Does Deficit Financing Improve Financial Sector Development in Pakistan? Empirical Evidence

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ABSTRACT

The core objective of this study is to show how fiscal deficit financing influences the financial infrastructure (e.g., credit to the private sector) of Pakistan. The investigation is carried out to determine whether private sector investment in Pakistan is crowded out, or crowded in by government budget deficit financing. The investigations mentioned above are carried out in a non-linear framework, i.e., Non-Linear Autoregressive Distributed Lag (NARDL). The NARDL can capture the long run dynamic equilibrium relationship between the variables. This research suggests a non-linear association between financial sector development and fiscal deficit financing. In the short-run fiscal balance, domestic debt, government expenditure, and other independent variables significantly and asymmetrically affect financial sector development in Pakistan. The study did not find the crowding-in or crowding-out effect of an increase in domestic debt on the amount of credit available to the private sector in the long run. However, financing budget deficit through increased government spending crowd out private investment in the long run. The findings, in general, suggest that the role of fiscal deficit financing on financial sector development in the country is non-linear, indicating regime-specific fiscal deficit financing's effect on the financial sector development of the country. Moreover, the crowding out of private investment because of increased domestic debt is not valid in the long run, while it is true in the case of increased government spending.

Keywords: Deficit Financing, Financial Sector Development, Non-Linear ARDL.

ÖZ

Bu çalışmanın temel amacı, Pakistan'ın finansal altyapısını uygulanan mali açık finansmanının nasıl etkilediğini göstermektir. Hükümetin iç borçlanma ve dış borçlanma ile uyguladığı bütçe açığı finansmanın Pakistan'daki özel sektör yatırımlarını artırıcı veya azaltıcı bir rol oynayıp oynamadığını araştırır. Yukarıda bahsedilen incelemeler, doğrusal olmayan bir çerçevede, yani Doğrusal Olmayan Otoregresif Dağıtılmış Gecikme (NARDL) ile gerçekleştirildi. Değişkenler arasındaki uzun dönem dinamik denge ilişkisini NARDL yakalayabilir. Çalışmanın bulgusu, mali sektör gelişimi ile mali açık finansmanı arasında doğrusal olmayan bir ilişki olduğunu göstermektedir. Kısa vadeli mali dengede, iç borç, devlet harcamaları ve diğer bağımsız değişkenler Pakistan'da finansal sektör gelişimini önemli ölçüde ve asimetrik olarak etkilediğini göstermektedir.

Bu çalışma, uzun vadede iç borçtaki artışın özel sektöre verilen kredi miktarı üzerinde bir artış veya bir azalma etkisi bulmamıştır. Bununla birlikte, bütçe açığının artan hükümet harcamaları yoluyla finanse edilmesi, uzun vadede özel yatırımları dışlamaktadır. Bu bulgular, genel olarak, mali açık finansmanının ülkedeki mali sektör gelişimi üzerindeki rolünün doğrusal olmadığını ve rejime özgü mali açık finansmanının ülkenin mali sektör gelişimi üzerindeki etkisini gösterdiğini ortaya koymaktadır. Ayrıca, artan iç borç nedeniyle özel yatırımın dışlanması uzun vadede geçerli değilken, artan devlet harcamaları durumunda doğrudur.

Anahtar Kelimeler: Açık Finansmanı, Mali Sektör Gelişimi, Doğrusal Olmayan Otoregresif Dağıtılmış Gecikme (NARDL).

DEDICATION

To My Family and My Loved Ones

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Chapter 1

INTRODUCTION

To provide better social and infrastructure-related facilities to the masses, governments worldwide increase their expenses on public sector activities. This increased public expenditure is either funded through tax revenues or non-tax revenues. However, the real issue is that revenue often falls short of expenditures, and so the process leaves behind a deficit budget (Ezeabasili & Nwakoby, 2013). Fiscal policy and the instrument of budget deficit were used extensively after the emergence of the Keynesian theories, mainly to tackle the issue of unemployment. Expansionary Keynesian fiscal policy became very popular after the great depression, and so every government around the world started using this policy to accelerate growth, tackle unemployment, and bring about overall economic recovery (Quiggin & Junankar, (2013).

Since independence to date, there has been an overall deficit in the Federal government budget of Pakistan, which has been financed through external as well as domestic debt. Although (from 1980 to 1985) external sources were initially used to finance the federal budget deficit, the share of domestic financing remained higher from 1985 to 1988. However, the gap between external and domestic sources of financing budget deficit became wider after 2010. Since then, the domestic source of financing budget deficit has increased sharply (see figure 1 below).

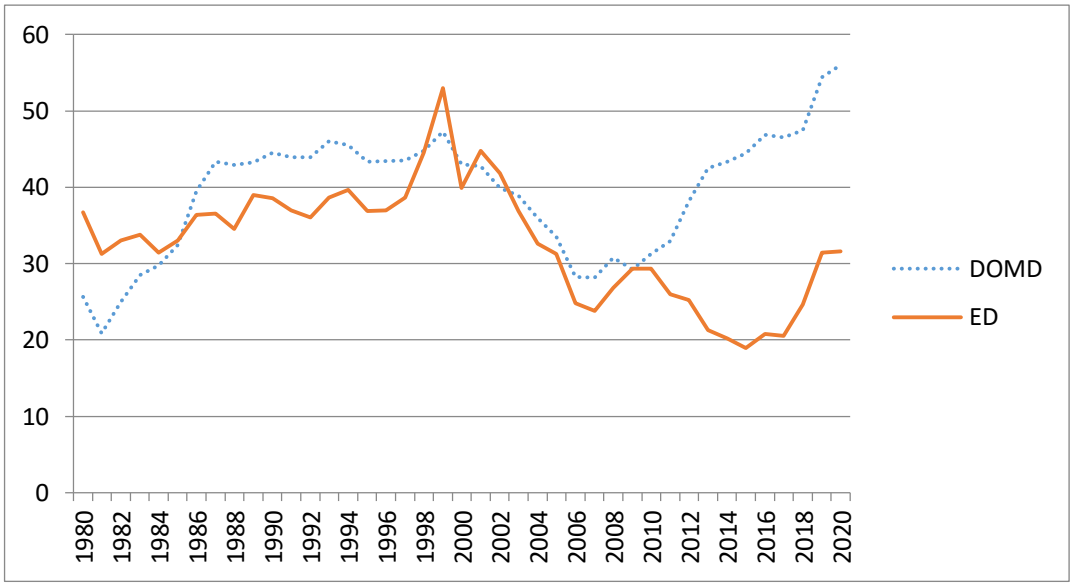

Figure 1: Pakistan external and domestic debt as a share of GDP

Due to one reason, Pakistan shifted its attention to an external source of financing budget deficit like other developing countries (Osi, 2015). The surge in the amount of domestic debt as a source of fiscal deficit financing has been witnessed recently in the case of Pakistan (Malik, & Naveed, 2012; Ali & Khalid, 2019). This surge in the domestic source of financing might have potential risks and challenges for the country's financial sector development, which has been highlighted neither in the academic community nor by the international development agencies. Therefore, after 2009, the country consciously decided to source budget deficits from the country's domestic financial markets. This is why Pakistan's total domestic debt volume stood at Rs. 23283 billion in 2020 and recorded a growth of 90.95 % from 2015 to 2020. This situation poses a question: Is a persistent budget deficit sustainable, given the country's tax capacity?

Domestic mobilization of savings for development purposes could be negatively affected by the persistent financing of government budget deficits through advances

from the Central Bank and the local financial markets. Also, it is maintained that increasing level of financing budget deficit from domestic sources such as central banks, commercial banks, and from other private lending institutions in the country could crowd out private investment because the government is supposed to be competing with the private sector for the available lending opportunities (Ghali, 1998; Ezeabasili, and Nwakoby, 2013; Mwigeka, 2015; Looney, 1995; Shetta, & Kamaly, 2014; Karimi Takanlou, 2014). Since national savings are relatively low in developing countries compared to developed countries, this situation is more difficult in a developing country like Pakistan. It is also possible that interest rates can go up due to government borrowing competition with the private sector (Obi & Nurudeen, 2009).

Several studies conducted on Pakistan examined various dimensions of fiscal deficit financing, budget deficit, and macroeconomic development/economic growth. To name a few includes Aurakzai, (1967); Ahmad, (2013); Nayab, (2015); Ali, & Khalid, (2019); Uppal, (2011); Ahmad, Aamir, & Quddoos, (2020); Akram, (2011); Iqbal, Ud Din, & Ghani, (2017); Khan, & Gill, (2009); Ali, Ahmad, & Ur-Rahman, (2016). The estimation techniques utilized in the above mentioned studies indicate that much of the literature ignores investigating the asymmetric relationship between variables. Since economic series adapt to different regimes in response to financial crisis and unexpected economic policy changes, the true model of financial sector development in a dynamic economy like Pakistan may change over time, leaving the relationship between financial sector development and domestic source of financing non-linear.

Time is needed to examine the issues associated with fiscal financing deficit through domestic borrowing, especially when unemployment is critically high in the country and the global economic crises, which may not be resolved in the near future. Therefore, this thesis aims to examine the impact of deficit financing on the financial sector development of Pakistan. More specifically, this thesis empirically tests whether fiscal deficit financing from domestic sources asymmetrically affects financial sector development in the country. Therefore, the given study utilized the Non-linear ARDL (NARDL) approach of Shin, Yu, and Greenwood-Nimmo (2014) because the variables under consideration are a combination of I (1) and I (0) using annual data of Pakistan from 1980 to 2020.

Does fiscal financing deficit from domestic sources encourage or discourage financial sector development in Pakistan? More specifically, this thesis will investigate whether a significant dynamic (both short run and long run) asymmetric relationship exists between domestic sources of financing fiscal deficit and in the country's financial markets development.

Moreover, we will investigate whether the fiscal financing deficit from the domestic market crowding in or crowding out private sector investment is the additional investigation of this thesis.

The specific research questions that will be investigated in this thesis are as follows

1.1 Objectives of the Study

The specific objective of the study is as follows:

- To examine whether government deficit financing from the domestic market crowd out credit to the private sector

The rest of the thesis is structured as follows: Chapter 2 discusses the relevant literature addressing the issue of financing fiscal deficit and financial sector development, while Chapter 3 discusses the variables, its definition, data sources, and proposed econometric methodology. Similarly, Chapter 4 presents the study's quantitative results, while Chapter 5 concludes the study.

Chapter 2

LITERATURE REVIEW

The literature in this study covers three essential themes. First of all, Fiscal Deficit Financing (FDF) and Financial Market Development (FMD). Secondly, the relationship between domestic debt and country interest rate. Thirdly, the role of Fiscal deficit financing from the domestic financial market on private sector investment. The abovementioned relationships, and others, were discussed below.

2.1 Fiscal Deficit Financing and Private Sector Borrowing

Ali et al. (2016) used the Autoregressive Distributed Lag approach (ARDL) to investigate the effects of domestic government borrowing from the internal banks on FD. Their findings indicate that private borrowing is a significant component of FD that captures the financial depth. Furthermore, they found an inverse relationship between government borrowing and private sector borrowing. When the government borrows more debt from the bank, a small amount is left for the private sector to borrow. Therefore, the private investment decreases.

Maduka and Onwuka (2013) examined the long and short-term relations between financial structure and economic development. First, a unit root in the time series data was determined using the Augmented Dickey-Fuller and Philips-Perron tests. Next, the maximum likelihood approach of Johansen and Juselius (1990) is used to calculate the long-term connection between the variables. Finally, the dynamic coefficients are estimated using the vector error correction model in the short term.

The findings of the study show that the financial market structure has a negative and considerable impact on economic development. In other words, it indicates that the country's financial sector is still in its infancy. Osi (2015) investigated the impact of FDF from domestic sources on the Nigerian FMD and established a significant relationship between the FDF and the FMD of a country in the short and long run. This study used the period from 1981-to 2014, and the twin-deficit model was employed to investigate the association between FDF and FMD, and the model was estimated using ARDL to determine the long-term equilibrium linkages among the candidate variables. The study findings indicate that the long-run association comes from FDF to FMD. Additionally, results conjecture that budget deficit negatively affected the financial market development. It shows that persistent budget deficits eventually depressed the FMD of a country.

Wenquan (2011) describes the FD and then analyzes the determinants of FD by using panel data of China at the provincial level. Their findings report that local government expenditures and revenues are significantly related to the FD index. In addition, findings indicate that local deficits are significantly directly related to the liquidity/GDP ratio and inversely related to the stock trade volume/GDP ratio. Finally, the results report that FD is driven by the local government enhancing the expenditures to pay a little donation for sustainable economic growth. Hence, this kind of FD attracts capital accumulation instead of refining the efficiency of capital.

Hauner (2006) inspects the effects of public sector borrowing from the country's banking system on FD in middle-income countries using data from 1980-2003 and ordinary least square (OLS) regression. The study concluded that too many public sector debts harm the financial deepening. Also, those banks' lending to the public

sector may be more profitable, but they are not very efficient. These effects added to the costs of fiscal productivity.

2.2 Domestic Debt and Country Interest Rate

Maana et al. (2008) investigated the effect of domestic public borrowing on the economy of Kenya by using a period from 1996-to 2007. Generalized moments (GMM) techniques were applied to find the study results**.** Their findings indicate that a high level of domestic debts in the selected period gives rise to higher domestic interest payments that substantially burden the country's budget. On the other hand, evidence shows that the growth of domestic debts crowds out the private sector investment in Kenya. Moreover, results indicate that the domestic debt expansions have a direct but insignificant effect on Kenya's economic growth.

Christensen (2004) explains the debt market's role at the national level in Sub-Saharan African economies, covering 1980-2000. Their results report that domestic debt markets are usually small, highly short-term, and frequently have a thin investor base in these countries. In addition, selected countries' interest payments place a substantial load on the budget despite much smaller domestic than foreign indebtedness. Moreover, the usage of domestic debts is significant and crowds out private sector investment.

Abbas and Christensen (2010) estimate the growth impact of domestic debts for low-income countries covering 1975-2004. Granger causality techniques were applied to support the variety of channels. The results show that domestic debt growth contribution is higher when it is marketable, tolerates the higher actual interest payments, and usually occurs in the outdoor banking system.

Ahmed et al. (2012) examine the effect of domestic debt on inflation from 1972 to 2009. This study confirms that domestic debt & domestic debt servicing improve the current price level of Pakistan. Moreover, results show that the impact of domestic debt volume and domestic debt servicing on the level of prices is positive and statistically significant. Floating debts like treasury bills (TB) consist of a big part of total domestic debts and get a higher level of return in the shape of interest rate. Hence, because of a higher level of return, banks and non-bank public entities acquire TB and get a higher level of return that increases income, aggregate demand (AD), and prices. In addition, the level of interest rate (borrowing cost) is one of the significant reasons for deficit budget financing in Pakistan.

JJamshed Y. Uppal (2011) investigated Pakistan's government budget shortfalls and bond market development. They found a long-term explanation to a more active, liquid, and the dynamic bond market is implementing a thorough fiscal discipline procedure. However, the research did not provide evidence on the link between government expenditure and the country's bond market growth.

2.3 How Does Government Borrowing From The Domestic Financial Sector Affect Private Sector Borrowing For Investment?

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economic growth in Sudan with the notion that the effect of private investment is more significant on real growth than that of government investment. However, the finding also maintains that public sector investment hurts private sector physical capital expansion. This crowding-out effect weakened the favorable positive effect of public sector investment on growth by jeopardizing private sector capital undertakings.

Using multiple regression techniques, Paiko (2012) investigated the link between private sector investment and deficit financing. The study found a significant negative relationship between investment and deficit financing, indicating that crowds out private investment in Nigeria are the result of deficit financing.

Ezeabasili and Nwakoby (2013) investigated the link between government spending and private sector investment in Nigeria. The study focused on the effect of private sector investments on crowding out public investments. While utilizing a co-integration and error correction model, the study found that an increase in national income leads to increased private investment. Moreover, the study maintains that fiscal deficits have deteriorating effects on private investment in the country. Also, Nigeria's debt profile has a significant positive impact on private investment in the country.

Shetta and Kamaly (2014) used the Vector Autoregressive regressor (VAR) model and quarterly data spanning from 1970 to 2009. The results reveal a significant crowding-out effect of domestic government borrowing from the domestic country banks on private credit. This effect arises from the endogenous response of the banking sector to the increasing level of government borrowing.

Sinevičienė (2015) analyzed the linkages among government expenditures and private sector investment for small open economies. This relationship was estimated for selected countries such as Estonia, Latvia, Lithuania, and Slovenia from 1996 to 2012 and used a Granger causality test to estimate the study objective. Their results indicate that the increasing effect of government expenditure on private sector investment is fragile. However, the inverse influence of government expenditure on private investment dominates, except in the Bulgaria case. Though, the effect of private investment on government expenditure is very different in selected countries.

Similarly, Saimul (2020) examined whether government expenditures are associated with the growth of private investment in Indonesia lead to crowd-in or crowd-out. This hypothesis is analyzed using a data span from 1990 to 2016 and applying the Co-integration approach and Error Correction Model (ECM) to explain short & long-term relationships. This research divided government expenditure GE into three categories: routine expenditure, capital expenditure, and regional transfer funds. The findings report that the relationships among private sector investment and transfer expenditures to the regions crowd out the investment both for private and foreign investment and are essential in both the short and long term. Routine and capital expenditure are directly connected with private sector investment or cause crowd-in, and significantly happen in domestic investment both for the short and long term, while the role of foreign private investment is insignificant. The relationship between private sector investment and credit interest rates is inverse, indicating that FDF with loans will reduce the private sector investment instigated by the higher interest rate of debts.

Omitogun (2018) investigated the crowding-out effect of government expenditure on private sector investment in Nigeria using an annual time series data covering the period from 1981 to 2015 and applied the Autoregressive Distributed Lag approach (ARDL). They found that the impact of GE on private sector investment depends on the expenditures components, hence, some of the expenditures crowd out the private investment, while others crowd in private investment. However, the results indicated that not all of the GE is controlled so that it attracts private investment under the economy. Furthermore, Njiforti and Muhammad (2010) examined the association between deficit financing and public sector borrowing and investigated private sector saving and investment by employing multiple regression econometric techniques and covering a data span from 1992 to 2007. Their results report that deficit financing in Nigeria may crowd out private savings and investment due to lack of capacity to stimulate the higher level of savings deposits rate.

Mohanty (2019) investigated the impact of FDF on private sector investment in India, covering the period from 1970-71 to 2012-13. Using the Autoregressive Distributed Lag (ARDL) approach, findings report that fiscal deficit crowd out the private investment both for short & long-term. Furthermore, the result reported that domestic FDF has a significant negative effect on private investment decision-making relative to the interest rate in India. Madni (2014) examined the role of fiscal policy on private sector investment using a period from 1979 to 2012. ARDL co-integration approaches were applied to estimate the results of the study. The study findings reveal that FDF has a significant negative effect on private sector investment in Pakistan.

Similarly, Ahmed and Alamdar (2018) found the crowd-out effect of budget deficits on private sector investment by using a time spanning from 1984 to 2015 and by applying Johansen and Juselious's (1990) method and VAR Error Correction Model (VECM) to estimate the short-run and co-integration relationship. Overall, the study findings exhibit that FDF causes an inverse effect on the private investment of Pakistan. The FDF effect on private investment depends on the government's way of financing. If the government uses public debts to finance the deficit, it may raise the interest rate, which leads to crowd-out the private sector investment.

Additionally, Hussain et al. (2009) investigate the long-term association between private investment and government expenditures for Pakistan. This study sample covered the duration from 1975 to 2008 and applied the Johanson co-integration approach to finding the long-term relationship among the candidate variables. Their results conjecture the GE like defense and debts servings crowding out the private sector investment, while expenditures on development such as education, health, and infrastructure crowd in the private investment.

2.4 Summary and Literature Gap

From the review of the abovementioned studies, it is well established that the relationship between budget deficit, financial stability, and private investment has policy implications for the relevant stakeholder. The research in financial sector development and fiscal deficit is growing over time, covering various dimensions of the subject. However, the research on fiscal deficit and how it influences financial growth in the country discussed above is limited to the investigation through linear econometric approaches such as multiple linear regression models, linear co-integration approaches, and linear dynamic approaches such as linear auto-regressive

distributive lag model. We notice that the relationship between fiscal deficit and financial market development is significant, but limited literature is available in this context. Also, the literature describes a direct association between domestic borrowing and a country's interest rate level. However, very few studies have investigated this relationship, especially in the context of developing economies. Moreover, a plethora of studies can be found to provide empirical evidence of the role of FDF crowding out the private investment in a country by using traditional co-integration approaches.

My contribution to the fiscal deficit and financial development literature nexus is three-fold. First, to our limited knowledge, no study investigates the role of fiscal deficit variables such as the budget deficit, government expenditure as a ratio of GDP, domestic debt, interest rate, and foreign direct investment as a percent of GDP on financial sector development measured through credit to the private sector in Pakistan. Second, the study also investigates the effect of these fiscal deficit variables on private sector credit to validate or reject the hypothesis that the increased amount of domestic borrowing crowds out private sector credit. Third, this study will utilize the latest available data from 1980 to 2020 and the non-linear ARDL approach to achieve the objectives mentioned above. This approach is a dynamic co-integration relationship capable of quantifying the subject relationship both in the short-run and long-run and testing for the possible asymmetric relationship between the two.

2.5 Theoretical Understanding

The issue of deficit financing always remains the center of discussion for various schools of economic thought such as Keynesian economists, classical economists and Ricardian equivalence hypothesis, and twin deficit hypothesis.

The Classical Economists:

This school of thought maintains that public debt should be kept as low as possible because higher public debt can cause crowding-out of private investment. They believe that credit supply in the financial market is fixed, and whenever the government borrows more, it means less is left for the private sector, which is known as crowding-out of private investment in the literature.

The Keynesian:

This school of thought suggests that higher borrowing by the government is not a problem as long as the government needs it. Their argument is based on the multiplier effect, i.e., the proportionate increase in output due to increased public expenditure. Keynes was aware of the harmful effects of increased public spending and the resulting crowding-out product, but they dealt with it differently compared to the classical economists. Keynes believed that public borrowing activities of the governments are good as long as they are smooth and to the optimum performance, while on the other hand, classical economists disagree with the rise in public borrowing and consider it a big issue for private investment.

The Ricardian Equivalence Hypothesis (REH):

This group of economists put forward a very different theory that says that the country's overall demand is not affected by the increased budget deficit. Moreover,

since the rise in the current government budget deficit is offset by the increase in future taxes by the government and so, by rule, it should not influence macroeconomic variables.

The Twin Deficit Hypothesis:

The main focus of this theory is on the relationship between the current account deficit and budget deficit. It stems from Mundell (1963) and Flemming (1962) model, whereby the twin deficit hypothesis corroborates, that one of the leading causes of the budget deficit is the trade deficit. By following the national income identity approach, the GDP in the open economy is the sum of investment (I), consumption (C), government expenditure (G), and net exports (X-M), expressed as follows:

$$Y = C + I + G + (X - M) \quad (1)$$

Equation (1) can also be written as

$$Y = C + S + T \quad (2)$$

Where leakages are $S + T + M$ from the economy while $I + G + X$ are injections into the economy.

From rearrangement of the above equations, we can come up with the following:

$$(X - M) = (I - S) + (G - T) \quad (3)$$

Where the investment and saving balance, current account balance and the fiscal deficit or net expenditure are respectively given by $(I - S)$, $(X - M)$ and $+(G - T)$. What constitute the government budget deficit is the combination of saving-investment gap $(S - I)$ and the gap in the external sector $+(M - X)$, algebraically expressed as follows:

$$G - T = (I - S) + (M - X) \quad (4)$$

There are two views regarding equation (3); some believe that it is only identity and, therefore, the estimation is unimportant. Others consider that equation (3) as miss-specified, ignoring financial variables such as interest rate and exchange rate. According to them, the domestic interest rate increases due to the rise in the budget deficit. This worsening budget deficit results in net capital inflow, which causes the domestic currency to appreciate and ultimately the deteriorated current account balance via plunge in net exports. This is why the budget deficit drives is the trade deficit. Algebraically, the budget deficit can be expressed as follows:

$$G - T = \Delta(GC) + \Delta(GB) + \Delta(GP) \quad (5)$$

Where G is government expenditure on goods and services, while T is the government's tax revenue. Similarly, GC is central bank clais on the government, GB changes in commercial bank holding of government securities and GP are changes in non-bank public holding of government securities.

The alternate expression of equation (5) is as follows:

$$G - T = GC + GB + GP \quad (6)$$

In order to incorporate the role of external financing of government deficit in the national income accounting framework, equation (5) can be re-expressed as follows:

$$G - T = GC + GB + GP + K \quad (7)$$

In equation (7), K is all kind of capital inflows including grants, loans as well as sale of government securities.

Chapter 3

ECONOMETRIC METHODOLOGY AND DATA

Time-series techniques such as co-integration, error-correction modeling, and Granger causality are used to examine the relationship between macroeconomic variables. However, while investigating the dynamic relationship between variables, those mentioned above linear co-integration techniques assume asymmetric or linear relationships between them and, therefore, cannot capture the potential asymmetries/nonlinearity arising from the relationship.

Even though macroeconomic variables such as the fiscal deficit, domestic debt, foreign direct investment, government spending, interest rate, and financial development indicators, among others possess asymmetric and nonlinear features (Enders & Hoover. 2012; Enders et al., 2016; Townsend et al., 2013; Araz-Takaya et al., 2009), the research on the relationship between fiscal deficit variables and their impact on financial development has been tested only within a linear framework so far (Ali et al., 2016; Ahmed et al., 2012; Jamshed Y. Uppal, 2011; Looney, 1995; Madni, 2014; Ahmed & Alamdar, 2018; Hussain et al., 2009). Another strand of literature uses a similar linear co-integration approach to investigate the relationship between poverty, political stability, inequality, and its impact on terrorism. The literature includes but is not limited to Cinar (2017); Bagchi & Paul. (2018); Khan, (2013); Haider, et al., (2015); Saeed, et al., (2014); Bukhari & Mansih, (2016); Hyder, et al., (2015); Mahmood, (2014); Alam, (2012). The present study utilized the

advanced nonlinear co-integration approach (NARDL) as an asymmetric extension to the linear ARDL model of Pesaran & Shin (1999); Pesaran et al. (2001) to capture both long run and short run asymmetries in variables of interest.

Following Ibrahim (2015), the model for this study has been set as follows:

$$FSD = F(BDEF, DOMD, GOVXP, FDI, \quad INTR) \tag{1}$$

We represent FSD as domestic credit to the private sector. BDEF is Budget Deficit, measured as total revenue – total expenditure (% of GDP), GOVXP is total government expenditure, measured as total government expenditure (% of GDP). While DOMD is domestic debt, calculated as domestic debt (% of GDP), INTR is the discount rate (%). Finally, FDI is foreign direct investment, measured as a foreign direct investment (% of GDP).

The equation which is supposed to be estimated are as follows:

$$FSD_t = \alpha_0 + \alpha_0 BUDD_t + \alpha_0 GOVXP_t + \alpha_0 DOVMD_t + \alpha_0 INTR_t + \alpha_0 FDI_t + \mu_1 \tag{2}$$

Equation (2) is supposed to measure the relationship between indicators of financial sector development, e.g., domestic credit to the private sector by banks and its underlying determinants. The aim is to see how fiscal balance, household debt, and other independent variables influence financial markets in the economy. Also, domestic borrowing can crowd out private sector credit with adverse consequences for private investment.

The Non-Linear Auto-regressive distributive lag (NARDL) model estimates short-run and long-run non-linearity through positive and negative partial sum decompositions of explanatory variables, formulated as follows:

$$y_t = \beta_1 x_t + \beta_2 x_{t-1} + u_t \quad (3)$$

Where x_t is a $k \times 1$ vector of regressor's decomposed as $x_t = x_0 + x_{t+1} + x_{t-1}$, and x_{t+1} and x_{t-1} are partial sum process of positive and negative changes in financial sector development, respectively. The construction of the error-correction model (ECM) is as follows:

$$\Delta FSD_t = \beta_0 + \sum_{j=1}^{p} \beta_{1j} \Delta FSD_{t-j} + \sum_{j=0}^{q} \beta_{2j} \Delta BUDD_{t-j} + \sum_{j=0}^{r} \beta_{3j} \Delta GOVXP_{t-j} + \sum_{j=0}^{s} \beta_{4j} DOVMD_{t-j} + \sum_{j=0}^{t} \beta_{5j} INTR_{t-1} + \sum_{j=0}^{u} \beta_{6j} FDI_{t-j} + \theta \varepsilon_{t-1} + e_t \quad (4)$$

The first difference of the variables is given by Δ, while the error correction term (ε) is the OLS residuals series obtained by estimating equation (1). The ECM form of the model is as follows:

$$\Delta FSD_t = \varphi + \eta_0 FSD_{t-1} + \eta_1 BUDD_{t-1} + \eta_2 GOVXP_{t-1} + \eta_3 DOVMD_{t-1} + \eta_4 INTR_{t-1} + \eta_5 FDI_{t-1} + \sum_{j=1}^{p} \beta_{1j} \Delta FSD_{t-j} + \sum_{j=0}^{q} \beta_{2j} \Delta BUDD_{t-j} + \sum_{j=0}^{r} \beta_{5j} INTR_{t-1} + \sum_{j=0}^{s} \beta_{3j} \Delta GOVXP_{t-j} + \beta_{4j} DOVMD_{t-j} + \sum_{j=0}^{t} \beta_{5j} INTR_{t-1} + \sum_{j=0}^{u} \beta_{6j} FDI_{t-j} + e_t \quad (5)$$

Where $\eta_0, \eta_1, \eta_2, \eta_3, \eta_4, \eta_5$ are the long-run coefficient, while $\beta_{1j}, \beta_{2j}, \beta_{3j}, \beta_{4j}, \beta_{5j}$ are the short-run coefficients of the variables.

This study will follow the approach of (Schorderet, 2002, 2003) and (Shin et al. 2014) to determine the existence of an asymmetric co-integration relationship between financial sector development and its determinants. This approach requires that the FSD_t to be decomposed into positive and negative shocks. Specifically:

$$FSD_t^+ = \sum_{i=1}^{t} \Delta FSD_i^+ = \sum_{i=1}^{t} \max(\Delta FSD_i,\ 0)\,;\ FSD_t^- = \sum_{i=1}^{t} \Delta FSD_i^- = \sum_{i=1}^{t} \min(\Delta FSD_i,\ 0) \quad (6)$$

The long-run relationship in the equation by considering equation (8) can be redefined as follows:

$$FSD_t = \alpha_0 + \alpha_1^+ BDEF_t^+ + \alpha_1^- BDEF_t^- + \alpha_2^+ GOVXP_t^+ + \alpha_2^- GOVXP_t^- + \alpha_3^+ DOMD_t^+ + \alpha_3^- DOMD_t^- + \alpha_4^+ INTR_t^+ + \alpha_4^- INTR_t^- + \alpha_5^+ FDI_t^+ + \alpha_5^- FDI_t^- + \varepsilon_t \quad (7)$$

By following (Shin, et al., 2014), equation (4) in asymmetric form can be rewritten as follows:

$$\Delta FSD_t = \varphi + \eta_0 FSD_{t-1} + \eta_1^+ BDEF_{t-1}^+ + \eta_1^- BDEF_{t-1}^- + \eta_2^+ GOVXP_{t-1}^+ + \eta_2^- GOVXP_{t-1}^- + \eta_3^+ DOMD_{t-1}^+ + \eta_3^- DOMD_{t-1}^- + \eta_4^+ INTR_{t-1}^+ + \eta_4^- INTR_{t-1}^- + \eta_5^+ FDI_{t-1}^+ + \eta_5^- FDI_{t-1}^- + \sum_{j=0}^{q}\left(\beta_{2j}^+ \Delta BDEF_{t-j}^+ + \beta_{2j}^- \Delta BDEF_{t-j}^-\right) + \sum_{j=0}^{r}(\beta^+{}_{3j} \Delta GOVXP_{t-1}^+ + \beta_{3j}^- \Delta GOVXP_{t-j}^-) + \sum_{j=0}^{s}\left(\beta_{3j}^+ \Delta GOVXP_{t-j}^+ + \beta_{3j}^- \Delta GOVXP_{t-j}^-\right) + \left(\beta_{4j}^+ \Delta DOMD_{t-j}^+ + \beta_{4j}^- \Delta DOMD_{t-j}^-\right) + \sum_{j=0}^{t}\left(\beta_{5j}^+ \Delta INTR_{t-j}^+ + \beta_{5j}^- \Delta INTR_{t-j}^-\right) + \sum_{j=0}^{u}\left(\beta_{6j}^+ \Delta FDI_{t-j}^+ + \beta_{6j}^- \Delta FDI_{t-j}^-\right) + e_t \quad (8)$$

The null hypothesis for determining the long-run asymmetric relationship is as follows:

$\eta_0 = \eta_1 = \eta_2 = \eta_3 = \eta_4 = \eta_5 = 0$, against the alternative hypothesis$\eta_0 \neq \eta_1 \neq \eta_2 \neq \eta_3 \neq= \eta_5 \neq 0$. Similarly, the null hypothesis for the short run asymmetry is $\eta_0 = \eta_1^+ = \eta_1^- = \eta_2^+ = \eta_2^- = \eta_3^+ = \eta_3^- = \eta_4^+ = \eta_4^- = \eta_5^+ = \eta_5^- = 0$. The null hypothesis of no long-run asymmetric relationship will be rejected if the calculated value of F-Statistic is greater than the F-tabulated values by (Pesaran et al., 2001). For long run symmetry, the Wald F-test is used to test the following null hypothesis$\alpha_1^+ = \alpha_1^- = \alpha_2^+ = \alpha_2^- = \alpha_3^+ = \alpha_3^- = \alpha_4^+ = \alpha_4^- = \alpha_5^+ = \alpha_5^- = 0$.

Similarly, for testing short-run symmetry the same Wald F-test is used to test the following null hypothesis $\sum_{j=0}^{q}\beta_{2j}^{+} = \sum_{j=0}^{q}\beta_{2j}^{-}$, $\sum_{j=0}^{r}\beta_{3j}^{+} = \sum_{j=0}^{r}\beta_{3j}^{-}$, $\sum_{j=0}^{s}\beta_{4j}^{-} = \sum_{j=0}^{s}\beta_{4j}^{-}$, $\sum_{j=0}^{t}\beta_{5j}^{+} = \sum_{j=0}^{t}\beta_{5j}^{-}$,. When the null hypothesis of symmetric relationship is rejected, automatically validates the asymmetric relationship between the variables. When the asymmetric relationship between the variables is established then we calculate all the asymmetric multipliers of FSD_t^+, FSD_t^-, $BDEF_t^+$, $BDEF_t^-$, $GOVXP_t^+$, $GOVXP_t^-$, $DOMD_t^+$, $DOMD_t^-$, $INTR_t^+$, $INTR_t^-$, FDI_t^+, FDI_t^-, on FSD_t as follows:

$$q_h^+ = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial FSD_t^+}, \quad q_h^- = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial FSD_t^-}$$

$$r_h^+ = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial BDEF_t^+}, \quad r_h^- = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial BDEF_t^-}$$

$$s_h^+ = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial GOVXP_t^+}, \quad s_h^- = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial GOVXP_t^-}$$

$$t_h^+ = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial DOMD_t^+}, \quad t_h^- = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial DOMD_t^-}$$

$$u_h^+ = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial INTR_t^+}, \quad u_h^- = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial INTR_t^-}$$

$$v_h^+ = \sum_{i=0}^{h}\frac{\partial TFSD_{t+i}}{\partial FDI_t^+}, \quad v_h^- = \sum_{i=0}^{h}\frac{\partial FSD_{t+i}}{\partial FDI_t^-}$$

3.2 Data Sources

In this thesis, time-series variables for the economy are used from 1980 to 2020. The selection of this period is based on data availability for each variable. Different variables are extracted from other sources. For example, the Ratio of Domestic Credit to the private sector by banks (% of GDP) data is removed from the World Bank World Development Indicators, Total revenue – total expenditure (% of GDP), Government Total Expenditure (% of GDP), Domestic Debt (% of GDP) and Foreign Direct Investment (% of GDP) from Handbook of Statistics on Pakistan Economy while Discount rate (%)from State Bank of Pakistan site. Table 1 below shows that

five explanatory variables are used as determinants of overall financial sector development, i.e. the extent of finance in private sector development denoted by the ratio of domestic credit to the private sector by banks (% of GDP) in this thesis.

Table 1: Variable's definition, sources, and its notation.

Variable	Notation	Description	Data Source
Financial Sector Development	FSD	The ratio of Domestic Credit to the private sector by banks (% of GDP)	WDI
Budget Deficit/fiscal balance	BD/FB	Total revenue – total expenditure (% of GDP)	Handbook of Statistics on Economy
Government Total Expenditure	GOVXP	Government Total Expenditure (% of GDP)	Handbook of Statistics on Economy
Domestic Debt	DOMD	Domestic Debt (% of GDP)	Handbook of Statistics on Economy
Foreign Direct Investment	FDI	Foreign Direct Investment (% of GDP)	Handbook of Statistics on Economy
interest rate	INTR	Discount rate (%)	State Bank of

Chapter 4

RESULTS AND DISCUSSIONS

This section provides the empirical findings and results of the thesis. The main feature of the data, known as descriptive statistics, is provided in Table 2, while correlation analysis is provided in Table 3. A summary statistic for the variables under consideration is provided in Table 2 below. All the variables' average/mean values are given in row 1 of Table 2, while median values are given in row 2 of Table 2. The volatility in FDI is the least, while the highest volatility could be found in SMS, followed by DOMD. Most of the variables are positively skewed (i.e. more of the observations lying to the right of the mean value of the series) and platykurtic (Kurtosis shows the peakedness of the data). Moreover, for most of the variables, the Jarque-Bera test is insignificant, meaning series are normally distributed.

Table 2: Descriptive statistics

	DOMD	DR	FB	FDI	FSD	GOVXP
Mean	39.30440	10.141	-6.192683	0.882683	22.49355	21.90976
Median	42.93822	9.5000	-6.300000	0.680000	23.49682	21.90000
Maximum	56.02757	20.000	-2.300000	3.370000	29.78608	26.70000
Minimum	20.84861	6.0000	-9.000000	0.120000	15.30549	16.90000
Std. Dev.	8.159212	3.4228	1.643379	0.761869	3.970979	3.009635
Skewness	-0.3668	1.0139	0.379611	1.882392	-0.255950	-0.016856
Kurtosis	2.450580	3.3078	2.555021	6.113146	2.043584	1.871418
Jarque-Bera	1.435091	7.1862	1.322975	40.76985	2.010322	2.177842
Probability	0.487948	0.0275	0.516083	0.000000	0.365986	0.336579
Observations	41	41	41	41	41	41

Table 3 provides the results of the correlation matrix, as it is used to check for the multicollinearity problem. The results are available for the variables under

consideration. There is no evidence of high multicollinearity because the correlation coefficients are less than 0.90.

Table 3: Correlation matrix

	DOMD	**DR**	**FB**	**FDI**	**FSD**	**GOVXP**
DOMD	1					
DR	0.100	1				
FB	-0.384	-0.190	1			
FDI	-0.204	0.297	0.321	1		
FSD	-0.326	0.136	-0.018	0.324	1	
GOVXP	0.231	0.157	-0.786	-0.392	0.336	1

To further check whether multicollinearity is a problem in the regression, this study computes variance inflation factor (VIF) used to detect multicollinearity problems in the regression. It is maintained that if VIF is less than 10 then there is no multicollinearity problem. The results given in Table 4 suggest that we don't have any multicollinearity problem in our case.

Table 4: Test of multicollinearity

	Coefficient	**Uncentered**	**Centered**
Variable	**Variance**	**VIF**	**VIF**
DR	0.136171	13.14800	1.315325
FB	1.584256	54.87106	3.527598
FDI	5.716509	6.499647	2.735711
FSD	0.172015	75.78648	2.236345
GOVXP	0.690746	285.3762	5.158510
C	135.1092	114.1792	NA

We run the Dickey Fuller and Phillips & Perron (1988) unit root test to examine the time-series properties. Phillips & Perron (1988) is a non-parametric modified version of the Dickey-Fuller test corrected for any serial correlation and heteroscedasticity in the errors. The results of the unit root test are provided in Table 5 below. Results suggest that all the variables are integrated of order one except LDR and LDOMD,

which incorporate order zero. The declaration of integration of the series is a mix, i.e., some are integrated of order one, and some are integrated of order zero. Therefore, the appropriate analysis method is the Auto-regressive distributive lag (ARDL) model.

Table 5: Results of unit root test

ADF						
Only Intercept		**Intercept and trend**		**None**		
Level	**Difference**	**Level**	**Difference**	**Level**		**Difference**
Variables						
LFSD	-1.05	-4.55***	-3.46*	-4.59**	-0.51	-4.59***
LDR	-4.09***	-5.02**	-3.82*	-4.93***	-0.32	-5.10***
LDOMD	-3.01**	-5.46***	-1.33	-5.47***	1.54	-5.08***
LFDI	-2.50	-6.53***	-2.44	-6.59***	-2.59**	-6.52**
LGOVXP	-1.54	-6.61*	-1.51	-6.56*	-0.08	-6.70**
FB	-2.53	-8.09***	-2.46	-7.99***	-0.39	-8.16***

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

Table 6: Results of unit root test, continued.

PP						
Only Intercept			**Intercept and trend**		**None**	
Level		**Difference**	**Level**	**Difference**	**Level**	**Difference**
Variables						
LFSD	-1.45	-4.55***	-2.44	-4.57***	-0.45	-4.59***
LDR	-2.40	-5.02***	-2.35	-4.94**	-0.32	-5.10***
LDOMD	-1.54	-5.67***	-1.70	-5.66***	1.02	-5.38***
LFDI	-2.50	-6.53***	-2.44	-6.61***	-2.58**	-6.53***
LGOVXP	1.47	-6.61***	-1.44	-6.56***	-0.08	-6.70***
FB	-2.54	-8.03***	-2.47	-7.94***	-0.26	-8.10***

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

Before empirically examining the asymmetric impact of indicators of fiscal deficit financing on financial sector development, this study first tested whether there is

asymmetric co-integration among the variables of interest or not, and the results are given in tables 7 and 8 below. The results show the existence of asymmetric co-integration at a 1% significance level, as the estimated F value (11.07) is more significant than its critical value (-5.68). These results suggest rejecting the null hypothesis of no asymmetric co-integration among credit to the private sector and its underlying determinants.

Table 7: Asymmetric co-integration test (credit to the private sector as dependent variable)

Test Statistic	Value	df	Probability
F-statistic	9.123196	(11, 13)	0.0002
Chi-square	100.3552	11	0.0000

Note: Critical values are taken from Pesaran et al. (2001).

Since the asymmetric co-integration is now confirmed between independent and dependent variables, the next step is to investigate the effect of independent variables on dependent variables both in the short run and the long run. As a first step, I estimated the non-linear ECM under NARDL, and the results are as given in Table 8. The lag coefficient of the dependent variables, i.e. credit to the private sector, has an inverse and significant impact, validates that its past value determines the current level of the financial market in Pakistan. However, excluding lag dependent variables may cause bias, and the results may not be reliable. Moreover, the short-run effects given in the second half of Table 8 indicate that government spending, fiscal balance, and domestic debt have an asymmetric impact on financial sector development in Pakistan. It is also evident from the result that in the short run, an increase in financing to meet public finances from domestic sources decreases the availability of funds for the private sector.

We do not have the long-run coefficients in this output. To calculate the long-run coefficients, I divided the coefficient of each independent variable by the coefficient of the lag dependent variable. The long-run coefficients are given in Table 10 below.

Table 8: NARDL output (credit to the private sector as dependent variable)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
C	2.927448	0.248004	11.80401	0.0000
LFSD(-1)	-0.699599	0.063824	-10.96144	0.0000
LDR(-1)	-0.188510	0.023592	-7.990405	0.0000
LFDI(-1)	0.100198	0.017784	5.634079	0.0002
LGOVXP_P(-1)	0.431449	0.250816	1.720182	0.1134
LGOVXP_N(-1)	0.024622	0.092494	0.266198	0.7950
LDOMD_P(-1)	-0.259963	0.128997	-2.015272	0.0690
LDOMD_N(-1)	0.177966	0.143756	1.237979	0.2415
FB_P(-1)	0.012752	0.012914	0.987457	0.3446
FB_N(-1)	-0.030023	0.006984	-4.298630	0.0013
DLGOVXP_N	1.101713	0.105653	10.42761	0.0000
DLFDI	0.012006	0.013105	0.916159	0.3792
DLDOMD_N(-3)	0.339510	0.066318	5.119387	0.0003
DLDOMD_N(-1)	-0.798861	0.120946	-6.605125	0.0000
DFB_P(-2)	0.048313	0.009577	5.044521	0.0004
DLGOVXP_P(-2)	1.042356	0.155695	6.694856	0.0000
DLDR	-0.117130	0.021527	-5.441123	0.0002
DLFSD(-1)	0.336328	0.071163	4.726182	0.0006
DLDR(-3)	0.164077	0.030015	5.466459	0.0002
DLFSD(-2)	0.207330	0.061770	3.356493	0.0064
DLDOMD_P(-1)	-0.612620	0.128995	-4.749171	0.0006
DLDOMD_P	0.354685	0.094420	3.756481	0.0032
DFB_P(-1)	-0.029031	0.008548	-3.396333	0.0060
DLFDI(-1)	-0.037286	0.011778	-3.165582	0.0090
DFB_N(-2)	-0.013972	0.005183	-2.695920	0.0208
DLGOVXP_N(-1)	0.396240	0.150431	2.634027	0.0232
R-squared	0.988660	Mean dependent var		-0.09195
Adjusted R-squared	0.962886	S.D. dependent var		0.085184
S.E. of regression	0.016411	Akaike info criterion		-5.18389
Sum squared resid	0.002962	Schwarz criterion		-4.07393
Log-likelihood	122.0037	Hannan-Quinn criteria.		-4.79307
F-statistic	38.35974	Durbin-Watson stat		2.11742
Prob(F-statistic)	0.000000			

The Long-term relationship between the credit to the private sector and its determinants are provided in Table 9 below.

Results in Table 9 indicate that a 1 percent point increase in fiscal balance leads to a -0.018 percent decrease in credit to the private sector in Pakistan (negative relation), and a one percentage point decrease in fiscal balance leads to a 0.042 percent increase in credit to the private sector. Credit to the private sector responds less to positive change because the coefficient is smaller more significant, and vice versa (see table 10 below).

The effect of domestic debt on financial market development, i.e. credit to the private sector as a dependent variable, is insignificant, postulating that the hypothesis that is financing public debt from domestic sources is not validated in the long run. In contrast, government spending is significant in the case of credit to the private sector. This indicates that financing budget deficit through increased government spending crowds out private investment in the long run. Last but not least, this study did not convert discount rate and foreign direct investment variables into positive and negative terms and tried to investigate its impact on credit to the private sector in a linear fashion. Nevertheless, the results show that it significantly impacts credit to the private sector.

Table 9: Long run coefficients (credit to the private sector as dependent variable)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LDR(-1)	0.268	0.248004	11.80401	0.0000
LFDI(-1)	-0.143	0.063824	-10.96144	0.0000
LGOVXP_P(-1)	-0.616	0.023592	-7.990405	0.0000
LGOVXP_N(-1)	-0.034	0.017784	5.634079	0.0002
LDOMD_P(-1)	0.370	0.250816	1.720182	0.1134
LDOMD_N(-1)	-0.253	0.092494	0.266198	0.7950
FB_P(-1)	-0.018	0.128997	-2.015272	0.0690
FB_N(1)	0.042	0.143756	1.237979	0.2415

4.1 Diagnostic Tests

The diagnostic tests are performed to know whether the model fits the data well or not. The results of various diagnostic tests, i.e. normality, serial correlation, model specification, and heteroscedasticity, as well as error correction terms, are given in Table 10. These tests suggest no problem with serial correlation and heteroscedasticity, the model is correctly specified, and data is normally distributed. The CUSUM and CUSUM square tests developed by (Brown et al. 1975) are also conducted for parameter constancy. Figure 2. shows that cumulative sums and cumulative sums of squares of recursive residuals are well within their 95% confidence band, thus suggesting the models' parameter stability. Another interesting part is the significance of the error correction term and the negative sign. The error correction term indicates how much time it will take to reach the equilibrium in the long run if there is a discrepancy in the short run. In other words, it represents per period adjustment to the long-run equilibrium. Since the error term's coefficient is -0.279 negative and significant, it means per period (the period is the year in our case), adjustment to the long-run equilibrium is about 28 percent.

Table 10: Diagnostics tests (credit to private sector as dependent variable)

Name of test	Statistic value	p-value	Null hypothesis	Acceptance/rejection of null hypothesis
ECM_{t-1}	0.279	0.002	There is no short run discrepancy	Rejected
Normality Test	1.66	0.435	Normally distributed	Accepted
LM Test	0.950	0.422	No serial correlation	Accepted
ARCH Test	0.020	0.886	No Hetro	Accepted
RESET Test	0.345	0.737	Model is correctly specified	Accepted

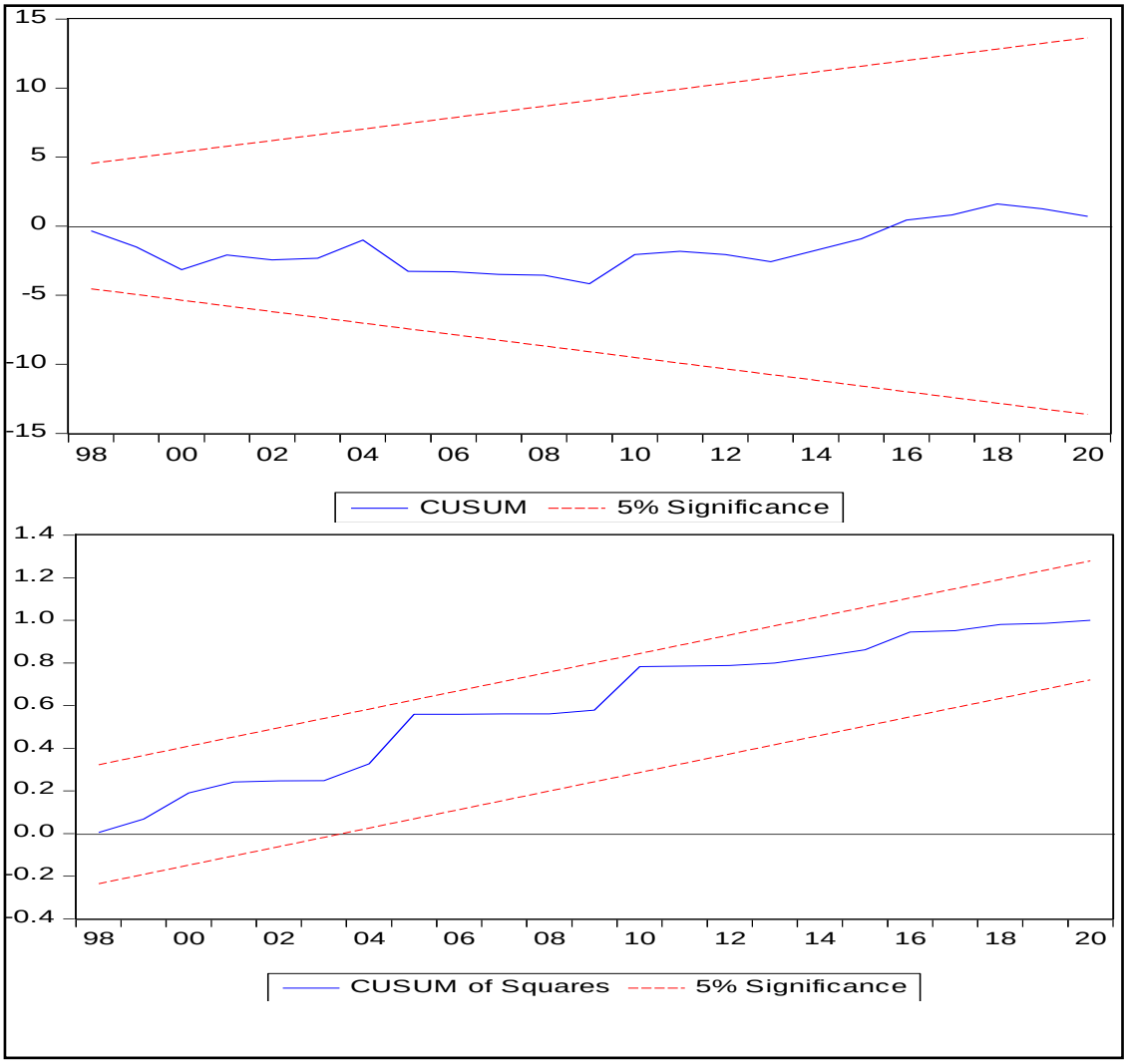

Figure 2: Coefficient's stability test for estimated NARDL (credit to the private sector as dependent variable)

Chapter 5

CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Conclusion

Several studies can be found that investigate the effect of fiscal deficit on economic growth and other macroeconomic variables. However, the literature is very scant to examine the impact of fiscal deficit financing on financial sector development in Pakistan. The extant literature also explores the relationship between the aforementioned variables in a linear framework while ignoring the subject relationship in a non-linear framework. Therefore, the given study investigated the non-linear long-run dynamic relationship between fiscal deficit financing and financial sector developments using time series data of Pakistan from 1980 to 2020. This thesis uses two kinds of statistical analysis, i.e. descriptive and inferential analysis. The inferential regression analysis is further divided into three. First, to test whether there exists an asymmetric long-run relationship between the subject variables or not. Second, to quantify the asymmetric long-run relationship between fiscal deficit financing and financial sector development, both in the long and short run. Third, by using the diagnostic test to verify whether the analysis is done is correct or not.

Empirical results from asymmetric test to co-integration indicate a long-run relationship between fiscal deficit financing and financial sector development. In the short-run fiscal balance, domestic debt and government expenditure, and other

independent variables significantly and asymmetrically affect financial sector development in Pakistan. In the long run, results indicate that credit available to the private sector responds less to positive change, because the coefficient is smaller. The study did not find the crowding-in or crowding-out effect of an increase in domestic debt on the amount of credit available to the private sector in the long run. However, the financing budget deficit through increased government spending, crowds out private investment in the long run.

5.2 Policy Implications and Recommendations

The findings, in general, suggest that the role of fiscal deficit financing on financial sector development in the country is non-linear, indicating regime-specific fiscal deficit financing's effect on the financial sector development of the country. Moreover, the crowding out of private investment because of increased domestic debt is not valid in the long run, while it is true in the case of increased government spending. Based on the study's findings, several policy implications can be deduced. First and foremost, in Pakistan, the focus should be given to fiscal sustainability through export-oriented policies. Since crowding out is not valid in the long run, priority should be given to short-run management in domestic debt. There is an increase in the government spending crowd out of private investment. Therefore to reduce the crowding out the government should cut expenditures on capital investment. Building a practical regulatory framework is another critical area for the country to divert its attention. To strengthen the whole financial infrastructure of the country, it is necessary to properly utilize the regulation instruments such as deposited interest rate ceiling, portfolio restrictions, reserve requirements, entry and merger restrictions, and deposited insurance and capital requirement.

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