors acquire poorly performing domestic firms. Hence, in the light of the aforementioned discussion, we formulate the following hypotheses.

H1: There is a positive relationship between foreign ownership and firm performance.

H2: There is a non-linear relationship between foreign ownership and firm performance.

3. RESEARCH METHODOLOGY

3.1. Sample and data

We target 150 companies listed on the Bombay Stock Exchange. Out of 150 companies, 18 are BFSI² companies. The period of the study is 2009–2010 to 2018–2019. The data on foreign ownership has been hand collected from the annual reports of the respective companies. The financial information has been gathered from the Prowess IQ CMIE database and the Bloomberg database. For further analysis, based on foreign ownership, we have divided the whole sample into three terciles. The firm in the above tertile has been termed as large foreign shareholding. The firm in the mid tertile as the mid-sized foreign shareholding companies and in the lower tertile as the small foreign shareholding companies. Based on the time period, we have divided the whole sample into two parts, i.e., from 2010 to 2013 and from 2014 to 2019.

3.2. Bank performance

Following previous studies (Lin & Zhang, 2009; Berger, Hasan, & Zhou, 2010; Gupta & Mahakud, 2020a, 2020b) we have used (ROA), and return on equity (ROE) as the performance measures of the banks. All these ratios are measured as follows. The ROA is measured as the net income to total assets ratio, which assesses how effectively a bank uses its assets to produce revenue. ROE calculates the rate of return on the shareholders' capital. It shows the amount of earnings per rupee invested by equity owners. For shareholders, a higher ratio is better.

3.3. Foreign ownership variables

The explanatory variables used in this study include the foreign ownership variables. We have taken the percentage of total foreign shareholding (TFS). We have further divided the total foreign shareholding into three parts, i.e., percentage of shares held by foreign institutional shareholders (FI), percentage of shares held by the foreign corporate bodies (FCORPB), and percentage of foreign individual investors (FIDI). A foreign institutional investor (FI) is an investor in a financial market outside its official home country. Foreign institutional investors can include pension funds, investment banks, hedge funds, and mutual funds. Foreign corporate body (FCORPB) means a company, partnership firm, society and other corporate body owned directly or indirectly to the extent of at least 60 percent by non-resident Indians and includes overseas trust in which not less than 60 percent beneficial interest is held by non-resident Indians directly or indirectly but irrevocably, which was in existence as on September 16, 2003, and was eligible to undertake transactions pursuant to the general permission granted under Foreign Exchange Management Regulations.

3.4. Control variables

Following earlier studies (Lin & Zhang, 2009; Berger et al., 2010), we have considered four control variables such as bank size, bank age, growth of deposits, and capital structure in our analysis. Bank size (FS), is calculated as the natural log of total assets (Bhagat & Bolton, 2008). Smirlock (1985) argues that the growing bank size is positively related to bank profitability. The positive influence of bank size on profitability can be attributed to the fact that large banks may be able to generate the benefits of economies of scale and better operational efficiency. However, extremely large banks may also bear an inverse relationship with the performance, which might be due to higher agency costs, bureaucratic processes, and other costs involved in managing large organizations (Stiroh & Rumble, 2006; Pasiouras & Kosmidou, 2007). Hence, the overall effect of bank size needs an empirical determination. The theory of "learning by doing" suggests a positive relationship between the bank age and profitability and posits that as the age of the bank increases, there is a likelihood of improvement in their productive efficiency over time by learning from their past experience (Bahk & Gort, 1993). We also expect a positive association between bank age and profitability since old banks might have enjoyed the advantages such as longer custom, good reputation, and a broader client base relatively. The higher growth of annual deposits may also affect the performance of the banks since a rapidly growing bank is expected to enlarge its business and, ultimately higher profits. Finally, we have an annual percentage in sales growth. The definition for all the independent variables along with the dependent and control variables is summarized in Table 2.

² Banking, Financial Services, and Insurance.

Table 2. Measures of the variables

Variables	Measures
Panel A: Dependent variables	
ROA	Net profit/Total assets
ROE	Net profit/Total equity
Panel B: Board characteristics variables	
TFS	Total foreign shareholding
FII	Percentage of shares held by foreign institutional shareholders
FCORPB	Percentage of shares held by foreign corporate bodies
FIDI	Percentage of shares held by foreign individual investors
TFS ²	Square of total foreign shareholding
Panel C: Control variables	
FS	Natural log of total assets
FAGE	Log(current year — year of establishment)
ETA	Total equity capital to total asset ratio
SG	Sales growth in percentage

3.5. Models specification and estimation method

Assuming the linear relationship between the foreign shareholding and firm performance, a panel data model is specified as follows:

$$BANKP_{it} = \alpha_i + \beta_1 TFS_{it} + \beta_2 FS_{it} + \beta_3 FAGE_{it} + \beta_4 ETA_{it} + \beta_5 SG_{it} + \epsilon_{it} \quad (1)$$

$$BANKP_{it} = \alpha_i + \beta_1 FII_{it} + \beta_2 FCORPB_{it} + \beta_3 FIDI_{it} + \beta_4 FS_{it} + \beta_5 FAGE_{it} + \beta_6 ETA_{it} + \beta_7 SG_{it} + \epsilon_{it} \quad (2)$$

Morck et al. (2000) find a non-linear relationship between equity ownership and firm value in line with the findings of Weinstein and Yafeh (1998). They contend that higher levels of equity ownership increase firm power. An increase in foreign ownership leads to the reduction of domestic institutions' equity. With the increase in foreign ownership, the influence of domestic financial institutions decreases correspondingly. The foreign shareholders' supervision will equally increase leading to minimization of value-destroying policies in firms. The ownership concentration may knit both ownership and managerial control closely. It may allow foreign owner-managers to become entrenched and pursue non-value maximizing managerial activities. Thus, a concave relation between foreign ownership and firm value is expected. Therefore, to investigate the curvilinear relationship of foreign ownership, we add the squared term of foreign ownership in the model, and is specified as follows:

$$BANKP_{it} = \alpha_i + \beta_1 TFS_{it} + \beta_2 TFS_{it}^2 + \beta_3 FS_{it} + \beta_4 FAGE_{it} + \beta_5 ETA_{it} + \beta_6 SG_{it} + \epsilon_{it} \quad (3)$$

where, $BANKP_{it}$ is bank performance indicators measured by ROA and ROE. ϵ_{it} is the disturbance term, i is the bank from 1 to 150, and t is the values of years from 2010 to 2019. The β parameters capture the possible effect of explanatory variables on bank performance indicators. TFS is the percentage of total foreign shareholding, FII is the percentage of shares held by foreign institutional shareholders, $FCORPB$ is the percentage of shares held by the foreign corporate bodies ($FCORPB$), $FIDI$ is the percentage of foreign

individual investors, TFS^2 is the square of the percentage of total foreign shareholding. FS is the bank size, $FAGE$ is the bank age, ETA is the ratio of total equity to total assets of the bank and SG is the annual percentage growth in sales. Following extant literature (Fukui & Ushijima, 2007; Bhagat & Bolton, 2008; Hu & Izumida, 2008), firm performance is measured by two indicators: return on assets (ROA) and return on equity (ROE).

This research utilizes panel data models with standard errors clustered at the level of the industry. To estimate the models, we have used panel data techniques. The most widely used static panel data models are fixed impact and random effect models (Adams & Mehran, 2008). The fixed-effect model enables non-observed heterogeneity to be controlled, which explains individual-specific effects not captured by variables observed. The term "fixed effects" is due to the idea that while the intercept may vary across individuals (banks), the intercept of each individual is time-invariant. The F-statistics determine the correctness of the models. To find out a suitable panel data technique for estimating the bank output equation, the LM test and Hausman test were performed. The LM test (Breusch-Godfrey test) measures the errors of a regression model for autocorrelation. Breusch and Pagan's (1980) LM test is based on pooled OLS residuals for random effects in a linear model, whereas the alternative model approximation uses generalized least squares based either on a two-step method or maximum likelihood. The Hausman test (also called the Hausman definition test) detects endogenous regressors (predictor variables) in a regression model. The Hausman test is often referred to as a model-misspecification test. The Hausman test helps to choose between the model of fixed effects or the model of random effects in panel data analysis. This test is also called the Durbin-Wu-Hausman (DWH) test or the augmented regression test for endogeneity. The use of the fixed-effect model over the random effect model was ultimately favoured by all these experiments. Besides, to verify the strengths of the models, we perform robustness checks. Omitted variables theoretically bias coefficients, and poor model fit may result in an irrelevant variable. Besides, by splitting the sample based on international shareholding, we perform robustness tests to verify the strengths of the models.

4. DISCUSSION OF RESULTS

The descriptive statistics show that the average ROA and ROE of the sample firms are 10.889 and 22.784 percent. The average shareholding of FII, FCORP, and FIDI is 11.321, 14.161, and 1.450 percent. The correlation matrix presented in Table 3 rules

out the problem of multicollinearity as the values of the correlation coefficient is very small, and most of the coefficients are statistically insignificant. Additionally, the VIF of the explanatory variables was less than 5, which also indicates no multicollinearity.

Table 3. Descriptive statistics of all the variables

	Whole sample	First tercile	Second tercile	Third tercile
	Mean	Mean	Mean	Mean
ROA	10.889	11.140	10.168	11.416
ROE	22.874	25.270	20.390	22.926
FII	11.321	14.699	15.260	3.889
FCORPB	14.161	35.719	5.351	0.789
FIDI	1.450	2.968	0.859	0.469
TFS	26.933	53.343	21.471	5.136
FS	11.960	11.922	11.981	11.967
FAGE	44.074	42.435	46.175	43.657
ETA	47.505	44.621	51.664	46.461
SG	17.568	17.035	17.548	18.119

Table 4. Correlation matrix of all the variables used in the analysis

	ROA	ROE	FII	FCORPB	FIDI	TFS	FS	FAGE	ETA	SG
ROA	1.000									
ROE	0.630*	1.000								
FII	0.019*	0.053*	1.000							
FCORPB	0.012*	0.056	0.026*	1.000						
FIDI	0.052	0.025	0.025*	-0.025*	1.000					
TFS	0.040	0.072	0.027	0.033	0.018*	1.000				
FS	-0.044	-0.020***	0.068	-0.059*	-0.065	-0.035	1.000			
FAGE	0.048	0.047	-0.045	0.011	0.069	0.011*	0.103	1.000		
ETA	0.053	-0.065	0.048	-0.012	0.055	-0.081	-0.042**	0.076	1.000	
SG	0.016	0.069	0.072	-0.011	0.020	-0.056*	-0.078	-0.048*	-0.039	1.000

Note: *, ** and *** show the 10%, 5% and 1% level of significance respectively. For the definition of variables please refer to Table 1.

Table 5 and Table 6 show the impact of foreign ownership on the firm performance measured by ROA and ROE respectively. The LM test and Hausman test results conclude that the fixed effect model estimation is suitable for this analysis. The p-value of F-statistics is significant at a 1% level and thus indicates the fitness of the model. Additionally, the adjusted R² provides the percentage of variation reported by the explanatory variables having an impact on the dependent variable. We observe that ownership

held by FII bears a positive relationship with the ROA and ROE of the firms. The findings are consistent with the findings of Khanna and Palepu (1998) but do not support the findings of Phung and Le (2013). The impact of FOCRPB is positive on ROA. Its impact on ROE is also positive but is insignificant. Our findings are consistent with the findings of Shrivastav and Kalsie (2017). The impact of FIDI is insignificant on both the firm performance measure. Our findings reveal that FII and FCORPB serve as effective supervisors of Indian firms.

Table 5. Foreign ownership and firm performance (fixed effect estimation results for ROA of the whole sample)

Variable	I	II	III	IV	V	VI
FII	0.064 (0.021)**			0.110 (0.024)***		
FCORPB		0.027 (0.013)**		0.060 (0.015)***		
FIDI			0.113 (0.071)	0.105 (0.070)		
TFS					0.067 (0.014)***	0.105 (0.023)***
TFS ²						-0.362 (0.182)**
FS	-1.411 (0.397)***	-1.277 (0.396)**	-1.353 (0.398)**	-1.528 (0.396)***	-1.418 (0.393)***	-1.300 (0.397)**
FAGE	0.161 (0.073)**	0.104 (0.073)**	0.151 (0.073)**	0.142 (0.074)*	0.108 (0.071)	0.097 (0.072)
ETA	0.035 (0.009)***	0.039 (0.009)***	0.039 (0.009)***	0.032 (0.009)***	0.035 (0.009)***	0.037 (0.009)***
SG	0.049 (0.010)***	0.050 (0.010)***	0.050 (0.010)***	0.049 (0.010)***	0.049 (0.010)***	0.050 (0.010)***
Constant	17.355 (3.206)***	18.425 (3.218)***	17.452 (3.206)***	18.187 (3.195)***	18.708 (3.176)***	18.686 (3.170)***
LM test	2421.15 (0.0000)	2546.57 (0.0000)	2545.37 (0.0000)	2421.73 (0.0000)	2528.64 (0.0000)	2529.08 (0.0000)
Hausman test	7.14 (0.0105)	9.54 (0.0294)	12.06 (0.0241)	16.29 (0.0226)	34.95 (0.0000)	32.57 (0.0000)
F-test	33.04 (0.0000)	33.69 (0.0000)	33.63 (0.0000)	33.75 (0.0000)	34.50 (0.0000)	34.64 (0.0000)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.0585	0.0964	0.0715	0.0578	0.0762	0.0766

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 6. Foreign ownership and firm performance (fixed effect estimation results for ROE of the whole sample)

Variable	I	II	III	IV	V	VI
FII	0.155 (0.074)**			0.152 (0.085)**		
FCORPB		0.041 (0.045)		0.072 (0.054)		
FIDI			0.229 (0.244)	0.207 (0.244)		
TFS					0.081 (0.039)**	0.086 (0.032)
TFS ²						-0.145 (0.031)
FS	-3.573 (1.359)**	-3.319 (0.353)**	-3.430 (1.360)**	-3.685 (1.368)**	-3.361 (1.357)**	-3.314 (1.373)**
FAGE	-0.173 (0.249)	-0.203 (0.251)	-0.204 (0.251)	-0.138 (0.255)	-0.256 (0.248)	-0.260 (0.249)
ETA	-0.081 (0.032)**	-0.073 (0.031)**	-0.075 (0.031)**	-0.083 (0.032)**	-0.075 (0.031)**	-0.075 (0.031)**
SG	0.113 (0.034)**	0.114 (0.034)**	0.114 (0.034)**	0.113 (0.034)**	0.113 (0.034)**	0.114 (0.034)**
Constant	73.419 (10.975)***	73.619 (10.999)***	74.167 (10.949)***	72.965 (11.038)***	75.155 (10.962)***	75.146 (10.968)***
LM test	1336.06 (0.0000)	1348.02 (0.0000)	1222.38 (0.0000)	1205.35 (0.0000)	1347.78 (0.0000)	1347.41 (0.0000)
Hausman test	6.80 (0.0136)	5.03 (0.0141)	8.39 (0.0121)	10.81 (0.0114)	4.86 (0.0043)	4.87 (0.0036)
F-test	13.47 (0.0000)	13.4 (0.0000)	12.38 (0.0000)	12.38 (0.0000)	13.40 (0.0000)	13.38 (0.0000)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.0196	0.0157	0.0255	0.0347	0.0133	0.0128

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

We examine for a curve linear relation between ROA and foreign equity ownership (TFS) by estimating equation (4).

$$ROA = 18.686 + 0.105 TFS - 0.362 TFS^2 \quad (4)$$

$$TFS = \frac{0.105}{0.724} * 100 = 14.50\%$$

The above-mentioned results provide robust proof of the non-linear relationship between ROA and proportions of the foreign equity held by the foreign investors. The negative coefficient of the TFS² reveals a non-linear relationship. Equation (5) reveals that the highest value is reached at 14.50 percent for foreign equity ownership. Additionally, we examine whether there is any constant non-linear relationship between ROE and foreign equity ownership.

$$ROE = 75.146 + 0.086 TFS - 0.145 TFS^2 \quad (5)$$

$$TFS = 29.65\%$$

We find that the inflection point increases to 29.65 percent for foreign ownership, indicating that if the foreign equity increases beyond 29.65 percent, the firm performance shows a non-linear relationship. Our findings are consistent with the findings of McConnell and Servaes (1990) and Ferris and Park (2005). For the controlled variable, we observe that firm size is negatively correlated with firm performance. It indicates that the Indian firms are not able to derive the benefit of economies of

scale. Our results are consistent with the findings of Gul, Kim, and Qiu (2010) but do not support the findings of Smirlock (1985). The impact of firm age is positive and significant on ROA but its impact on ROE is insignificant. These results are consistent with Tan (2016). The impact of ETA is positive on ROA. Our findings are consistent with the findings of Saeed (2014). Its impact on ROE is negative which indicates that higher equity capital leads to a decline in ROE. Our findings support the study of Lee, Sameen, and Cowling (2015) but do not support the findings of Almaqtari Al-Homaidi, Tabash, and Farhan (2019).

4.1. Robustness check

Further for checking the robustness of the results we have divided the whole sample into first, second, and third tercile. The estimation result of the first, second, and third tercile have been given from Table 6 to Table 11. The findings reveal that FII and FCORPB are positively correlated to firm performance measured by ROA and ROE for the firms in the first and second tercile. Additionally, we observe a curve linear relationship between foreign equity ownership and performance of the firm in the first and second tercile. For, the firms in the third tercile, the impact of FII is negative on ROA and ROE. The impact of FCORBP is positive on ROA but negative on ROE. Additionally, the total foreign equity does not reveal the curve linear relationship with the performance in the third tercile. For control variables, we find similar results as the whole sample result.

Table 7. Foreign ownership and firm performance (fixed effect estimation results for ROA of first tercile)

<i>Variable</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>VI</i>
<i>FII</i>	0.074 (0.028)**			0.129 (0.022)**		
<i>FCORPB</i>		0.058 (0.026)**		0.101 (0.019)**		
<i>FIDI</i>			0.085 (0.070)	0.181 (0.145)		
<i>TFS</i>					0.095 (0.019)**	1.135 (0.451)**
<i>TFS</i> ²						-28.013 (9.910)**
<i>FS</i>	-1.873 (0.313)***	-1.934 (0.314)***	-1.937 (0.316)***	-1.912 (0.318)***	-1.995 (0.321)***	-2.077 (0.319)***
<i>FAGE</i>	0.011 (0.015)	0.012 (0.015)	0.012 (0.015)	0.010 (0.015)	0.014 (0.015)	0.017 (0.015)
<i>ETA</i>	0.052 (0.019)**	0.055 (0.019)**	0.050 (0.019)**	0.049 (0.019)**	0.052 (0.019)**	0.047 (0.019)**
<i>SG</i>	-0.055 (0.035)	-0.043 (0.036)	-0.070 (0.036)*	-0.051 (0.038)	-0.051 (0.038)	-0.046 (0.037)
Constant	32.628 (4.416)***	29.840 (4.606)***	32.407 (4.469)***	27.533 (7.360)***	27.755 (7.405)***	-125.146 (54.589)**
LM test	17.39 (0.000)	21.12 (0.000)	21.47 (0.000)	11.68 (0.0003)	14.48 (0.0001)	12.57 (0.0002)
Hausman test	3.80 (0.0157)	6.08 (0.0122)	2.45 (0.0127)	5.90 (0.0255)	3.36 (0.0346)	2.97 (0.0041)
F-test	2.28 (0.0002)	2.58 (0.0000)	2.43 (0.0000)	2.08 (0.0008)	2.19 (0.0003)	2.08 (0.0007)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.2396	0.1995	0.2233	0.1708	0.1584	0.2575

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 8. Foreign ownership and firm performance (fixed effect estimation results for ROE of first tercile)

<i>Variable</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>VI</i>
<i>FII</i>	0.051 (0.098)			0.478 (0.386)		
<i>FCORPB</i>		0.168 (0.090)*		0.471 (0.176)**		
<i>FIDI</i>			0.537 (0.220)**	0.545 (0.459)***		
<i>TFS</i>					0.177 (0.009)***	2.672 (1.523)*
<i>TFS</i> ²						-64.846 (33.454)*
<i>FS</i>	-5.560 (1.066)***	-5.655 (1.055)***	-5.395 (0.985)***	-5.609 (1.006)***	-5.695 (1.078)***	-5.886 (1.077)***
<i>FAGE</i>	-0.027 (0.051)	-0.020 (0.051)	-0.054 (0.047)	-0.053 (0.048)	-0.025 (0.051)	-0.019 (0.051)
<i>ETA</i>	-0.211 (0.066)**	-0.219 (0.066)**	-0.259 (0.062)***	-0.266 (0.062)**	-0.212 (0.066)**	-0.223 (0.066)**
<i>SG</i>	0.077 (0.121)	0.018 (0.123)	0.067 (0.113)	0.020 (0.121)	0.092 (0.128)	0.103 (0.128)
Constant	101.587 (15.027)***	109.077 (15.462)***	100.091 (13.928)***	76.635 (23.254)**	92.717 (24.825)***	-261.234 (184.267)
LM test	6.73 (0.0047)	7.90 (0.0025)	17.65 (0.0000)	16.47 (0.0000)	7.51 (0.0031)	3.80 (0.0256)
Hausman test	19.73 (0.0014)	14.95 (0.0106)	24.60 (0.0002)	69.51 (0.0000)	15.45 (0.0026)	11.12 (0.0149)
F-test	1.81 (0.0034)	1.95 (0.0020)	2.43 (0.0000)	2.41 (0.0001)	1.85 (0.0042)	1.60 (0.0231)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.1168	0.0977	0.1878	0.1654	0.1084	0.1146

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 9. Foreign ownership and firm performance (fixed effect estimation results for ROA of second tercile)

<i>Variable</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>VI</i>
<i>FII</i>	0.017 (0.008)**			0.328 (0.145)**		
<i>FCORPB</i>		0.013 (0.006)**		0.314 (0.137)**		
<i>FIDI</i>			0.022 (0.144)	0.299 (0.201)		
<i>TFS</i>					0.311 (0.137)**	0.506 (0.176)***
<i>TFS</i> ²						-9.125 (6.247)***
<i>FS</i>	-2.181 (0.230)***	-2.199 (0.228)***	-2.190 (0.227)***	-2.039 (0.238)***	-2.057 (0.233)***	-2.027 (0.233)***
<i>FAGE</i>	0.019 (0.012)	0.019 (0.012)	0.019 (0.012)	0.014 (0.012)	0.014 (0.012)	0.015 (0.012)
<i>ETA</i>	0.059 (0.017)**	0.056 (0.017)**	0.057 (0.016)**	0.066 (0.017)***	0.064 (0.016)***	0.067 (0.016)***
<i>SG</i>	0.038 (0.018)**	0.037 (0.018)**	0.038 (0.018)**	0.028 (0.019)	0.027 (0.019)	0.025 (0.019)
Constant	31.842 (3.145)***	32.145 (3.213)***	31.841(3.155)* **	36.953 (3.867)***	37.005 (3.843)***	74.396 (25.885)**
LM test	8.77 (0.0015)	6.56 (0.0032)	8.49 (0.0018)	4.08 (0.0217)	4.41 (0.0179)	4.46 (0.0174)
Hausman test	9.01 (0.0108)	13.39 (0.0122)	9.00 (0.0109)	6.20 (0.0151)	2.26 (0.0081)	6.87 (0.0033)
F-test	1.91 (0.0032)	1.84 (0.0051)	1.91 (0.0031)	1.61 (0.0231)	1.62 (0.0215)	1.69 (0.0134)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.3439	0.3456	0.3433	0.3684	0.3700	0.3616

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 10. Foreign ownership and firm performance (fixed effect estimation results for ROE of second tercile)

<i>Variable</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>VI</i>
<i>FII</i>	0.063 (0.018)**			1.043 (0.327)**		
<i>FCORPB</i>		0.133 (0.083)		1.091 (0.310)**		
<i>FIDI</i>			-0.512 (0.529)	-0.082 (0.452)		
<i>TFS</i>					1.100 (0.309)***	2.042 (1.009)***
<i>TFS</i> ²						-35.033 (13.979)**
<i>FS</i>	-5.246 (0.526)***	-5.249 (0.518)***	-5.181 (0.519)***	-4.755 (0.536)***	-4.701 (0.525)***	-4.586 (0.522)***
<i>FAGE</i>	0.109 (0.027)***	0.107 (0.027)***	0.108 (0.027)***	0.092 (0.027)**	0.091 (0.027)**	0.094 (0.027)**
<i>ETA</i>	-0.233 (0.039)***	-0.240 (0.038)***	-0.225 (0.037)***	-0.208 (0.039)**	-0.201 (0.037)***	-0.191 (0.037)***
<i>SG</i>	0.074 (0.042)*	0.070 (0.042)	0.076 (0.043)*	0.039 (0.043)	0.041 (0.042)	0.032 (0.042)
Constant	88.000 (7.170)***	90.214 (7.302)***	87.754 (7.199)***	105.836 (8.713)***	105.792 (8.661)***	249.341 (57.921)***
LM test	7.41 (0.0032)	4.61 (0.0159)	7.51 (0.0031)	4.86 (0.0137)	6.17 (0.0065)	6.48 (0.0055)
Hausman test	9.24 (0.0199)	9.81 (0.0118)	6.74 (0.0124)	11.92 (0.0103)	8.78 (0.0111)	15.63 (0.0015)
F-test	1.83 (0.0053)	1.68 (0.0143)	1.84 (0.0052)	1.79 (0.0073)	1.88 (0.0038)	2.11 (0.0007)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.2332	0.2462	0.2318	0.2397	0.2349	0.2146

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 11. Foreign ownership and firm performance (fixed effect estimation results for ROA of third tercile)

Variable	I	II	III	IV	V	VI
FII	0.464 (0.205)**			0.023 (0.007)**		
FCORPB		0.453 (0.225)**		0.519 (0.188)**		
FIDI			0.520 (0.384)	0.683 (0.517)		
TFS					0.182 (0.359)	0.025 (0.391)
TFS ²						-0.785 (0.587)
FS	-0.299 (0.351)	-0.480 (0.339)	-0.355 (0.356)	-0.279 (0.361)	-0.522 (0.344)	-0.659 (0.358)*
FAGE	0.041 (0.022)*	0.047 (0.022)**	0.031 (0.023)	0.036 (0.023)	0.039 (0.022)*	0.039 (0.022)*
ETA	0.102 (0.022)**	0.101 (0.022)**	0.098 (0.022)**	0.100 (0.022)**	0.099 (0.023)**	0.096 (0.023)**
SG	0.007 (0.035)	0.005 (0.035)	-0.001 (0.035)	0.006 (0.035)	-0.002 (0.035)	-0.003 (0.035)
Constant	10.085 (4.594)**	9.912 (4.601)**	9.508 (4.717)**	7.794 (4.863)	10.426 (4.736)**	11.119 (4.758)**
LM test	12.68 (0.0002)	14.68 (0.0001)	13.98 (0.0001)	12.99 (0.0002)	11.83 (0.0003)	12.18 (0.0002)
Hausman test	4.79 (0.0044)	7.14 (0.0021)	6.72 (0.0124)	6.25 (0.0151)	5.00 (0.0241)	6.65 (0.0235)
F-test	2.13 (0.0006)	2.26 (0.0002)	2.22 (0.0003)	2.17 (0.0004)	2.10 (0.0007)	2.16 (0.0005)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.1369	0.1223	0.1199	0.1165	0.1001	0.0866

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 12. Foreign ownership and firm performance (fixed effect estimation results for ROE of third tercile)

Variable	I	II	III	IV	V	VI
FII	-0.943 (0.365)**			-1.256 (0.554)**		
FCORPB		0.785 (0.402)*		0.649 (0.191)**		
FIDI			0.226 (0.687)	0.459 (0.922)		
TFS					0.689 (0.639)	0.958 (0.697)
TFS ²						-1.016 (1.047)
FS	-1.255 (0.624)**	-1.627 (0.604)**	-1.600 (0.638)**	-1.336 (0.644)**	-1.581 (0.612)**	-1.758 (0.638)**
FAGE	0.132 (0.039)**	0.141 (0.040)	0.126 (0.042)**	0.140 (0.042)**	0.134 (0.040)**	0.134 (0.040)**
ETA	-0.034 (0.040)	-0.037 (0.040)	-0.040 (0.041)	-0.033 (0.040)	-0.036 (0.041)	-0.039 (0.041)
SG	0.066 (0.062)	0.060 (0.062)	0.047 (0.063)	0.068 (0.063)	0.051 (0.062)	0.049 (0.063)
Constant	36.262 (8.165)**	36.224 (8.203)**	37.465 (8.432)**	37.472 (8.672)**	40.294 (8.428)**	41.190 (8.479)**
LM test	10.03 (0.0008)	9.57 (0.0011)	8.07 (0.0023)	9.17 (0.0012)	8.83 (0.0015)	9.21 (0.0012)
Hausman test	5.59 (0.0134)	2.25 (0.0181)	2.90 (0.0171)	6.28 (0.0256)	2.42 (0.0277)	2.63 (0.0128)
F-test	2.06 (0.0010)	1.94 (0.0025)	1.87 (0.0041)	1.98 (0.0018)	1.91 (0.0030)	1.93 (0.0027)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.0407	0.0589	0.0515	0.0385	0.0351	0.0404

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

4.2. Time effect

Major changes took place in the FDI policy in 2013. Changes introduced in 2013, make it clear that at least 50 percent of the first US\$ 100 million must be spent on “back-end infrastructure”. Besides, the previous manufacturing and processing requirement of 30 percent of goods in “small industries” has been abolished, and multi-brand retail trading companies (MBRTCs) are now able to source their products from any manufacturing and processing company as long as the first contribution

investments in plant and machinery are below US\$ 2 million. As the previous restriction for cities with populations of at least 1 million has been scaled back, MBRTCs are now authorized to create outlets in a broader range of locations. State governments now have the power to enable MBRTCs in their area to operate. The Government of India has amended the FDI policy to increase the inflow of FDI. In 2013, India ranked 15th in the world in terms of FDI inflows, rising to the 9th spot in 2014, while India became the top destination for foreign direct investment in 2015. The India Investment Grid (IIG)

has been established by the Department of Industry and Internal Trade Promotion and Investment India, which provides a Pan-Indian database of projects from Indian promoters to encourage and facilitate foreign investment. Hence, we have divided the whole sample into two parts, i.e., from 2010 to 2013 and from 2014 to 2019. Tables 13-16 show

the empirical results based on the time period. The empirical results confirm that the reforms initiated by the implementation of the new FDI policy in 2013 have provided fruitful results. The higher shareholding held by the foreign institutional investors is leading to the higher performance of Indian firms.

Table 13. Foreign ownership and firm performance (fixed effect estimation results for ROA of 2010-2013)

Variable	I	II	III	IV	V	VI
FII	0.152 (0.465)			0.213 (0.269)		
FCORPB		0.147 (0.031)**		0.072 (0.083)*		
FIDI			0.139 (0.320)	0.160 (0.320)		
TFS					0.036 (0.031)	0.007 (0.053)
TFS ²						-0.461 (0.456)
FS	-0.192 (1.171)	-0.292 (1.166)	-0.215 (1.169)	-0.265 (1.169)	-0.295 (1.168)	-0.328 (1.169)
FAGE	-0.310 (0.238)	-0.259 (0.232)	-0.269 (0.232)	-0.266 (0.240)	-0.232 (0.234)	-0.219 (0.234)
ETA	0.030 (0.021)	0.031 (0.020)	0.032 (0.021)	0.030 (0.021)	0.032 (0.020)	0.033 (0.020)
SG	0.085 (0.019***)	0.087 (0.019***)	0.085 (0.019***)	0.086 (0.019***)	0.087 (0.019***)	0.088 (0.019***)
Constant	22.088 (9.567)**	22.225 (9.470)**	21.490 (9.501)**	22.667 (9.569)**	21.464 (9.465)**	22.653 (9.537)**
LM test	394.51 (0.0000)	397.04 (0.0000)	397.11 (0.0000)	394.79 (0.0000)	397.95 (0.0000)	395.85 (0.0000)
Hausman test	7.51 (0.0018)	7.19 (0.0023)	6.23 (0.0028)	8.38 (0.0032)	5.65 (0.0034)	7.32 (0.0029)
F-test	19.56 (0.0000)	20.01 (0.0000)	19.85 (0.0000)	19.67 (0.0000)	19.90 (0.0000)	19.80 (0.0000)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.0002	0.0003	0.0002	0.0001	0.0007	0.0008

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 14. Foreign ownership and firm performance (fixed effect estimation results for ROE of 2010-2013)

Variable	I	II	III	IV	V	VI
FII	0.571 (0.278)			0.001 (0.295)		
FCORPB		0.075 (0.132)		0.131 (0.177)		
FIDI			0.188 (1.359)	0.224 (1.366)		
TFS					0.060 (0.132)	0.030 (0.228)
TFS ²						-0.317 (1.946)
FS	3.174 (4.976)	3.006 (4.965)	3.128 (4.964)	3.039 (4.993)	2.997 (4.969)	2.975 (4.980)
FAGE	-1.537 (1.015)	-1.467 (0.988)	-1.482 (0.988)	-1.457 (1.024)	-1.421 (0.996)	-1.412 (0.999)
ETA	-0.049 (0.089)	-0.048 (0.089)	-0.047 (0.089)	-0.049 (0.089)	-0.046 (0.089)	-0.046 (0.089)
SG	0.237 (0.082)**	0.242 (0.082)**	0.238 (0.082)**	0.240 (0.082)**	0.241 (0.082)**	0.242 (0.082)**
Constant	47.732 (40.644)	48.418 (40.332)	47.188 (40.338)	48.653 (40.839)	47.224 (40.252)	48.042 (40.629)
LM test	209.01 (0.0000)	209.80 (0.0000)	201.87 (0.0000)	201.37 (0.0000)	208.96 (0.0000)	205.99 (0.0000)
Hausman test	6.82 (0.0023)	7.01 (0.0021)	7.48 (0.0018)	7.94 (0.0033)	7.16 (0.0021)	7.88 (0.0024)
F-test	7.03 (0.0000)	7.07 (0.0000)	6.83 (0.0000)	6.77 (0.0000)	7.05 (0.0000)	6.96 (0.0000)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.0072	0.0072	0.0076	0.0084	0.0074	0.0074

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 15. Foreign ownership and firm performance (fixed effect estimation results for ROA of 2014–2019)

Variable	I	II	III	IV	V	VI
FII	0.128 (0.021)**			0.048 (0.024)**		
FCORPB		0.107 (0.014)**		0.125 (0.017)**		
FIDI			0.099 (0.072)	0.098 (0.072)		
TFS					0.033 (0.016)**	0.106 (0.028)**
TFS ²						-0.237 (0.303)
FS	-0.607 (0.435)	-0.529 (0.432)	-0.562 (0.432)	-0.674 (0.436)	-0.611 (0.432)	-0.755 (0.449)*
FAGE	-0.013 (0.091)	-0.056 (0.089)	-0.035 (0.087)	-0.007 (0.091)	-0.042 (0.087)	-0.037 (0.087)
ETA	0.020 (0.008)**	0.021 (0.008)**	0.021 (0.008)**	0.019 (0.008)**	0.020 (0.008)**	0.019 (0.008)**
SG	0.026 (0.009)**	0.027 (0.009)**	0.027 (0.009)**	0.027 (0.009)**	0.027 (0.009)**	0.028 (0.009)**
Constant	17.145 (4.203)***	18.358 (4.160)***	17.791 (4.132)***	16.940 (4.204)***	17.924 (4.117)***	18.854 (4.192)***
LM test	1094.17 (0.0000)	1146.64 (0.0000)	1150.78 (0.0000)	1095.63 (0.0000)	1148.68 (0.0000)	1134.19 (0.0000)
Hausman test	23.23 (0.0003)	11.92 (0.0359)	62.93 (0.0000)	22.27 (0.0023)	14.38 (0.0134)	16.09 (0.0133)
F-test	51.58 (0.0000)	52.91 (0.0000)	53.12 (0.0000)	51.78 (0.0000)	53.35 (0.0000)	53.08 (0.0000)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.1078	0.0445	0.0845	0.1034	0.0570	0.0710

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 16. Foreign ownership and firm performance (fixed effect estimation results for ROE of 2014–2019)

Variable	I	II	III	IV	V	VI
FII	0.255 (0.094)**			0.127 (0.012)**		
FCORPB		0.098 (0.067)		0.114 (0.0811)		
FIDI			0.538 (0.132)**	0.558 (0.333)*		
TFS					0.261 (0.076)**	0.129 (0.031)**
TFS ²						-0.611 (0.939)
FS	-3.904 (2.007)*	-3.778 (1.986)*	-3.900 (1.987)*	-3.913 (2.007)*	-3.594 (0.076)*	-3.964 (2.077)*
FAGE	-0.461 (0.419)	-0.414 (0.410)	-0.464 (0.404)	-0.359 (0.420)	-0.540 (0.403)	-0.525 (0.403)
ETA	-0.063 (0.038)*	-0.060 (0.037)	-0.061 (0.037)	-0.062 (0.038)	-0.059 (0.037)	-0.062 (0.038)
SG	0.092 (0.044)**	0.090 (0.044)**	0.093 (0.044)**	0.091 (0.044)**	0.091 (0.044)**	0.093 (0.044)**
Constant	91.521 (19.361)***	89.886 (19.097)***	91.376 (18.987)***	88.919 (19.350)***	93.501 (18.999)***	95.892 (19.362)***
LM test	479.28 (0.0000)	485.77 (0.0000)	428.94 (0.0000)	418.13 (0.0000)	485.10 (0.0000)	481.10 (0.0000)
Hausman test	6.16 (0.0029)	6.33 (0.0027)	7.23 (0.0020)	10.02 (0.0018)	6.02 (0.0030)	6.97 (0.0032)
F-test	9.07 (0.0000)	9.19 (0.0000)	8.16 (0.0000)	8.11 (0.0000)	9.13 (0.0000)	9.07 (0.0000)
Firm and time dummy	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	0.0021	0.0020	0.0080	0.0108	0.0008	0.0009

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

4.3. Additional robustness check

Endogeneity may provide biased and inconsistent estimators, and this reduces confidence while drawing inferences from the research (Chenhall & Moers, 2007). Following the arguments of Hermalin and Weisbach (2003), López-Gutiérrez, Sanfilippo-Azofra, and Torre-Olmo (2015), and Tran and Le (2017), we use two-step system-GMM (generalized method of moments), which is suitable in the presence of heteroscedasticity and autocorrelation (Arellano & Bover, 1995; Blundell &

Bond, 1998). The results estimated from the GMM technique are consistent in the presence of any pattern of heteroscedasticity and autocorrelation (Arellano & Bover, 1995; Blundell & Bond, 1998). The application of GMM takes care of the problem of heterogeneity by taking the first differences and thereby eliminating the individual effect, which makes the results unbiased. The GMM estimation also addresses the issue of endogeneity. The estimation process includes the lagged explanatory variables as instruments, which allows for additional instruments by taking advantage of

the conditions of orthogonality existing between the lags in the independent variables of the model (Arellano & Bond, 1991). We apply the Arellano-Bond test for autocorrelation, Sargan tests for over-identifying restrictions, and the Wald test for the joint significance of the estimated coefficients for all the variables. The value of the Sargan test (J-statistics) confirms that the instruments are valid.

We use the AR (1) autoregressive process, in which the current value is based on the immediately preceding value, while an AR (2) process is one in which the current value is based on the previous two values. GMM estimation results are demonstrated in Tables 17 and 18. We find more or less similar results as indicated in fixed effects estimation results.

Table 17. Foreign ownership and firm performance (GMM estimation results for ROA of the whole sample)

Variable	I	II	III	IV	V	VI
LL	0.420 (0.028)***	0.448 (0.027)***	0.448 (0.027)***	0.418 (0.028)***	0.453 (0.027)***	0.443 (0.026)***
FII	0.025 (0.010)**			0.031 (0.011)**		
FCORPB		0.001 (0.007)		0.005 (0.008)		
FIDI			0.012 (0.032)	0.022 (0.031)		
TFS					0.012 (0.007)*	0.009 (0.012)**
TFS ²						-0.191 (0.087)**
FS	-0.562 (0.423)	-0.313 (0.407)	-0.365 (0.405)	-0.556 (0.427)	-0.245 (0.394)	-0.310 (0.393)
FAGE	0.107 (0.063)*	0.049 (0.060)	0.059 (0.059)	0.107 (0.066)	0.032 (0.056)	0.036 (0.056)
ETA	0.011 (0.002)***	0.005 (0.003)*	0.005 (0.003)	0.011 (0.002)***	0.004 (0.003)	0.004 (0.003)
SG	0.042 (0.004)***	0.042 (0.005)***	0.041 (0.005)***	0.042 (0.004)***	0.042 (0.005)***	0.042 (0.005)***
Constant	5.974 (3.056)*	5.701 (3.081)*	5.940 (3.071)*	5.761 (3.048)*	5.306 (3.055)*	5.543 (3.033)*
Wald-test	491.02 (0.0000)	433.20 (0.0000)	423.35 (0.0000)	495.63 (0.0000)	436.07 (0.0000)	428.5 (0.0000)
Sargan test (p-value)	29.6277 (0.7249)	33.938 (0.5192)	33.5057 (0.5403)	29.8948 (0.7123)	34.2145 (0.5058)	34.268 (0.5032)
AB test AR (1) (p-value)	0.5001	0.4561	0.3721	0.2391	0.8976	0.7685
AB test AR (2) (p-value)	0.7800	0.6810	0.6823	0.7879	0.6853	0.7015

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

Table 18. Foreign ownership and firm performance (GMM estimation results for ROE of the whole sample)

Variable	I	II	III	IV	V	VI
LL	0.012 (0.001)***	0.010 (0.001)	0.013 (0.001)***	0.007 (0.001)***	0.012 (0.001)***	0.011 (0.001)***
FII	0.059 (0.025)**			0.123 (0.031)**		
FCORPB		0.036 (0.022)*		0.061 (0.020)**		
FIDI			-0.364 (0.099)***	-0.391 (0.098)***		
TFS					0.012** (0.002)	0.080 (0.029)**
TFS ²						-0.616 (0.079)**
FS	-2.634 (0.621)***	-2.480 (0.581)***	-2.888 (0.618)***	-2.851 (0.607)***	-2.457 (0.577)***	-2.657 (0.574)***
FAGE	0.415 (0.131)**	-0.445 (0.123)**	-0.407 (0.136)**	-0.326 (0.125)**	-0.493 (0.126)**	-0.466 (0.124)**
ETA	-0.087 (0.020)***	-0.084 (0.020)***	-0.100 (0.024)***	-0.089 (0.022)***	-0.076 (0.019)***	-0.083 (0.019)***
SG	0.101 (0.008)***	0.104 (0.007)***	0.095 (0.008)***	0.094 (0.008)***	0.100 (0.007)***	0.099 (0.007)***
Constant	70.752 (5.948)	71.001 (6.063)	74.039 (6.020)***	70.374 (3.048)***	72.361 (5.924)***	72.007 (5.934)***
Wald-test	733.33 (0.0000)	644.80 (0.0000)	778.43 (0.0000)	650.24 (0.0000)	687.75 (0.0000)	679.20 (0.0000)
Sargan test (p-value)	52.5666 (0.1286)	53.2113 (0.7250)	54.4311 (0.4192)	52.9445 (0.3264)	53.8391 (0.7218)	52.1986 (0.7335)
AB test AR (1) (p-value)	0.2972	0.2978	0.2970	0.2982	0.2987	0.2994
AB test AR (2) (p-value)	0.3167	0.3176	0.3184	0.3194	0.3168	0.3182

Note: *, ** and *** show the 10%, 5% and 1% significance level respectively.

5. DISCUSSION

The empirical findings support our first hypothesis (H1). The findings suggest that higher foreign institutional shareholding improves the performance of the firms consistent with the findings of Khanna and Palepu (1998) but does not support the findings of Phung and Le (2013). The higher shareholding held by the foreign corporate bodies (FCORPB) leads to higher ROA and supports the findings of Shrivastav and Kalsie (2017). The foreign individual investors (FIDI) do not explain the Indian firms' performance. Foreign institutional investors and foreign corporate bodies (FCORPB) are the effective monitors of the Indian firms. Additionally, the foreign shareholding reveals the non-linear relationship with firm performance in line with the studies of McConnell and Servaes (1990), Ferris and Park (2005).

The results related to the firm-specific variables suggest that the larger size of the firms leads to their lower performance and are not able to derive the benefit of economies of scales, consistent with the findings of Gul et al. (2011), but does not support the findings of Smirlock (1985). Older firms have higher performance consistent with the findings of Tan (2016). The impact of ETA is positive on ROA. Our findings are consistent with the findings of Saeed (2014). Its impact on ROE is negative which indicates that higher equity capital leads to a decline in ROE. Our findings support the study of Lee et al. (2015) but do not support the findings of Almaqtari et al. (2019). Further, the findings reveal that the higher shareholding of foreign institutional investors (FI) and the foreign corporate bodies (FCORPB) improves the performance of the firms in the first and second tercile and shows the curve linear relationship between foreign equity ownership and performance of the firm in first and second tercile. The empirical results confirm that the reforms initiated by the implementation of the new FDI policy in 2013 have provided fruitful results. The higher shareholding held by the foreign institutional investors is leading to the higher performance of Indian firms.

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6. CONCLUSION

This study evidence regarding the impact of foreign equity ownership on the performance of top 150 Indian firms based on market capitalization during the period 2010–2019 using the fixed effects estimation technique. We analyzed the impact of foreign ownership on the firm performance of Indian companies by disaggregating foreign ownership into foreign corporate shareholding, foreign institutional ownership, and foreign individual investors. It is important to analyze these three types of foreign shareholding differently, as the dynamics of foreign entities' investments vary from those of foreign companies and foreign individual shareholders. The study findings highlight that foreign investment has a positive effect on the success of the company. The company's performance was positively and substantially influenced by international corporate shareholding across all econometric models and all forms of company performance measures used. This study also establishes a strong curvilinear relation between the performance of Indian firms and the equity ownership of foreign investors. Our results remain robust across the different levels of foreign ownership.

Although we have conducted several robustness tests, some limitations are likely to be considered in interpreting the results conducted in this study. First, our sample consists of the top 150 BSE Indian firms based on market capitalization. Second, the data is hand collected and is limited to the eight years only from 2009–2010 to 2018–2019, and hence the longer-term effects of foreign equity ownership on bank performance cannot be studied based on this data. Finally, our study has several implications. The central government should liberalize the FDI policies to allow the foreign institutional investors to increase their stake in the Indian firms. Future researchers may analyze the data of more companies for a longer time frame for getting in-depth findings. Our study ultimately concludes that foreign ownership plays an important role in Indian firm performance.

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