Chinese Investment under China–Pakistan Economic Corridor: Implications on Banking Performance in Pakistan

Sabeeh Ullah
The University of Agriculture
sabeeh@aup.edu.pk

Zia Muhammad
The University of Agriculture
ziamuhammadibms@gmail.com

Rauf Gul
The University of Agriculture
raufg019@gmail.com

SUMMARY

This study empirically examines the relationship of Chinese Foreign Direct Investment (CFDI) under the China-Pakistan Economic Corridor (CPEC) and commercial bank performance in Pakistan, thereby highlighting the un-explored area of the existing literature. For this purpose, a panel dataset over the period 2009 to 2020 of commercial banks was collected from the State Bank of Pakistan. We have employed various econometric techniques including random effect and System Generalized Method of Movement (Sys-GMM). To more accurately analyse the relationship between CFDI and bank performance, we also separately examined the pre-CPEC period 2009-2013, and the post-CPEC period 2014 to 2020. The results indicate a significant positive impact of Chinese FDI on the banking performance in Pakistan in full as well as in Pre-CPEC samples, while negatively significant with banking performance in Post-CPEC samples. For the control variables, we found some variations in signs and significance across the various bank performance measures and the three samples. This unique outcome of the study is very important for the policymakers of developing countries in general and Pakistan in particular.

The financial sector is considered as a backbone for businesses, trade & commerce, and all commercial activities in the country. The financial sector manages all sources of finance in the country and can play an important role in the development of the country's economy (Konara, Tan, Johnes, 2019). Also, the overall flow of FDI is dependent on the financial development of both the host and investing countries (Tahir, Alam, 2020). *Desbordes and Wei* (2014) documented that sound financial intermediation of both the investing and host countries could facilitate the expansion of the holding companies in a foreign country by providing easy access to external funds through acquiring a local firm or opening foreign affiliates, while the foreign affiliates for further expansion in host country could get subsequent financing from local financial markets. Moreover, *Tahir and Alam* (2020) argued that through technology diffusions the flow of FDI promotes the economic activity that indirectly benefits the financial institutions and more specifically the commercial banks. As, FDI would come to the host country through banking sectors, which enables the banking sector to expand their business activities in the shape of new products, new businesses, and thus producing higher revenues for banks in the future.

China and Pakistan maintain a good neighbourly relation, which has been proved to be a model friendship in the region. For maintaining its economic growth, China considers it necessary to obtain more energy and new markets for their products. The strategic and geographical location of Pakistan facilitates the multi-billion dollars of the China-Pakistan Economic Corridor (hereafter CPEC) project, which was started by the Chinese government for the purpose to capture new markets all over the world (Saoud, 2019). Also, CPEC will open the door for economic

and business opportunities in Pakistan (Fahim, Zeeshan, 2018). Therefore, Pakistan needs to make a better plan toward the development of these projects which leads to economic growth and creates a better financial position in the country (Hussain, Hussain, 2017). FDI under CPEC would be coming to Pakistan over 10–15 years, therefore it requires both countries China as well as for Pakistan to work hard and make long-term planning for the continuous development of the CPEC projects (Rizvi, 2014). The implementation phase of CPEC is already underway since October 2015 (Jiamei et al., 2015).

Given the growing inflow of Chinese FDI under CPEC into Pakistan and their perceived impacts on various areas of the economy, this study contributes to the literature in several ways. First, from prior literature, it is clear that more research work is done on FDI and its association with economic growth, but there is little literature available in the context of FDI and bank performance relationship. Few prior studies analysed the association between FDI and the host country's financial sector development (Alfaro, Chanda, Kalemli-Ozcan, Sayek, 2004; Antras, Desai, Foley, 2009; Desbordes, Wei, 2014). However, all these previous studies failed to consider any measure of financial intermediation efficiency (Tahir, Alam, 2020). Therefore, the current study focuses specifically on FDI that comes to Pakistan under CPEC through the banking sector, which enables the banking sector in Pakistan to expand their business activities in the shape of new loans, starting new businesses, and thus producing higher returns and revenues for banks in the future.

Second, to date, most of the studies conducted on FDI under CPEC and its policy associated issues have some limitations and gaps, because most of these studies are qualitative, while some took the impact of CPEC on Pakistan's economy and financial

institutions in general. However, the empirical association between Chinese FDI under CPEC and bank performance is relatively less addressed in the available literature. For instance, *McCartney* (2020)inquired about the theoretical impact of CPEC on the social savings, spillovers, infrastructure, and economic growth in Pakistan. *Mehar* (2017) examined the connection between CPEC, infrastructure development, and FDI. *Shehzad* (2019) investigated the assessment of the potential effect of CPEC on the development of Pakistan's construction industry. *Ahmed* (2019) studied the importance of CPEC in the light of public and private investment from Pakistan. *Fahim and Zeeshan* (2018) examined the association of FDI under CPEC with the financial institutions' performance in Pakistan. *Shahzad* (2017) examined infrastructure development as a determinant of FDI under CPEC. Further, *Khan, Khan, and Anwar* (2016) investigated the socio-economic analysis of CPEC. *Irshad* (2015) studied the impact of CPEC on the Pakistani economy. *Ghani and Sharma* (2018) examined that how CPEC projects of the Chinese government impact the shareholders' value of listed Pakistani firms. *Fahim and Zeeshan* (2018) investigated the performance and customer value creation of the financial institutions of Pakistan under CPEC policies. Therefore, this study empirically extends the current literature of FDI through the inflow of Chinese FDI under CPEC and its effect on banking performance in Pakistan.

The remaining paper is organized as: Section 2 elaborates the inflow of FDI into Pakistan in general and CPEC in specific. Section 3 pointed out the theoretical support and the prior studies on the FDI and banking performance relationship. Section 4 explains the methodology used. Section 5 interprets the results obtained and Section 6 concludes the paper.

FDI INFLOWS INTO PAKISTAN

The history of FDI in Pakistan started from its freedom in 1947. The first company which started its business in Pakistan was the Siemens Company of Germany. Siemens Engineering Company started its operation in 1953 in Pakistan. British firm, Imperial Chemical Industries (ICI) in the chemical and pharmaceutical manufacturing sector also started its operation in Pakistan at the same time, so a significant growth in the Pakistani economy is observed in (1950–60) from the ICI investment (Javaid, 2016). *Sahoo* (2006) documented that at the end of 1960 the government of Pakistan imposed bane on trade and foreign investment because they intended to encourage the local investors and business firms. Due to which the investment rate in Pakistan dropped down below 17% that led to a decrease in business, trade, and commerce, and affected the saving rates of Pakistan (Mughal, 2013). A huge gap occurred between savings and investment, which led the government to adopt the policy to attract foreign capital.

In the 1960s the government of Pakistan adopted the policy of self-reliance by increasing imports and relying on foreign help. *Khan and Khilji* (1997) argued that the government switched off the policy of self-reliance and adopted a new policy of nationalization under the slogan of promoting socialism. From this policy, the inflow of FDI was further discouraged in Pakistan. After the unsatisfactory performance of the nationalized institutions, the government adopted a new policy and approved the Foreign Policy Act of 1976 for the purpose to promote local- and foreign private investments in the county. In 1980, the government started a public-private partnership in which they auctioned some percentage of shares to the public sectors. They also established export processing zones

and eliminated exchange rate variation for all kinds of imports and exports (Zakaria, 2008). In 1990, the government took some regulatory measures to attract more FDI. Foreign investors were allowed to transfer their capital and shares, transferring dividends, transfer earning without the prior approval of the State Bank of Pakistan (Khan, 2008).

Further, *Ahmed* (2012)documented that the government of Pakistan allowed the foreign countries to invest in agricultural and service firms of Pakistan in 1997. *Khan* (2008) argued that in the 2000s, the government of Pakistan opened all sectors in the country for foreign investors which were banned before 1980. They provided a guarantee for the foreign investor that they had completely owned their organization without any risks. The steps described above taken by the government of Pakistan from 1947–2000 are intended to enhance the inflow of FDI into the country. But again the inflow of FDI into the country remained slow because of the economic instability, political disturbance, and corruption in the system. *Yusuf* (2013) reported that the net FDI in Pakistan overall is high in the Musharraf era (1999–2008). After the financial crisis, FDI decreased to 3.7 billion USD in 2009 and further decreased to 1.7 billion USD in 2011/12. FDI of Pakistan was less than 1% of the total GDP of Pakistan from 2000 to 2004, but it reached 3.57% in 2006/2007 due to the large investments of UK, UAE, Netherland, Switzerland, and US particularly in five sectors: Oil & Gas, Petroleum, Trade, Power and Communication. In 2016, the State Bank of Pakistan (SBP) published financial data which forecast 39% boosts in Pakistan economy with the increasing inflow of FDI into Pakistan of 600 million USD in which China is the largest contributor to FDI in Pakistan in power and energy, highways, railways, port, and oil & gas.

The case for Chinese Investment

In most of the years, FDI inflow to Pakistan from the Chinese government is less than 0.5% of the total FDI inflow, however, this share reached 14% in 2007/2008. These Chinese investments in Pakistan were 1.37 billion USD in 2010, but its inflow decreases to 1.26 billion USD in 2011/2012 (Yusuf, 2013). According to the Economic Survey of Pakistan (2014–2015), the trading volume between China and Pakistan increased to 16 billion USD. The volume of exports from China to Pakistan increased from 4% to 9%in the 2010–2015 period. The most recent achievements of bilateral cooperation are the signing of the memorandum of understanding (MOU) on the construction of CPEC. CPEC is the mega infrastructure project with the participation of the Chinese government that includes the development of power, energy, highways, railways, roads, pipelines, communication, and special economic zones in Pakistan (Irshad, 2015). The Chinese government agreed to invest 46 billion USD in Pakistan for the developmental projects in the first phase of CPEC (Stevens, 2015). The inflow of Chinese FDI increased when Chinese PM Li Keqiang visited Pakistan in 2013 (Irshad, 2015).

FDI under CPEC

The CPEC eventually started in 2015 aiming to connect Central Asia, Africa, and Europe to enhance the volume of trade and commerce. In 2017, World Investment Report (WIR) stated that FDI inflow into Pakistan increased by 56% due to CPEC investment. The United Nations Conference on Trade and Development (UNCTAD) reported that FDI inflow into Pakistan reached 1.2 billion USD in 2015 and 2.1 billion USD in 2016 due to

the rising investment of China in the shape of the CPEC project (UNCTAD, 2017).

According to the Global Times (2021), the CPEC mega project provides opportunities to the private sectors in both China and Pakistan and also for third countries to participate in the principle of equality. The proportion of the private sector's investment in CPEC will increase more when Pakistan tries to attract more FDI. As in developing countries, private sector investment is the main source of FDI that leads to development and economic growth. According to the Board of Investment (BOI), FDI inflow increased by 74% during the first four months of the year 2017 as compared to the same period of the previous year due to the major inflow of capital in the CPEC project. In October 2017, the inflow of FDI into Pakistan was 277 million USD of which a major portion comes from China. According to the State Bank of Pakistan, Pakistan received a total FDI of 297 million USD in November 2017 of which 206 million USD had been coming in the form of CPEC from China. The State Bank of Pakistan also reported that the total inflow of FDI into Pakistan was 3.47 billion USD in the year 2018 of which 67.3% came from China.

CPEC projects have been split into three phases:

Phase-I (Short Term Projects): In Phase-I the main economic bottlenecks namely infrastructure and energy crisis could be removed; Substantial work has been completed. For instance, 1544 KM roads have been completed and an additional 1456 KM are under construction, 5320 MW electricity was transferred to the national grid and an additional 4170 MW are expected to be transferred in near future. Furthermore, the laying of 820 KM optical fiber from Khunjrab to Rawalpindi has been completed. Also among the completed CPEC completed is the Gwadar port which is now in operation.

Phase-II (Medium Term Projects): Phase-II concentrates mainly on industrialization, agricultural cooperation, socio-economic, consolidating developments, and promoting business. In its framework, 27 projects are planned to be completed by 2025. Among them, Special Economic Zones (SEZs) are a priority that aims to boost Pakistani export.

Phase-III (Long Term Projects): The long-term goal of CPEC is to contribute to the mechanism of sustainable economic development. It is expected that by 2030, the long-term plan of energy, connectivity, economic zones, poverty alleviation, agricultural development, tourism, and people quality-living will be achieved.

LITERATURE REVIEW

There is a strong belief among policymakers, academicians, economists, and other local and international institutions, that a significant role has been played by FDI in the economic growth of the local countries (Sokang, 2018). It also has an important impact on the country's GDP rate, trade balance, productivity, increasing labour skills, transfer of technologies and innovative ideas, and other business conditions. The inflow of FDI allows the host country to create new jobs, capture new technology, expand the market size and accelerate their economic growth (Dritsaki, Stiakakis, 2014).

FDI and Banking Performance

Prior researches conducted in Pakistan and abroad related FDI with economic growth (Herzer, 2012; Pegkas, 2015), infrastructure development (Owusu-Manu, Jehuri, Edwards, Boateng, Asumadu, 2019), trade openness (Belloumi, 2014), income inequality (Khan,

Nawaz, 2019), and firm performance (Chang, Rhee, 2011). A few attempts were made to examine the role of financial markets in the association of FDI and economic growth (Alfaro et al., 2004). Very few studies examine the relationship between FDI and bank performance/efficiency (Konara et al., 2019; Tahir, Alam, 2020). However, before this study, the association between Chinese FDI under CPEC and banking performance has not been examined in the existing scientific literature. Therefore, the growing inflow of Chinese FDI under CPEC into Pakistan and its impact on different areas of the economy, the current study empirically examines that whether Chinese FDI under CPEC improves the banking performance in Pakistan.

A study conducted by *Boateng, Amponsah, and Annor Baah* (2017) has found that the inflow of FDI directly impacts the performance of the financial sector. Similarly, *Musah, Gakpetor, Kyei, and Akomeah* (2018) investigated that whether the inflow of FDI affects the banking performance during 2006–2015. They used Return on asset (ROA) as a dependent variable for banking profitability. Their results showed a positive relationship between FDI inflow and banking profitability. *Kirikkaleli* (2013) also documented a positive relationship between the inflow of FDI and banking performance in Turkey. *Chee and Nair* (2010) examined FDI's role in the financial sector's development. They used a panel data model to analyse the association between financial sector performance, economic growth, and FDI inflow on the sample of 44 Asian countries. Their findings showed a significantly positive association between financial sector performance, economic growth, and FDI inflow. *Khan* (2007)also scrutinized the link between FDI, economic growth and financial sector performance and argued that the direct relationship of FDI and economic growth of the local country required an efficient financial

system in the local country. *Hermes and Lensink* (2003)examined the influence of FDI inflow on the financial sector performance and found that FDI inflow positively impacts the financial sector performance if the local country's financial sector works efficiently. *Alfaro et al.* (2004) found similar results by using the indicators from the stock market as well as the banking sector to investigate the influence of FDI on economic growth. *Omran and Bolbol* (2003)observed the connection between FDI and financial sector performance with the economic growth of seventeen Arabs countries. The findings of their study showed a positive association between FDI and economic growth depending on the financial sector's performance. *Bailliu* (2000) argued that FDI inflow into the host country can enhance economic growth when the financial sectors of the country work efficiently. *Choong, Yusop, and Soo* (2004) further studied the association of FDI with economic growth and financial sector performance in US, UK, JAPAN and six East Asian countries and found that financial sector development is crucial for the significant association of FDI and economic growth in short run and long run financial sector development. More recently, *Tahir and Alam* (2020) documented that the flows of FDI could enhance overall economic activity, from which commercial banks indirectly benefited.

RESEARCH DESIGN

Data and Model

The present study used panel data of listed commercial banks of Pakistan as a sample based on the availability of data during the 2009–2020 study period. The secondary data for all the study variables were collected from the State Bank of Pakistan (SBP).

First, for the effect of Chinese FDI under CPEC on Banking Performance in Pakistan, the study used a panel regression model. The econometric form of the panel regression model as:

$$ROA_{it} = \alpha + \beta_1 CFDI_{it} + \beta_2 BSIZE_{it} + \beta_3 CAP_{it} + \beta_4 CR_{it} + \beta_5 BAGE_{it} + \varepsilon_{it} \qquad (1)$$

Where

ROA_{it}: is the return on asset of bank i at year t, used as a proxy for bank performance and measured as profit after tax and interest to total assets of the bank (Tahir, Alam, 2020).

$CFDI_{it}$: is the natural logarithm of Chinese investment under the CPEC project. Besides main variables, we also used some important determinants of bank performance as control variables.

Here

$BSIZE_{it}$: is the bank size measured by taking the natural logarithm of the bank's total asset (Musah et al., 2018).

CAP_{it}: is the bank capitalization ratio and calculated as the proportion of total long-term debt in the capital structure of bank i at year t(Goddard, Molyneux, Wilson, 2004).

CR_{it}: is the credit risk proxy by the natural logarithm of loan loss provision(Afriyie, Akotey, 2012).

$BAGE_{it}$: is the bank age measured by taking the natural logarithm of the total number of years since its incorporation(García, Teruel, Martínez ,Solano, 2007).

ε_{it}: is the error term.

Second, to check the differences or similarities of the effect of Chinese FDI under CPEC on the banking performance of Pakistan before and after CPEC, the study used the procedure of mean difference between Pre and Post CPEC. The study divides the whole data into two Sub-Samples i.e. Pre-CPEC including the period from 2009–2013 and Post-CPEC including the period from 2014–2020. After dividing the sample into two Sub-Samples the model 1 was estimated for obtaining the required results.

Econometric Techniques

To empirically analyse the effect of Chinese FDI on bank performance, we used panel econometrics procedures. *Stock and Watson* (2015) stated that panel data techniques are an effective method to analyse panel data. Mostly, three important models were used for the analysis of the panel data set, including pooled ordinary least squares (POLS), fixed effect model (FEM), and random effect model (REM). To select the appropriate model among these panel data models, we used the Chow test (developed by (Chow, 1960), the Breusch pagan Godfrey test presented by (Breusch, Pagan, 1979), and the Hausman test proposed by (Hausman, 1978).

RESULTS AND DISCUSSIONS

Summary Statistics and mean differences between pre-and post-CPEC

Table 1 represents the summary statistics of all the study variables and the mean difference between pre and post-CPEC. From the full sample, the mean of Chinese FDI inflow under CPEC into Pakistan over the study period is 4.25%with a standard deviation of 1.106. The mean credit risk is 2.346%, indicating that commercial banks in Pakistan keep loan loss provision of 2.346% of their total assets. Internationally there is no specific benchmark for this ratio (Musah et al., 2018). Further, the average value of return on assets (ROA) is 0.8%. It suggests that the sampled banks operate, manage and control their assets in the manner that produces income with an

SUMMARY STATISTICS AND MEAN DIFFERENCE BETWEEN PRE AND POST CPEC

Variables	Full Sample			Pre-CPEC			Post-CPEC			Shapiro–Wilk Test	Wilcoxon Rank Sum (Mann–Whitney) Test
	Mean	Median	S.D	Mean	Median	S.D	Mean	Median	S.D		
ROA	0.008	0.009	0.010	0.007	0.009	0.014	0.009	0.009	0.007	7.552***	−0.389
CFDI	4.250	4.676	1.106	3.791	3.944	0.778	4.578	4.794	1.188	8.400***	−8.776***
BSIZE	5.514	5.646	0.704	5.342	5.473	0.497	5.637	5.795	0.800	9.171***	−5.571***
CAP	0.643	0.641	0.345	0.580	0.579	0.192	0.688	0.673	0.417	10.680***	−3.728***
CR	2.346	2.819	1.582	2.238	2.698	1.524	2.424	2.926	1.622	7.133***	−1.232***
BAGE	1.412	1.380	0.320	1.335	1.301	0.366	1.467	1.415	0.270	5.140***	−3.566***

Note: *** denotes significance at 1% level.

Source: Own edited

increasing rate of 0.10%. Our mean result of ROA is less than the mean value of 4% of (Awunyo-Vitor, Badu, 2012)and 2.89% of Musah et al. (2018). The differences in the results of the previous study in comparison with our study are due to time and sample differences. The mean value of capitalization is 0.62%, which means that in the total capital structure of the banks for each rupee there is 0.64% debt and 0.36% equity. It means that commercial banks in Pakistan used higher ratios of debt than equity to finance their operations.

Table 1 also reported the statistical differences between pre-and post-CPEC, by using the Shapiro-Wilk test to check the normality of the data and the Wilcoxon-Rank Sum test to analyse the mean differences between pre- and post-CPEC. The null hypothesis of the Shapiro-Wilk test of normally distributed is rejected for all the study variables. Further, for the mean differences, we used the Wilcoxon-Rank-Sum test because of the non-normal

distributed data sets. The p-values of CFDI, BSIZE, CAP, CR, and BAGE are significant at 1% level and concluded that both the sample of Pre-CPEC and Post-CPEC have statistical differences except ROA.

Pearson correlation and Variance Inflation Factor (VIF)

Table 2 illustrates the results of the Pearson correlation matrix and variance inflation factor (VIF). The correlation between CFDI with ROA is significantly positive, indicating that a higher inflow of Chinese FDI into Pakistan increases the performance of the banks in Pakistan. This result is consistent with the results of *Musah et al.,*(2018), who argued that the inflow of FDI enhances banking performance in the local country. Similarly, BSIZE and BAGE are positively correlated with ROA. It shows that larger and older bank leads to better performance in Pakistan. On the other

PEARSON CORRELATION AND VIF TEST

	ROA	CFDI	BSIZE	CAP	CR	BAGE	VIF
ROA	1						–
CFDI	0.172*	1					1.50
BSIZE	0.432*	0.267*	1				1.42
CAP	−0.143*	−0.177*	−0.154*	1			1.16
CR	0.049	−0.185*	0.144*	0.086	1		1.11
BAGE	0.465*	0.094	0.525*	−0.121	0.210*	1	1.06
Overall mean VIF							1.25

Note: "*" denotes significance at a 5 % level.

Source: Own edited

hand, the correlation between CAP and ROA is negatively significant showing that a higher ratio of capitalization negatively influences the banking performance in Pakistan. *Table 2* also depicts the results of the variance inflation factor (VIF) of the independent variables. All these values of VIF show that there is no multicollinearity problem in the data.

Results of Unit Root

Table 3 presents the results of three-unit root tests namely Levin, Lin & Chu, Augmented Dickey Fuller-Fisher Chi-square, and Phillips Peron-Fisher Chi-square tests. All three test shows that there is no unit root problem in the data, and hence all the variables are stationary at the level.

Effect of Chinese FDI under CPEC on Banking Performance

Table 4 presents the results of the Chinese FDI under the CPEC project on the bank performance in Pakistan. For this purpose, the most commonly used static panel regression models were employed. To choose the most appropriate static panel model, the current study applied Chow, Breusch-Pagan, and Hausman-tests for the full sample, Pre-CPEC, and Post-CPEC samples. The results of these model diagnostic tests reveal that the random effect model is the most appropriate in all three samples. From *Table 4*, the coefficient of CFDI is positively significant with the banking performance in the full sample as well as in Pre-CPEC, while negatively significant with banking performance in Post-CPEC samples. The positive effect of CFDI on ROA is supported by the argument of *Tahir and Alam* (2020) that through technological diffusions, FDI inflows could increase the overall economic activity, from which commercial banks benefited indirectly. This result is also in line with the findings of *Musah et al.*(2018), who found a positive influence of FDI on bank performance. Further, the reason for the negative relation of CFDI with bank performance in the post-CPEC period could be the decreasing proportion of new projects finances by the banks in Pakistan. The result

Table 3

RESULTS OF THE UNIT ROOT AT THE LEVEL

Variables	Levin, Lin & Chu t	ADF - Fisher Chi-square	PP - Fisher Chi-square
ROA	−5.776***	100.887***	151.753***
CFDI	−4.639***	59.792***	138.346***
BSIZE	−5.647***	65.122**	56.214**
CAP	−6.585***	75.923***	88.383***
CR	−4.014***	71.943**	55.121***
BAGE	−18.664***	312.434***	315.063***

*Note: ***,** denotes significance at 1% and 5% respectively.*

Source: Own edited

Table 4

EFFECT OF CHINESE FDI ON BANKING PERFORMANCE IN PAKISTAN

Variables	Full Sample	Pre-CPEC	Post-CPEC
Konstans	−2.143(−2.90)***	−6.625(−3.06)***	−0.777(−1.05)
CFDI	0.078(2.06)**	0.301(2.46)**	−0.032(−2.22)**
BSIZE	0.180(4.38)***	1.084(1.98)*	0.214(2.64)***
CAP	−0.063(−0.33)	−0.667(−1.03)	−0.029(−0.33)
CR	−0.004(−0.08)	−0.029(−0.32)	−0.048(−1.65)*
BAGE	1.216(3.15)***	0.665(0.91)	0.523(1.48)
No. of Obs.	240	100	140
Pseudo R-Square	0.453	0.367	0.465
Wald Chi2 Value	60.490***	34.360***	30.960***
Chow test	6.610***	3.813***	7.726***
Breusch-Pagan test	113.418***	22.665***	62.674***
Hausman test	6.511	2.651	6.359

*Note: ***,** , and * denotes significance at 1%, 5% and 10% respectively.*

Source: Own edited

is consistent with the findings of *Tahir and Alam* (2020), who argued that commercial banks are increasingly facilitating existing businesses through financing their operations without extending substantial amounts to the new projects. *Antras et al.* (2009) argued

that private credit provided by banks to the GDP could increase inward FDI that can be used as financial intermediation of bank performance.

For control variables, the coefficient of BSIZE is significantly positive with ROA in the

Pre-CPEC sample. It suggests that economies of scale increase with the increase in bank size which positively affects bank performance. Our result is consistent with the findings of (Liang, Xu, Jiraporn, 2013). The coefficient of BAGE is positively significant with ROA in full and Post-CPEC samples. This suggests that the more year of operations, the higher will be the performance of the banks. It means that older banks have good experiences in banking operations to manage the banking system and produce higher profits.

Robustness of results

In *Table 5*, we provide the robustness of our results by using a panel-dynamic procedure of the system-generalized method of movement (Sys-GMM). In addition to our main dependent variable ROA, we also used other alternative bank performance proxies' return

on equity (ROE) and earnings per shares (EPS) for the robustness of our results. The relationship of CFDI with bank performance estimated on the Sys-GMM model provides concrete support to the earlier results estimated on the random effect model in Table 4. Likewise, in Table 4, the relationship sign and significance of Chinese FDI under the CPEC project with bank performance (i.e. ROA, ROE, and EPS) are the same in all the three samples (i.e. Full, pre-CPEC, and post-CPEC).

For the control variables in Table 5, we found some variations in the relationship across the various bank performance measures in the three samples. The non-uniformity of the variables across different bank performance proxies is also evident from the prior literature. For instance, researches conducted by *Sufian and Noor* (2012) found variations in the relationship of BSIZE, CAP, CR, and BAGE with different bank performance measures.

Table 5

EFFECT OF CHINESE FDI ON BANKING PERFORMANCE IN PAKISTAN

Variables	Full Sample	Pre-CPEC	Post-CPEC
Panel A: Dependent Variable: ROA			
Constant	0.599(0.87)	0.014(1.17)	−1.237(−8.02)***
ROA(-1)	0.385(0.87)	0.168(2.31)**	0.543(26.48)***
CFDI	0.048(−1.68)*	0.002(−3.61)***	−0.032(−2.32)**
BSIZE	0.127(1.45)	−0.001(−0.45)	0.262(32.07)***
CAP	0.033(0.60)	−0.003(−1.30)	0.143(5.22)***
CR	−0.027(−2.69)***	0.002(2.63)***	0.010(0.81)
BAGE	−0.354(−0.71)	0.006(1.00)	0.002(0.03)
No. of Instruments	71	15	26
Wald Chi2	2075.370***	632.170***	22319.560***
AR(1) P-value	0.052*	0.241	0.089*
AR(2) P-value	0.754	0.702	0.361
Sargan test P-value	0.783	0.298	0.686

Variables	Full Sample	Pre-CPEC	Post-CPEC
Panel B: Dependent Variable: ROE			
Constant	0.335(1.70)*	0.058(0.09)	0.461(8.86)***
ROE(-1)	0.312(9.76)***	0.214(3.03)***	0.134(8.12)***
CFDI	0.007(1.79)*	0.099(4.29)***	−0.032(−2.22)**
BSIZE	0.018(6.72)***	−0.365(−2.02)**	0.020(13.72)***
CAP	0.018(−2.61)***	0.269(2.70)***	−0.029(−5.25)***
CR	0.006(2.09)**	0.075(2.18)**	−0.005(−2.34)**
BAGE	−0.227(−1.91)*	0.988(2.64)***	−0.267(−6.17)***
No. of Instruments	71	15	26
Wald Chi2	11634.030***	1964.720***	13196.030***
AR(1) P-value	0.009***	0.043**	0.049**
AR(2) P-value	0.199	0.698	0.501
Sargan test P-value	0.848	0.218	0.723
Panel C: Dependent Variable: EPS			
Constant	−9.706(−3.80)***	18.657(1.56)	−10.255(−3.60)***
EPS(-1)	0.634(30.98)***	0.172(8.08)***	0.810(58.53)***
CFDI	0.543(−9.50)***	0.683(2.45)**	−0.688(−13.99)***
BSIZE	0.905(4.22)***	−1.404(−0.47)	0.874(7.93)***
CAP	−0.668(−3.06)***	−0.798(−1.81)*	−0.708(−4.23)***
CR	0.364(5.72)***	0.767(5.95)***	0.370(6.11)***
BAGE	6.408(2.81)***	−8.721(−1.85)*	6.560(3.90)***
No. of Instruments	71	15	26
Wald Chi2	2167.390***	169.270***	5053.640***
AR(1) P-value	0.034**	0.218	0.096*
AR(2) P-value	0.33	0.626	0.238
Sargan test P-value	0.623	0.154	0.754

Note: ***,** , and * denotes significance at 1%, 5% and 10% respectively.

Source: Own edited

CONCLUSION AND POLICY IMPLICATIONS

This study tries to examine the effect of Chinese FDI under CPEC on the banking performance in Pakistan. To achieve the required objectives, panel data ranging from 2009 to 2020 of commercial banks were collected from the State Bank of Pakistan. We have employed various econometric techniques for the estimation of the results. To more accurately evaluate the impact of Chinese FDI under

the CPEC project on the bank performance, we also separately analysed the pre-CPEC period 2009–2013, and the post-CPEC period 2014 to 2020. The results indicate a significant positive impact of Chinese FDI on the banking performance in Pakistan in full as well as in Pre-CPEC samples, while negatively significant with banking performance in Post-CPEC samples. For control variables, BAGE positively affects bank performance in the full sample, while BSIZE positively affects bank performance in the three samples. In robustness check, the relationship of CFDI with bank performance provides concrete support to the earlier results in all three samples. However, for control variables, we found some variations in the relationship across the various bank performance measures and the three samples. The non-uniformity of the variables across different bank performance proxies is also evident from the prior scientific literature.

Our results have several important implications and recommendations for the Pakistani government and policymakers. First, the Pakistani government should make policies through which the ever-increasing inflow of Chinese FDI in the shape of CPEC infrastructure projects can be managed for creating jobs, developing infrastructures, controlling inflation rates, increasing annual GDP rate, etc. Second, the Pakistani government ought to focus on the inward inflow of Chinese FDI and undertake serious reforms with strong commitments and clear objectives so that local businesses in Pakistan can reduce their problem of bank financing. Third, the negative result of this study in the post-CPEC period could be the decreasing proportion of new projects financed by the banks in Pakistan. This is because commercial banks are increasingly facilitating existing businesses through financing their operations without extending substantial amounts to the new projects. This result could be very fascinating for the top management of the banking sectors to implement valuable know-how and make policies through which the banking system could receive benefits via the CPEC project. Finally, Pakistan should develop a code of conduct on FDI to curb their restrictive business practices, limit their repatriation of profits from Pakistan, create shareholder wealth through increasing profitability of the banking sector, and ensure that a significant part of their profits is re-invested into the Pakistani economy. ■

References

Afriyie, H. O., Akotey, J. O. (2012). *Credit risk management and profitability of selected rural banks in Ghana.* Catholic University College of Ghana

Ahmed, J. (2012). Cyclical Properties of Migrant's Remittances to Pakistan: What the data tell us. *Economics Bulletin, 32*(4), 3266-3278

Ahmed, Z. S. (2019). Impact of the China–Pakistan Economic Corridor on nation-building in Pakistan. *Journal of Contemporary China, 28*(117), 400-414

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., Sayek, S. (2004). FDI and economic growth: the role of local financial markets. *Journal of international economics, 64*(1), 89-112

Antras, P., Desai, M. A., Foley, C. F. (2009). Multinational firms, FDI flows, and imperfect

capital markets. *The Quarterly Journal of Economics, 124*(3), 1171-1219

Awunyo-Vitor, D., Badu, J. (2012). Capital Structure and Performance of Listed Banks in Ghana. *Global Journal of Human Social Science, 12*(5)

Bailliu, J. (2000). *Private capital flows, financial development, and economic growth in developing countries*. Staff Working Papers 00-15, Bank of Canada

Belloumi, M. (2014). The relationship between trade, FDI and economic growth in Tunisia: An application of the autoregressive distributed lag model. *Economic systems, 38*(2), 269-287

Bermejo Carbonell, J., Werner, R. A. (2018). Does foreign direct investment generate economic growth? A new empirical approach applied to Spain. *Economic Geography, 94*(4), 425-456

Boateng, E., Amponsah, M., Annor Baah, C. (2017). Complementarity Effect of Financial Development and FDI on Investment in Sub-Saharan Africa: A Panel Data Analysis. *African Development Review, 29*(2), 305-318

Breusch, T. S., Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica: Journal of the econometric society*, 1287-1294

Chang, S.-J., Rhee, J. H. (2011). Rapid FDI expansion and firm performance. *Journal of international business studies, 42*(8), 979-994

Chee, Y. L., Nair, M. (2010). The impact of FDI and financial sector development on economic growth: Empirical evidence from Asia and Oceania. *International Journal of Economics and Finance, 2*(2), 107-119

Choong, C.-K., Yusop, Z., Soo, S.-C. (2004). Foreign direct investment, economic growth, and financial sector development: a comparative analysis. *ASEAN Economic Bulletin, 21*(3), 278-289

Chow, G. C. (1960). Tests of equality between sets of coefficients in two linear regressions. *Econometrica: Journal of the econometric society*, 591-605

Desbordes, R., Wei, S.-J. (2014). *The effects of financial development on foreign direct investment*: The World Bank.

Dritsaki, C., Stiakakis, E. (2014). Foreign direct investments, exports, and economic growth in Croatia: A time series analysis. *Procedia Economics Finance, 14*, 181-190

Fahim, S., Zeeshan, Y. (2018). Financial institutions and Chinese investment: The review of China Pakistan economic corridor (CPEC) policy. *European Journal of Economics and Business Studies, 4*(2), 73-82

García-Teruel, P. J., Martínez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of managerial finance, 3*(2), 164-177

Ghani, W., Sharma, R. (2018). China-Pakistan economic corridor agreement: Impact on shareholders of Pakistani firms. *International Journal of Economics and Finance, 10*(1), 148-158. Global Times (2021), CPEC pivotal stepping stone to Pakistan's development, prosperity: Pakistani minister. Retrieved from https://www.globaltimes.cn/

Goddard, J., Molyneux, P., Wilson, J. O. (2004). The profitability of European banks: a cross-sectional and dynamic panel analysis. *The Manchester School, 72*(3), 363-381

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271

Hermes, N., Lensink, R. (2003). Foreign direct investment, financial development and economic growth. *The journal of development studies, 40*(1), 142-163

Herzer, D. (2012). How does foreign direct investment really affect developing countries' growth? *The Pakistan Development Review, 20*(2), 396-414

Hussain, F., Hussain, M. (2017). China-Pak economic corridor (CPEC) and its geopolitical paradigms. *International Journal of Social Sciences, Humanities and Education Economics, 1*(2), 79-95

Irshad, M. S. (2015). One belt and one road: dose China-Pakistan economic corridor benefit for Pakistan's economy? *Journal of Economics and Sustainable Development, 6*(24)

Javaid, W. (2016). Impact of foreign direct investment on economic growth of Pakistan-An ARDL-ECM approach. In: Department of Economics, Södertörns University

Jiamei, Z., Delin, H., Sidddi, M. U. A., Sajid, H. U., Habib, S., Rabbi, F., Kadri, A. (2015). *Academic Session: Socio-Cultural and Media Perspectives on CPEC*. Paper presented at the International Conference on China Pakistan Economic Corridor GC University, Lahore

Khan, A. H., Khilji, N. M. (1997). Foreign direct investment in Pakistan: Policies and trends [with Comments]. *The Pakistan Development Review*, 959-985

Khan, I., Nawaz, Z. (2019). Trade, FDI and income inequality: empirical evidence from CIS. *International Journal of Development Issues, 18*(1), 88-108

Khan, K., Khan, K., Anwar, S. (2016). Special economic zones (SEZs) and CPEC: Background,

challenges and strategies. *The Pakistan Development Review*, 203-216

Khan, M. (2007). *Foreign Direct Investment and Economic Growth: The Role of Domestic Financial Sector*. Retrieved from

Khan, M. A. (2008). Financial development and economic growth in Pakistan: evidence based on autoregressive distributed lag (ARDL) approach. *South Asia Economic Journal, 9*(2), 375-391

Kirikkaleli, D. (2013). *Foreign direct investment in the banking sector: empirical evidence from Turkey.* (PhD), University of Stirling

Konara, P., Tan, Y., Johnes, J. (2019). FDI and heterogeneity in bank efficiency: Evidence from emerging markets. *Research in International Business and Finance, 49*, 100-113

Liang, Q., Xu, P., Jiraporn, P. (2013). Board characteristics and Chinese bank performance. *Journal of Banking & Finance*, *37*(8), 2953-2968

McCartney, M. (2020). The China-Pakistan Economic Corridor (CPEC): Infrastructure, Social Savings, Spillovers, and Economic Growth in Pakistan. *Eurasian Geography Economics*, 1-32

Mehar, A. (2017). Infrastructure development, CPEC and FDI in Pakistan: is there any connection? *Transnational corporations review, 9*(3), 232-241

Mughal, M. Y. (2013). Remittances as development strategy: stepping stones or slippery slope? *Journal of International Development, 25*(4), 583-595

Musah, A., Gakpetor, E. D., Kyei, S. N. K., Akomeah, E. (2018). Foreign Direct Investment (FDI), Economic Growth and Bank Performance in Ghana. *International Journal of Finance and Accounting, 7*(4), 97-107

Omran, M., Bolbol, A. (2003). Foreign direct investment, financial development, and economic growth: evidence from the Arab countries. *Review of Middle East Economics and Finance, 1*(3), 231-249

Owusu-Manu, D.-G., Jehuri, A. B., Edwards, D. J., Boateng, F., Asumadu, G. (2019). The impact of infrastructure development on economic growth in sub-Saharan Africa with special focus on Ghana. *Journal of Financial Management of Property Construction, 24*(3), 253-273

Pegkas, P. (2015). The impact of FDI on economic growth in Eurozone countries. *The Journal of Economic Asymmetries, 12*(2), 124-132

Rizvi, H. A. (2014). The China-Pakistan Economic Corridor. *Strategic Studies, 34*, 1-17

Sahoo, P. (2006). Foreign direct investment in South Asia: Policy, trends, impact and determinants. *No. 56, ADBI Discussion Paper*

Saoud, M. (2019). *The influence of China-Pakistan Economic Corridor (CPEC) on Pakistan's power position: a case study on CPEC.* (Master), Norwegian University of Life Sciences

Shahzad, M. A. (2017). *Infrastructure Development as a Determinant of Foreign Direct Investment: A Case of the China-Pakistan Economic Corridor (CPEC).* (Master of Business Administration)

Shehzad, A. (2019). *Assessment of Potential Effects of China Pakistan Economic Corridor on Development of Pakistan's Construction Industry.* (PhD), Capital University

Sokang, K. (2018). The Impact of Foreign Direct Investment on the Economic Growth in Cambodia: Empirical Evidence. *International Journal of Innovation and Economics Development, 4*(5)

Stevens, A. (2015). Pakistan lands $46 billion investment from China. *http://money.cnn.com/2015/04/20/news/economy/pakistan-china-aid-infrastucture/*

Stock, J. H., Watson, M. W. (2015). *Introduction to econometrics* (3rd Edition Updated ed.): Pearson

Sufian, F., Noor, M. A. M. (2012). Determinants of bank performance in a developing economy: Does bank origins matters? *Global Business Review, 13*(1), 1-23

Tahir, M., Alam, M. B. (2020). Does good banking performance attract FDI? Empirical evidence from the SAARC economies. *International Journal of Emerging Markets*

Yusuf, S. (2013). Can Chinese FDI Accelerate Pakistan's Growth? *International Growth Centre, 4*

Zakaria, M. (2008). Investment in Pakistan: a critical review. *Munich Personal RePEc Archive Paper No. 11543*

Global Times (2021). China-Pakistan trade relations further deepen as enterprises from two sides establish stronger ties, retrieved from https://www.globaltimes.cn

Government of Pakistan. (2014-15). Economic Survey of Pakistan. Ministry of Finance Division, Economic Advisor's Wing, Islamabad, Pakistan. Retrieved from http://www.finance.gov.pk

UNCTAD. (2017). Investment and the Digital Economy. . *World Investment Report 2017*(New York, Geneva: United Nations).