Nexus between Pakistani Firm's Profitability and Foreign Direct Investment

Noor Jehan [*] | Fahim Nawaz [†] | Ali Zeb [‡]

Corresponding Author: Noor Jehan (Department of Economics, Abdul Wali Khan University Mardan, KP Pakistan. Email: noorjehan@awkum.edu.pk)

Abstract: *Globalization and Foreign Direct Investment (FDI) have a very strong association. FDI increases competition, externalities, domestic firm profitability, technology transfer, knowledge transfer, manpower training, market networking, and economic benefits. This study examined how foreign direct investment affects Pakistani banks' profits. The analysis used 1996–2015 time series data. EViews estimated the research model. The study uses the autoregressive model for finding any association between the response variable, profitability of domestic companies, and the net FDI inflows (percentage of GDP), FDI (foreign direct investment), and four response variable lags. Return on Assets (ROA) quantified domestic firm profitability. The model indicated and the coefficient showed that ROA and FDI and FDI per capita have a positive significant association, but ROA and ROA (-4) in the host country have a negative significant link. Pakistani firms will profit more as FDI increases.*

Introduction

FDI gives several chances to underdeveloped countries like Pakistan and boosts domestic firms' productivity. They use the host country's resources to strengthen the economy. New technologies increase domestic competition. Foreign direct investment affects Pakistan strongly. They increase exports, job opportunities, productivity, and economic growth by providing new technologies to enterprises. "A foreign direct investment (FDI) is an investment in the form of a controlling ownership in a business in one country by an entity based in another country. It is thus distinguished from foreign portfolio investment by a notion of direct control (Wikipedia, 2018)".

Depending on the conditions of each country, FDI may affect each country differently. Most of the researchers agree with the notion that the Per capita GDP of a country increases with FDI. Domestic firms' intermediate product demand elevates with Foreign Direct Investment which increases competition, growth of industry, and the entry of new firms, thereby enhancing the overall welfare. Foreign Direct Investment is beneficial only if domestic firms can assimilate foreign technologies and skills. FDI promotes economic growth in stable economies with a robust

---

[*] Department of Economics, Abdul Wali Khan University Mardan, KP Pakistan.
[†] Department of Economics, University of Peshawar, KP, Pakistan.
[‡] School of Business, Zhengzhou University, Henan, The People's Republic of China.

infrastructure. Technological disparity determines domestic versus foreign competition.

Foreign Direct Investment in Pakistan has increased over time: "The Foreign Direct Investment inflows achieved a record US $1,456.5 Million in 2012-2013, its rise $1,698.6 Million in 2013-2014, it falls $986.9 Million in 2014-2015, again its rise 2,203.3 million in 2015-2016, its rise 2,410.9 million in 2016-2017" (Board of Investment, 2017). Pakistan receives FDI from UAE, the US, Saudi Arabia, Switzerland, the UK, the Netherlands, and others. Oil & Gas, Power, Chemicals, Communication (IT & Telecom), Construction, and Trade draw the most FDI in Pakistan (Board of Investment, 2017)

One category of foreign direct investment is known as horizontal FDI. This kind of FDI occurs when a business located in a host country replicates its activities in its home country while maintaining the same level of value. Contrary to this, Vertical FDI, refers to investments made from a home nation into a host country with the intention of selling the end product in a third country. According to Wikipedia, a similar phenomenon known as conglomerate foreign direct investment takes place when occurs when a business moves a team in a value chain.

Foreign Direct Investment in Pakistan

Construction, Gas, Oil, and Chemicals are the sectors that attract the most foreign direct investment in Pakistan, while the United Arab Emirates, China, the United States, Germany, Japan, Saudi Arabia, Switzerland, the Netherlands, Korea, Turkey, etc. are the principal investors.

The majority of Pakistan's FDI comes from China, as 40% of Pakistan's FDI is contingent on Chinese FDI. However, during the 2016-2017 fiscal year, the United States was the largest investor in Pakistan's FDI (47.9 million USD). According to Dawn (2017), many US corporations aim to invest in Pakistan, and 95% of American Business Council (ABC) members have contributed. In 2016–2017e ABC contributed 40%, up from 6%. Pakistan.

Currently, Pakistan attracts substantial foreign direct investment. During the past five years, Pakistan was able to get $14,288.7 million as FDI, which is a positive sign for the host country. Consequently, Pakistan requires some solid planning and policy to attract a high level of foreign direct investment, such as CPEC, which will provide the host country with long-term benefits. (Pakistan Today, 2017)

According to the Pakistan news service (2018), South Korea's top fifteen private companies are investing in Pakistan, primarily in the water, energy, and infrastructure sectors. These companies include Samsung, Daewoo, and Lotte. The current investment of South Korea in Pakistan ranges from 1.5 to 5 billion dollars. According to Pakistan & Gulf Economist (2017), The current UAE investment rate in Pakistan is $6 billion. Various UAE companies are investing in Pakistan, among them Etisalat, National Oil Company of Emirates, and International Petroleum Company of Investment.

Figure1

BIGGEST FDI providers to Pakistan

Figure: share of various country's FDI in pakistan
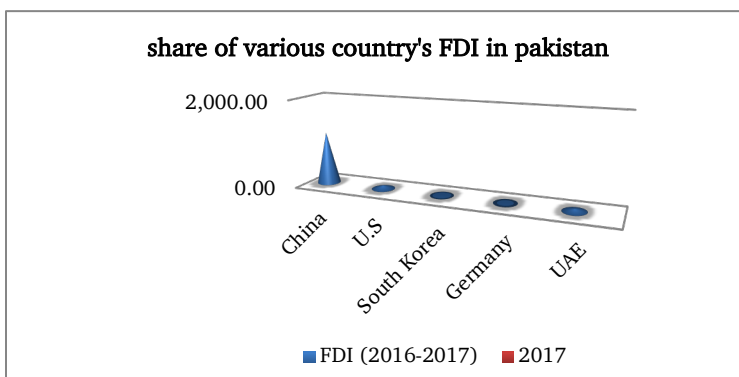
Source: authors' own calculation.

Pakistan is a good FDI attraction. First, Pakistan's economy showed positive reactions and a solid ability to assemble exogenous stocks and minimize risks considering major worldwide and Territorial events such as the atomic impact in 1998, the bombing of French experts in Karachi in 2001, and September 11, 2001, which placed Pakistan at the forefront of the war against psychological oppression and prompted the United States to provide aid to Pakistan. Afghanistan conflict (2001), Iraq war (2003), Earthquake (2005), and Karachi Stock Exchange crises. Due to these crises, investors considered stabilizing their businesses.

Second, Pakistan, with over 150 million people, offers a big market for consumer goods, middle-class purchasing power, and low labour costs. Due to these considerations, Pakistan's strategic location in Central and Southeast Asia attracts investors.

Thirdly, Pakistan's physical infrastructure is world-class. Pakistan had institutional support from the British government and offered foreign investors a unique correspondence foundation. Foreign Direct Investment in Pakistan was concentrated in the following sectors: finance and banks, beverages and food, telecommunications, and energy (petroleum, electricity, refineries, and gas and oil). Foreign Direct Investment inflows are these four bundles; Cars, materials, chemicals, petrochemicals, development, and exchange are other leftover areas. The Karachi Stock Exchange attracts huge portfolio speculation. Foreign Direct Investment reflects global financial experts' confidence in Pakistan's economy.

Problem Statement

The importance of FDI is paramount in international trade and business. It is perceived to be encouraging toward country uplift. Reality may vary from country to country and situation to situation. Pakistan has been receiving FDI in various sectors and forms. Banking is purely a business-oriented and data-maintained sector. But various policies effects profit and returns for domestic sectors including banks. Research on recent data will show the effect of FDI on a bank's profitability in terms of Return on Assets and show a clear picture of the trend.

Study Objectives

This study targeted achieving the objective given:

1. To study any likely influence of FDI on the profitability of the Banking sector in Pakistan.

Research Hypothesis

We hypothesize a strong effect of FDI on Return on Assets (ROA) in the case of domestic firms (banks) in Pakistan.

Literature Review

FDI has been dynamically associated with the host country, sometimes favourable and sometimes detrimental, so we can collect some reviews in our own words for host country analysis. Hymer (1960) found that "the advantage of foreign entrants over domestic firms is sufficiently large to compensate for their liabilities." In host nations, foreign entries increase competition, but in developing countries, homegrown enterprises are beating them. Rosenbluth (1970) linked foreign direct investment to Canadian business. The study found that domestic enterprises are smaller than international firms.

According to Blomstrom & Dunning (1989 & 1993), workers' productivity is increased by the investment of international organizations in a country. research and technology of a strong economy attract more investment in development, production, and research Cantwell (1991). This practical agglomeration may encourage domestic enterprises to enhance their technological capabilities, increasing worldwide competition.

Arellano and Bond (1991) discovered that FDI can increase domestic investment through competitiveness and industry parity. Due to superior technology, management, financial fortitude, and productivity, FDI can potentially displace domestic investment. Thus, FDI influences domestic investment in a dynamic fashion. Fry (1993) found that FDI had contradictory effects on domestic industries. In India, FDI proved detrimental to the profitability of domestic firms. Young (1994) discovered that FDI affects software firm profitability in Ireland. His research contributes to the critical issue of dynamic development and suggests that

multinational corporations are "growth engines." Funding from abroad improves the technology of domestic businesses. Feldstein (1995) utilized time series data to demonstrate United States' domestic capital stock as affected by FDI. The results proved a negative relation.

Olivier and Blanchard (1997) suggested that foreign direct investment affects host country enterprises. He advised foreign corporations to improve equipment and restructure the country with their modern technology and finances. He also claimed that foreign investment in domestic privatized enterprises can force well-organized corporate governance. Brian and Harrison (1997) investigated the 1976-1989 FDI impact on over 4,000 Venezuelan plants. The research identified two effects of FDI on domestic companies. First, they establish a conclusion about those firms whose employee count is below 50, FDI results in increased productivity. Second, foreign ownership reduces national firms' efficacy in that industry.

Borensztein (1998) estimated the 1960s–1990s collective investment equations for 69 nations. He found "the relationship between foreign direct investment and economic growth is complementary,". Bosworth and Collins (1999) evaluated how FDI affects domestic enterprises in 58 countries. FDI improves domestic form in these host countries. "Effects of Foreign Direct Investment (FDI) on the productivity performance of domestic firms in three emerging economies of Central and Eastern Europe, Bulgaria, Romania, and Poland," according to Konings (1999). He found some enterprises are better off without foreign direct investment and little evidence of A mean elevating spillovers to domestic firms on average. There were found negative spillovers in Poland and none in Bulgaria and Romania. Hence supporting recent FDI-induced R&D spillover hypotheses.

Rita Buckley (2001) found that Foreign Direct Investment affects software firm profitability in Ireland. To assess the domestic impact of inward investment, he created a business profitability model. Came to accept the dynamic gains' probability of inward investment viz-a-viz the role of MNCs. He demonstrates that sector concentrations of foreign employment in multinational software companies are associated with an increase in local business earnings. The study demonstrates that foreign-owned firms

enhance the profitability of the Irish software industry over time, revealing significant ties between FDI and local sector productivity. From 1995 to 1998, Ireland's GDP grew by an average of over 8%, compared to France's 2%, the United Kingdom's, and Germany's. To help reinforce the Irish economy, he examined smaller samples of foreign and domestic businesses.

Kim and Seo (2003) analyzed domestic investment and foreign direct investment relationships in Korea from 1985 to 1999. Modelling the response-explanatory variable relationship using a VAR. The conclusion of the study was that domestic investment is badly affected by FDI in the case of Korea. Meyer (2004) discovered that multinational corporations transfer resources such as technical expertise to domestic companies. In addition, He believes that foreign entrants can speed up the transmission of technology to local businesses by demonstrating superior technological capabilities and competing with and handling domestic businesses. Meyer found a positive correlation between foreign firm employment and local firm labour productivity (value added per worker) in 22 manufacturing sectors in Australia. Results demonstrated that FDI benefits indigenous firms.

According to Sahoo (2006), four South Asian countries benefit from FDI. Exports, GDP, and infrastructure also boost growth. Therefore, South Asian countries need more international investment, local investment, exports, and infrastructure to grow. South Asian exports benefit from FDI spillovers. Through dynamic impacts, FDI affects domestic investment over time. His estimates demonstrate a long-term association between FDI and its potential factors. The size of markets, the openness of trade, the growth of the labour force, and infrastructure indices drive FDI in South Asia. "Overall, South Asian countries need to maintain growth momentum to improve the market size, frame policies to better use the abundant labour force, improve infrastructure facilities, and follow more open trade policies to attract increased FDI."

Khan (2007) found that FDI affected Pakistan's financial system and economy from 1972 to 2005. Co-integration analysis to examine Pakistan's trade openness, FDI, and domestic banking sector. FDI has positively impacted the domestic sector in Pakistan in longer as well as short periods and its economic growth. Ghazali

(2010) examined Pakistan's 1981–2008 FDI, GDP (economic growth), and investment within the country. A sustained relationship was found between these variables.

The interrelationship of FDI and domestic investment was studied by Mahmood and Chaudhary (2012). They used ARDL, ADF, and PP methods for analysis. findings demonstrated that financial market development and GDP growth had positively benefited Pakistan's domestic investment in Pakistan in both time periods. From 1997–2010, Ullah et al. (2014) argued that FDI, or foreign investment, has an advantageous impact on the level of local capital and the growth of the economy in Pakistan. Long-term relationship analysis uses Philips, Peron (PP) techniques and Johansen co-integration analysis. FDI boosts Pakistan's economy and longer-run domestic investment.

In Husain's (2017) study, which covered the years 2001 through 2011, the author studied the effects that foreign direct investment (FDI) had on Pakistan's local enterprises. He decided to invest in seven distinct markets, including mining and manufacturing, in addition to the building, selling and retail, communication, and financial services businesses. We can observe through the use of regression that foreign direct investment increases the productivity of Pakistani native companies. What kind of response does a host nation give to foreign direct investment? In the case of Pakistan, the problem was addressed by Najabat (2017), who used data covering the years 1991 to 2015 to investigate the situation. Multiple regression and serial correlation analysis were applied in order to estimate the data and study the link between the response variables and the explanatory variables. Both of these analyses were carried out in order to investigate the relationship between the two sets of variables. According to the results of the research, the expansion of the economy of the country that is receiving foreign direct investment (FDI) has a positive association with that expansion. This suggests that the economy of the host country will expand even further in the event that foreign direct investment is recruited. Increased foreign direct investment (FDI) will be beneficial to the host country, even if the government of the host country is ineffective in its efforts to develop better local markets.

The article that B. Zélity wrote in 2022. Increased levels of foreign direct investment (FDI) can be beneficial not only to overall earnings but also to overall levels of productivity. On the other hand, it is frequently accompanied by primary income deficits as a result of the repatriation of earnings by enterprises that are held by foreign investors. This is because the repatriation of earnings reduces the amount of primary income. Therefore, it is reasonable to assert that there is a lack of clarity regarding the effects that FDI has on welfare. An extremely illuminating and instructive illustration of this phenomenon is provided by the countries that are a part of the Visegrád Group of Four (V4). These countries are the Czech Republic, Hungary, Poland, and Slovakia. This study makes use of a general equilibrium model that has been calibrated for the economies of the V4 in order to address the question of whether or not FDI (foreign direct investment) may be advantageous even when profits are repatriated. Foreign direct investment (FDI) offers these countries a greater number of advantages than it does expenses, according to simulations that take into consideration alternative realities. There is a correlation between an increase of seventeen-hundredths of a percentage point in average welfare and an increase in the number of foreign enterprises that is equal to one per cent of the total number of foreign enterprises. Nevertheless, it is in the best interest of society to encourage international businesses to reinvest a greater portion of their profits within the country, provided that all other factors remain unchanged. This is the case provided that all other factors remain unchanged. There is a correlation between an increase of 10 percentage points in the rate at which earnings are repatriated and an average gain of 1.06 per cent in welfare. This link exists because there is a connection between these two things.

Husain et al., (2021): This study's objective is to explore the effects that direct foreign investment has had on Oman's manufacturing sector so as to come to a better understanding of those effects. The study utilized a quantitative research methodology and collected both primary and secondary data from the World Bank database for Oman (1984-2018). Both primary and secondary data were obtained from the World Bank. In the study, the data were utilized in various ways. The primary data comes from the 410 people who took part in the study and filled out a questionnaire as part of their participation.

People who worked in textiles, petroleum commodities, electronics, automobiles, food and beverage, agriculture and fishing, publishing, chemicals, and pharmaceutics were all represented in this group of individuals who came from nine distinct industries. It was requested that the respondents submit their names and email addresses. This study also revealed that the spillover impacts on domestic companies, such as innovative technology, marketing strategies, organizational skills, money, jobs, export growth, diversification of the economy, and increased competition, all result in improved domestic market efficiency and increased productivity in skill-spreading host economies. According to the findings of the study, the most significant impact occurred in conjunction with the overflow of capital and technology.

According to the findings of the research that Marjanovi and Domazet (2021) carried done. It is a widely held belief that a nation can effectively increase its comparative advantages by increasing the amount of direct investment it receives from other nations. The most important participants in these trades are multinational corporations, which are also significant drivers of economic growth and development, technological progress, increased output, international trade, job creation, and tax income. As a direct consequence of the globalization of the market, an ever-increasing number of businesses are increasingly likely to obtain their products and services from a wide range of geographical places. The primary objective of this piece of writing is to show the structure and forms of foreign direct investment (FDI) at the global level, as well as theories of FDI through the interconnectedness of multinational corporations, their investments, and a country's end-user economy. In addition, this writing will discuss the role that FDI plays in the global economy. Because this is one of the factors that contribute to the success of the national economy on the global market, the findings of the research indicate that it is to the best advantage of every nation to attract as much foreign direct investment (FDI) as they are reasonably able to. Because of this, the primary responsibility of individuals who are tasked with making decisions that have an impact on the economy is to monitor developments occurring on a global scale, work toward bringing domestic legislation in line with international norms, and try to cultivate an atmosphere that is appealing to investors from other countries. Research Methodology

In this part of the investigation, we will be focusing on the particulars of the model. For the purpose of determining the profitability of FDI and Pakistan's domestic banking system, this study makes use of modelling techniques. The method is broken down into the following stages:

Data

The Independent Variable is Foreign Direct Investment (FDI), while the Dependent Variables are Return on Asset (ROA) and Foreign Direct Investment as a Percentage of Gross Domestic Product (CAPITA) for Pakistan. This study analyzes foreign direct investment's effect on Pakistani domestic firms using time series data from 1996 to 2015.

Variables of the Study

We have used three variables in this research. Response variables are return on assets and explanatory variables which are two one is an inflow of FDI and gross domestic product as a percentage of FDI.

So, the model can be written as follow which is used during the study meaning that the return on assets which are response variable is the function of foreign direct investment and gross domestic product as a percentage of foreign direct investment which both are explanatory variables.

ROA = f (FDI + FCAPITA)

These are explained as follows.

Return on Assets

A country's ROA shows the ratio of its profit and its total resources/assets. The outcome results when we divide the country's net income by the total assets it has. The derivation of the net income is achieved through employing income statements- representing profit after tax,

FDI or Foreign Direct Investment

It shows the investment of funds in the market or product of a foreign nation. Once a company engages in foreign direct investment, it transforms into a multinational corporation. FDI is not simply a transfer of ownership, because it usually requires the transfer of complementary aspects,

such as abilities in management, technology, and organization. There is a difference between FDI and portfolio FDI. The latter is also known as a passive investment in another country's securities, for example bonds, and public shares. The element of control, however, is maintained.

FDI as a Percentage of Capita

Showing the degree to which foreign direct investment can have an effect on the income per capita of the country that is receiving the investment.

Data Source

The nature of the data was secondary and time series. The data span was from 1996 to 2015. All the data was collected from the following sources.
1. Word development indicators world bank (WDI)
2. State Bank of Pakistan (SBP)

General Model of the Study

ROA= $\beta_0 + \beta_1 FDI + \beta_2 \text{FDIPC} + \varepsilon$

This represents the multiple regression model of the study. In the equation, we have included three variables used during the study.

Here

1. ROA = Return of assets (response variable)
2. FDI = the direct investment by foreigners
3. FDIPC = percentage capita Foreign direct investment

Empirical Model of the Study

The following empirical model was used for the analysis purpose.
ROA= $\beta_0 + \beta_1 FDI + \beta_2 \text{FDIPC} + ROA(-1) + ROA(-2) + ROA(-3) + ROA(-4) + \varepsilon$

Econometric techniques

The present study was based on the essential econometric techniques, which are augmented Dicky-Fuller unit root test, autoregressive model, Q-statistics, language multiplier, Heteroskedasticity test, normality test, stability and cusum test.

Results and Discussions

This section consists of data analysis results and their discussions. The results are presented in a step-by-step manner. The details are as follows.

Unit Root Test for Stationarity

Multiple lags use ADF. This test stabilizes data. Return to Assets, Foreign Direct Investment, and FDI as a percentage of Capita were utilized in the unit root test for stationarity tables. We tested the stationarity of all variables included in the host country study using ADF on intercept and trend.

In Table 1, the response variable ROA is stationary at 1st difference because the P-value is less than 0.05, which is 0.0438, and the absolute T-value of ROA is -3.175539. The explanatory variable FDI is stationary at the 2nd difference because the absolute T-value is -3.279502, and the P-value is lower than 0.05, coming in at 0.0326. This suggests that it could perhaps be acceptable. The 3rd variable, FDI as a percentage of Capita, is also stationary at the 2nd difference because the absolute T-value is -3.286199 and the P-value is 0.0322. Thus, the response variable is stable at level, while the explanatory variables, ROA and FDI as a percentage of Capita, are stationary at 2nd difference. Meaning that all host nation variables utilized in the study are stationary at different integration orders. But the most essential part is that we also check the Trend and intercept results and then compare both the intercept and trend and intercept results and focus on the result that is best for regression analysis.

Table 1

Result of Augmented Dickey-Fuller Test (Intercept only)

variables	Intercept						Order of Integration
	Level		First Difference		Second Difference		
r	"t-value"	"p-value"	"t-value"	"p-value"	"t-value"	"p-value"	
ROA	-1.451	0.529	-3.18	0.0438	-3.31	0.036	I(1)

variables	Intercept						Order of Integration
	Level		First Difference		Second Difference		
FDI	-2.15	0.2287	-2.16	0.2260	-3.28	0.0326	I(2)
F Capita	-2.23	0.2022	-2.10	0.2455	-3.29	0.0322	I(2)

Source: author's calculation

Testing for lag selection criteria

Before we run the Co-integration, Autoregressive, etc. models for this purpose, we need to determine how many lags to use for the estimation of variables. This raises the question of how to determine the lag selection criteria, so we must first run the VAR Lag Order Selection Criteria. This criterion provides the number of lags in a table format, but there are five criteria in the presented table. Then, how do we decide which criteria to select? We already know that AIC and SC are the most essential criteria in the table, but we can select the criteria marked with an asterisk (*). Suppose that in the given table, four criteria select four lags, and one selects three lags, indicating that we can use four lags in Autoregressive, Cointegration, and other models.

Table 2

Lag Selection Criteria Suggestions

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-313.15	NA	2.92e+13	39.519	39.663	39.526
1	-277.21	53.913	1.04e+12	36.151	36.731	36.180
2	-268.98	9.26	1.34e+12	36.248	37.261	36.299
3	-215.33	40.236*	8.00e+09	30.667	32.115	30.740
4	-190.15	9.445	3.81e+09*	28.643*	30.527*	28.739*

Source: author's calculation

Test of Autoregressive Model

Table number 4.4 shows the result of the AR model in the given table we can see that there are three variables that have been used during the study which are ROA, FDI, and FDICAPITA where ROA is the response variable, and two others are the explanatory variable. But why do we use the AR Model? We can use the AR Model when we need to take a lag on the response variable meaning that in this study, we can take four lags of the response variable.

As a result, the FDI variable, which is an explanatory variable, is significant to the ROA variable, which is a response variable, as shown in the table below. This is due to the fact that the P-value of FDI is less than 0.05 per cent, which is equal to 0.0057. This suggests that FDI and ROA are connected in a meaningful way to one another. In addition, the FCAPITA variable is significant to the ROA variable because the P-value of FCAPITA is also less than 0.05 per cent, which is 0.0065. This indicates that the two variables are significantly related to one another. Therefore, the purpose of bringing this up is to draw attention to the fact that all of the explanatory factors of the study are pertinent to the response variable, which demonstrates that we are unable to reject the model and must, instead, accept it.

The coefficient values of the explanatory variables are also displayed in the table that has been provided to us, and we can see that the response variable of ROA has a negative relationship with the values of the previous four periods of ROA. However, there is a positive relationship between the value of FDI and FCAPITA and the dependent variable. In addition, if there is a change of one unit in FDI, there will be a change of (0.025105) units in the response variable, and if there is a change of one unit per capita as a percentage, there will be a change of (0.013525) units in ROA. The third and last variable is ROALAG (-4), which comes into play if there is a unit change in ROALAG (-4) that is greater than the (-0.985783) unit change in ROA.

As a result, we can observe that there is a positive relationship between the ROA and the variables FDI per Capita and FDI, whereas there is a negative relationship between the ROA and the variable ROALAG (-4).

Table 3

Results of the AR model

Variable	Coefficient	Std. E.	t-Statistic	Prob.
C	-0.046	0.147	-0.309	0.763
FDID2	0.025	0.00	3.422	0.006
FCAPITAD2	0.014	0.004	3.350	0.007
ROAD1(-4)	-0.986	0.229	-4.299	0.001

R-Square

The value of the R statistic is 0.71, which shows that 71% explanation in the dependent variable is brought by the independent variable. As our value is above 60%, we can easily accept the model as a strong one. According to the rule of thumb, we accept our model as able to explain the actual relation.

Model Fitness

The F statistic shows the overall fitness of the model. A P-value of less than 5% is the rule for a good fit. Since our result shows a .002 p-value, we are confident to say that our model is a good fit.

Durbin-Watson Stat

Autocorrelation is checked by the Durbin-Watson stats. Table 4 shows the values of the same. The normal range of Durbin-Watson is 1.5 to 2.5. in our results, the value is within the limit. So, we can easily claim that our results are void of autocorrelation.

Autoregressive Model

AR Equation is:
ROA= β_0 + $\beta_1 FDI$ + β_2 FDIPC + $ROA(-1)$ + $ROA(-2)$ + $ROA(-3)$ + $ROA(-4)$ + ε

Table 4

Result for Autoregressive Model

"R-square"	0.719	Dept. var' Mean	0.059
"R-squared (Adjusted)"	0.64	Dept. var' S.D.	0.943
"Regression S.E. "	0.56	AI criterion	1.918
"Residual's Sum of square"	3.51	"Schwarz criterion"	2.11
"Log-likelihood"	-10.39	"HQ criterion"	1.92
"F-statistic"	9.37	"Durbin-Watson"	2.16
"Prob (F-statistic)"	0.002		

Note: HQ refers to Hannan-Quinn AI to Akiak Information

Test of Q-Statistic

There will be no serial correlation in the model if the AC value is close to or equal to zero. The location of the spikes is yet another essential aspect that must be taken into consideration. Serial correlation can be seen in action when the spikes are plotted in a position that is distinct from both the right and left lines. Considering this information, we are unable to accept the model.

Nevertheless, there is yet another method that is more trustworthy, and that is the use of mathematical values after correlation testing. We are unable to accept the null hypothesis of serial correlation as a consequence of the findings of our Q-Stat and the p-value that corresponds to it. As a result of this, the null hypothesis of serial correlation cannot be accepted. This suggests that the model does not contain any associations at all.

Table 5

Result for Q-statistics

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. *| . |	. *| . |	1	-0.099	-0.099	0.1770	0.674
.***| . |	.***| . |	2	-0.425	-0.439	3.7252	0.155
. | . |	. *| . |	3	0.041	-0.079	3.7603	0.289
. |** . |	. |* . |	4	0.290	0.123	5.7067	0.222
.**| . |	. **| . |	5	-0.235	-0.233	7.1103	0.213
. *| . |	. | . |	6	-0.129	-0.033	7.5845	0.270
. *| . |	****| . |	7	-0.188	-0.494	8.7145	0.274

Test of Lagrange Multiplier

The given Heteroskedasticity test result shows that in our model we have three variables such as ROA, FDI, and FCAPITA. Here ROA is the response variable while the rest of two other variables are explanatory variables, so if we can see the heteroskedasticity in the model after estimation for that purpose we need to convert all three variables into a log but remember one thing the log can be applied only when the Chi-Square value is less than 0.05% if it is greater than 0.05% meaning that no heteroskedasticity in the model. Hence, we accept the model. But if it is rejected then we can write the log transformation as below:

ROA > Log (ROA)

FDI > Log (FDI)

FCAPITA > Log (FCAPITA)

Once we run the model with log variables heteroskedasticity will be removed and homoskedasticity will appear. As we know homoscedasticity is desirable, our hypotheses are:

1. Null hypotheses are Heteroskedasticity and
2. An alternative hypothesis is Homoscedasticity.

Table 6

Result for Lagrange Multiplier Test:

Test of Serial "Correlation Breusch-Godfrey LM"			
F-stats	0.699	Probability of F(4,7)	0.62
Observed R-square	4.28	Probability of Chi-Square (4)	0.37

Test of Heteroskedasticity

After that we check the Ob* R-Square and the corresponding P-Value is our P-Value here is our null hypothesis the H0 is Homoskedasticity, and the Alternative is Heteroskedasticity. H0 is homo which is desirable, and the alternative is hetero which is not desirable. However, we can see the corresponding P-value is greater than 0.05% meaning that we cannot reject the model meaning that there is no heteroskedasticity in the model so accept the null hypothesis and we reject the alternative hypothesis meaning that this model got homoscedasticity. In other words, the residual has homoscedasticity so that is desirable meaning that we accept the model.

Table 7

Result of Heteroskedasticity Test

The test of Breusch-Pagan-Godfrey for Heteroskedasticity			
"F-statistic"	0.54	Probability F(3,11)	0.67
R-squared (Obs)	1.91	Probability Chi-Square (3)	0.59
Scale SS explanation	1.43	Prob. Chi-Square(3)	0.7

Testing Normality

Jargqua-Bera is also called the J-B test J-B test gives the values of series statistics. In series statistics, we have given mean, median, maximum, minimum, standard deviation, skewness, kurtosis & J-B and we also know about

the four moments so the four moments are mean, median, skewness, and kurtosis. If the p-value is less than 0.05 meaning that we reject the model but if it is greater than 0.05 then we accept the model. So, in the given graph, we can see that the P-Value of the J-B test is greater than 0.05 meaning that it should be acceptable.

Figure 2

Result of the Normality Test

| Series: Residuals	
Sample 2001 2005	
Observations	
Mean	1.67e-16
Median	0.083144
Maximum	0.771551
Minimum	-1.228742
Std. Dev.	0.500562
Skewness	-0.655282
Kurtosos	3.773602
Jarque-bera	1.447524
Probability	0.484925
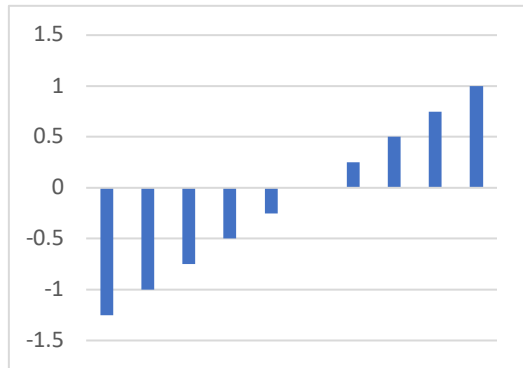
Test of Cusum Test

This test is used for the stability of data or variables so we can see that in the given graph four lines are given Black, Blue, and Two Red lines where the Blue line represents the response variable if the Blue line is beyond the red lines meaning that there is no stability of data it means the dependent variable is not stable but if the Blue line within the two red lines meaning that there is the stability of data it mean the response variable is stable so in my model the ROA are dependent variable so we can see in the above graph Blue line within the red line meaning that ROA is stable it means the model is stable so meaning that the model is not rejected able rather the model is acceptable so we happy about that and we can easily use that model for the prediction of policy making.

## Figure 3

Result of Cusum Test
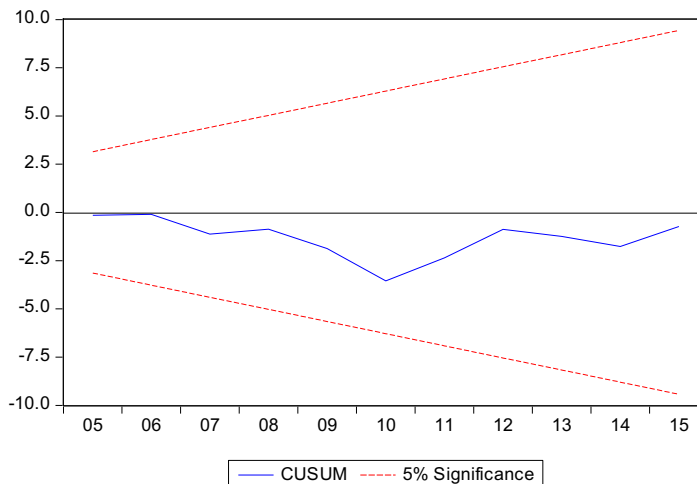
Test of Cusum Squares Test

The cusum squares test has been used for the stability of data. This test tells if the data we used during the study could be stable or not. There are four lines in the cusum squares test two are red lines one is the blue line, and one is the black line, the blue line represents the response variable of the study two red lines represent explanatory variables and the black line represents the constant term of the study. If the blue line is within the two red lines, then we can say that the data could be stable but if the blue line is beyond the two red lines then we can say that the data cannot be stable. But in this study, we can see that the blue line within the two red lines means that the data could be stable.

Figure 4

Result for cusum squares test

Legend: CUSUM of Squares ----- 5% Significance
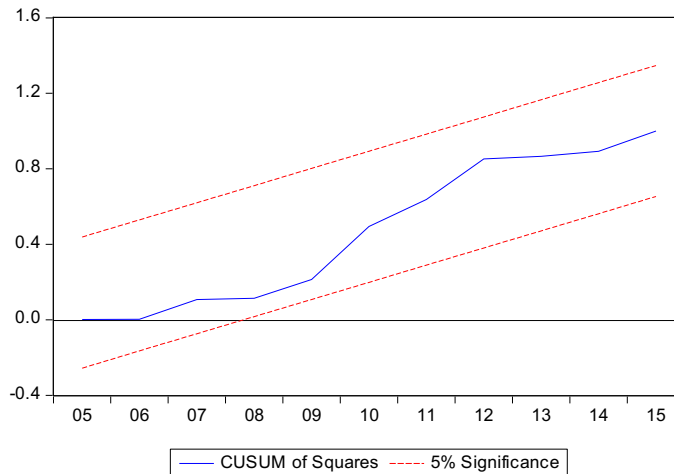
Conclusion

During the process of economic globalization, foreign direct investment (also known as FDI) has become an increasingly important contributor to economic growth. The nations that are most effective in luring Foreign Direct Investment also tend to have faster rates of GDP expansion. The presence of abundant raw materials, cheap manufacturing costs, high levels of operational efficacy, and the development of new consumer markets encouraged multinational businesses to expand their business activities in other countries. The profitability of domestic businesses in the nation that receives FDI from abroad is significantly influenced by this type of investment. We can get multiple benefits from the investment we receive from foreign firms/governments. We should not merely think of money. There could be many other forms of investment. Technology transfer is the most accepted form of FDI. It helps developing countries adapt to new techniques and update existing ones. Not only technology is transferred, but there is a transfer of knowledge

and skills. Also, human lab our get trained and is becoming human capital. Also, market penetration becomes possible through market networking. A very broad term, the externality is also used to refer to the multiplier effect of FDI. These all add to the profit-gaining ability of the domestic industries. Notably, Knowledge economy, technical assistance and transfer and trained humans are factors of production that increase profitability. So, firms get more profit when they adapt to new technologies. When there is a knowledge economy. When the labour gets skill. All these come with FDI.

The primary concern of this research is to see if there is an impact of direct foreign investment on the profitability of Pakistani domestic businesses. Most of this study relied on secondary sources of information. Most of the information was culled from websites pertaining to Pakistan's State Bank (SBP) and the World development indicators or WDI.

This study investigated how the profitability of Pakistani indigenous companies was affected

by the presence of foreign direct investment. The study was based on information collected between the years 1996 and 2015. During the research, the Autoregressive Model was applied to conduct an investigation into the connection that exists between the Independent Variable of Foreign Direct Investment, as well as FDI per capita and ROA (-4), and the Dependent Variable of Domestic Firm Profitability. ARDL was applied as it suited the nature of the data based on its stationarity. As the objective was the profitability of domestic firms, and as ROA is used for measuring profitability, we took the ROA of the Pakistani banking sector. The results show the relationship between Pakistani' firm's ability to earn profit viz ROA, and the flow of funds from the international world, that is FDI. The nature of the relationship is positive. There was also the presence of an effective positive relationship between per capita FDI and the ROA. However, we found a negative relationship between the four lags of ROA and the dependent variable of ROA. So, we can assume that Pakistani firms can earn a profit if it gets FDI. Our domestic business can flourish with foreign aid in the form of investment. Hence, the findings suggest to encourage the investment of foreign companies in Pakistan and also domestic businesses to collaborate with the international world.

References

Ahmed, H. (2016). *German Companies to Invest in Pakistan's Telecom & Energy Sectors*. Pro-Pakistani. https://propakistani.pk/2016/06/14/german-companies-to-invest-in-pakistans-telecom-energy-sectors/

Aitken, B. J., & Harrison, A. E. (1999). Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. *American Economic Review*, *89*(3), 605–618. https://doi.org/10.1257/aer.89.3.605

Ali, N., & Hussain, H. (2017). Impact of Foreign Direct Investment on the Economic Growth of Pakistan. *American Journal of Economics*, *7*(4), 163-170. https://doi.org/10.5923/j.economics.20170704.01

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, *58*(2), 277–297. https://doi.org/10.2307/2297968

Bosworth, B., & Collins, S. M. (1999). Capital inflows, investment and growth. *Tokyo Club Papers*, *12*, 55-74. https://www.nomurafoundation.or.jp/en/wordpress/wp-content/uploads/2014/09/19981015-16_Barry_Bosworth_-_Susan_Collins.pdf.

Deok-Ki Kim, D., & Seo, J. (2003). Does FDI inflow crowd out domestic investment in Korea? *Journal of Economic Studies*, *30*(6), 605–622. https://doi.org/10.1108/01443580310504462

FDI. (n.d.). *Pakistan Today*. https://www.pakistantoday.com.pk/tag/fdi/

Feldstein, M. S. (1995). The effects of outbound foreign direct investment on the domestic capital stock. In *The effects of taxation on multinational corporations* (pp. 43-66). University of Chicago Press.

Fry, M. J. (1993). *Foreign direct investment in a macroeconomic framework: finance, efficiency, incentives and distortions* (Vol. 1141). World Bank Publications.

Ghazali, A. (2010). Analyzing the Relationship between Foreign Direct Investment Domestic Investment and Economic Growth for Pakistan. *International Research Journal of Finance and Economics* (47), 123-131. https://doi.org/http://www.eurojournals.com/finance.htm

Husain, U., Javed, S., & Araimi, A. S. A. (2021). A STUDY OF FOREIGN DIRECT INVESTMENT IN MANUFACTURING INDUSTRIES IN THE SULTANATE OF OMAN. *International Journal of Research - GRANTHAALAYAH*, *9*(3), 1–9. https://doi.org/10.29121/granthaalayah.v9.i3.2021.3696

Khan, M. A. (2007). *Foreign direct investment and economic growth: the role of the domestic financial sector* (No. 2007: 18). Pakistan Institute of Development Economics.

Konings, J. (2001). The effects of foreign direct investment on domestic firms Evidence from firm-level panel data in emerging economies. *The Economics of Transition*, *9*(3), 619–633. https://doi.org/10.1111/1468-0351.00091

Mahmood, H. (2012). FDI, Population Density and Carbon Dioxide Emissions: A Case Study of Pakistan. *Iranica Journal of Energy & Environment*, *3*(4). https://doi.org/10.5829/idosi.ijee.2012.03.04.09

Marjanović, D., & Domazet, I. S. (2021). Foreign Direct Investments: A Key Factor for Business Globalization. In Handbook of Research on Institutional, Economic, and Social Impacts of Globalization and Liberalization (pp. 96-116). IGI Global.

Pakistan & Gulf Economist (Business Weekly Magazine). (2017). Pakistan. https://www.pakistaneconomist.com/

REUTERS. (2017). *China is Investing $57 Billion Into Pakistan*. Fortune. http://fortune.com/2017/08/28/china-invests-pakistan/

Rivoli, P., & Salorio, E. (1996). Foreign Direct Investment and Investment under Uncertainty. *Journal of International Business Studies*, *27*(2), 335–357. https://doi.org/10.1057/palgrave.jibs.8490138

Rosenbluth, G. (1970). The Relation between Foreign Control and Concentration in Canadian Industry. *The Canadian Journal of Economics*, *3*(1), 14–38. https://doi.org/10.2307/133806

Sahoo, P. (2006). FDI in South Asia: trends, policy, impact and determinants. *Asian development bank institute discussion paper series*, (56).

Sinani, E., & Meyer, K. E. (2004). Spillovers of technology transfer from FDI: the case of Estonia. *Journal of Comparative Economics*, *32*(3), 445–466. https://doi.org/10.1016/j.jce.2004.03.002

The express tribune. (2012, January 12). *Hydropower project: South Korea announces the largest investment yet*. The Express Tribune. https://tribune.com.pk/story/320451/hydropower-project-south-korea-announces-largest-investment-yet/

The Newspaper's Staff Reporter. (2017, October 27). *US companies keen to invest in Pakistan: American Business Council survey*.

DAWN.COM. https://www.dawn.com/news/1366475

Ullah, I., Shah, M., & Khan, F. U. (2014). Domestic Investment, Foreign Direct Investment, and Economic Growth Nexus: A Case of Pakistan. *Economics Research International*, *2014*, 1–5. https://doi.org/10.1155/2014/592719

Why Invest in Pakistan? (2011, November 10). INVEST GROW. https://investgrow.wordpress.com/about/

Wikipedia Contributors. (2019, July 4). *Foreign direct investment*. Wikipedia; Wikimedia Foundation. https://en.wikipedia.org/wiki/Foreign_direct_investment

Zélity, B. (2021). The welfare effects of FDI: A quantitative analysis. *Journal of Comparative Economics*, *50*(1), 293–320. https://doi.org/10.1016/j.jce.2021.09.007