Does Institutional Investment Affect R&D? A Study of the Indian Pharmaceutical Industry

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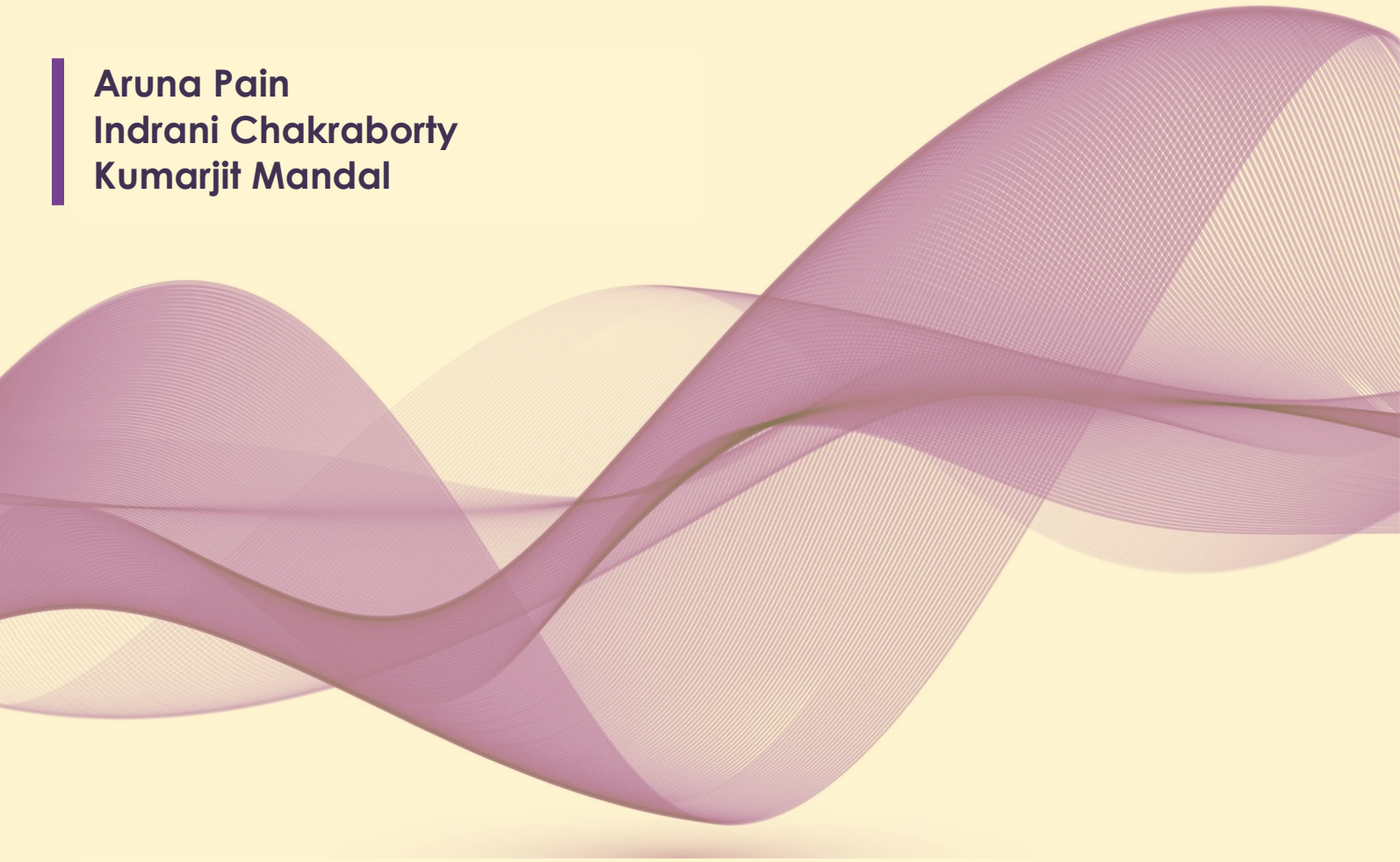

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Abstract:

This paper examines whether institutional ownership by foreign institutional investors (FIIs) and domestic institutional investors (DIIs) affects innovation in India's pharmaceutical sector. Long-term investment in R&D is crucial for companies seeking to generate sustainable growth. Our study period spans from 2001 to 2019. The sample comprises an unbalanced panel of 150 BSE- and NSE-listed pharmaceutical firms in India. We have employed the 2SLS technique to control for endogeneity and the system GMM method of estimation for dynamic panel data as a robustness test in our analysis. Our findings reaffirm the "myopic viewpoint" theory, which holds that FII investors seek short-term gains and avoid investments in risky, long-term projects such as R&D in the pharmaceutical industry. However, our results show that FII promotes R&D in older pharmaceutical firms. Conversely, DII enhances R&D across the entire pharmaceutical industry. Moreover, DII positively affects large and young firms. For small firms, FII has a negatively significant effect, and DII has a positively significant impact on R&D. These results remain robust when we apply system dynamic panel estimations. Our findings suggest that foreign institutional investors are unable to effectively monitor managerial myopia and promote innovation in the Indian pharmaceutical industry. However, as we observe that DII has a positive

effect on R&D investment, this suggests that they monitor managers more efficiently than FIIs, given their informational advantage. Our results have implications for policymakers, regulators, and potential foreign equity participants.

Keywords: Pharmaceutical industry; Innovation; R&D; Foreign institutional investors; Domestic institutional investors; 2SLS; System dynamic panel regression; India.
JEL Classification: C33; C36; L10; L65; O3; G32; G23;

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1. Introduction

Ownership structure of firms is one of the key determinants of their investment in research and development (R&D) activities (Connelly et al., 2010; Chen et al., 2015a; Iturriaga et al., 2017). In the extant literature, among all types of ownership, the role of institutional investors[1] in promoting R&D investment has received substantial attention (David et al., 2001; Aghion et al., 2013). However, the effects of institutional investors on firm innovation have long been a subject of controversy, with mixed evidence. The first group of studies holds that institutional investors are driven solely by the pursuit of short-term returns and do not encourage managers to pursue long-term innovation strategies, which are inherently risky and uncertain. According to this 'myopic viewpoint,' institutional investors do not encourage innovation (Kochhar & David, 1996; Y.-F. Chen et al., 2015b; Drucker, 1986; Graves, 1988; Graves & Waddock, 1990; Jacobs, 1991; Porter, 1992). The second group supports the thesis that institutional investors pursue long-term gains and invest in more innovative firms (Jarrel et al., 1985; Allen, 1993). Finally, the hypothesis of 'myopia' has been challenged by a group of studies reporting that institutional investors, because they hold large stakes in corporations, monitor managers and force them to increase long-term investments such as R&D (Baysinger, B., R. Kosnik, 1991; Hansen & Hill, 1991; Useem, 1993; Kochhar & David, 1996; Zahra, 1996; Wahal & McConnell, 2000; David et al., 2001; Chen et al., 2007; Aghion et al., 2010). Institutional investors are heterogeneous, with different investment horizons, investment limits, and abilities to monitor managers (Douma et al., 2006). The literature suggests that, due to heterogeneity among institutional investors, their effects on R&D differ across studies (Kochhar & David, 1996; Boyd & Solarino, 2016).

Most research on the effect of institutional investors on R&D investments has been conducted in developed economies, where institutional investor shares are substantially higher. Firms in emerging economies have also witnessed a rising share of ownership by institutional investors over the last three decades. Several studies report higher growth in R&D expenditure in these countries than in their developed counterparts (Alam et al., 2019; Adarkwah & Malonæs, 2020;

Schwab & Zahidi, 2020). In India, inflows of foreign institutional investment (FII) were $244 million in 1992-93 reached $40,922 million in 2014-15 and became $14.5 billion in 2019-20. Despite this substantial inflow of FII, we have a limited understanding of the effects of institutional investors on R&D investments in emerging-economy firms. Further, different institutional arrangements across emerging markets yield contrasting patterns in the relationship between institutional investors and R&D investments (Wright et al., 2005; Globerman, et al., 2011; Rong et al., 2017).

In India, there are two types of institutional investors: foreign institutional investors (FII) and domestic institutional investors (DII). Several institutional factors determine the different investment behaviour of FII and DII in India (Guha, 2017). First, FII and DII are subject to different sets of regulations. The Securities and Exchange Board of India (SEBI) monitors FII inflows. FII also involves foreign exchange exposure. Hence, FIIs are also required to conform to various guidelines under the Foreign Exchange Regulation Act (FERA). FIIs are also subject to various restrictions on the percentage stake they can invest in Indian firms. Second, both FII and DII are often prone to following the 'herd behaviour', i.e., fund managers blindly follow the behaviour of other investors, even if it may not be very rational. Third, FIIs are subject to greater asymmetric information, as information disclosure requirements in India are relatively less rigorous.

In this study, we develop alternative hypotheses to test the validity of the three viewpoints on the behaviour of institutional investors, as discussed above. We aim to provide clarity on the impact of different types of institutional investors on R&D investment in India. By including differences among institutions in their ability to influence these outcomes, we can differentiate among alternative hypotheses. Specifically, we aim to answer the following question: Can FII help mitigate capital constraints in R&D in the pharmaceutical industry in India and boost R&D in this sector? How does the impact of FII on the innovation of small and large pharmaceutical firms differ? How does the impact of FII on the innovation of young and old pharmaceutical firms differ? We have also extended our investigation of these questions with respect to DII.

We test our hypotheses using an unbalanced panel dataset of publicly listed pharmaceutical firms in India. Our panel comprises 150 listed pharmaceutical firms between 2001 and 2019. We have employed the 2SLS technique to control for endogeneity and the system GMM method of

estimation for dynamic panel data as a robustness test in our analysis. Our results, confirmed by robustness tests, support our main argument that institutional investors' effects on R&D investment vary by type. Specifically, we find that foreign institutional investor ownership negatively affects R&D investments, whereas domestic institutional investor ownership enhances R&D. Moreover, we find that DII has a significantly positive impact on R&D strategy in large and young pharmaceutical firms. On the other hand, FII positively influences innovation in older pharmaceutical companies. However, for small pharmaceutical firms, both FII and DII have no significant impact on the R&D strategy.

Our research contributes to the growing body of work investigating the effect of institutional investors on R&D investment in emerging economies. We provide a new perspective on this relationship by examining heterogeneous groups of institutional investors and identifying how their characteristics can affect managerial decisions in firms. In this study, we present evidence that domestic and foreign institutional investors exhibit different monitoring behaviors and influence R&D investment decisions in distinct ways. This research offers a possible explanation for the inconsistency in previous findings on the relationship between institutional ownership and R&D activities across national settings, stemming from differences in the relative importance of domestic versus foreign institutional ownership. Additionally, our paper contributes to the literature on how both foreign and domestic institutional investors affect the investment decisions of local firms in an emerging economy such as India. Most empirical studies focus on the role of these investors in developed markets (David et al., 2001; Aghion et al., 2013; Baysinger,and Kosnik, 1991; Hansen & Hill, 1991; Useem, 1993; Kochhar & David, 1996 among others).

The rest of this paper is organized as follows. Section 2 presents an overview of the Indian pharmaceutical industry. Section 3 reviews the existing literature on this area. Section 4 describes the data and the variables employed in our study. Section 5 discusses the methodology that we have used in our analysis. Section 6 reports the results and analyses the findings. Section 7 discusses the robustness analysis. Section 8 presents a discussion. Finally, Section 9 concludes this paper with the limitations of this study and the future scopes for extending this study.

2. Evolution of Indian Pharmaceutical Industry since Independence

During independence in 1947, the major players in the Indian pharmaceutical industry were multinational corporations (MNCs), which controlled between 80 and 90 percent of the market mainly through imports. Drug prices were extremely high compared to the rest of the world (Greene, 2007, Chadha, 2005). To end foreign companies' dominance, the Indian government introduced the Patent Act of 1970, which established process patents by removing the product patents from the earlier Patents and Designs Act of 1911. As a result, the patent term was reduced to seven years from the date of filing or five years from sealing, whichever was earlier. This change enabled Indian firms to acquire technological knowledge, allowing them to reverse engineer foreign patented drugs without paying licensing fees. Consequently, local Indian drug manufacturers developed, and the prices of essential drugs decreased. The government then implemented the Drug Price Control Order in 1979, which regulated the prices of 347 drugs.

'The growth impetus that the Indian pharmaceutical industry received during the 1980s continued into the 1990s. This sector experienced a growth rate of 16% from 1995 onward. The bulk drug and formulation sectors also saw growth rates of 15% and 2%, respectively, during this period (Von and Mazumder, 2013). In 1994, the New Drug Policy was introduced, reversing many aspects of the 1979 policy and removing the licensing requirement for firm entry and expansion. Additionally, 100% inward foreign direct investment and free import of formulations, bulk drugs, and intermediaries were permitted. Following this, the World Trade Organization (WTO) was established in 1995, and India signed the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) in 1994. To fulfill its TRIPs obligations, India amended its patent law in March 2005, abolishing its process patent law and reintroducing product patents in pharmaceuticals, food, and chemicals. This was carried out in three stages. The first was implemented in 1995, establishing the “mailbox” system, allowing patent applications to be filed between January 1, 1995, and 2005. A second amendment was introduced on January 1, 2000, which redefined patentable subject matter, extended patent protection to 20 years, and amended the compulsory licensing system. A third amendment, enacted on January 1, 2005, introduced a product patent regime in areas—including pharmaceuticals—that were previously covered only by process patents. Since the introduction of this third amendment, multinational corporations (MNCs) have resumed their role as major competitors of the Indian pharmaceutical industry, and

Indian companies are required to undertake more R&D activities, as it has become difficult for them to sustain relying solely on reverse engineering (Chadha, 2005, Von and Mazumder, 2013).

Thus, the implementation of TRIPS by the WTO in 1995 brought challenges to the Indian pharmaceutical industry. In March 2005, when the amendment of the Patent Act of 1970 to comply with the TRIPS Agreement was completed, product patents were introduced for drugs, foods, and chemical products with a validity of twenty years (Chaudhuri, 2005)[2,3]. The new patent law banned Indian drug producers from manufacturing and selling reverse-engineered drugs that had been patented by foreign drug producers. This resulted in a loss of sales for many leading Indian pharmaceutical companies. Indian firms have started seeking new sources of growth for the future, with R&D and innovation being the main focus. Therefore, since the product patent regime was implemented on January 1, 2005, Indian pharmaceutical companies have increased their investment in R&D.

As mentioned earlier, the growth of the Indian pharmaceutical industry results from India's ability to conduct R&D and develop generic drugs during the period from the Patent Act of 1970 until the mid-1990s, when the patent protection system was relatively weak. The Patent Act of 1970, which replaced product patents with process patents, played a key role in fostering domestic R&D. It enabled Indian drug manufacturers to gain expertise in 'reverse engineering,' allowing them to produce lower-cost drugs for export to global markets (Greene, 2007)[4]. These companies started increasing their exports of generic drugs to the U.S. and Europe, and formed R&D agreements, mergers, acquisitions, and other alliances with foreign pharmaceutical companies. As a result of these efforts, India's pharmaceutical exports grew from $1.9 million in 1999 to $5.2 billion in 2005, accounting for around 40% of the industry's total turnover in India (Greene, 2007).

India currently ranks among the top five pharmaceutical producers worldwide by volume, places in the top 15 in value, and holds a 20-22% share in global generic manufacturing (Aggarwal, 2004; Sharma, 2012). The industry's sales increased from about US $3 million in 1947 to approximately US $5.5 billion in 2004, growing at an average annual rate of about 17% (Von & Mazumder, 2013). By 2025, the industry's sales turnover had reached US$55 billion. Currently, Indian companies spend just over 4% of their sales on R&D (see Fig. 1), which is significantly

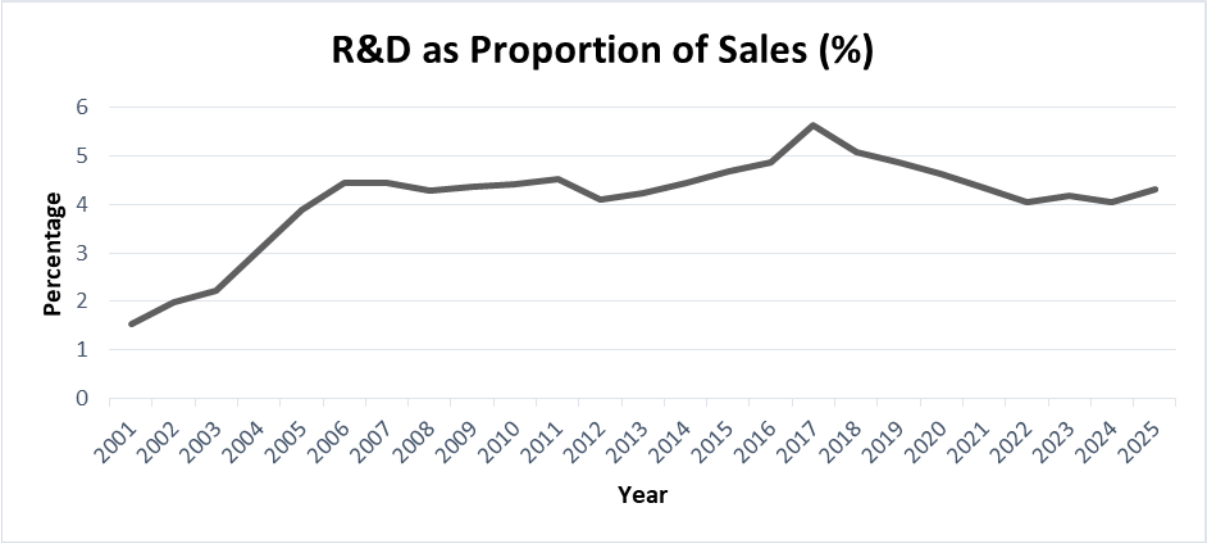
lower than in most developed countries, where the range is 20%-30% (IFPMA, 2025). The low R&D investment in India's pharmaceutical sector mainly results from high costs and the high-risk nature of these investments. However, in recent years, the industry's outlook has improved considerably due to various government policies, prompting Indian firms to take R&D more seriously and to invest more funds into these activities (Fig. 2). Nonetheless, sales and R&D spending slowed around 2022 for various reasons (Fig. 2). India's success in generics has created a ceiling due to high competition from China, which focuses on high-margin segments. Meanwhile, Indian firms have focused on high-volume production of small-molecule drugs, where margins are thin, and competition is based on price. Other factors include severe pricing pressure in key export markets like the US, reduced profit margins due to stricter price caps on essential medicines imposed by the National Pharmaceutical Pricing Authority (NPPA), and rising API costs, especially those imported from China (Prabhu, December 18, 2018).

Conversely, the decline in R&D spending mainly stems from Indian companies falling behind in complex R&D methods in recent years. The sectors with the highest growth and margins now include large-molecule biologicals, complex biosimilars, mRNA platforms, and targeted cell/gene therapies worldwide, all of which require significant capital. However, Indian firms lack the large capital needed, which involves high risk and institutional research collaborations, causing them to lag behind in this recent biopharma wave (Rau, June 17, 2026).

One notable change has been the rise in both foreign and domestic institutional investments in the Indian pharmaceutical sector since the economic reforms of 1991, which encouraged greater R&D investment (Fig. 3). However, only about 10-12% of the shares of the Indian pharmaceutical industry were held by FIIs and DIIs, as shown in Fig. 3. According to the ownership distribution of shareholding in the Indian pharmaceutical industry in 2025, the majority of shares are held by promoters (50-55%), followed by FIIs (14-17%), and DIIs (12% to 13%), with retail and individual investors making up the rest (NSE, 2026). It is also important to note that several government initiatives, including the Production Linked Incentive Scheme (PLI) for pharmaceuticals, promotion of research and innovation in pharma, the Medical

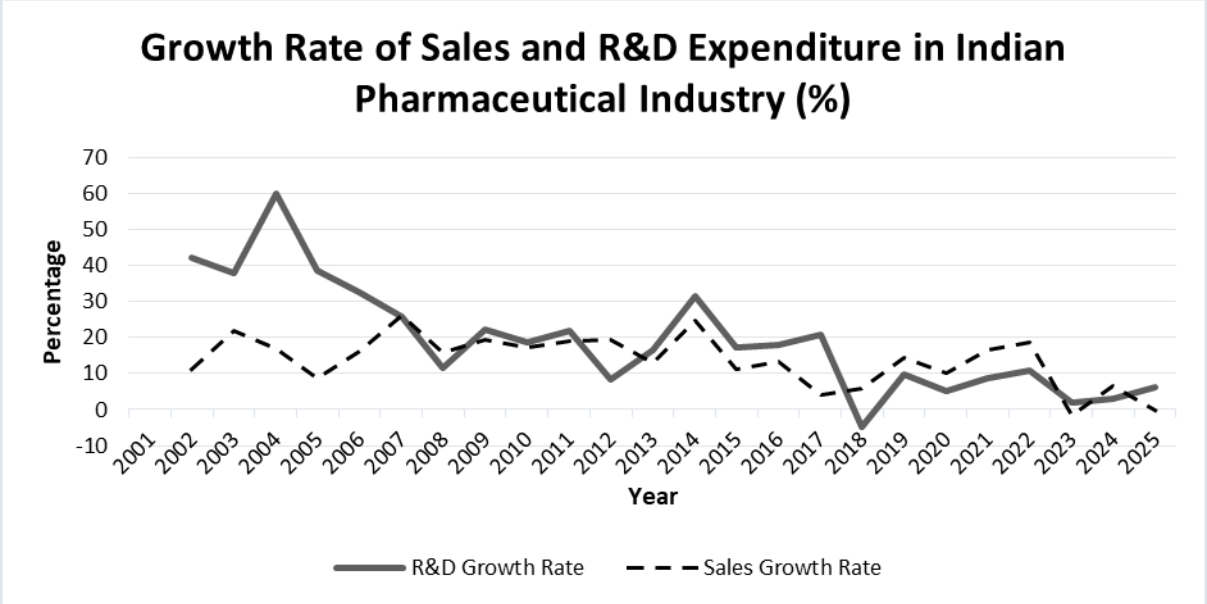
Technology scheme, and the BioE3 (Biotechnology for Economy, Environment, and Employment) Policy, have helped boost R&D in India's pharmaceutical industry in recent years.

Fig.1: R&D intensity in the Indian pharmaceutical industry



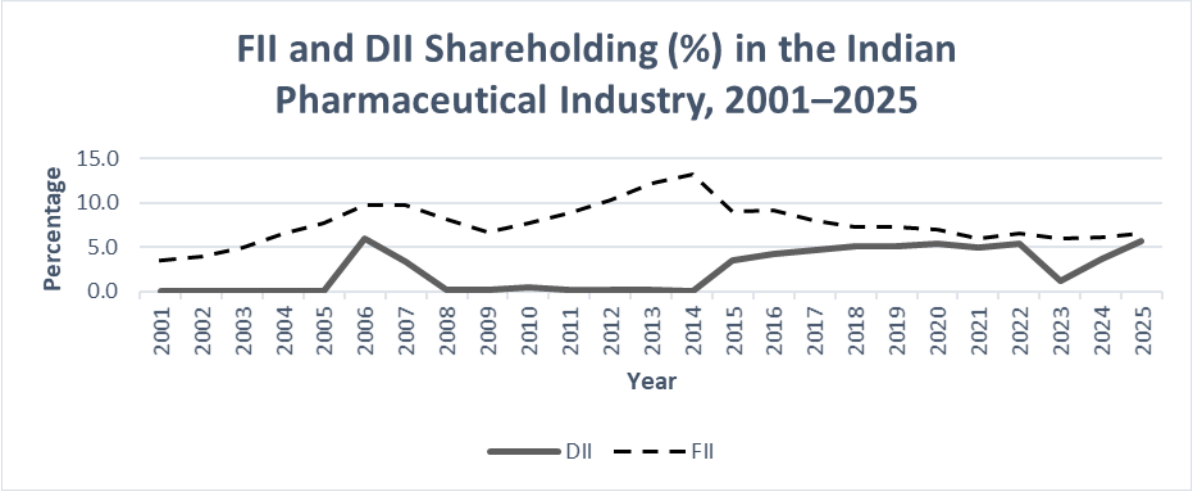
Source: Prowess database, CMIE

Fig.2: Growth in sales and R&D expenditures in the Indian pharmaceutical industry



Source: Prowess database, CMIE

Fig.3: Trends in FII and DII shareholding in the Indian pharmaceutical industry



Source: Prowess database, CMIE

3. Literature Review

We have already stated that there is no consensus on the impact of institutional ownership on R&D investment. While some studies observed a positive relationship (Jarrel et. al., 1985; Hill et al., 1989; Hansen & Hill, 1991; Baysinger, B., R. Kosnik, 1991; Kochhar & David, 1996; Wahal & McConnell, 2000; Eng & Shackell, 2001;), others support a negative relationship (Graves, 1988; Samuel, 1996) or mixed (Graves, 1990, Bushee, 1998, 2001) or even neutral. To explain these contradictory findings, Kochhar & David (1996) proposed three competing hypotheses and suggested that there are three types of institutional investors: myopic, superior, and active. According to the myopic investor hypothesis, institutional investors prefer short-term gains. Firm managers may avoid risky long-term R&D investments to keep stock prices high and avoid a takeover. According to the myopic investor hypothesis, there will be a negative relationship between institutional holdings and firm innovation. The superior investor hypothesis posits that institutional investors select firms with greater innovative capacity. Finally, the active investor hypothesis implies that institutional investors, through active monitoring, force managers to increase innovation and create long-term firm value. Both the superior and active investor hypotheses suggest that the relationship between institutional holdings and firm innovation will be positive.

From the empirical evidence on the relationship between institutional holdings and firm innovation, we observe that Graves (1988) finds a negative relationship between institutional holdings and R&D intensity (measured by firm R&D expenditure), supporting the myopic investor hypothesis. However, Baysinger et al. (1991) and Hansen & Hill (1991) find a positive relationship between institutional ownership and R&D intensity, and Aghion et al. (2013) find that, as institutional ownership increases, innovation in U.S. firms also increases, reducing career risks. These results support the superior investor hypothesis. Some studies also suggest that institutional investors influence firm decisions through the threat of exit.

Furthermore, the relationship between institutional investors and R&D investments is also analysed from the perspective of the agency theory framework (Hall, 2002). They argue that R&D investments are uncertain and subject to both asymmetric information and moral hazard. On the one hand, managers may not be willing to fully disclose R&D projects to outside investors. Because such disclosure may harm the firm's competitive advantage (Lee & O'Neil, 2003). On the other hand, without complete information about the R&D projects, external investors may be unable to provide financing. Moreover, evaluating an R&D project requires technical or scientific expertise, and it is very difficult for investors to assess projects when companies are unwilling to disclose the necessary information to determine the true value of innovation (Mina et al., 2012). From an agency theory perspective, a company's investment in R&D is a decision that may induce either manager–shareholder conflicts or conflicts between shareholders (through an expropriation of minority shareholders by the controlling shareholders). R&D strategies are inherently uncertain and risky, but shareholders have diversified portfolios and can therefore spread this risk (Markowitz, 1952). Shareholders will be less risk-averse regarding innovation because a decline in one of their investments will not greatly affect the overall value of their portfolios. On the other hand, managers have undiversified portfolios because they work for a single company and, as a result, they will favour less risky strategies. Therefore, they may not favour innovation due to the risk of managerial turnover (David et al., 1996; Kaplan & Minton, 2012). Moreover, due to weak shareholder protection laws, there is no guarantee of foreign investors' returns in an emerging economy like India, which makes foreign institutional investors more likely to be short-term oriented than in the developed-country

context (La Porta et al., 2000). Thus, the relationship between institutional investors and R&D investment will be negative.

Several scholars have also argued that different types of institutional investors have distinct strategy orientations (Hoskisson et al., 2002). Different groups of institutional investors have different incentives or abilities to monitor managerial decisions. The informational advantage of domestic institutional investors is relatively greater than that of foreign institutional investors due to their proximity. They are better able to monitor managers and promote R&D activities. Foreign institutional investors face the disadvantage of being located in a distant country from domestic companies, which makes monitoring managers relatively ineffective (Kang & Kim, 2010; Kang et al., 2018; Kim et al., 2016; Leuz et al., 2009). They are less familiar with the country and industry economic conditions (Brennan & Cao, 1997). Moreover, in an international context, the problem of asymmetric information is more due to geographic distance, cultural norms, and linguistic differences (Bae et al., 2008; Ferreira et al., 2017; Kim et al., 2016). By contrast, domestic institutional investors have the advantage of accessing local information to a greater extent than foreign ones. Moreover, the monitoring costs of foreign investors are higher than those of domestic investors in several respects, including information acquisition, multinational operations, travel, and language and cultural understanding (Leuz et al., 2009). These additional costs may dissuade foreign investors from actively monitoring the managers. Several empirical studies have highlighted the informational advantage of domestic investors in monitoring managers due to their proximity (Kim et al., 2016; Kang et al., 2018; Ferreira et. al., 2017).

Based on the above discussions, we observe that the impact of institutional ownership on R&D investment can be either positive or negative depending on the context. Therefore, it is an empirical question to explore.

4. Data and variables

3.1 Data

Our data source is the PROWESS database maintained by the Centre for Monitoring Indian Economy (CMIE). The PROWESS database of CMIE provides firm-level data from India. Our

study period is from 2001 to 2019. This is because we have tried to capture the effects of both the institutional changes – liberalization of the Indian economy and the new patent regime as per the WTO regulations. Both liberalization and a stringent patent regime (in line with WTO regulations) are expected to significantly impact FII and R&D expenditure in India's pharmaceutical sector. Our dataset consists of 150 firms listed on the BSE or the NSE. It is an unbalanced panel data set.

3.2 Description of variables

The dependent variable in this study is R&D intensity, measured as R&D expenditure as a ratio of sales. The most important explanatory variable in our study is FII. FII is measured as the proportion of shares held by non-promoter foreign institutional investors out of the total number of outstanding shares in each financial year[5]. Another explanatory variable that we have studied is DII. DII is measured as the proportion of shares held by domestic institutional investors out of the total number of outstanding shares in each financial year. Apart from these, we include firm size, age, market share, PAT (profit after tax), export intensity, capital intensity, cash flow, and import intensity of capital goods as control variables.

Control Variables

Firm Size (Size): We measure firm size as the natural logarithm of total assets in the respective year. The literature suggests that firm size can affect a firm's R&D strategy both positively and negatively. Firm size is expected to positively influence the decision and depth of in-house R&D and technology purchases (Kandamuthan, 2002). Large firms are more diversified, more technologically complex, and better aware of technological opportunities. They can afford the considerable investment required for R&D. A substantial body of literature (Schumpeter, 1942; Scherer, 1965; Lall, 1983; Kathuria, 1989; Mishra, 2010; Bhattacharya & Bloch, 2004; Harris et al., 2003) reports a positive association between firm size and R&D activity. Counterargument to the above-discussed proposition is also found in the literature (Kandamuthan, 2002). As firms grow over time, R&D efficiency declines due to the loss of managerial control (Cohen & Levin, 1989). As they grow in size, the incentives for individual scientists and entrepreneurs decline because their ability to extract benefits from their efforts declines (Cohen and Levin, 1989).

Hence, empirical findings on the nature of the relationship between firm size and innovation are mixed and inconclusive.

Firm age (Age): We have calculated the firm's age as the natural logarithm of the number of years of operation for each firm. It is argued that with age, a firm acquires technical skill and managerial maturity. Firms with longer production periods accumulate experience, which is expected to positively influence the probability and intensity of R&D investment. Empirical evidence indicates that firms with long-term experience exhibit more intense innovative activity (Kandamuthan 2002; Lall 1983).

Export intensity (ExIn): We have calculated export intensity as the ratio of total exports to total sales of a firm in a particular financial year. Studies suggest that the learning effects of exporting generally lead to increased innovation effort and productivity improvements. (2010), Kandamuthan (2002), Bhattacharya & Bloch (2004), and Damijan et al. (2010) find that export orientation favourably affects a firm's innovative activity. Tyagi et al. (2014) studied the Indian drug and pharmaceutical industry during 2000–2012. They have found that lagged R&D expenditure and lagged total patents granted have a positive and significant effect on exports. It is expected that firms' penetration into international markets makes them more inclined to invest in R&D, as they need to adapt their products and continuously update them. However, Lall (1983) found the opposite result.

Market Share (Mkts): We measure market share as the ratio of a company's sales to the total sales of the pharmaceutical industry in a given year. Schumpeter (1942) has explained that firms require the expectation of some form of market power to have the incentive to invest in R&D. He has argued that ex-ante market power encourages innovative activity. However, counterarguments to this view are also found in the related literature ((Acs & Audretsch, (1988); Scherer, (1965); Mishra (2010); Kathuria, (1989); Kandamuthan (2002)). Kamien & Schwartz (1975) also observe that little support has been found for the claim that R&D activity increases with a firm's monopoly power. It is argued that, with market power, firms can reap huge profits and become complacent about innovation.

Profit (PAT): PAT is profit after tax. Firms that earn profits are in a better position to invest in R&D. Since investment in R&D is a risky venture, firms often find it challenging to secure

external funding. Hence, positive profits are expected to influence R&D activity favourably. There is empirical evidence supporting this proposition ((Mishra, (2010); Bhattacharya & Bloch, (2004)). However, studies contrary to this finding are also found in the literature (Scherer (1965); Harris et al.(2003)). Hence, the relation between profitability and innovative activity is inconclusive.

Cash flow: (CshFlo): Cash flow is the amount of liquid money that comes in and goes out of a firm. Positive cash flow indicates that a firm has liquidity. This enables the firm to repay obligations, reinvest in business, return money to shareholders, pay expenses, provide a buffer against future financial crises, and invest in R&D. Firms with substantial financial flexibility rendered by steady cash flow can take advantage of profitable investments as well as undertake risky investments in R&D. It is expected that a steady flow of cash will increase the probability as well as intensity of a firm's R&D investment. Studies by Grabowski, (1968), Hall, (1992), Brown & Petersen (2009), Brown et al. (2015) and Bloch (2005) support this view. According to Bloch (2005), the finding that firms' cash flow influences R&D investment can be interpreted in two ways: First, the effect of cash flow on R&D investment may be due to a firm's less access to external finance. Second, the positive association between R&D investment and cash flow may not be due to credit market imperfections, but rather to cash flow's role as a predictor of firms' investment opportunities. However, Scherer (1965) finds that for 448 firms on *Fortune's* list of 500 largest U.S. industrial corporations for the year 1955, inventive output is not systematically related to variations in liquidity.

Capital Intensity (KI): We have calculated capital intensity as the ratio of a firm's capital expenditure to sales in a particular year. R&D requires investment in capital goods and equipment. Hence, a firm that undertakes R&D is expected to be highly capital-intensive. Mishra (2010) finds that R&D expenditure varies directly with firms' capital intensity.

Import Intensity of Capital Goods (ImpIKGds): We have measured import intensity of capital goods as the ratio of a firm's import of capital goods to sales in a particular year. Firms importing capital goods often require in-house R&D to absorb and adapt the new technology to local conditions. Therefore, a positive relationship is expected between the import intensity of capital goods and in-house R&D. Kandamuthan (2002) observes that firms with foreign

collaboration are more likely to invest in innovative activity. Mishra (2010) finds that sourcing technology from abroad does not substantially affect a firm's R&D efforts. Therefore, empirical studies examining the link between the import intensity of capital goods and R&D investment yield mixed outcomes.

5. Methodology

FIIs can influence a firm's R&D strategies, and R&D investment also depends on FIIs. This setup suggests the presence of potential two-way causality or endogeneity between foreign institutional investment and R&D. According to Demsetz & Villalonga (2001), in this context, OLS estimation would produce inconsistent and biased results. To address endogeneity, we have used 2SLS instrumental-variable regression in our analysis. The 2SLS estimation involves two stages. In the first stage, the endogenous variables are regressed on all exogenous variables and instrumental variables (IVs). The IVs are correlated only with the endogenous variables, not with the error term. In the second stage, the endogenous variable is replaced with its first-stage predicted values, and an OLS regression is performed. The chosen instrumental variables must meet the exclusion and relevance conditions. The exclusion condition states that the instrumental variable should not be correlated with the error term. The relevance condition requires that the instrumental variable be correlated with the endogenous variable. Following Riaz et al. (2021), Cao et al. (2018), and Han et al. (2015), we employed market capitalization, turnover rate, and two-period lagged firm size as instrumental variables in our model. These three variables are correlated with institutional ownership but not with R&D. Prior research finds that institutional investors prefer investing in firms with high market capitalization and low turnover (Cao et al., 2018). Market capitalization and turnover rate serve as crucial indicators of liquidity and risk for both domestic and foreign institutional investors, driving their capital inflows into specific markets and stocks. The combination of high market capitalization and low turnover rate equates to high market liquidity, which serves as the ultimate magnet for massive institutional fund flows (Borochin & Yang, 2017). However, these variables are unlikely to affect R&D investment in the current period, which satisfies the exclusion condition of IVs (He and Estebanez, 2023).

As a robustness check, we have employed a linear dynamic panel-data estimation technique under the Generalized Method of Moments (GMM). This technique uses the lags of the

dependent variable – in our case, R&D intensity – as regressors ((Arellano & Bond, (1991); Chakraborty (2019)). We have used a two-step system GMM in our dynamic panel framework. This estimator combines moment conditions for the model in first differences with those at levels (Bun & Windmeijer, 2010). We use two-step GMM estimation, as it is more efficient than one-step estimation. In this framework, the coefficients of lagged dependent variables are not important. But these lags are introduced to control for process dynamics (Flannery & Hankins, 2013). The dynamic panel data framework is a useful tool when the dependent variable depends on its own past values. In this paper, we have used the xtabond2 package developed in Stata by Roodman, (2009). Our model is as follows:

$y_{it} = \gamma y_{i,t-1} + \beta x_{it} + \alpha_i + v_{it}$, $\quad i = 1,\ldots\ldots,N$ (individuals), $t = 1,\ldots\ldots,T$(time) …….(1)

In the above model, y_{it} is the dependent variable; R&D intensity, xit, are the independent regressors; αi is a fixed individual effect; and vit is the error term, which has a zero mean and constant variance.

6. Empirical Findings

Table 1 presents the key statistics for our data, including the dependent and independent variables. The mean R&D intensity is 4.2%, ranging from 0 to 47.59. The mean value of foreign institutional investment is 2.44%, and it ranges from a minimum value of 0 to a maximum value of 50.95%. The mean value of domestic institutional investment is 2.61%, ranging between a minimum value of 0 and a maximum value of 38.18%. Table 2 presents the correlation coefficients and shows that there is no serious multicollinearity among the explanatory variables in our model.

Table 1: Descriptive Statistics

Variables	N	Mean	SD	Min	Max
RDI	2993	0.042	0.966	0	47.596
FII	2641	2.44	6.040	0	50.955
DII	2755	2.608	5.229	0	38.185
Size	2901	6.721	2.119	0.182	12.89
Age	3484	2.902	0.796	0	4.771
MktS	3750	0.007	0.015	0	0.191
ExIn	2993	0.215	0.257	0	1.086
PAT	2993	-0.227	4.240	-119.6	36.333

CshFlo	2993	-0.277	16.090	-669	317.333
KI	2993	3.514	61.583	0	2773.8
ImpIKGds	2993	0.016	0.320	0	16.488
Market Capitalisation	2448	21312.51	101572.1	0.299	2118956
Turnover	1263	127.975	455.928	0.0008	5618.276

Table 2: Correlation Matrix

Variables	RDI	FII	DII	Size	Age	PAT	MktS	ExIn	CshFlo	KI	ImpIKGds
RDI	1.000										
FII	0.031	1.000									
DII	0.062***	0.431***	1.000								
Size	0.022	0.600***	0.515***	1.000							
Age	-0.030*	0.169***	0.290***	0.421***	1.000						
PAT	-0.249***	0.027	0.018	0.061***	0.009	1.000					
MktS	-0.004	0.698***	0.566***	0.609***	0.250***	0.042**	1.000				
ExIn	0.070***	0.244***	0.101***	0.306***	0.060***	0.026	0.188***	1.000			
CshFlo	-0.043**	0.009	0.009	0.015	0.003	0.493***	0.012	0.016	1.000		
KI	0.019	-0.021	-0.022	-0.026	0.020	-0.766***	-0.025	-0.031*	-0.472***	1.000	
ImpIKGds	0.831***	0.025	0.054***	0.021	-0.034*	-0.240***	-0.006	0.075***	-0.042**	0.018	1.000

*** Indicates coefficient is significant at the 0.01 level of significance.
** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance

Table 3 reports the results of 2SLS estimation for the full sample of our data, treating FII, DII, and R&D intensity as endogenous. In columns 2 and 3, we include the interactions between FII

and firm size and between DII and firm size, respectively. Similarly, columns 4 and 5 contain the interaction terms between FII and market share and DII and market share, respectively. Interaction terms are incorporated to test whether the sensitivity of R&D to FII and DII differs across firm size and market share. We examine the strength of the chosen instrumental variables using the weak instrument test (relevance condition). Following Staiger & Stock (1997) and Stock & Yogo (2005), we test the instrument's strength. In the case of Model (1) in Table 3, we find from the first-stage linear regression of 2SLS estimation results that the Cragg-Donald F statistic (22.817) is greater than the critical value (13.43). This indicates that the chosen instrument is relevant and there is no problem of weak instruments. The Cragg-Donald F-statistic is greater than the critical value for most of the estimated models, indicating that our instrument is relevant and there is no weak-instrument problem. Moreover, Kleibergen-Paap rk Wald F is significant in most models and thus confirms the relevance of our instrumental variables for institutional ownership. We also use the Sargan test for overidentifying restrictions to check that the instruments are uncorrelated with the error term. The test returns high p-values across all models, implying that the instruments satisfy the exogeneity condition and that the models are well specified. We find that FII has negative significant impact on a pharmaceutical firm's R&D intensity in some specifications in the full sample. However, DII has a significantly positive effect on a firm's R&D intensity across the full sample for models (1), (2), (4), and (5). The interaction term between FII and firm size is not significant in Model (2), indicating that FII's effect on R&D does not vary with firm size. Similar results are obtained for the interaction terms between FII and market share and DII and firm size in Models (3) and (4), respectively. However, in Model (5), the interaction term between DII and market share is negatively significant, indicating that DII's effect on R&D decreases as market share increases. For the control variables, size has a significantly positive effect on R&D in Models (4) and (5) only. PAT has a significant negative effect on R&D across most models. Market share has a negative significant effect in Model (2) only. Capital intensity is negatively significant in Models (2) and (4) only. The import of capital goods has a significant positive effect on R&D across all models. This indicates that firms that are importing capital goods require in-house R&D to adopt the new technology. All other variables have no significant effect in all the models.

We have conducted some sub-sample analyses by firm size and age. First, we divided the sample into two groups based on firm size. Firms with a size greater than or equal to the median (6.532) are classified as large firms, while those with a size less than the median are considered small firms. The 2SLS estimation results for both large and small firms are presented in Table 4. For both small and large pharmaceutical firms, we find that DII has a significantly positive effect on R&D intensity in some models of Table 4. On the other hand, FII has a negative significant effects on R&D in some specifications for both small and large firms. Furthermore, the interaction terms between FII and size and between FII and market share are negatively significant for small firms, indicating that the negative effect of FII intensifies with increasing size and market share in small firms.

Next, we split the sample by firm age, and the results are reported in Table 5. Firms with an age less than the median (2.99) are classified as young firms, while those with an age equal to or greater than the median are classified as old firms. We find that FII has no significant impact on the R&D intensity of young pharmaceutical firms. However, DII has a significant positive effect on the R&D intensity of young pharmaceutical firms. For older firms, we observe that FII has a significant positive effect on R&D, whereas DII has no significant effect. Moreover, none of the interaction terms are significant in either young or older firms.

As discussed earlier, prior research indicates that domestic and foreign institutional investors play different roles in influencing managerial behaviour (Hoskisson et al., 2002). This research adds new evidence to the literature by documenting distinct monitoring behaviour among foreign and domestic institutional investors regarding managerial investment in R&D. Our results indicate that different categories of institutional investors have distinct preferences for R&D investment, thereby supporting this literature. Specifically, our findings suggest that FII does not encourage the management to invest in R&D, which is risky and uncertain, for the Indian pharmaceutical industry. Moreover, because of the weak regulatory protection of shareholders in India, FIIs are short-term oriented. Hence, our results support the "myopic viewpoint" theory discussed earlier, which suggests that FII has a short-term focus and seeks short-term gains. However, we observe that DII has a positive effect on R&D investment, indicating that they monitor managers more efficiently than FIIs due to their informational advantage. Regulatory

institutions like SEBI are also encouraging and protecting the DIIs, which are patient capital, to maintain market stability. Our findings thus corroborate those of Graves (1988) and contradict those of Gharbi & Othmani (2020).

Table 3: 2SLS Estimation Results for the Full Sample

Independent Variables	RDI (1)	RDI (2)	RDI (3)	RDI (4)	RDI (5)
FII	-0.110*** (0.002)	-0.110*** (0.001)	-0.106*** (0.003)	-0.004 (0.003)	-0.001 (0.004)
DII	0.202*** (0.003)	0.205*** (0.001)	-0.035 (0.029)	0.104*** (0.002)	0.204*** (0.004)
FII*Size		0.001 (0.001)			
DII*Size			0.004 (0.004)		
FII*MktS				0.108 (0.073)	
DII*MktS					-0.189*** (0.008)
Size	0.014 (0.013)	0.004 (0.012)	0.009 (0.014)	0.018** (0.009)	0.019* (0.010)
Age	0.012 (0.016)	-0.001 (0.024)	-0.003 (0.029)	-0.002 (0.020)	0.011 (0.018)
PAT	-0.116* (0.066)	-0.120* (0.069)	-0.102 (0.071)	-0.108* (0.064)	-0.112* (0.065)
Mkts	0.003 (1.403)	-1.259***	-0.079 (1.599)	-2.432 (2.287)	-0.895 (3.113)

		(0.055)			
ExIn	-0.037 (0.025)	-0.030 (0.029)	-0.031 (0.032)	-0.032 (0.027)	-0.039 (0.025)
CshFlo	-0.021 (0.018)	-0.019 (0.018)	-0.020 (0.017)	-0.021 (0.017)	-0.021 (0.018)
KI	-0.009 (0.006)	-0.010* (0.006)	-0.008 (0.006)	-0.009* (0.005)	-0.009 (0.005)
ImpIKGds	3.557*** (0.345)	3.526*** (0.359)	3.617*** (0.360)	3.568*** (0.336)	3.573*** (0.340)
Cragg–Donald Wald F statistic	22.817	21.759	21.892	32.481	23.072
Kleibergen-Paap rk Wald F	11.537	10.962	10.973	12.077	11.180
Hansen J statistic	6.789 (p=0.351)	8.993 (p=0.486)	2.096 (p=0.157)	3.610 (p=0.204)	8.893 (p=0.485)
Observations	967	967	967	967	967

*** Indicates coefficient is significant at the 0.01 level of significance.
** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance.
Standard errors are given in parentheses.

Table 4: 2SLS Estimation Results for Small and Large Firms

Independent Variables	Small Firms					Large Firms				
	RDI (1)	RDI (2)	RDI (3)	RDI (4)	RDI (5)	RDI (1)	RDI (2)	RDI (3)	RDI (4)	RDI (5)
FII	-0.003** (0.001)	-0.023** (0.011)	-0.008** (0.004)	-0.0002 (0.001)	-0.003 (0.002)	-0.004 (0.004)	-0.011*** (0.002)	-0.006 (0.005)	-0.007* (0.004)	-0.004 (0.004)
DII	0.00006 (0.001)	0.0004** (0.0002)	0.006 (0.004)	0.001*** (0.0006)	0.001 (0.001)	-0.004 (0.008)	0.031** (0.012)	-0.021 (0.031)	0.052*** (0.010)	-0.005 (0.004)
FII*Size		-0.006** (0.002)					0.001 (0.001)			
DII*Size			-0.001 (0.001)					0.002 (0.004)		
FII*MktS				-53.236*** (17.647)					0.122 (0.090)	

DII*MktS					0.184 (0.571)					0.083 (0.239)
Size	-0.001 (0.001)	0.0002 (0.0003)	0.0002 (0.001)	-0.001** (0.0003)	-0.0002 (0.0002)	0.029** (0.014)	0.012 (0.015)	0.021 (0.020)	0.030** (0.012)	0.032** (0.014)
Age	-0.001** (0.000)	-0.001*** (0.0002)	-0.0004* (0.0002)	-0.001*** (0.0002)	- 0.001** * (0.0002)	0.014 (0.021)	0.001 (0.030)	0.003 (0.034)	-0.008 (0.028)	0.010 (0.023)
PAT	-0.002 (0.002)	-0.002*** (0.001)	-0.002** (0.001)	-0.002*** (0.001)	-0.001 (0.001)	-0.109 (0.074)	-0.125 (0.079)	-0.105 (0.080)	-0.109 (0.073)	-0.108 (0.074)
Mkts	1.089 (0.754)	0.847*** (0.242)	1.230* (0.712)	0.966*** (0.276)	0.518 (0.396)	0.650 (1.384)	-0.817 (1.872)	0.287 (1.570)	-2.619 (2.863)	-0.433 (3.578)
ExIn	-0.002 (0.003)	-0.003*** (0.001)	-0.003** (0.002)	-0.006*** (0.001)	-0.004* (0.002)	-0.030 (0.033)	-0.024 (0.034)	-0.029 (0.036)	-0.021 (0.035)	-0.032 (0.032)
CshFlo	0.001 (0.001)	0.001 (0.001)	0.002** (0.001)	0.001 (0.001)	0.002 (0.001)	-0.022 (0.018)	-0.021 (0.019)	-0.021 (0.018)	-0.022 (0.018)	-0.022 (0.018)
KI	0.00001 (0.0001)	0.0003 (0.0002)	0.0003 (0.0002)	-0.0002** (0.0001)	0.00007 (0.0001)	-0.008 (0.006)	-0.010 (0.006)	-0.008 (0.007)	-0.009 (0.006)	-0.008 (0.006)
ImpIKGds	-0.045 (0.055)	-0.023 (0.015)	-0.020 (0.018)	-0.040 (0.025)	-0.018 (0.023)	3.585** * (0.376)	3.509** * (0.394)	3.603*** (0.398)	3.558*** (0.369)	3.590** * (0.371)

Cragg–Donald Wald F statistic	23.411	15.746	21.904	22.213	16.250	13.832	21.322	22.262	21.882	23.247
Kleibergen-Paap rk Wald F	7.597	8.529	11.231	11.999	13.097	11.809	9.786	11.431	14.837	13.514
Hansen J statistic	5.812 (p=0.809)	2.872 (p=0.3503)	1.101 (p=0.2940)	0.069 (p=0.7928)	1.733 (p=0.166)	7.796 (p=0.945)	2.475 (p=0.193)	2.527 (p=0.1119)	1.278 (p=0.2583)	3.029 (p=0.818)
Observations	56	56	56	56	56	911	911	911	911	911

*** Indicates coefficient is significant at the 0.01 level of significance.
** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance.
Standard errors are given in parentheses.

Table 5: 2SLS Estimation Results for Young and Old Firms

Independent Variables	Young Firms					Old Firms				
	RDI (1)	RDI (2)	RDI (3)	RDI (4)	RDI (5)	RDI (1)	RDI (2)	RDI (3)	RDI (4)	RDI (5)
FII	0.014 (0.010)	0.010 (0.039)	0.004 (0.012)	0.020 (0.012)	0.003 (0.014)	0.012*** (0.002)	-0.007 (0.006)	-0.000 (0.002)	0.021*** (0.002)	0.015*** (0.001)

DII	0.015*** (0.001)	0.016* (0.009)	0.100 (0.075)	-0.013 (0.011)	0.126*** (0.045)	-0.004 (0.002)	-0.000 (0.004)	-0.004 (0.009)	-0.002 (0.003)	-0.001 (0.001)
FII*Size		0.0003 (0.004)					0.001 (0.001)			
DII*Size			-0.011 (0.007)					0.000 (0.001)		
FII*MktS				-0.164 (0.198)					0.015 (0.042)	
DII*MktS					-0.764 (1.262)					-0.063 (0.080)
Size	0.025 (0.018)	0.025 (0.028)	0.056* (0.031)	0.015 (0.018)	-0.003 (0.051)	0.012* (0.006)	0.009 (0.006)	0.012* (0.006)	0.010** (0.004)	0.007 (0.005)
Age	-0.035 (0.046)	-0.032 (0.048)	-0.056 (0.042)	-0.036 (0.056)	-0.060 (0.053)	0.002 (0.009)	-0.014 (0.020)	-0.001 (0.015)	-0.003 (0.014)	-0.003 (0.007)
PAT	- 0.369*** (0.117)	- 0.365*** (0.117)	- 0.335*** (0.086)	- 0.375*** (0.117)	- 0.333*** (0.090)	0.004 (0.008)	0.003 (0.007)	0.005 (0.009)	0.003 (0.007)	0.001 (0.007)
Mkts	0.708 (2.422)	0.927 (1.906)	-2.410 (2.814)	2.306 (3.637)	2.814 (9.221)	0.656 (0.426)	0.184 (0.700)	0.648 (0.510)	0.202 (1.106)	1.276 (1.226)
ExIn	-0.143 (0.090)	-0.137 (0.108)	-0.132 (0.101)	-0.165* (0.094)	-0.133 (0.103)	-0.001 (0.008)	-0.002 (0.007)	-0.001 (0.008)	-0.001 (0.006)	0.001 (0.007)

CshFlo	-0.157 (0.183)	-0.159 (0.212)	-0.190 (0.181)	-0.149 (0.191)	-0.220 (0.220)	-0.001 (0.002)	-0.000 (0.002)	-0.001 (0.002)	-0.001 (0.001)	0.000 (0.001)
KI	-0.012 (0.009)	-0.011 (0.007)	-0.026* (0.014)	-0.012** (0.006)	-0.027 (0.017)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)
ImpIKGds	2.077** (1.041)	2.083** (1.048)	2.082** (0.924)	2.082** (1.043)	1.967** (0.976)	0.140 (0.115)	0.325 (0.231)	0.168 (0.220)	0.186 (0.191)	0.118 (0.111)
Cragg–Donald Wald F statistic	14.525	15.445	21.550	21.421	17.221	16.321	18.061	19.975	21.865	31.116
Kleibergen-Paap rk Wald F	6.231	7.809	5.628	7.817	9.226	11.473	10.417	10.675	13.257	12.181
Hansen J statistic	0.000 (p=0.9837)	0.020 (p=0.8877)	0.027 (p=0.8700)	0.075 (p=0.7837)	1.695 (p=0.1929)	0.408 (p=0.5230)	0.054 (p=0.8166)	0.976 (p=0.3231)	0.342 (p=0.5586)	1.182 (p=0.2769)
Observations	181	181	181	181	181	786	786	786	786	786

*** Indicates coefficient is significant at the 0.01 level of significance.
** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance.
Standard errors are given in parentheses.

7. Robustness Test:

Tables 6, 7, and 8 present the estimation results for the two-step system dynamic panel data as a robustness check. We use a two-step system GMM estimation, as it is more efficient than one-step estimation. The efficiency of the GMM estimator, however, depends on the assumption that the dependent and other explanatory variables are valid instruments and the error terms do not exhibit serial correlation. To address these issues, Arellano and Bond (1991) proposed three tests. The first is to test the hypothesis that there is no first-order serial correlation of the error term. Under the null hypothesis of no serial correlation, the test statistic is distributed as a standard normal. The second is to test for the absence of second-order serial autocorrelation in the error term, which is distributed as a standard normal under the null hypothesis of no serial correlation. The third is the Hansen test of over-identifying restrictions. This tests the validity of the instruments and is asymptotically distributed as $\chi 2$ under the null of instrument validity. We observe from Table 6 that the Hansen test indicates acceptance of the null hypothesis of instrument validity across all five alternative model specifications. This indicates that it is appropriate to treat explanatory variables as exogenous. The test statistic for first-order serial correlation, applied to the differenced residuals, is significant in all models, which is acceptable. On the other hand, the second-order serial correlation, which is more important because it detects autocorrelation in levels, is also not significant in all the models, indicating that the models are not misspecified.

Table 6 reports the estimation results for the full sample. For the full sample, the dynamic panel data estimation results confirm the findings of the 2SLS estimation. DII has a significant positive impact on a pharmaceutical company's R&D intensity, whereas FII has negative significant effect in some specifications. Moreover, like 2SLS, we get similar results for the interaction terms too. Table 7 shows the dynamic panel estimation results for large and small firms. For both small and large firms, FII has a negative significant effects in some models. Similarly, for both large and small firms, DII has a positive significant impact on RDI. Moreover, the interaction terms between FII and size is negatively significant in small firms. And the interaction term

between FII and market share is also negatively significant in small firms like the 2SLS results. Table 8 reports the dynamic panel estimation results for young and old pharmaceutical companies. For young pharmaceutical firms, DII has a positive and statistically significant impact on R&D intensity in some specifications. For old pharmaceutical firms, FII has a positive significant effect on R&D in some specifications, but DII has no effect. Moreover, none of the interaction terms has a significant effect on R&D for both FII and DII. Therefore, most of these findings support our 2SLS results.

Table 6: Results of Dynamic Panel Regression Analysis for the Full Sample

Explanatory Variables	RDI (1)	RDI (2)	RDI (3)	RDI (4)	RDI (5)
L.RDI	0.066 (0.049)	0.065 (0.049)	0.063 (0.050)	0.067 (0.048)	0.067 (0.049)
FII	-0.002* (0.001)	-0.008 (0.007)	-0.011*** (0.002)	0.002 (0.001)	-0.003* (0.001)
DII	0.003* (0.001)	0.003** (0.002)	0.006* (0.003)	0.014* (0.007)	0.001 (0.002)
FIISize	—	0.001 (0.001)	—	—	—
FIIMktS	—	—	0.158 (0.189)	—	—
DIISize	—	—	—	0.002 (0.011)	—
DIIMktS	—	—	—	—	-0.142*** (0.020)
Size	-0.001 (0.004)	-0.002 (0.004)	0.003 (0.004)	-0.005 (0.005)	0.002 (0.004)

Age	-0.002 (0.008)	-0.002 (0.008)	-0.006 (0.008)	-0.005 (0.009)	-0.005 (0.007)
MktS	-0.497 (0.445)	-0.980** (0.463)	-3.741* (2.004)	-1.523** (0.747)	-2.177 (1.553)
ExIn	-0.021 (0.022)	-0.019 (0.023)	-0.021 (0.023)	-0.019 (0.023)	-0.022 (0.022)
PAT	-0.068* (0.037)	-0.069* (0.036)	-0.068* (0.036)	-0.069* (0.036)	-0.068* (0.038)
CshFlo	0.019** (0.008)	0.019** (0.008)	0.019** (0.008)	0.020** (0.008)	0.019** (0.008)
KI	0.001 (0.005)	0.001 (0.005)	0.001 (0.005)	0.001 (0.005)	0.001 (0.005)
ImpIKGds	2.937*** (0.773)	2.940*** (0.765)	2.937*** (0.764)	2.919*** (0.749)	2.929*** (0.775)
Constant	0.007 (0.016)	0.012 (0.016)	-0.003 (0.021)	0.038* (0.022)	-0.001 (0.017)
F	4320000***	4860000***	4910000	530212.47***	198490.84***
AR(1)	-2.090**	-2.090**	-2.080**	-2.080**	-2.090**
AR(2)	-1.510 (0.131)	-1.520 (0.128)	-1.530 (0.127)	-1.530 (0.127)	-1.510 (0.131)
Hansen Statistic	56.110 (0.257)	51.940 (0.360)	55.850 (0.233)	59.240 (0.150)	56.630 (0.212)

(p-value)					

*** Indicates coefficient is significant at the 0.01 level of significance.
** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance.
Standard errors are given in parentheses.

Table 7: Results of Dynamic Panel Regression Analysis for Small and Large Firms

Explanatory Variable	**Small Firms**					**Large Firms**				
	RDI (1)	RDI (2)	RDI (3)	RDI (4)	RDI (5)	RDI (6)	RDI (7)	RDI (8)	RDI (9)	RDI (10)
L.RDI	0.215*** (0.084)	0.206*** (0.067)	0.215** (0.085)	0.177** (0.085)	0.215** (0.094)	0.486*** (0.029)	0.489*** (0.029)	0.488*** (0.030)	0.492*** (0.031)	0.493*** (0.028)
FII	-0.008 (0.005)	-0.309 (0.308)	-0.019*** (0.006)	0.016 (0.015)	-0.017*** (0.005)	0.001 (0.000)	0.003 (0.002)	-0.011*** (0.002)	0.000 (0.000)	-0.012*** (0.0003

DII	0.000 (0.002)	0.001 (0.003)	0.021*** (0.002)	0.277*** (0.092)	-0.002 (0.003)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.122*** (0.003)	0.031*** (0.001)
FIISize	—	-0.072*** (0.003)	—	—	—		-0.000 (0.000)			
FIIMktS	—	—	-51.924*** (9.742)	—	—			-0.018 (0.018)		
DIISize	—	—	—	0.049 (0.033)	—				-0.000 (0.000)	
DIIMktS	—	—	—	—	6.665 (4.904)					-0.031 (0.031)
Size	-0.000 (0.009)	-0.007 (0.012)	-0.001 (0.009)	-0.013 (0.012)	0.001 (0.009)	0.003 (0.002)	0.004* (0.002)	0.003 (0.002)	0.004* (0.002)	0.002 (0.002)
Age	0.002 (0.005)	0.008 (0.013)	0.005 (0.006)	-0.014 (0.011)	0.000 (0.007)	-0.003 (0.003)	-0.003 (0.003)	-0.002 (0.003)	-0.003 (0.003)	-0.003 (0.003)
MktS	12.498	3.599	2.920	3.170	4.128	0.159	0.242*	0.528	0.241 (0.16	0.525

	(9.975)	(12.399)	(13.862)	(8.189)	(10.988)	(0.124)	(0.141)	(0.349)	7)	(0.416)
ExIn	-0.078 (0.051)	-0.077 (0.059)	-0.076 (0.050)	-0.052* (0.029)	-0.075 (0.046)	0.007 (0.005)	0.007 (0.005)	0.007 (0.005)	0.008 (0.005)	0.008 (0.005)
PAT	-0.057 (0.042)	-0.062 (0.051)	-0.058 (0.043)	-0.057 (0.043)	-0.056 (0.040)	0.000 (0.004)	0.001 (0.004)	0.000 (0.004)	0.001 (0.004)	0.002 (0.004)
CshFlo	0.010 (0.008)	0.010 (0.009)	0.010 (0.008)	0.010 (0.006)	0.010 (0.007)	-0.000 (0.004)	-0.000 (0.004)	-0.000 (0.004)	0.000 (0.004)	0.000 (0.004)
KI	-0.002 (0.006)	-0.002 (0.006)	-0.002 (0.006)	-0.001 (0.005)	-0.001 (0.006)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
ImpIKGds	1.611 (0.988	1.604** (0.766)	1.612 (1.000)	1.388* (0.792)	1.622 (1.120)	-0.446* (0.257)	-0.469* (0.258)	-0.458* (0.257)	-0.489* (0.27	-0.498* (0.254)

	)							3)	
Constant	-0.004 (0.045)	0.010 (0.049)	-0.006 (0.044)	0.117 (0.094)	-0.002 (0.048)	-0.010 (0.018)	-0.015 (0.020)	-0.009 (0.020)	-0.020 (0.018)	-0.004 (0.017)
F	116.77***	192.33***	134.78***	17.16	26.19***	913811.46***	3460000***	1920000***	2440000***	2800000***
AR(1)	-1.450	-1.490	-1.440	-1.430	-1.420	-2.00**	-2.02**	-2.00**	-2.01**	-2.06**
AR(2)	-0.610	-0.730	-0.630	-0.650	-0.540	-1.07	-1.07	-1.07	-1.07	-1.07
Hansen Statistic *(p-value)*	54.420 (0.310)	47.640 (0.528)	44.580 (0.653)	59.100 (0.153)	48.150 (0.508)	47.46 (0.576)	48.03 (0.512)	48.53 (0.492)	47.85 (0.519)	45.27 (0.625)

*** Indicates coefficient is significant at the 0.01 level of significance.
** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance.
Standard errors are given in parentheses.

Table 8: Results of Dynamic Panel Regression Analysis for Young and Old Firm

Explanatory Variable	Young Firms					Old Firms				
	RDI (1)	RDI (2)	RDI (3)	RDI (4)	RDI (5)	RDI (6)	RDI (7)	RDI (8)	RDI (9)	RDI (10)
L.RDI	0.029 (0.045)	0.029 (0.045)	0.028 (0.047)	0.035 (0.043)	0.024 (0.043)	0.404** (0.164)	0.404** (0.164)	0.405** (0.158)	0.396** (0.165)	0.409** (0.168)
FII	0.004 (0.005)	-0.003 (0.022)	0.003 (0.007)	0.003 (0.004)	0.003 (0.004)	0.011*** (0.001)	0.012*** (0.003)	0.001 (0.001)	0.021*** (0.001)	0.018*** (0.001)
DII	0.019** (0.008)	0.019** (0.008)	0.019** (0.009)	-0.030 (0.042)	0.025** (0.012)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	-0.002 (0.002)	0.000 (0.001)
FII × Size		0.001 (0.003)					-0.000 (0.000)			
FII × MktS			0.077 (0.304)					0.008 (0.040)		
DII × Size				0.007 (0.006)					0.000 (0.000)	
DII × MktS					-1.059 (0.737)					-0.015 (0.045)
Size	-0.017 (0.013)	-0.017 (0.014)	-0.015 (0.014)	-0.025 (0.018)	-0.030** (0.013)	0.003 (0.003)	0.003 (0.003)	0.003 (0.004)	0.002 (0.003)	0.002 (0.004)

Age	-0.043 (0.027)	-0.042 (0.027)	-0.044 (0.029)	-0.043 (0.033)	-0.033 (0.024)	-0.003 (0.007)	-0.003 (0.008)	-0.003 (0.007)	-0.003 (0.007)	-0.003 (0.007)
MktS	-1.729 (1.448)	-1.934 (1.473)	-2.753 (4.056)	-4.255 (3.359)	7.899 (5.714)	-0.024 (0.319)	0.025 (0.460)	-0.209 (1.091)	-0.157 (0.278)	0.166 (0.636)
ExIn	-0.040 (0.081)	-0.039 (0.081)	-0.037 (0.080)	-0.046 (0.079)	-0.036 (0.079)	-0.003 (0.009)	-0.003 (0.009)	-0.003 (0.008)	-0.002 (0.010)	-0.002 (0.008)
PAT	-0.075 (0.058)	-0.074 (0.058)	-0.073 (0.056)	-0.075 (0.060)	-0.073 (0.056)	-0.046 (0.031)	-0.046 (0.031)	-0.046 (0.030)	-0.046 (0.031)	-0.046 (0.031)
CshFlo	0.049* (0.026)	0.049* (0.026)	0.048* (0.026)	0.049* (0.027)	0.047* (0.026)	-0.018 (0.030)	-0.018 (0.030)	-0.018 (0.030)	-0.018 (0.030)	-0.019 (0.030)
KI	0.011 (0.007)	0.011 (0.007)	0.011 (0.007)	0.011 (0.007)	0.010 (0.007)	-0.003 (0.003)	-0.002 (0.003)	-0.003 (0.003)	-0.002 (0.003)	-0.003 (0.003)
ImpIKGds	3.323*** (0.650)	3.328*** (0.652)	3.343*** (0.656)	3.250*** (0.628)	3.381*** (0.620)	0.509* (0.290)	0.506* (0.293)	0.513* (0.298)	0.513* (0.286)	0.511* (0.292)
F	23600000***	4500000***	29600000***	93214.24***	2110000***	18.31***	14.49***	14.70***	15.58***	15.66***
AR(1)	-1.330	-1.330	-1.330	-1.320	-1.320	-1.170	-1.170	-1.180	-1.170	-1.170
AR(2)	-1.400	-1.390	-1.390	-1.390	-1.390	0.620	0.620	0.610	0.610	0.620
Hansen Statistic *(p-value)*	52.480 (0.189)	50.650 (0.120)	51.360 (0.189)	45.270 (0.227)	45.270 (0.227)	58.400 (0.194)	58.780 (0.160)	57.900 (0.180)	58.060 (0.176)	58.170 (0.174)

*** Indicates coefficient is significant at the 0.01 level of significance.

** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance.
Standard errors are given in parentheses.

Table 9 below depicts the impact of varying levels of foreign institutional equity participation on the R&D intensity of the pharmaceutical industry. Following Riaz et al. (2021), we have reported overall foreign institutional equity ownership, which comprises all levels along with four dummy variables: (1) D>=75%, (2) D>=90%, (3) D>=95% and (4) D>=99%. Table 9 presents the distribution of FII and explains why we have included these dummy variables for different levels of FII. From Table 9, we observe that there are very few pharmaceutical firms with foreign institutional investment below 75% equity. From Table 10, we observe that FII has negative significant effect on R&D in two specifications at the D>= 75% level and D>= 90% level. However, the effects of DII are positively significant in most cases. The statistical significance of the control variables has remained consistent with our prior empirical findings.

We have also carried out a similar exercise for DII. We have created five dummy variables based on Table 11 as follows: (1) D>= 50%, (2) D>= 75%, (3) D>= 90% (4) D>= 95% and (5) D>= 99%. From Table 12, we observe that DII has a positive and significant impact on R&D intensity at the D>=90% level. However, FII has no significant effects on all the levels of the distribution of DII. The statistical significance of the control variables has remained consistent with our prior empirical findings.

Table 9: Distribution of FII

Percentage	**FII**
75%	0.96
90%	9.439
95%	16.135
99%	29.83

Table 10: Regression Results of the Impact of Varying Levels in Foreign Institutional Ownership

Variables	Continuous FII	D>=75%	D>=90%	D>=95%	D>=99%
FII	-0.0001 (0.004)	-0.147* (0.078)	-0.043*** (0.009)	0.067 (0.149)	0.162 (0.174)
DII	-0.002 (0.008)	0.015*** (0.004)	-0.003 (0.007)	0.023*** (0.003)	0.018*** (0.005)
Size	0.014 (0.013)	0.040*** (0.015)	0.018* (0.011)	0.007 (0.016)	0.009 (0.006)
Age	0.012 (0.016)	-0.002 (0.022)	0.014 (0.017)	0.004 (0.025)	0.008 (0.014)
PAT	-0.116* (0.066)	-0.098 (0.067)	-0.111* (0.066)	-0.121* (0.065)	-0.123* (0.064)
Mkts	0.003 (1.403)	-0.714 (1.018)	0.493 (1.404)	-1.043 (2.425)	-0.443 (0.688)
ExIn	-0.037 (0.025)	-0.030 (0.031)	-0.038 (0.027)	-0.034 (0.028)	-0.039 (0.025)
CshFlo	-0.021 (0.018)	-0.024 (0.016)	-0.021 (0.017)	-0.020 (0.018)	-0.020 (0.018)
KI	-0.009 (0.006)	-0.009* (0.005)	-0.008 (0.006)	-0.009* (0.005)	-0.010* (0.005)
ImpIKGds	3.557*** (0.345)	3.617*** (0.344)	3.581*** (0.344)	3.527*** (0.344)	3.526*** (0.338)
Cragg-Donald Wald F statistic	21.817	23.251	22.189	20.855	14.254
Kleibergen-Paap rk Wald F	7.537	8.954	10.094	10.494	11.913

Hansen J statistic	0.789 (p=0.816)	0.187 (p=0.6651)	0.215 (p=0.730)	3.292 (p=0.0696)	2.943 (p=0.0863)
Observations	967	967	967	967	967

*** Indicates coefficient is significant at the 0.01 level of significance.
** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance.
Standard errors are given in parentheses.

Table 11: Distribution of DII

Percentage	**DII**
50%	0.02
75%	2.78
90%	9.7
95%	14.315
99%	22.95

Table 12: Regression results of the impact of varying levels of overall domestic institutional ownership

Variables	Continuous DII	D>=50%	D>=75%	D>=90%	D>=95%	D>=99%
FII	-0.0001 (0.004)	0.003 (0.006)	0.004 (0.007)	0.001 (0.003)	0.001 (0.003)	-0.007 (0.008)
DII	-0.002 (0.008)	0.186 (0.325)	0.123 (0.218)	0.021*** (0.002)	-0.023 (0.114)	-0.763 (0.919)
Size	0.014 (0.013)	-0.006 (0.033)	-0.010 (0.039)	0.011 (0.010)	0.012 (0.009)	0.023 (0.015)
Age	0.012 (0.016)	0.002 (0.015)	0.001 (0.020)	0.009 (0.020)	0.011 (0.015)	0.008 (0.021)

PAT	-0.116* (0.066)	-0.119* (0.061)	-0.134* (0.069)	-0.119* (0.064)	-0.118* (0.062)	-0.100 (0.069)
Mkts	0.003 (1.403)	-0.706 (0.826)	-1.460 (2.135)	-0.314 (1.412)	-0.179 (0.646)	1.625 (2.015)
ExIn	-0.037 (0.025)	-0.052* (0.030)	-0.044* (0.026)	-0.037 (0.022)	-0.038 (0.027)	-0.064 (0.055)
CshFlo	-0.021 (0.018)	-0.023 (0.021)	-0.017 (0.020)	-0.020 (0.018)	-0.020 (0.018)	-0.022 (0.017)
KI	-0.009 (0.006)	-0.008 (0.005)	-0.010* (0.006)	-0.009* (0.005)	-0.009* (0.005)	-0.007 (0.007)
ImpIKGds	3.557*** (0.345)	3.520*** (0.334)	3.475*** (0.373)	3.541*** (0.345)	3.543*** (0.323)	3.601*** (0.340)
Cragg-Donald Wald F statistic	13.817	20.662	20.825	21.830	15.172	20.772
Kleibergen-Paap rk Wald F	7.537	8.227	10.702	11.482	13.088	10.449
Hansen J statistic	0.789 (p=0.516)	1.461 (p=0.2268)	1.456 (p=0.2275)	2.032 (p=0.446)	1.459 (p=0.225)	0.209 (p=0.6477)
Observations	967	967	967	967	967	967

*** Indicates coefficient is significant at the 0.01 level of significance.
** Indicates coefficient is significant at the 0.05 level of significance.
* Indicates coefficient is significant at the 0.10 level of significance.
Standard errors are given in parentheses.

8. Discussion

India's pharmaceutical industry increasingly relies on DII, which includes mutual funds, insurance companies, pension funds, and banks. As of March 2025, DIIs owned 17.62% of the Indian equity markets, surpassing FIIs' 17.22% share for the first time. This signals major shifts

in capital dynamics, investor sentiment, and strategic sector funding. DIIs provide stable capital to support investments in R&D and innovation by Indian pharmaceutical companies, as foreign capital alone cannot guarantee this stability. When global investors withdrew large sums during 2020's market chaos, domestic institutions stepped in with Rs. 55,595 crore, stabilizing prices and supporting research. This countercyclical behavior sets patient domestic capital apart from cautious foreign flows, making DIIs essential for India's pharmaceutical industry (Kar, 2025).

Unlike FII, DII operates entirely within national borders, guided by India's macroeconomic environment and regulatory climate. Because of their long-term investment outlook, strategic sectors such as pharmaceuticals, healthcare, and biotechnology benefit significantly, as innovation cycles extend over years rather than quarters. Foreign investors tend to focus more on quarterly profits than on long-term goals like innovation. India's pharmaceutical industry, valued at over $50 billion in 2025, currently depends on capital-intensive research and development, manufacturing automation, and compliance with international regulatory standards. These requirements call for more DIIs, which are characterized as patient capital willing to wait years for returns, since the gestation period in R&D investment is relatively longer and carries more risk.

Major mutual funds, including SBI Pharma Fund, ICICI Prudential Healthcare Fund, and Tata India Pharma, have consistently invested in performers such as Sun Pharma, Cipla, Dr. Reddy's Laboratories, and Biocon. The steady funding from such DIIs helps foster innovation, which is lacking in FIIs due to their volatile nature. DII participation is supported by government initiatives, including the Production Linked Incentive Scheme for pharmaceuticals, the Promotion of Research and Innovation in Pharma and Medical Technology scheme, and the BioE3 (Biotechnology for Economy, Environment, and Employment) Policy (Kar, 2025). These programs have helped increase domestic high-value production and attract institutional investment by offering tax incentives, easing capital flows, and providing regulatory support. The Securities and Exchange Board of India (SEBI) oversees DIIs, ensuring compliance with disclosure and governance standards that protect investors while maintaining market stability. DIIs also receive incentives from the Insurance Regulatory and Development Authority and the Ministry of Chemicals and Fertilizers to uphold transparency and investor confidence. Recent

years have seen policymakers prioritize reducing dependence on foreign APIs, encouraging DIIs to fund domestic infrastructure and sustainable innovation ecosystems.

In this context, let us focus on the PLI scheme introduced by the government in July 2020 to reduce import dependence on APIs and encourage domestic firms to produce APIs locally. APIs are mostly imported from China because it is cheaper to import than to manufacture them in India. The extensive activities of Chinese producers, advanced technologies, and government support contribute to China's competitiveness. One of the key eligibility criteria for this scheme was that the manufacturing facilities must be new, meaning greenfield. PLI does not consider using idle API manufacturing facilities.

MSMEs account for 87% of API production by volume and 40% by value (MSME Ministry, 2025). From the history of the Indian pharmaceutical industry, it becomes clear that the private sector focuses more on formulations than APIs. The reason is that the capital-to-turnover ratio is much higher in APIs than in formulations. Without appropriate technology, API manufacturers in India will struggle to compete with China on pricing. According to a KPMG-CII report (KPMG-CII, 2020), the only advantage Indian API manufacturers have over Chinese manufacturers is lower labour costs. The positive effects of the scheme are beginning to show. It has decreased India's dependence on imports. Penicillin G, which India had stopped producing 30 years ago (phased out in 1990) due to market flooding with cheaper alternatives, mainly from China, will now be manufactured domestically. The plant is expected to be operational by June 2024. The government has so far approved about 55 applicants, with an incentive outlay of Rs 15,000 crore. Imports of pharmaceutical materials declined by 12% overall and about 9.45% from China during the first three quarters of fiscal year 2023-2024 (Mirza, 2024). As of September 2025, the PLI scheme for bulk drugs has helped avoid imports worth ₹3,591 crore by promoting the domestic production of critical ingredients.

The PLI scheme has recently emphasized R&D investment, including technology transfer, product development, and collaborations both within companies and with academic institutions. The Promotion of Research and Innovation in Pharma MedTech (PRIP) scheme works alongside the PLI to promote innovation-driven growth. By late 2025, more than 110 research projects had been approved (PIB, 2026). It is also crucial to involve public sector enterprises (PSEs) in API manufacturing. PSEs like HAL and IDPL possess substantial API

production capacity but remain underutilized. Instead of viewing PSEs as a liability, they should be leveraged strategically.

9. Conclusion

This paper investigates the impact of institutional ownership on R&D investment intensity in Indian pharmaceutical firms. We used a sample of unbalanced panel data comprising 150 BSE- and NSE-listed firms over the period 2001-2019. We have employed the 2SLS technique to control for endogeneity and the system GMM method of estimation for dynamic panel data as a robustness test in our analysis. Our theoretical development suggests that the impact of institutional ownership on R&D investment can be either positive or negative. Moreover, this effect may differ between domestic and foreign institutional investors. Our empirical results demonstrate that foreign institutional investors discourage R&D activities in Indian pharmaceutical firms. These findings are consistent with the myopic investor role of the foreign institutional investors, which holds that FII investors seek short-term gains and avoid investments in risky, long-term projects such as R&D. Our findings corroborate the literature that considers foreign institutions as short-term investors (Arora, 2016). However, our results show that FII promotes R&D in older pharmaceutical firms. Conversely, DII enhances R&D across the entire pharmaceutical industry. Moreover, DII positively affects large and young firms. For small firms, FII has a negatively significant effect and DII has a positively significant impact on R&D. These results remain robust when we apply system dynamic panel estimations. Our findings suggest that foreign institutional investors are unable to effectively monitor managerial myopia and promote innovation in the Indian pharmaceutical industry. However, as we observe that DII has a positive effect on R&D investment, this suggests that they monitor managers more efficiently than FIIs, given their informational advantage. Regulatory institutions like SEBI is also encouraging and protecting the DIIs, which are patient capital, to maintain market stability. Our findings thus corroborate those of Graves (1988) and contradict those of Gharbi & Othmani (2020).

Our findings have implications for policymakers, regulators, and foreign equity investors. Two key policy implications arise from our study. First, the government should promote DII

investment in the Indian pharmaceutical industry, as DII encourages R&D in this sector. Second, since FII supports R&D among older pharmaceutical firms, the government should implement policies to increase FII inflows to these firms in the future. Additionally, our study emphasizes the importance of a strong legal framework in India to build confidence and provide protection to FIIs, enabling them to adopt a long-term outlook in their portfolios. Emerging economies like India still lack a developed legal system that enables FIIs to sustain long-term investment goals, which raises their chances of funding risky projects like R&D.

Despite the importance of our study, it has limitations that open avenues for future research. Future studies should recognize that institutional investors, whether FIIs or DIIs, are not a uniform group. They can be classified based on trading activity and diversification level. Including such classifications could enhance understanding of which types of institutional investors either support or hinder innovation in India's pharmaceutical industry. Additionally, our study could be expanded by examining product-market competition, specifically how the relationship between FII and R&D shifts within India's pharmaceutical sector under competitive market conditions. This research could be extended to analyse the implications of institutional investors for innovation outcomes, such as patents and new product introductions. The involvement of managers in innovation outcomes might be different from their interest in R&D investment and, consequently, from the engagement of institutional investors.

Notes:

1. Institutional investors are specialized financial institutions that consist of pension funds, insurance companies, mutual funds, and banks. These investors usually hold diversified portfolios and provide a better trade-off of risk and return than individual investors.
2. TRIPs was implemented in three successive steps. The first version was introduced in 1995, establishing the “mailbox” system under which patent applications could be filed from January 1, 1995, through 2005. On January 1, 2000, a second amendment was introduced. Its main issues included redefining patentable subject matter, extending the patent term to 20 years, and amending the compulsory licensing system. A third amendment to patent law was enacted on January 1, 2005, to introduce a product patent

regime for areas such as pharmaceuticals, which had previously been covered only by process patents.

3. For a detailed discussion on the amendment of patent laws in India after TRIPs, see Dhar and Gopakumar (2006).

4. For the history of the development of the Indian pharmaceutical industry, see Chaudhuri, 2005; Horner, 2014; Racherla, 2019, among others.

5. On June 1, 2014, SEBI transitioned from the FII (Foreign Institutional Investment) regime to the FPI (Foreign Portfolio Investment) regime. It merged three existing categories—FIIs, sub-accounts, and Qualified Foreign Investors—creating a new investor class called FPI, although the term FII is still used in economic discussions. FII regulations started in 1995, and FPI regulations were introduced in 2014 (SEBI, 2014)

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