

**IMPACT OF ECONOMIC LIBERALIZATION ON
ECONOMIC GROWTH IN THE CASE OF
PAKISTAN**

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ABSTRACT

Since late 1980s, Pakistan's policy makers have been following the economic liberalization policies, particularly financial and trade liberalization for attaining sustainable economic growth. Gauging the impact of such policies on Pakistan economic performance is indispensable to pave the way of sustainable economic growth. This study contributes to the existing literature in the case of Pakistan by estimating the impact of financial and trade liberalization on economic growth through the channels of private saving and investment. Further, this study also analyzes the determinants of capital account liberalization. Study applied autoregressive distributed lag approach (ARDL) on time series data from 1971 to 2013 for analyzing the objectives. The ARDL results indicate that the long run relationship exists in all models. First, the results of the economic growth model show that labor force (skill), capital stock, and financial liberalization index are positively related with the economic growth. The financial openness index and trade openness are negatively related to growth. Second, the long term results of the impact of financial and trade liberalization indicators on private saving show that per capita real private income, real deposit rate, public saving and financial liberalization index are positively linked with private saving. The capital account liberalization, financial openness index, and trade openness are negatively related to private saving in the long run. Third, the long term results of the impact of financial/trade liberalization indicators on private investment exhibit that per capita real private income, public investment, financial liberalization index are positively related to private investment in the long run. The real interest rate and trade openness are negatively linked to private investment in the long run. Last, the results of the impact of trade liberalization/openness on the capital account liberalization/openness highlight that trade openness (de facto) is positively related with capital account liberalization. Further, the results also indicate trade liberalization and

trade openness are positively associated with the financial openness. Putting together, the overall results show that financial liberalization index is positively related to economic growth, private saving and investment. Against this backdrop, study suggests policy makers to promote financial liberalization in banking and stock sector as such liberalization policies are positively linked to economic growth. In the context of negative juxtaposition of capital account liberalization/openness to economic growth, there is need to relook at the capital account liberalization policies. The study also highlights a need to revise import liberalization policy of discouraging the imports of luxury consumer goods and subsidizing the machinery for industry. The control variable of skill labor force is positively linked to economic growth, thus this study suggests that skill labor is playing an important role in the growth process. Presently Pakistan is spending 2.1 % of GDP on education (GOP 2011), which is lower than other regional countries like India, Bangladesh and Nepal. An increase in education expenditures and their effective allocation is vital in order to sustain EG by improving the quality of human capital.

ABSTRAK

Pada akhir tahun 1980an, kerajaan Pakistan telah mengikuti dasar liberalisasi ekonomi terutamanya liberalisasi kewangan dan perdagangan bagi mencapai pertumbuhan ekonomi yang mampan. Mengukur kesan dasar melalui prestasi ekonomi Pakistan adalah amat diperlukan untuk mencapai objektif tersebut. Kajian ini menyumbang kepada literatur di Pakistan dengan mengukur kesan liberalisasi kewangan dan perdagangan ke atas pertumbuhan ekonomi melalui saluran simpanan dan pelaburan swasta. Selain itu, kajian ini juga menganalisis petunjuk liberalisasi akaun modal. Kajian ini menggunakan kaedah *autoregressive distributed lag* (ARDL) dengan data siri masa dari 1971-2013. Keputusan daripada analisis ARDL menunjukkan bahawa hubungan jangka panjang wujud di dalam semua model yang dijalankan. Pertama, hasil kajian daripada pertumbuhan ekonomi menunjukkan bahawa modal insan, stok modal, indeks pembangunan sektor perbankan dan indeks pembangunan pasaran saham memberi kesan positif ke atas pertumbuhan ekonomi manakala indeks keterbukaan kewangan dan perdagangan adalah berhubungan negatif dengan pertumbuhan ekonomi. Kedua, kajian ini mengukur kesan penunjuk liberalisasi kewangan dan perdagangan ke atas simpanan swasta. Hasil jangka panjang menunjukkan bahawa pendapatan peribadi per kapita benar, kadar deposit benar, simpanan awam dan indeks liberalisasi kewangan adalah berhubungan positif dengan simpanan swasta. Manakala indeks liberalisasi akaun modal, indeks liberalisasi kewangan, dan indeks liberalisasi perdagangan adalah berhubungan negatif dengan simpanan swasta di dalam jangka panjang. Ketiga, kajian ini melihat kesan petunjuk liberalisasi ekonomi ke atas pelaburan swasta. Hasil jangka panjang menunjukkan bahawa pendapatan individu per kapita benar, pelaburan awam, dan indeks liberalisasi kewangan adalah berhubungan positif dengan pelaburan swasta di dalam jangka panjang. Hasil kajian untuk melihat kesan liberalisasi

perdagangan/keterbukaan ke atas liberalisasi akaun modal menunjukkan bahawa keterbukaan perdagangan (de facto) adalah berhubungan positif dengan liberalisasi akaun modal. Kajian menunjukkan bahawa liberalisasi perdagangan dan keterbukaan perdagangan adalah berhubungan positif dengan keterbukaan kewangan. Kajian keseluruhan menunjukkan bahawa indeks liberalisasi kewangan adalah berhubungan positif dengan pertumbuhan ekonomi, simpanan swasta dan juga pelaburan swasta. Oleh itu, kajian ini mencadangkan agar pembuat dasar menggalakkan liberalisasi kewangan di dalam sektor perbankan dan saham kerana dasar liberalisasi tersebut berhubung positif dengan pertumbuhan ekonomi. Dalam konteks liberalisasi akaun modal/keterbukaan dengan pertumbuhan ekonomi, terdapat keperluan untuk menyemak semula dasar liberalisasi akaun modal. Selain itu, hasil kajian ini menyarankan agar kerajaan menyemak semula dasar liberalisasi import supaya import ke atas barangan mewah dikurangkan. Kerajaan perlu juga memberi subsidi jentera kepada industri di Pakistan. Selain itu, didapati modal insan adalah positif dengan pertumbuhan ekonomi justeru ia menunjukkan bahawa modal insan memainkan peranan penting kepada proses pertumbuhan ekonomi. Fakta menunjukkan bahawa Pakistan telah membelanjakan sebanyak 2.1% daripada Keluaran Dalam Negara Kasar (KDNK) bagi tujuan pendidikan (GOP 2011), di mana nilai ini adalah jauh lebih rendah jika dibandingkan dengan negara-negara serantau yang lain seperti India, Bangladesh dan Nepal. Peningkatan perbelanjaan sektor pendidikan dan peruntukan yang berkesan adalah sangat penting bagi mengekalkan pertumbuhan ekonomi melalui modal insan.

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LIST OF ABBREVIATIONS

Asian Development Bank (ADB)
Augmented Dickey Fuller (ADF)
Autoregressive Distributed Lag Model (ARDL)
Banking Sector Development Index (BDI)
Board of Directors (BODs)
Central Depository Company of Pakistan (CDC)
Continuous Funding System (CFS)
Credit Deposit Ratio (CDR)
Economic Growth (EG)
Economic Liberalization (EL)
Liberalization Indicators (LI)
Error Correction Mechanism (ECM)
Financial Liberalization Index (FLI)
Financial Openness (FO)
Government (GOVT)
Industrial Development Bank of Pakistan (IDBP)
International Finance Corporation (IFC)
International trade (IT)
Investment Corporation of Pakistan (ICP)
Islamabad Stock Exchange (ISE)
Karachi Stock Exchange (KSE)
Lahore Stock Exchange (LSE)
Life Cycle Model (LCM)
Ministry of Commerce (MOC)
Muslim Commercial Bank (MCB)
National Bank of Pakistan (NBP)
Non-Bank Financial Institutions (NBFIs)
Non-Performing Loans (NPLs)
Security and Exchange Corporation of Pakistan (SECP)
Total Factor Productivity (TFP)
Trade Liberalization Index (TLI)
Trade Openness (TO)
United Bank Limited (UBL)

CHAPTER 1: INTRODUCTION

1.1 Introduction

According to Solomon (1999), since the end of the 1970s nations across the world joined a global movement towards market-oriented economic policies on a global scale. These policies were bound into a set of doctrines, called the ‘Washington Consensus’, later came to be known as the ‘Post-Washington Consensus’ (Williamson, 1994). Under the aegis of multilateral agencies like the IMF and the World Bank, the structural adjustment programs were promoted, aimed at liberalization of the domestic economy from government control (De Haan, Lundström, & Sturm, 2006).

The focus of these policies was to ensure fiscal discipline; prioritize public expenditure; reform tax system; liberalize financial markets, exchange rates, trade, and foreign direct investment; privatization of state enterprises; and deregulation, broadly defined (De Haan et al., 2006). According to the World Bank (2002) it is difficult to assess the impact of the market-oriented policies on the economic growth of the nations. Rodrik (2008) points out that the general philosophy of rigorous economic strategy encompasses allocative efficiency, macroeconomic and financial stability. The allocative efficiency can be achieved through the rule of law, market-based competition, liberalization of trade and foreign direct investment. Macroeconomic and financial stability requires prudent execution of monetary policy to ensure fiscal and current account sustainability.

The Fraser Institute uses forty-two data points to construct the freedom index and measure economic freedom in five broad areas: (1) size of government: expenditures,

taxes, and enterprises; (2) legal structure and security of property rights; (3) access to sound money; (4) freedom to trade internationally; (5) regulation of credit, labour, and business (Gwartney, Lawson, & Hall, 2014).¹

The Heritage Institute, on the other hand, develops summary measures of economic freedom by using 10 quantitative and qualitative factors. These are grouped into four broad categories under economic freedom: (1) rule of law (property rights, freedom from corruption); (2) limited government (fiscal freedom, government spending); (3) regulatory efficiency (business freedom, labour freedom, monetary freedom); and (4) open markets (trade freedom, investment freedom, and financial freedom).²

According to De Haan et al. (2006), if a country has missing observations of some components of economic freedom index (EFI), then the components are aggregated into a summary of EFI. Thus, the component score of missing observation is considered using only partial data. However, if some data are missing on all components of a certain area, then the EFI is created by considering the average of the various areas. Thus the summary EFI represents only those indicators for which data are available. So, the EFI may lack consistency across countries (Heckelman & Stroup, 2005).

Several empirical studies provide evidence against the aggregation because all the components of the EFI are not positively associated with economic growth (Heckelman & Stroup, 2000). Ayal and Karras (1998) suggest that the eight categories of economic freedom are positively associated with economic growth, while the link between growth

¹ The economic freedom index measures the degree of market-openness; measured on a scale 0 to 10 using a set of multidimensional indicators – higher values indicating more economic freedom. For the time period 1970 to 2000 the index is available in five-year intervals.

² Each of the ten economic freedoms within these categories is graded on a scale of 0 to 100. A country's overall score is derived by averaging these ten economic freedoms, each with equal weight.

and freedom to trade with foreigners is not robust. Using seven³ categories of economic freedom, Carlsson and Lundström (2002) find the negative association of the size of government and trade openness with growth. They also show a positive association of economic structure & markets, freedom to use alternative currencies, legal structure and security of private ownership, freedom of exchange in capital markets with the economic growth.

Based on the Granger causality test, Dawson (2003) concludes that only two of the economic freedom categories cause economic growth. The international exchange and freedom to trade with foreigners within the categories of the economic freedom index are negatively associated with economic growth (Berggren & Jordahl, 2005). The relationship between economic freedom and economic growth is complex, which mandates that the issue be scrutinized using different categories of economic freedom. On the other hand a single indicator of EFI does not reflect the composite economic situation while an aggregated index creates challenges in order to draw policy conclusions (Carlsson & Lundström, 2002). Consequently, it is vital to examine the importance of categories of EFI with respect to growth. The economic freedom covers the different areas as discussed above. So in this thesis consider only the two components of economic liberalization (a) financial and (b) trade liberalization in order to investigate their impact on economic growth in Pakistan.

Many countries have initiated economic openness by liberalizing financial and trade sectors. India, China, and Malaysia etc., opened their market to foreign investors. The remarkable rates of economic and financial growth recorded in these countries are

³ The seven categories of economic freedom are: size of government, economic structure and use of markets, monetary policy and price stability, freedom to use alternative currencies, legal structure and security of private ownership, freedom to trade with foreigners, and freedom of exchange in capital markets

attributable to their openness. This outcome has drawn considerable attention from researchers and policy makers, and has even led to the emergence of new growth theories. In the 1980s, many developing countries have put into practice the endogenous growth model and started the process of economic liberalization in order to achieve economic growth.

In the 1970s, many developing countries adopted a strategy concentrating, predominantly, on infrastructure on the belief that the latter would engender industrialization and economic development. They focused on construction of roads, bridges, and communication systems, assuming that these would persuade the private sector to invest in productive activity, generate employment and economic growth. Given that the economic structure in most of these countries is fully under the control of the government; bureaucratic red tapes often are a source of inefficiency, interfering with investment decision by the private sector.

Aside infrastructure, developing countries also focused on growth strategies to develop the financial and trade sectors. It is well recognized that the developed financial structure can play central role in economic growth, as can technology. However the latter entails enormous investments which are then funded by the well-established financial system.

This thesis considers financial liberalization by covering both financial system and capital account liberalization in broad terms. McKinnon (1973) and Shaw (1973) raise the issue of financial repression in developing economies. They point out that financial liberalization enhances savings which then is smoothly channeled into productive investments leading to economic growth. However, in developing countries negative

real interest rate works against saving that leads to low investment levels. It is plausible that market- determined interest rates can help to enhance both private savings and investment. In contrast, the Structuralist and the neo- Keynesians posit that financial liberalization moderates economic expansion, and accelerates the speed of price changes (Van Wijnbergen, 1982). Under this view, financial liberalization may cause an increase in interest rates and thus raise manufacturing costs.

The liberalization of capital account or financial openness promotes economic growth by achieving local allocative efficiency. According to Obstfeld (1994), financial openness boosts investment in anticipation of better returns. This is due to efficient sharing of riskier projects. Quinn (1997) shows a positive link between economic growth and liberalization of capital account. Rajan and Zingales (2003) document a positive link between financial openness and factor productivity, the former also promotes better corporate governance.

There are two channels through which capital account liberalization impacts economic growth as described within the neo-classical framework (Bekaert, Harvey, and Lundblad, 2011). First, liberalization of capital allows movement of capital from rich countries to poor countries where interest is high. This lowers real interest rates, increases investment and accelerates economic growth. Second, the literature of international finance indicates that liberalized equity markets decrease the equity risk premium from better risk-sharing. The latter combined with foreign participation in local capital markets assures maintenance of steady-state level of GDP (Bekaert et al., 2011).

Motivated by the promises of financial liberalization hypothesis, developing countries adopted financial liberalization process in the 1980s, and many of them reaped enormous benefits. This phenomenon encouraged others to follow suit. On the flip side, the policy caused financial fragility and vulnerability, giving rise to serious economic/financial crises. The 1997/98 Asian financial crisis was clearly an outcome of improper management or a mismatch of the financing of long-term project and short-term funding.

According to the Structuralist school, IMF policies were at the root of the Asian financial crisis. The IMF's emergency loans were made conditional on deep structural reforms that went far beyond the usual stabilization measures; they included vital changes in labor regulations, corporate governance and the relationship between the government and business. Griffith-Jones, Gottschalk, and Cirera (2003) find that too quick capital account liberalization, mainly in the developing economies, was a key source of the crisis. For example, Mexico and the Republic of Korea liberalized the capital account rapidly, which appeared to have triggered the financial crises of the 1990's.

That trade liberalization plays important role in economic growth in the developing countries is a topic that is widely discussed in the literature. Trade openness and liberalization have been identified as key elements in academic and policy discourse for several reasons. Firstly, trade liberalization is an important part of the structural adjustment program which has the blessing of the World Bank and International Monetary Fund. Thus, these policies have been adopted in several developing countries including Pakistan.

Secondly, many empirical studies have established the importance of trade openness in economic growth. They find the relevance through the export-led growth hypothesis and import-led growth hypothesis (see, Balassa, 1982; Salvatore and Hatcher, 1991).

Thirdly, the success stories of flourishing economies in East Asia clearly stand out as a glaring illustration of the role of trade in the transformation. Lastly, the development of new endogenous growth theories that offer a theoretical basis for empirical investigation on the link between trade liberalization and economic growth.

In contrast, within the neo-classical growth theory, economic growth is exogenously determined by technology. The theory does not recognize the role of interaction, potential or actual, with other nations in long term economic growth. Thus an association between trade liberalization and economic growth does not have a place in the theory. The new growth theories posit that trade openness helps to achieve economic growth by enhancing the scale of spillover (Romer, 1990).

The theoretical literature is broad enough to accommodate different group of models in which trade liberalization can expedite or impede the international economic growth (Rivera-Batiz & Romer, 1991). If trading partners significantly differ in factor endowments, then economic integration increases the global economic growth even though it is possible for individual countries to suffer a negative influence (Young, 1991 and Kind, 2002). The negative relationship between trade openness and economic growth, however, receives empirical support (Vamvakidis, 2002, and Kim, Lin, & Suen, 2011).

1.2 Motivation of the study

The literature for financial sector reforms, financial liberalisation and trade liberalisation have developed rather independently. This thesis considers all three reforms together. Even though some previous studies use economic freedom index that is an aggregate of various types of reforms, the aggregation precludes precise policy prescription. This is because even if economic liberalisation has a positive impact on growth, it is unknown to policymakers which areas should be liberalised. For developing countries with limited resources, it is impossible for them to undertake reforms in all areas.

In previous studies, de jure indicators have been the popular choice among researchers mainly because it is a policy decision. However, Kose et al. (2009) point out that the mere removal of investment restrictions is insufficient to attract capital flows. The impact of liberalisation on growth might be diminished if there is no actual capital flows to the economy. The same arguments apply to trade liberalisation. This study considers both de jure and de facto indicators because de facto measures can be seen as outcome variables, in contrast, de jure measures can be considered as treatment variables. Henceforth, by considering both de jure and de facto indicators in this study, different aspects of financial and trade liberalization can be measured.

Most of the previous studies are conducted mainly in a broad cross-section of countries. Even though cross-country studies are useful for generalisation or theory testing, it is less useful for policy prescription. This is because pure cross-country regressions usually use observations for each country by averaging out the variables. The averaged data tend to mask the important aspect of series and the trajectory of economic growth for an economy. In addition, analysis on the aggregate levels is unable

to capture the details of liberalization, background and policy shift of each specific country.

Moreover, the cross-country results are at best mixed, and thus difficult to draw conclusive policy prescription. For example, some studies find that financial liberalisation is the main cause of crises, leading to output loss. The banking crises may be higher in financially liberalized economies since the banks and other intermediaries have the autonomy to take risk, ending up with a fragile banking sector (Demirguc-Kunt and Enrica, 2001). In addition, Arphasil (2001) argues that the main cause behind the East Asian Crisis 1997-98 is capital account liberalization and interest rate deregulation. He points out that financial liberalization leads to credit boom which is caused by a rise in short run borrowing from abroad. Such a boom sets the stage for imbalance in financial foundation which eventually leads to financial fragility and crises.

Wade (2001) points out the danger that with a liberalized capital account, banks and non-banks have the capability to borrow from international markets. There is impending hazard when the financial sector is grounded on bank borrowing rather than equity financing, and more so with pegged exchange rates. In the same argument, Tornell, Westermann and Martinez (2004) point out that financial liberalization can amplify chances of financial crises. Likewise, Tovar García (2012) shows that economic growth rates in financially liberalized countries have been lower in the past 30 years as compared to the 60s and 70s. In fact, most of them faced financial crisis: Mexico in 1994-1995, Asia in 1997-98, Russia in 1998, Brazil in 1998-1999, Argentina in 2000-2001 and recently the United States in 2007-2008 and Europe in 2011.

In most studies on financial and trade liberalisation, the focus is very much on economic growth. Very few studies further explore the underlying channels. This is important because according to the theory, liberalization policies impact on economic growth through savings and investment channels.

Another significant gap in the literature is the sequencing of reforms which is important for developing countries as their resources are limited. Many economists have argued for appropriate sequencing of reforms without necessarily treating the reforms in big-bang versus a gradual progression. The debate about the sequencing was started by Mckinnon (1991). The main focus of the debate was when a country should start developing its financial system.

As the importance of financial system to economic development becomes clear, observers begin to pay increasing attention on other sectors such as trade liberalization. Early discussion tends to highlight the policies, laws, regulations, size of government, financial instruments and institutions needed for an effective financial system – almost as if developing the infrastructure was as simple as adopting a new law or policy. Little recognition was initially given to how long it would take to build and integrate financial sector infrastructure so that it works reasonably well. The question of optimal sequence was presented by McKinnon (1991). Actually, the goods market or trade liberalization frequently appears to be a pre-condition for capital account or external liberalization (Tornell, et al., 2004).

Pakistan offers a unique testing ground because since the late 1980s, Pakistan has been on a path to financial and trade sector reforms. The aims are to develop sound financial markets; establish a more effective market-based monetary and credit

guidelines; strengthen capital and financial organizations; improve allocation of local resources; and boost exports to achieve economies of scale and competitiveness.

The efficiency of capital utilization can be improved by financial enlargement and financial deepening in Pakistan. The financial enlargement signifies greater use of money in the exchange of goods and services. Financial deepening implies development and expansion of financial institutions, such as banks, and stock markets.

The financial enlargement can be attained through financial deepening. The latter can be achieved by introducing modern banking facilities, and increasing banking services to the broader population of the country. Rising competition among banks tend to reduce the intermediation cost.

The 1974 Act of nationalized commercial bank imposes credit ceilings, allowing administered interest rates along with sectoral credit allocation. Clearly, these turned out to be major impediments to achieving efficiency in the financial system. It became necessary to remove credit constraint, allow the entry of new banks, and deregulate interest rate to create ground for competition in Pakistan. The law was amended to allow foreign bank to participate in the domestic financial sector to assist resource allocation, transfer of the fund towards higher yielding sectors. The change resulted in higher economic growth.

Late in the 1980s, restructuring of trade sector was initiated to mobilize local resources, boost exports, achieve economies of scale, and support import of new technology. However, there is little empirical evidence on whether these reforms have had any impact on economic growth through the channels of private savings and

investments in Pakistan. The results on the relationship between trade-finance liberalization and economic growth are mixed.

Several studies have examined the impact of trade and financial liberalization on economic growth in Pakistan. However, they do not consider the renowned databases of trade and financial liberalization, i.e. Abiad, Detragiache, and Tressel (2010)⁴, Chinn and Ito (2006)⁵, Lane and Milesi-Ferretti (2007)⁶, and Wacziarg and Welch (2008).⁷

The better known studies on Pakistan use various proxies for trade and financial liberalization to investigate their impact on economic growth. Dutta and Ahmed (2004) find a positive relationship between trade and industrial sector growth. They use the volume of trade as an indicator of trade liberalization. Yasmin, Jehan, and Chaudhary (2006) examine the impact of trade liberalization on economic growth using the two indicators of trade liberalization i.e., exports plus imports by GDP; and import duties as share of total imports. They find a negative association between trade liberalization and per capita GDP.

Shaheen et al. (2011) investigate causality and long run relationship between economic growth (GDP), financial development (FD) and international trade (IT). The causality test shows unidirectional links from FD to GDP; from IT to GDP; and from FD to IT. They recommend that further steps towards financial liberalization should be taken; with due consideration of long run strategies.

⁴ Data base of financial reforms.

⁵ De jure indicator of capital account liberalization.

⁶ De facto indicator of capital account liberalization.

⁷ De jure indicator of trade liberalization in the studies.

Munir et al. (2013) examine the link between economic growth and financial liberalization in Pakistan from 1972 to 2010. They use deposit rate, lending rate, broad money and FDI as measures of financial liberalization. They find a long run relationship between financial liberalization indicators and economic growth. In the long run, deposit rate is positively related to economic growth; but lending rate has a negative impact. In the short run, the impact of FDI and lending rates is negative on economic growth.

1.3 Research Questions

This study posits the following research questions:

1. Do financial and trade liberalization have any impact on economic growth of Pakistan?
2. How liberalization of the financial and trade sectors impact on private saving and investment?
3. Is trade liberalization a pre-condition for financial openness/capital account liberalization?

1.4 Objectives of the Study

The objective of this study is to investigate how liberalization (financial and trade sector) and economic growth are associated in the context of Pakistan. This is a key issue in the determination of how to proceed with liberalization policies. While economic growth can be boosted through the channels of savings and investments, the outcome can vary by differences in the individual nation's characteristics. It is expected that the findings will add to the literature of liberalization and economic growth nexus in the case of Pakistan.

This study has the following objectives:

1. From the perspective of financial and trade liberalizations, this study explores their impacts on economic growth in Pakistan.
2. With respect to growth channels, this study scrutinizes the impacts of financial and trade liberalization on private saving and investment in Pakistan.
3. This study examines the impact of trade openness on financial openness/capital account liberalization in Pakistan.

1.5 Expected Contribution

This study contributes to the existing literature on Pakistan by using the financial and trade liberalization indicators which have been ignored by previous researchers in their empirical investigations. Given Pakistan's efforts at opening up of the economy, the research is not only relevant, but also very timely.

1. This study uses Abiad et al. (2010) database relating to financial reforms in developing a financial system liberalization index. They provide a dataset of 91 economies. The database offers a multi-faceted degree of financial reforms, covering eight aspects of financial sector policy, namely credit controls and reserve requirements, aggregate credit ceilings, interest rate liberalization, banking sector entry, capital account transactions; privatization; securities markets and banking sector supervision.
2. In addition, this study uses Chinn and Ito (2006) de jure indicator of capital account liberalization. The Chinn-Ito index (*KAOPEN*) measures a country's degree of capital account openness and covers the time period of 1970-2013 for 182 countries.
3. This study investigates the de facto aspect of financial openness by employing the Lane and Milesi-Ferretti (2007) indicator of total stock of foreign assets and

liabilities. They compute accumulated stock of foreign assets and liabilities for a broad sample of 145 countries.

4. This study employs the Wacziarg and Welch (2008) de jure indicator of trade liberalization. First, Sachs and Warner (1995) assemble the broad cross-country database of de jure trade policy openness using trade liberalization date. If none of the following five conditions apply, then from a trade point of view, they describe an economy as liberal: (1) non-tariff barriers cover 40% or more of the trade; (2) the average tariff rates are 40% or more; (3) there was a black-market exchange rate that depreciated by 20% or more relative to the official exchange rate during the 1970s and 1980s; (4) the country has a socialist economic system; and (5) the country has a state monopoly on major exports. Wacziarg and Welch (2008) extend the sample to 141 countries and update the trade liberalization date up-to 2001.
5. This study test the hypothesis; whether trade liberalization is a precondition for capital account liberalization. To the best of our knowledge, this is the first investigation of its kind in the case of Pakistan.

1.6 The Organization of Thesis

The thesis is organized as follows. Chapter 2 reviews the literature on economic liberalization (financial and trade liberalization) and economic growth. Chapter 3 outlines the theoretical framework, data and methodology. Chapter 4 describes the economic liberalization reforms, and constructs economic liberalization indicators for Pakistan. Chapter 5 presents empirical results, and finally, chapter 6 concludes and offers policy implications based on the findings.

CHAPTER - 2

LITERATURE REVIEW

The chapter reviews the literature under six different sections as follows. Section 2.1 reviews literature on the finance-growth relationship. Section 2.2 presents the literature on the impact of capital account liberalization/openness on economic growth. Section 2.3 reviews the literature on the link between trade and economic growth. Sections 2.4 and 2.5 offer a review of literature on private saving and private investment in the context of economic growth, respectively. Section 2.6 concludes.

2.1 Review of Literature on the Finance-Growth Relationship

In the literature economists offer different views on the link between finance and economic growth. In the literature of development economics, the issue of finance is not even discussed (Meier, Seers, Myrdal, & Bauer, 1984). Lucas (1988) dismisses finance as an important factor in economic growth. The idea is, growth leads finance, not the other way (Robinson, 1952). However, others conclude that financial system is vital for economic growth (see, e.g. Gurley and Shaw, 1955; Goldsmith, 1969; Hicks, 1969; McKinnon, 1973).

McKinnon (1973) and Shaw (1973) criticize government policies that impose constraints on financial market, termed as financial repression. These controls on financial market include, but not limited to, ceilings on interest rate, higher reserve requirements and regulate credit policies. These have had an adverse impact on the amount of domestic investment and its efficiency in many developing countries during the 1950s and 1960s. They argue in support of liberalized financial systems in the hope

that this would add to efficiency in investment and leads to higher economic growth rates.

Levine (2005) in his survey of finance and growth nexus covers both theoretical and empirical work; demonstrating how the various financial instruments, markets and institutions (individually or collectively) affect economic development. This survey was updated by Ang (2008). Ang's survey includes banking sector, financial markets, and additional financial intermediaries.⁸ These institutions are central to the mobilization and intermediation of saving and they help funds to be distributed proficiently to productive sectors.

The previous literature on the relation of finance and growth shows the impact of financial system on economic growth – both direct and those through components of banks and stock markets. The literature is divided in three parts, i.e. cross- country, panel and time series (country case analysis) based analysis.

2.1.1 Cross –Country Evidence of Finance and Growth Nexus

Goldsmith (1969) uses data of 35 countries to examine the link between financial sector and economic growth. They offer the first empirical evidence on a positive correlation between finance and growth. However, this study does not control for other factors that influence economic growth. King and Levine (1993) examine the finance and growth relationship by including other factors like physical capital impacting economic growth in the long run. They find that financial development is critical for stimulating the rate of economic growth.

⁸ The additional financial intermediaries include pension funds and insurance companies, and a large regulatory body.

King and Levine (1993) and Levine (1998) emphasize on the bank sector indicator. Later, other studies test the importance of stock markets in the economic growth process. Following the pioneering work of Demirgüç-Kunt and Maksimovic (1998) and Levine and Zervos (1998), Atje and Jovanovic (1993) find positive relationship between stock market and economic growth.

Furthermore, Levine (2002) uses the data of 48 countries and tests the hypothesis whether bank-based or stock market-based financial systems is important to enhance economic growth. He finds no evidence of long run relationship for either the bank-based or stock market-based view, but the overall level of financial development describes growth variations at the cross-country level. Similar results are concluded by the study of Demirgüç-Kunt and Maksimovic (2002) in case of firm data.

2.1.2 Panel Studies on Finance and Growth

Another strand of studies examine the finance and growth link by adding time dimension to cross-sectional data, thereby using dynamic panel estimation methods.

De Gregorio and Guidotti (1995) find that liberalization of financial system through financial development measures impacted economic growth favourably. In the Latin American nations, unregulated financial liberalization and expectation of government bailout have produced a negative effect of finance on economic growth. Beck et al. (2000) examine the importance of financial sector and its working through the channels of capital accumulation and private saving rate on economic growth. They find that finance is positively related with both per capita GDP growth and total factor productivity (TFP). This study also provides evidence of positive role of finance in the

capital accumulation and private saving rate; although these links are statistically weaker.

In addition, several other studies find a positive impact of finance on economic growth (Rousseau and Wachtel, 2000; Beck and Levine, 2004). Some provide the evidence from firm- or industry-level data on the cross country level. For example, Rajan and Zingales (1996) explain that well-developed financial intermediaries and financial markets help to reduce market frictions. Low cost of external finance facilitates firms' expansion and encourages formation of the new firm. Thus, financial development plays a favourable role in firms' growth and their entry. Financial liberalization affects small and large firms differently, but small firms in developing countries gain from financial liberalization (Laeven, 2003).

Calderón and Liu (2003), Beck and Levine (2004), Christopoulos and Tsionas (2004), and Rioja and Valev (2004) find a positive association between finance and economic growth. They use pooled time series data and cross-sectional data in a panel setting for estimation. While there are nonlinear effects in the finance-growth relationship, the results are sensitive to the choice of finance measures (Stengos & Liang, 2005). Kettani, Mamuneas, Savvides, and Stengos (2007) show that nonlinear finance-growth association is not robust.

2.1.3 Time Series Studies or Country Case Studies on Finance and Growth

A body of empirical literature employs time series approach to examine the finance and growth relationship. Demetriades and Luintel (1997) develop a financial repression index and find that financial repression is negatively related to financial development. They also show that economic growth process is not weakly exogenous with respect to

financial development. Costs inflicted by financial repression policies are too real. Ang and McKibbin (2007) find that removal of the financial constraint helps to develop financial sector, and together financial liberalization and development positively impact on economic development.

Fowowe (2008) develops financial liberalization index for Nigeria and finds that the index⁹ relates positively with economic growth in the long run. This positive result is also supported by Owusu and Odhiambo (2014). The interest rate liberalization enhances economic growth through its influence on financial depth in the case of Kenya (Odhiambo, 2009).

Ang (2010) examines the impact of foreign aid on economic development in India, controlling for the degree of financial liberalization. He concludes that such aid had a negative impact on output expansion, although the indirect effect via financial liberalization was positive. He argues that proper liberalization of the financial sector in the host nation is a vital for foreign aid to be effective.

Examining the finance-consumption nexus, Ang (2011a) concludes that financial repression lowers the consumption volatility in India. The results remain robust even after controlling for macroeconomic shocks and volatility. The threshold evidence suggests that financial system becomes sufficiently liberalized in order to reduce consumption volatility.

⁹ The financial liberalization index has been developed by using seven liberalization indicators i.e. bank denationalisation and restructuring, interest rate liberalization, strengthening of prudential regulation, abolition of directed credit, free entry into banking, capital account liberalisation, and stock market deregulation.

2.1.4 Literature Review: Finance and Growth in Pakistan

Most studies on Pakistan investigate the role of finance in economic growth through the lenses of causal link between the two series using different proxies of financial development.

Shahbaz, Lodhi, and Butt (2007) find that financial system and economic growth help in expansion of the financial development in Pakistan. Economic growth leads financial development, but on the other hand financial development does not cause economic growth in Pakistan (Tahir, 2008).

Khan and Qayyum (2006) use financial development index to examine the impact of financial liberalization policies on economic growth. They conclude that financial liberalization reforms promote economic growth in the long run. However, the short run response of real deposit rate is very low, suggesting a further acceleration of the financial reform process.

Shaheen et al. (2011) explore a long run relationship among economic growth (GDP growth), financial development (FD) and international trade (IT) and causal link. They conclude evidence in favor of a long run association among FD, IT and economic growth. The test shows unidirectional causality links from FD to GDP; from IT to GDP; and from FD to IT. This study suggests that more steps for financial policies liberalization must be taken and consideration should be specified to long run strategies.

Shahbaz and Mohammad (2014) apply vector error correction model (VECM), granger causality test, and innovative accounting approach (IAA) to test the

relationship among exports, financial development and economic growth Pakistan from 1991.q1 to 2009.q4. They conclude economic growth and financial development causes exports growth; and feedback link between financial development and economic growth; and financial development and exports; and exports and economic growth. They recommend export expansion by promoting economic growth and financial sector development in Pakistan.

2.2 Literature Review: Capital Account Liberalization and Economic Growth

The international capital mobility models suggest that perfect market is beneficial for both the borrowers and lenders. Because foreign investment is intertemporal trade, trade between times and trade between nations have surely analogous welfare effects. The issue of capital mobility is same as the case of free trade (Fisher, 1930). According to Sachs (1981) and Frankel and MacArthur (1988) free international movement of capital is like a free trade with welfare effects. Liberalization of capital has some distortionary effects on developing economies. In case there is protection on import-competing industries during the time of capital account liberalization, it is possible that capital may move towards the comparatively disadvantageous industrial sector and produce immiserizing effects (Brecher & Alejandro, 1977).

Moreover, the financial openness can cause exchange rate instability which promotes deterioration in the real sector (Dornbusch, 1976). In the short run free access of foreign capital may lead to "over-borrowing", which is the main cause of the investment boom, and thus short run higher growth (McKinnon & Pill, 1997). Capital account liberalization results in *gain or no gain* in short-run, whereas it can lead towards pain in the long run.

Edison, Levine, Ricci, and Sløk (2002) find that capital account has been liberalized in the industrial countries; and some of the developing countries are under process of capital liberalization, but a majority of developing countries still retains control on capital flow. This study also finds that the impact of capital account liberalization on economic growth is inconclusive. The mixed results are further supported by Henry (2007).

Quinn (1997) develops openness measure, based on proxies by elimination of limitations to capital account transactions as printed in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAR). He finds that openness measure is positively related with real GDP growth in the 58 countries from the period of 1960-89. The Quinn openness measure used by Edwards (1999) in 60 countries finds that the Quinn index at level and first differenced variables are positively associated with economic growth.

Rodrik (1998) examines the link between capital account liberalization and economic growth in the industrial and developing countries. He uses binary indicator of capital account liberalization (constructed by the IMF) and some control variables, e.g., initial income per capita, secondary school enrollment, quality of government and regional dummy variables for East Asian, Latin American, and Sub-Saharan Africa. He finds no link between capital account liberalization and economic growth. Capital account liberalization may not determine the long run growth (Lee, 2003).

Bekaert et al. (2005) find that equity market liberalizations lead 1% increase in annual real economic growth (on average), and capital account liberalization significantly contributes in future economic growth, however, the major economic

growth response arises in countries with high-quality institutions. Kose, Prasad, and Terrones (2009) provide empirical evidence on the relationship between financial openness and total growth of factor productivity (TFP). The de jure¹⁰ capital account liberalisation is positively linked with the TFP growth. While the influence of de facto financial openness on growth of TFP is unclear, the FDI and portfolio equity liabilities are positively related with TFP growth, but external debt is negatively with TFP growth.

The literature indicates that some studies use only the de facto indicators of financial openness in the empirical studies. Choong, Baharumshah, Yusop, and Habibullah (2010) observe the link among FDI, portfolio investment and economic growth in developed and developing countries. They find that FDI is positively linked with economic growth; and portfolio investment positively impacts on economic growth in both countries (developed and developing countries).

Beine et al. (2012) examine the relationship between financial openness and remittance. They support the argument that financial openness is important to attract the remittance through formal channel, and it plays a vital role in the economic growth of developing countries.

Studies follow different approaches first to estimate the impact of capital account liberalization on financial development and then the effect of financial development on growth. Capital account liberalization promotes economic growth by enhancing financial development (Bailliu, 2000). Klein and Olivei (2008) examine the effect of capital account liberalization on financial depth and economic growth in a cross-section

¹⁰ The de jure measure of financial liberalization developed by using the indicators as suggested by Quinn (1997).

of countries over the periods 1986–1995 and 1976–1995. They find that open capital account increases financial depth and greater economic growth over the 20 years sample period. But these findings are mostly for the developed countries included in the sample. Also results indicate that capital account liberalization fails to impact on financial development among developing countries.

The capital account liberalisation and economic growth nexus have also investigated using time series (individual country specific) data. Law and Azman-Saini (2013) investigate the link between capital account liberalization and economic growth in Malaysia using the de jure and de facto measures of capital liberalization. They find that the de jure indicator of capital account liberalization is negatively related with economic growth, but the opposite is true of the de facto measure. Also, they suggest that the influence of capital account liberalization on economic growth is determined by the stage of financial evolution and the quality of management.

Shahbaz et al. (2008) find a positive relationship between capital account liberalization and economic growth in Pakistan. They use the stock market capitalization as a measure of financial development; secondary school enrollment rate for human capital; inflation, and investment as ratio to GDP as control in the model. They suggest further capital account liberalization in Pakistan, but advise creation of sound macroeconomic and a prudent financial environment in the country to minimize the risks caused by such openness. They also use foreign direct investment as an indicator of financial openness, and find positive relationship with economic growth in Pakistan.

2.3 Literature Review: Trade and Economic Growth

In the literature of development economics, free trade has remained the principal actor in the policy debate since the 1950s. The important motivating factor is the General Agreement on Tariffs and Trade (GATT) and the World Trade Organisation (WTO). Trade reforms in developing countries started in the 1980s and the 1990s. The major reforms include the generalization of import measures, removal or reduction of quotas, and reduction in tariff rates.

According to Dean, Desai, and Riedel (1994) and Pritchett (1996) trade liberalization is becoming more 'outward-oriented'. The countries following such trade policies are doing better than those following inward-looking trade (Krueger, 1998). Trade reforms of those countries move towards the neutrality and openness are considered the more outward-oriented countries. A country is considered more liberal or open in trade if the general level of government intervention in trade sector is low. Edwards (1989) provides detail of neutral trade regime that could be achieved by reducing import barriers and introducing export subsidies.

The theoretical literature indicates the effect of trade on economic growth through various channels, i.e., increased capital accumulation, factor price equalization and knowledge spillovers and how the impact works. Rivera-Batiz and Romer (1991) identify various channels by which trade impacts economic growth. First, the re-allocation effect on economic growth from trade liberalization/ openness can increase the quantity of human capital in the leading industries. Second, the spillover affects the transmission of knowledge across the nations. According to this approach, trade openness increases flow of technological knowledge across countries and affects long-term economic growth, positively. They maintain that if domestic human capital system

cannot cope efficiently with the innovative knowledge generated by trade openness, the latter can have a negative impact on economic growth. Third, competition effect, associated with the issue of imitation – the developed economy innovates, the developing ones imitates (Grossman & Helpman, 1991).

Romer (1994) argues that trade constraints lowers the supply of intermediate goods, affecting productivity in the economy. Also trade liberalization increases the productivity by eliminating the x-inefficiency. Rutherford and Tarr (2002) apply ‘Romeresque’ model over a more-or-less infinite horizon. They find that decrease in tariff rate from 20% to 10 % enhances the underlying steady-state growth rate from 2% to 2.6% over the first decade. Over the first five decades the growth rate is 2.2%.

Winters (2004), in his survey, provides a review of literature on trade liberalisation and economic performance. He finds that trade liberalization prompts a temporary increase in economic growth. The study is relevant for its implications for policies like investment and institutions that respond positively to trade liberalisation. In her survey, Santos-Paulino (2005) offers assessment of the link between trade and economic performance. The study critically analyses the trade openness index methodologies that are developed by different researchers and concludes mix results between trade and economic growth in cross section studies. This study enumerates the impact of trade liberalization on exports, imports and balance of payment. Singh (2010) offers a review of the trade and economic growth nexus with respect to the role of GATT/WTO in the development of free trade. He agrees with the conclusion that trade liberalization leads to gains and recognizes the practical assistances GATT/WTO provides in promoting trade liberalization; but laments that the outcome is not universally obvious.

The empirical literature shows that the number of researchers whom investigate the effectiveness of trade openness by using the data of cross country, panel and time series individual country analysis. The empirical evidence on trade orientation and growth are provided by Little, Scitovsky, and Scott (1970) and Balassa (1971). These studies provide the comparative investigation on how the structure of protection to intermediate and final goods affects the relative profitability of sectoral value-added. These studies calculate the effective rates of protection (ERP) for the individual country level.¹¹ The main objective of ERP is to capture the level of protection of value-added industry. These studies suggest that developing countries must reduce the protection degree and liberalize industrial sector for foreign competition. The major shortcoming of these studies is that the calculation of the ERP is lacking of time version in the countries of studied.

The degree of liberalization and bias against exports in a country are measured by using the concept of effective exchange rate and quantitative restrictions measures by Krueger (1978) and Bhagwati (1978). The bias is measured through the ratio of exchange rate effectively paid by importers to the effectively exchange rate paid by exporters. After that they use the idea of premium and bias and determine the five phases in the development of trade systems. First, the quantitative restrictions on the across-the-board are generally allied with a balance of payments crisis. In the second phase the anti-export bias increases in the control system. The starting of the liberalization/opening process is the third phase, and also a nominal devaluation and reduction in few quantitative limits. In the fourth phase quantitative limits (quotas)

¹¹ Little et al. (1970) include the countries like Argentina, Brazil, Mexico, India, Pakistan, the Philippines and Taiwan. Balassa's investigation includes Chile, Brazil, Mexico, Malaysia, Pakistan, the Philippines and Norway.

replace by tariffs. The economy is fully liberalized in the last phase, and the current account transactions are entirely convertible, and quantitative limits are not functional.

Krueger (1978) finds the positive impact of trade liberalization on economic growth that work through two channels: first the direct effect through dynamic advantages like the efficient investment projects and maximum capacity utilization. Second, through exports, the indirect effect in the liberalized economies' exports are increased which lead towards higher economic growth.

Balassa (1982) criticizes Krueger's findings on the grounds that the study ignores the protective effects of tariffs. He labels them as outward orientation (eliminates tariffs) and inward orientation (highest anti-export bias) and concluded that exports growth rate increased by lower anti-export bias over the period of 1960-73. The study has some limitations, e.g., the meaning of export incentives described illogically; in the explanation of export performance the role of real exchange rate is absence, the study uses a non-parametric technique, and causal results between export growth and output which are not clear.

The effective rate of protection (ERP) which is estimated by Heitger (1987) shows that trade distortions are negatively related to growth in the case of 47 countries under studied. Romer (1989) uses data from 90 developing countries to examine the nexus of trade openness and economic growth. He finds that trade openness helps to get a wider array of innovations; promotes human capital accumulation and affect economic growth positively, something also found by Villanueva (1994) earlier. Edwards (1992) using two indicators of trade openness: trade intervention and openness in 30 developing countries, finds that openness indicator is associated positively; and trade

intervention indicator negatively with economic growth. Based on the results, he concludes that countries that follow trade openness grow faster, as compare to regimes that adopt autarky.

Further, in the case of 41 developing countries McNab & Moore (1998) find that a strong outward trade policy increases annual GDP growth (on average) over 3 per cent, while a moderately outward trade policy increases annual GDP growth over 1.6 per cent, and the Granger causality test indicates the bidirectional association between exports and economic growth. The comprehensive study on the link between trade policy and GDP growth in the case of 57 countries has been conducted by Wacziarg (2001). He develops an indicator of trade openness which takes the value of zero-one; if economy is closed the value is zero and one for open economy. He concludes positive link between trade openness and GDP growth.

Importantly, Yanikkaya (2003) uses two trade openness measures of first trade volumes (export, import, export plus import) as a percentage of GDP, and second of trade restrictiveness on foreign exchange of bilateral payments and current transactions in the case 120 countries and investigates the impact of trade openness on per capita income growth. His empirical results indicate that trade volume and trade restriction both are positively associated with economic growth. The positive association between trade openness and growth is concluded by Söderbom and Teal (2001) in the case 54 countries, Levine (2002) in the case of 23 developed countries, and Greenaway, Morgan, and Wright (2002) in the case of 73 countries.

On the other side, Sonmez and Sener (2009) find that human capital and trade openness affect growth in both developing and developed countries at different rates.

The empirical literature indicates that scholars also investigate the impact of interaction term of human capital and trade openness on economic growth. Recently Soukiazis and Antunes (2012) use the data of 14 EU countries, and conclude that human capital, external trade and their interaction terms significantly impact on economic growth.

The literature shows that various studies have investigated the link between trade and growth by using the time series country specific data. By using time series data, Ghatak, Milner, and Utkulu (1995) conclude a stable long run relationship between the trade liberalization, human capital, physical capital and economic growth in case of Turkey by using the cointegration method. The impact of trade openness and foreign technology on economic growth is not stable; whereas influence of education on economic growth is positive and stable in case of Argentina (Beck & Levine, 2004).

The trade openness and human capital accumulation stimulate long-run economic growth in the case of Taiwan (Chuang, 2000). This study uses cointegration and error correction model in case of Taiwan by using sample size 1952–1995. On the basis of empirical findings, this study suggests that human capital-based endogenous growth theory, and the export-led growth hypothesis is valid.

Marelli and Signorelli (2011) use the 2SLS, fixed effects, instrumental variable approach in the case of China and India to test the association between economic growth and trade openness. They show the positive impact of trade openness on economic growth. The trade openness positively impacts on economic growth in the case of Brazil, China, India, Russian Federation, and Turkey (Mercan, Gocer, Bulut, & Dam, 2013).

Some studies also provide the empirical evidences of the impact of trade liberalization on industrial sector growth. In the case of Bangladesh, Ahmed (2003) uses an endogenous growth model to examine the association between trade openness and industrial sector growth. He concludes a long run relationship among industrial production, investment and trade openness (export divided by GDP). In the same way the positive relationship between trade openness and industrial sector growth is found by Dutta and Ahmed (2004) in case of Pakistan. Chandran (2009) tests the relationship between the trade openness and manufacturing growth in Malaysia. He finds a positive link between trade openness and manufacturing growth. Furthermore, this study suggests that trade openness should be observed as the long term policy advantage for the sector to benefit. Topalova and Khandelwal (2011) conclude that trade liberalization enhances the firm's productivity, and thus productivity leads to the improvement in economic welfare of India.

In the case of 17 developing countries, Okuyan, Ozun, and Erbaykal (2012) explore the connection between trade openness and economic growth by using bounds testing co-integration approach and Toda and Yamamoto causality test. They conclude co-integration link in the six countries case and also positive long run coefficient of the trade openness. The results of causality test show that the evidence of causality finds in eight country case; however the way of causality from trade openness to economic growth in the case of four countries.

In contrast, few theoretical and empirical studies show that trade openness hinders economic growth in the developing countries. Majeed, Ahmed, and Butt (1998) investigate the impact of trade liberalization on total factor productivity (TFP) in the large scale manufacturing from 1971-2007 in the case of Pakistan. They employ the

ARDL approach of co-integration and find that trade liberalization is negatively related with the TFP. Kind (2002) merges the new trade theory and endogenous growth models, and argues that there are ambiguous effects of trade liberalization on economic growth among countries due to difference in size of their home markets. More importantly, the trade liberalization in low purchasing power countries can reduce the R&D incentive as compared to high purchasing power countries. The study also presents the case of imperfect international knowledge spillovers, and explains that full trade liberalization can negatively cause the rate of economic growth. Further, Dowrick and Golley (2004) state that since 1980s the advantages of trade openness have accumulated generally to the richer economies, by slight profits to the less developed economies.

Kim (2011) uses the data of 61 countries, and finds that greater trade openness is positively related to economic growth and real income in case of developed countries but it is negatively linked to economic growth in case of developing countries.

Eriş and Ulaşan (2013) explore the long run relationship between trade openness and economic growth over the sample period 1960–2000. This study also employs different indicators of trade openness, i.e. current openings, real openness, and the fraction of open years is constructed on the method which is suggested by Sachs and Warner (1995). They show that there is no indication that trade openness is strongly linked with economic growth in the long run. This study suggests that officials should not follow trade openness augmenting guidelines established only for growth objects.

Further, Menyah, Nazlioglu, and Wolde-Rufael (2014) conclude that financial development and trade liberalization do not seem to have made a significant impact on economic growth in the 21 African countries studied.

2.3.1 Literature Review: Trade and Growth in Pakistan

Based on causality test, Khan et al. (1995) find exports stimulate economic growth in Pakistan. Iqbal and Zahid (1998) show that trade openness causes economic growth. They use the exports and imports as a share of GDP as an indicator of trade openness. Din et al. (2003) conclude a positive relationship between trade openness and economic growth in the long run. They employ real exports and imports as indicator of trade openness.

In the long run trade openness and financial development reforms play a vital role in promoting economic growth (Khan and Qayyum, (2006). But, the short run response to real deposit rate and trade policy is low, suggesting the need for accelerating the reform process. Ellahi, Mehmood, Ahmad, and Khattak (2011) conclude a positive link between imports and exports and economic growth. Their sample period covers 1980 to 2009. Shahbaz (2012) suggests trade openness stimulates economic growth in the long term in Pakistan; lending support to the growth-led-trade hypothesis.

2.4 Literature Review: Private Savings

McKinnon (1973) and Shaw (1973) hypothesis posit that financial liberalization boosts savings, and improves efficiency. Financial liberalization is the opposite of financial repression. In the developing countries financial sector policies are regulated and fully controlled by the government authorities¹² and thus influence the performance

¹² The financial sector measures are as follows: controlled on deposit interest rates, controls over the exchange rate, restrict entry into the banking sector and high reserve requirements on commercial banks.

of financial markets. Later they tend to choke the movement of savings to appropriate financial sectors.

The consequence of financial liberalization on savings is theoretically ambiguous. Bandiera, Caprio, Honohan, and Schiantarelli (2000) show that impact of financial liberalization on savings includes both long term and short term effects. The financially liberalized structure may be categorized by improved savings prospects with higher interest on deposits. A broader range of savings means to develop the risk-return features, more banks and their branches, and other financial mediator. The bank lending rates will typically be higher for those borrowers who had privileged access in the restricted regime, but access to borrowing should be wider. For long term effect, household borrowings are not consumed. Thus easing of borrowing control could enhance the allocation of resources; this will enhance the income, and savings subsequently. A liberalized financial structure generates short run effects on economic growth and income. Regulation of domestic portfolio can lead to temporary deviations in the size of domestic saving; Liberalization of the international exchange market helps to bring sizeable capital inflows. If such inflows are not properly managed, a credit boom can have temporary impact on the size of saving. Thus, it is important to understand the impact of financial liberalization on saving which requires that the short and long run impacts be considered.

According to Maizels (1968) trade liberalization impacts savings behaviour through exports. He argues that changes in exports result in the changes in domestic savings for three reasons: (a) propensity to save is higher in the export sector than other sectors; (b) government savings depend on comprehensive tax collection through foreign trade; and

(c) a constant exports growth can increase marginal savings propensities in other sectors of the economy.

The results on the relationship between economic liberalization (trade and financial liberalization) are mixed. Some have examined the impact of financial liberalization on private savings indirectly via the link between financial liberalization indicators and consumption behavior of households. Browning and Lusardi (1996) report a positive impact of financial liberalization on current consumption growth. They argue that decrease in liquidity constraint following financial liberalization exerts a positive impact on consumption growth.

In contrast, Blanchard and Simon (2001) conclude in favor of ambiguity – financial liberalization and financial deepening leads to lower consumption volatility. Financial openness increases consumption volatility only after the former has achieved a specific threshold (Kose, Prasad, & Terrones, 2003). Moreover Bekaert et al. (2006) find equity market liberalization and capital account openness are related with the lower volatility of consumption growth. Ang (2011a) concludes that financial repression lower consumption volatility in India.¹³ The result of threshold effect shows that an adequate level of financial system liberalization is needed to reduce consumption volatility.

The studies use various proxies of financial development as determinant of savings. Harrigan (1995) and Johansson (1996) use the degree of monetization measured by (M_2/GDP) to capture the impact of financial development on savings. They find positive impact of financial market development on savings. By employing panel method to the Southeast Asian and the Latin America countries Thimann and Dayal-

¹³ The results of this study are remained robust after controlling for a wide range of macroeconomic shocks and variables.

Gulati (1997) find that financial deepening (M_2/GDP) positively impacts on private saving. Monetization and financial intermediation as a consequence of financial liberalization show a positive effect on saving rate in Malaysia, Philippines and Thailand (King & Levine, 1993). Similarly, Touny (2008) concludes positive impact of financial development ($M2/GNP$) and real interest on private saving in Egypt. In India, banking development positively affected private saving (Athukorala & Sen, 2004). Ang (2011c) shows that financial development and increase in bank density tend to enhance private savings in Malaysia. Larbi (2013) finds that financial development, per capita income and inflation have positive impact on private savings in Ghana.

Bandiera et al. (2000) present a comprehensive study on financial liberalization and private savings. They develop financial liberalization index (FLI) for Chile, Ghana, Indonesia, Korea, Malaysia, Mexico, Turkey, and Zimbabwe, but do not find support for the hypothesis that financial liberalization enhances private saving. In contrast Ozcan, Gunay, and Ertac (2003) suggest a positive impact of financial systems on private saving. The results corroborate Shrestha and Chowdhury (2007) in the case of Nepal.

Maizels (1968) uses data from 11 countries to examine whether or not income from exports or non-exports are central to gross domestic savings. The author finds positive effects of exports on savings rate. Lahiri (1988) explores the link between exports and savings. He uses the rate of growth in per capita income, dependence ratio, inflation and change in terms of trade as control variables. Results from 8 Asian countries offer mixed picture.

Ferrantino (1997) employs the two indicators of trade liberalization, exports and trade liberalization index as in Sachs and Warner (1995) to investigate their effect on savings. He finds that higher the share of trade in an economy (exports as a share of GDP) the higher is the level of savings in the developed economies. He does not find any association between trade liberalization index and savings. El-Seoud (2014) includes current account deficit, terms of trade, the average tariff rate, exchange rate and global financial crisis (dummy variable) in his private saving model. He finds that terms of trade and financial crisis have negative impact on private savings.

The subsequent part reviews the literature on the determinants of savings in Pakistan. Khan and Hasan (1998) evaluate the saving function in the case of Pakistan. They define that real income per capita growth positively and real deposit rate negatively links saving rate. By using the quarterly data Sajid and Sarfraz (2008) investigate causal association among savings and output. They show that unidirectional short term causality from GNP to national and domestic savings; and from GDP to public savings.

Munir, Sial, Sarwar, and Shaheen (2011) empirically examine the impact of remittances, and foreign direct investment on private savings. They find that remittances positively affects and foreign direct investment negatively links with private savings. The trade openness and money supply positively link with national savings are suggested by Ahmad and Mahmood (2013).¹⁴ Likewise, the positive relationship between trade openness and savings are confirmed by the study of Shaheen, Ali, Maryam, and Javed (2013).

¹⁴ The exchange rate and inflation rate both negatively relate with national saving.

2.5 Reviews of Literature: Private Investment

According to the neoclassical framework in the repressed financial systems, the firms do not get unlimited supply of credit. Due to this, the neoclassical framework assumes that perfectly competitive markets prevail. Stiglitz and Weiss (1981) state that developing countries frequently implement credit restraints, due to market imperfections such as unequal information. The imperfect credit markets can stop firms from requiring borrowing. This type of restraint will generally discourage the activity of investment projects. The empirical study of Ang and Mckibbin (2007) investigates the influence of financial deregulation on private investment in the case of Malaysia. They suggest that an appropriate mix of financial liberalization and repressions strategies are effective in stimulating private investment.

Neo-structuralists Van Wijnbergen (1982) and Taylor (1983) state that the lower taxation collection, and higher government borrowing can cause financial systems to reduce the credit flow to the private sector. Subsequently, the official financial systems focus on reserve requirements that show leakage in the intermediation process. The neo-structuralists claim that unorganized markets perform more efficiently in intermediating savers and investors. Stiglitz (1994a) claims that restraint interest rate may increase the higher financial savings in the financial structures with existence of good governance. He explains that depositor may observe the restrictions as a strategy of stability in financial system; the saver may be keen to keep their savings in the form of bank deposits. Thus, there is possibility of more resources for investment in the absence of perfect capital mobility.

Razin, Sadka, and Coury (2002) argue that openness may have non-traditional links with investment level and its cyclical behaviour. Discrete “jump” in the level of

investment in the stage of trade liberalization is plausible due to discrete change in the terms of trade which can considerably boost aggregate investment. However, trade openness could also lead to boom-bust cycles in investment or create multiple-equilibrium. Sizable gain from globalization can accrue from investment-boom equilibrium. Conversely, benefits, if any from investment-bust equilibrium is either small or negative. Openness can disrupt an economy.

Hellmann, Murdock, and Stiglitz (2000) use a dynamic model and show that capital desires can be recycled in a prudent method to overcome moral hazard problems. A combination of capital requirements and deposit rate controls are used to enhance the incentive for banks to invest in a Pareto-optimal manner. The line of direct credit commonly allows controlled distribution of credit to priority areas, e.g., agriculture and industry. They point out that without such interferences, banks normally will not supply funds of activities with low yields.¹⁵

Greene and Villanueva (1991) use 1975-87 data to examine the influence of macroeconomic variables on private investment in 23 developing countries and find that real growth of GDP, level of GDP per capita, and the rate of public sector investment are positively related to private investment; but real interest rates, domestic inflation, debt-service ratio, and ratio of debt to GDP affect private investment negatively. Servén (2003) examines the link between real-exchange-rate uncertainty and private investment in 61 developing nations. He finds negative effect of real-exchange-rate uncertainty on private investment. Private investment expenditure is positively related to domestic credit and net capital inflow to the private sector in the developing countries (Zebib & Muoghalu, 1997).

¹⁵ McKinnon-Shaw thesis supports the elimination of directed credit programs that shift investment projects with possibly higher returns.

Henry (2000) includes stock market liberalization¹⁶ in a private investment model and finds that the former causes private investment booms in 11 developing countries. In the case of developing countries, Salahuddin, Islam, and Salim (2009) find positive impact of growth rate of per capita real GDP, domestic savings, trade openness, foreign aid, private sector credit and institutional development on private investment; but negative effect of foreign debt servicing on private investment. However, he finds no significant effect of inflation rate, lending rate, human capital and population growth on investment. He highlights the importance of efficient allocation of local resources; reduce reliance on foreign debt; increase trade openness; and institutional development and higher per capita real GDP growth to boost private/gross investment.

Using data from developing countries, Spatafora and Luca (2012) find that private capital inflows and domestic credit positively causes private investment. The global price of risk and domestic borrowing costs, increase through their impact on net capital inflows and domestic credit. However, neither more domestic credit nor superior institutional quality increases the degree to which capital inflows relate to domestic investment. In the transition economies, the impact of economic freedom, economic growth, saving, and financial development are positive on private investment (Dang, 2012).

Jenkins (1998) estimates private investment for Zimbabwe, and finds that the impact of gross profits is positive, but that of external debt¹⁷ is negative on private capital formation. Achy (2001) documents that financial development indicators and financial liberalization index are negatively related with private investment in the five MENA countries.

¹⁶ Stock market liberalization measured by dummy variable equals “1” for liberalization period.

¹⁷ The increase in external debt enhances uncertainty, so negative impact on private investment.

Akkina and Celebi (2002) examine the impacts of financial repression and financial liberalization on private fixed investment in Turkey. They find that the financial repression and liberalisation programs do not show any noticeable positive effects on private investment, despite implementation of liberalization measures in 1983. Acosta and Loza (2005) examine the impact of the short and long run factors affecting private investment in Argentina. They conclude that exchange rate and trade liberalization are determinants of short term investment. In the long term the capital accumulation, fiscal sustainability, financial development and credit market are important determinants of private investment. They establish positive impacts of financial liberalization on domestic saving, private investment and per capita GDP growth and also negative impacts on public investment. The results indicate that financial liberalization is a cause of substituting investment from public to private venues, further enhancing economic growth.

The positive interest rate is helpful for generating higher saving and investment in Nepal (Shrestha & Chowdhury, 2007). Moreover, in the case of Thailand, Jongwanich and Kohpaiboon (2008) conclude that in the short run output growth, real private credit, and the existences of spare capacity are the main determinants of private investment. In addition, in the long run, output growth, real exchange rate (RER) and investment costs determine private investment. The export-led growth phenomenon shows the positive and statistically significant coefficient of RER. The government investment also can endorse long-term private investment, but it is partially influenced as compared to the other variables.

In case of India and Malaysia, Ang (2009) shows that credit control policy negatively causes private capital formation in both countries. The interest rate control

positively impacts on private investment in both countries. However, high reserve and liquidity requirements negatively affect private investment in India, and positively in Malaysia. Spatafora and Luca (2012) examine the effects of trade liberalization on private investment in Fiji. They conclude a positive association.

Among the studies relating to investment in Pakistan are a few. For example, Sakr (1993) shows that private investment positively correlates with GDP growth; credit extended to the private sector, and government investment. The private sector output, net capital inflows into the private sector, the total sources of funds, change in bank credit and past capital stock are positively linked with private investment rates in Pakistan (Majeed & Khan, 2008).

Moreover, the indirect tax, debt servicing and interest rate are negatively linked with private investment. Also the GDP, domestic savings, subsidies, and government development expenditures (PSDP) are positively related to private investment (Haroon & Nasr, 2011). Saghir and Khan (2012) examine the determinants of public and private investment. They find that government investment negatively affects private investment, and aid positively relates to government investment in the long run.

2.6 Conclusion

There is a large body of cross-country empirical evidence on finance liberalization-growth and trade-growth nexus through channels of savings and investment. Several studies have tried to test the link between finance liberalization-growth and trade-growth; the criteria of the econometric methods employed have often come under question highlighting their limitations. The pure cross-country regressions usually use observations for each country by averaging out the variables. The average data tend to

mask the important aspect of data and the trajectory of economic growth for an economy.

According to Ang (2008), pure cross-country studies with the static assumption of the estimation models reflect a one-period relative static structure. So, the long-run economic performance is ungrounded in the findings of cross-country studies (Atje & Jovanovic, 1993; Goldsmith, 1969; Levine & Zervos, 1998; Wacziarg, 2001; Yanikkaya, 2003). The analyses of these studies are omitting levels of association in the specification as per Ericsson et al. (2001). Thus, the model predicts a temporary effect.

In recent years, the empirical research flourishes due to the availability of data that compiled by the World Bank, International Monetary Fund (IMF), Asian Development Bank (ADB) and etc. These datasets cover almost complete world data, and various studies have performed empirical investigation in the case of country analysis. However, according to Ang (2008), lack of high quality data is a limitation for the reliability of the results of comparative studies. Often, panel data studies which use combined level data are unable to cover the complication of the histories of financial and trade sectors of each single country. In view of the limitation, several scholars have recommended country specific and comprehensive time-series studies (Ang, 2008; Demetriades & Luintel, 1997; Ericsson et al., 2001; Wacziarg, 2001).

The review of literature in section 2.1.4 and 2.2 in the case of Pakistan studies indicate that researchers use different proxy of financial and trade liberalization in their empirical studies Shahbaz et al. (2008) examine relationship between finance-growth and Shahbaz et.al. (2007), Tahir (2008), Khan and Qayyum (2006), Shaheen et. al. (2011), and Shahbaz and Mohammad (2014) investigate link between trade-growth.

These studies ignore the renowned databases of de jure and de facto of trade and financial liberalization, i.e. Abiad et al. (2010), Chinn and Ito (2006), Lane and Milesi-Ferretti (2007), and Wacziarg and Welch (2008).

Overall, most of the empirical studies and particularly in the case of Pakistan, the relationship between financial/trade liberalization with economic growth is highly focused. But the impacts of financial and trade liberalization on growth channels i.e. saving and investment are less concentrated. The studies like Khan and Hasan (1998) and Sajid and Sarfraz (2008) consider the real interest rate and real output as main determinants of saving. Furthermore, remittances and foreign direct investment are included in private saving model by Munir et al. (2011). Ahmad and Mahmood (2013) and Shaheen et al. (2013) consist of trade openness in the saving model.

On the other hand, studies relating to investment determinants in case of Pakistan also ignore the de jure and de facto of financial and trade liberalization on private investment. Sakr (1993) uses GDP growth; credit extended to the private sector, and government investment as an indicator of private investment. Majeed & Khan (2008) include the banking sector development and financial openness indicators in the private investment model. These indicators are as follows: net capital inflows into the private sector, the total sources of funds and change in bank credit. Moreover, Haroon & Nasr (2011) use indirect tax, debt servicing and interest rate, GDP, domestic savings, subsidies, and government development expenditures as an indicator of private investment.

There is ample empirical studies (cross-country, panel and time series) but the evidence points to a unclear impact of financial and trade liberalization on economic

growth and also on economic growth channels of savings and investment. This chapter reviews these empirical findings. Furthermore, results of these studies indicate that the impacts of financial and trade liberalization in the process of economic growth is different in the developed and developing countries due to the differences in financial and trade liberalization experiences and histories of each specific country. Thus, this thesis offers a country-specific in-depth case study to scrutinize the subject at hand.

CHAPTER 3

THEORETICAL FRAMEWORK, METHODOLOGY, AND THE DATA

In this chapter, this study discusses the theoretical framework vis-a-vis the model, data sources and estimation strategy. Section 3.1 describes the theory of financial liberalization in the context of economic growth. Section 3.2 elucidates the theory of trade liberalization and economic growth, section 3.3 develops the models in line with the underlying theories. In section 3.4 we explicate the econometric framework to obtain the results. Finally, section 3.5 describes the sources of data and definition of variables.

3.1 Financial Liberalization and Economic Growth Theory

Schumpeter (1911) confirms that financial development channels play key role in channeling a country's savings to the most innovating entrepreneurs. Later Gerschenkron (1962) points out that a country's financial organization helps to direct financial capital to the most advanced technological sectors. Goldsmith (1969) and Hicks (1969) also highlight the importance of finance in economic growth story. They argue that financial liberalization promotes financial development and expedites economic growth. Thus, better functioning banks and stock markets help to introduce a product and services that positively impact economic growth through saving–investment channels.

Mckinnon (1973) and Shaw (1973) also point to the link between financial development through financial liberalization for economic growth, adding that government control of banking system such as a ceiling on interest rates, higher reserve

requirements, and other forms of direct regulation on credit hamper financial development and adversely affect the output.

Levine (1997) and later Ang (2008) identify five areas where financial liberalization can be effective in achieving the desired goal. First, efficient financial system increases the allocation of local resources. When it is liberal, it allows lower rates at easier terms; assess investment projects; encourages entrepreneurs to expand their business (Tobin & Brainard, 1963). Financial intermediaries may decrease the costs of management, risk evaluation and the examination of investment opportunities. They can help the allocation of efficient resources to the high yield sectors (Boyd & Prescott, 1986; Greenwood & Jovanovic, 1990).¹⁸ Improved investment quality stimulates economic growth. Second, Allen (1990), Bhattacharya and Pfleiderer (1985) and Ramakrishnan and Thakor (1984) show that financial intermediaries obtain information on firms and sell them to savers. A good financial system helps to mobilize aggregate saving by households and makes it easily available to the investors.

Third, well-functioning financial system with information of financial contracts, stock markets and intermediaries permits investors to diversify their trading, hedging, and risk sharing for efficient allocation of resources and growth. Gurley and Shaw (1955), Patrick (1966), and Obstfeld (1992) affirm that it is easier for individuals in efficient financial markets to diversify risk and shift portfolio towards projects with higher anticipated returns.

Fourth, reduced business cost can allow specialization and technological innovation (Smith, 1776). The fall in business cost is not a one-time story, rather may happen

¹⁸ The role of financial intermediaries is vital. Without this the fixed cost for evaluation by firms and managers would be prohibitively large.

during financial innovation. According to Gurley and Shaw (1960) financial intermediaries help to convert primary securities into indirect securities. During the process financial intermediaries also earn some profit from economies of scale in lending and borrowing.

Last, efficient banking system and well-functioning corporate governance are central to economic growth (Smith, 1776; Wright, 2002). Diamond (1984) shows that costs may fall from sound financial management and managers' performance through company's assets based on stock prices. They lead to better corporate controls, and could have a positive impact on economic growth.

The effects of global or domestic financial liberalization on growth are similar (Eichengreen, 2001). In terms of the theory of capital account liberalization, the effect on economic growth is channelled through liberalization of capital controls which permits domestic as well as foreign investors to engage in portfolio diversification, and the financial openness which lowers the cost of equity capital as a decline in the anticipated returns to compensate risk as well as in agency costs (Henry, 2000; Stulz, 1999). The liberalization of capital account generally enhances the effectiveness of the financial system through weeding out inefficient institutions and generates more pressure for a further liberalization of the system (Claessens, Demirgüç-Kunt, & Huizinga, 2001; Stiglitz, 2000; Stulz, 1999). Such liberalization of capital account could eliminate information asymmetry, reduce hostile selection and moral hazard, and enhance credit.

Henry (2007) argues that capital account liberalization affects economic growth (or other channels) by assisting it in a well-organized international allocation of resources.

During liberalization the resources move from capital abundant developed economies to the capital-scarce developing countries. It reduces the cost of capital, boosts investment, stimulates economic growth and improves standard of living permanently (Fischer, 2003; Summers, 2000).

The capital account liberalization can create an opportunity to maximize the return on saving, borrowing at the lowest possible rates, and to diversify the country-specific risk (Edison, Klein, Ricci, & Sløk, 2004). Klein and Olivei (2008) point out that foreign bank open branches adding to the total banks in the nation. Efficiency and scope of financial sector increase because foreign banks introduce new financial innovation. These gain stimulate financial intermediaries to achieve significant economies of scale and scope.

Neo-Keynesian and neo-Structuralists argue that financial liberalization is negatively linked to economic growth, pointing out that financial liberalization measures increase interest rate and manufacturing cost and thus impede economic growth; in addition to increasing inflation in the economy (Buffie, 1984; Van Wijnbergen, 1982). They criticize McKinnon–Shaw framework and claim that by curbing non-institutional markets, it is plausible to gain more efficiently in the intermediation between savers and investors in the developing countries. They add that households have three types of assets, gold, bank deposits, and curb market loans, acting as substitutes. If the bank deposit rate increases then households substitute informal market loans to bank deposits, causing a decrease in the supply of the loanable funds. This decreases investment and lowers economic growth. The neo-structuralists position is: financial liberalization system is of questionable validity in boosting economic growth in the presence of a well-organized curb markets.

Singh (1997) points out that financial liberalization in terms of expansion of stock markets in developed countries hampers development; due to the lack of transparency, informational problem and internationally immature. Some studies also put argument that the financial liberalizations are caused of the financial crisis. Demirguc-Kunt and Enrica (2001) explain that the banking crises may be greater in the financially liberalized system since the banks and other intermediaries have extra autonomy to take on risk and financial liberalization is an important aspect that leading to banking sector fragility. According to Arphasil (2001), main cause of the East Asian Crisis (1997-98) is capital account liberalization and interest rate deregulation, as financial liberalization leads to a credit boom, frequently short runs borrowing from abroad. Such a boom leads to unbalanced foundation eventually tends to financial fragility or crises.

Wade (2001) claims that, it is hazardous to capital account liberalization when the banks have the slight capability of international markets and non-banks also borrow abroad. It is doubling dangerous when the financial sector is grounded on bank borrowing than equity financed and when exchange rate pegged. Further, the financial openness can lead country's vulnerability to crisis (Kaminsky & Schmukler, 2003).

Minsky (1975) suggests the intervention of central banks and more government spending in order to avoid the cyclical fluctuations in the economy. Further, government intervention such as providing a credit subsidy and a creditor for certain borrowers by Mankiw (1986).¹⁹ The higher frequency of financial crises is associated with the liberalized economies (Stiglitz, 2000).

¹⁹ This government intervention will increase the efficiency of credit allocation.

Thus, review of literature indicates that financial liberalization affects economic growth by enhancing allocation of local resources. This is done by mobilizing savings, efficient risk sharing, reducing the cost of capital and promoting financial innovation. Further, capital account liberalization affects economic growth through international allocation of resources. On the other hand, some of the studies also put argument against financial liberalization in developing countries. They explain that financial liberalization increases interest rate, and thus further increases the cost of doing business. This in turn reduces economic growth.

3.2 Trade Liberalization and Economic Growth Theory

Smith (1776) points out that trade enhances welfare and economic growth from surplus production, division of labor and the level of productivity. Ricardo (1817) argues that countries gain welfare by specializing in the production of those goods in which they have comparative advantages.²⁰ The static gains based on comparative advantage, i.e. reallocation of resources from one part to another adds to increased specialization. These are trade creation gains which arise in a free trade area; however the gains are once-for-all. The static gains also finish after removing the tariff walls; hence no additional reallocation takes place. In contrast, the dynamic gains from trade liberalization never end, which often shift the entire production possibility frontier of countries outwards, if trade leads to more investment and increases productivity growth. This happens due to economies of scale, learning by doing access to new knowledge from abroad.

The classical school considers resource allocation as static gains of trade liberalization (Dornbusch, 1992). A price-taking developing country will gain in the

²⁰ This theory is based on two assumptions, perfect competition and the full employment of resources.

perfect competition by eliminating tariffs. The consumers are well off if their income and resources are used more efficiently. They also may import at a lower price. The trade liberalized countries can import machines from abroad that are not locally produced, thus increase the productivity in leading industries (Andersen & Babula, 2008). In that case the demand of skill labor force increases in the leading industries (Rivera-Batiz & Romer, 1991).

The new trade theories highlight the role of trade gains in term of efficiency through economies of scale (Helpman & Krugman, 1985). Trade restricted market economies are narrow and face a lack of rivals from other countries of the world, which raises oligopoly and inefficiency. The gains of free trade also come from economies of scale that arise in big markets (Dornbusch, 1992). Sprout and Weaver (1993) explain that trade liberalization by exports promotion contributes to economic growth, such as the free trade gains are generating beneficial externalities, allowing economies of scale to accrue, alleviating foreign exchange constraints and fostering competitive pressures.

Arrow (1962) shows that production experience improves productivity, and is a way to technological knowledge accumulation, thereby with the accumulation of production experience leads to higher efficiency of production. Romer (1986) points out that learning-by-doing takes place in proportion with capital accumulation. Capital accumulation of each firm is added to a social knowledge pool, from which other firms in the same economy can draw. These are the diminishing return to capital of knowledge that have spilled over influences among firms. Thus, any enhancement in the product of capital (average) from efficiency gains due to trade liberalization may stimulate the per capita income.

Hence, scholastic work indicates that trade liberalization results in two gains namely static gain and dynamic gain. The former can be achieved by specializing in the production of those goods in which country has comparative advantage. The latter can be achieved by reducing tariff walls. This can lead to increase in the productivity through economies of scale and learning by doing.

3.3 The Models used for Estimation

3.3.1 Liberalization and Economic Growth

This section of thesis sets the systematic background and empirical modeling strategy. To demonstrate, let us consider a simple production function²¹ where the total output (Y_t) produced at time t is given by

$$Y_t = A_t^\alpha K_t^\beta L_t^\delta \quad (3.1)$$

Where, A_t represents capital accumulation and total factor productivity,²² K_t physical capital and L_t is the labor force. There are constant returns to scale in K_t and L_t holding A_t unchanged, and increasing returns to A_t , K_t and L_t . In per capita terms, Eq. 3.1 can be rewritten as

$$y_t = A_t^\alpha k_t^\beta, \quad \alpha > 1, 0 < \beta < 1$$

Where $y_t = Y_t/L_t$ and $k_t = K_t/L_t$. Taking logs and differentiating, the growth rate of output per worker in period t can be written as follows:

$$\frac{\dot{y}_t}{y_t} = \alpha \frac{\dot{A}_t}{A_t} + \beta \frac{\dot{k}_t}{k_t}$$

Along the balanced growth path, per worker output growth rate is given by:

²¹ The Mckinnon (1973) and Shaw (1973) provide the models of financial liberalization. This study considers the both financial and trade liberalization, so uses the simple production function instead of Mckinnon and Shaw models.

²² The two major sources that contribute to economic growth i.e. accumulation of factors of production and productivity growth are postulated by Solow (1956) and Swan (1956) neoclassical growth model.

$$g_y = \frac{\alpha}{1-\alpha} g_A$$

It is clear that capital accumulation and total factor productivity are important drivers for long run economic growth. The contemporary growth theories suggest that financial and trade liberalization will influence total factor productivity and capital accumulation, and thus on economic growth.

Gurley and Shaw (1955) argue that capital accumulation channel, often known as the quantitative channel, is based on the ‘debt-accumulation’ hypothesis – financial sector’s ability to mobilize saving and overcome problem of efficient fund distribution. Mobilized saving is channeled to productive investment projects, thus boost capital accumulation and economic growth.

The qualitative channel is total factor productivity (TFP) with a focus on the role of innovative financial technologies to reduce informational asymmetries that hamper the organized distribution of resources and the monitoring of investment projects. Tobin and Brainard (1963) show that financial liberalization offers funds at lower rates that encourage entrepreneurs to enlarge their business and evaluate their investment project; thereby the efficient investment enhances productivity. Greenwood and Jovanovic (1990) show that efficient financial system contributes to the selection of good investment projects. Through risk evaluation of various investment opportunities, the choice of the best favourable investment projects can improve the quality of investment, decrease business failures, and increase productivity.

The theories of McKinnon-Shaw challenge the financial repression philosophy and provide a new model of financial liberalization. Their theories suggest that distortions in the financial sectors, such as loans issued at an artificially low interest rate, directed

credit allocation and high reserve requirements, would reduce saving, impede capital accumulation and stop efficient resource allocation or quantity and quality of investment. The removal of these restrictions would considerably deepen financial systems and thus expedite economic growth.

Trade liberalization impacts economic growth by capital accumulation and productivity growth.²³ The trade liberalization increases international flows of capital and enhances the speed at which physical capital and human capital are accumulated locally.

Trade liberalization may stimulate productivity growth through efficient and faster technological progress. Andersen and Babula (2008) elucidate that trade liberalization can promote growth rate of productivity through three channels: it provides access to import intermediate inputs or, implicitly, technologies; expands the market size for new products; and enables knowledge diffusion.

First, the trade liberalized countries can import raw material/machines from abroad, and thus boost up productivity of manufacturing sector. Although, the increase in productivity levels of the manufacturing sector is permanent, but it does not transform the innovation of new products. The intermediate inputs can permanently change growth if imports are used for R&D, leading to innovation and thus economic growth.

Second, the expanded market size for new product increases the anticipated profit from R&D that motivates research and can lead to further invention and economic

²³ Klenow and Rodriguez-Clare (1997); and Hall and Jones (1999) find that capital accumulation is not the primary source of economic growth. Trade liberalization effects on economic growth mainly through productivity channel (Frankel & Romer, 1999).

growth. The last channel through which trade liberalization can impact productivity growth rate is that the foreign diffusion of general knowledge. If trade enables the diffusion of knowledge, this study can expect a rise in the productivity in the research sector, more innovation, and economic growth.

Based on the above discussion, A_t contains the impact of financial and trade liberalization on economic growth. Decomposing the A_t , this study rewrites equation 3.1 as follows for estimation purpose:

$$\ln(Y_t) = \theta + \beta \ln(K_t) + \delta \ln(L_t) + \alpha \ln(LI_t) + \mu_t \quad (3.2)$$

Where Y_t, L_t, K_t and LI_t respectively refers to the real GDP, labor force, physical capital, and liberalization indicators (i.e. financial, capital account and trade liberalization indices). The \ln refers to natural logarithms; and θ, β, δ and α represent parameters to be estimated. The μ_t is an error term. The growth in real GDP is employed as a proxy of economic growth. The physical capital is the real per capita capital stock. Following previous studies, this study uses skilled labor force instead of total labor force, (Chuang, 2000; Edison et al., 2004; Rodrik, 1998; Romer, 1989; Sonmez & Sener, 2009; Villanueva, 1994). This study uses secondary-school enrollment as a proxy for the labor force.

3.3.2 Liberalization and Private Saving

New theories of consumption and its link to income, and the parallel link with savings and income, are based on models of intertemporal optimization by households (Gersovitz, 1988). Friedman (1957) permanent income hypothesis, later recasted by Modigliani (1966) in terms of the life-cycle hypotheses (LCH), provides the basis of

private saving. It can accommodate various aspects of liberalization, financial and trade. Deaton (2005) and Jappelli (2005) show that LCH is flexible to include additional features, i.e. liberalization indicators without having to change its basic structure.

According to LCM, the main objective of saving is to accumulate financial assets for old age/ retirement. The individuals tend to level out consumption over their life span by saving extra during good times and less during the bad times (Modigliani, 1986). The LCM is founded on the assumption that during various periods, the utility function stays homogenous (Modigliani, 1986).²⁴

These two assumptions imply that in any year t , total consumption (C_t^T) of an individual at age T will be proportional to the current value of total income (Γ_t^T) accumulated over his lifespan, denoted as:

$$C_t^T = \theta_t^T \Gamma_t^T \quad (3.3)$$

In equation 3.3, θ_t^T represents proportional factor, which is subjected to the utility function, the assets rate of return and the present age of the individual. The current worth of assets at age T is the sum of current income (y_t^T), plus individual income he/she expects to receive over his remaining life (eY_t^T), and his net value passed over from the preceding dated, a_{t-1}^T .

$$\Gamma_t^T = y_t^T \sum_{i=t+1}^{t+(N-T)} \frac{ey_i^T}{(1+r)^{i-t}} + a_{t-1}^T \quad (3.4)$$

²⁴ The individual neither expects to receive nor desires to leave any inheritance.

Where, N and r respectively, denote old/retirement age and the rate of return on assets. The average annual expected income can be expressed as:

$$ey_t^T = \frac{1}{N-T} \left(\sum_{i=t+1}^{t+(N-T)} \frac{ey_i^T}{(1+r)^{i-t}} \right) \quad (3.5)$$

Substituting equation (3.3) into equation (3.5), this study obtains:

$$c_t^T = \partial_t^T y_t^T + \partial_t^T (N-T) ey_t^T + \partial_t^T a_{t-1}^T \quad (3.6)$$

Assuming that proportional factor (∂_t^T) remains the same for all individuals in an age group T , this study rewrites equation (3.6) aggregating over an age group as:

$$C_t = \partial_t^T Y_t^T + \partial_t^T (N-T) EY_t^T + \partial_t^T A_{t-1}^T \quad (3.7)$$

In equation 3.7 C_t , Y_t , EY_t^T and A_{t-1}^T are respectively aggregates for the age group T of c_t^T , y_t^T , ey_t^T and a_{t-1}^T . Finally, combining all age groups, the community consumption function is:

$$C_t = \Phi_1 Y_t + \Phi_2 EY_t + \Phi_3 A_{t-1} \quad (3.8)$$

In equation 3.8, C_t , Y_t , EY_t and A_{t-1} represent the sum that corresponds to C_t^T , Y_t^T , EY_t^T and A_{t-1}^T general age groups T . Since anticipated income is not directly observable, this study uses $EY_t = \beta Y_t$ and $\beta \approx 1$ so that:

$$C_t = \Phi' Y_t + \Phi_3 A_{t-1} \quad (3.9)$$

In equation 3.9 $\Phi' = \Phi_1 + \beta\Phi_2 \approx \Phi_1 + \Phi_2$. The saving function is consequently presented as:

$$S_t = (1 - \Phi') Y_t - \Phi_3 A_{t-1} \quad (3.10)$$

In terms of the above, the important determinants of saving are the growth rate of per capita income (Modigliani, 1986), and real interest rates. The impact of real interest rates on saving can go either way, depending on the relative size of the substitution and income effects.²⁵ As assumed by Ogaki, Ostry, and Reinhart (1996), variation in real interest rates may not affect saving if household income levels in developing countries are at subsistence level, making the influence theoretically less certain.

One feature of the LCH is the role of age structure in saving behavior in Pakistan. There is low saving when the dependency rate of the young and the elderly rises. The nations in demographic transition thus, may experience major changes in their saving behavior over time.

Government may finance fiscal needs by bond issue, but has to raise taxes in the future to pay back the principal and interest. The households may have to save more in order to pay the future higher taxes, although having more disposable income in the present –the Ricardian equivalence. The overlapping generation model predicts that rise in government debt does not cause to an increase in household wealth, only shifts the burden to another generation. So, in terms of this hypothesis, rise in the savings of

²⁵ The higher interest rates may induce more saving due to the higher price of present consumption relative to the future (substitution effects), but it may also reduce saving if the individual is a net lender (income effects).

government will have no impact on total saving, it will be matched by an equal decrease in private saving.²⁶

Ang (2011c) and Ang and Sen (2011) include a financial liberalization in the private saving model by extending the life cycle theory.²⁷ Shaw (1973) claims that the presence of a well-organized and liberalized financial system can motivate higher saving; and effective financial system decreases information costs and risk, thus increases net real returns to savers. The basic aim of financial sector liberalization is to improve efficiency in financial system to help to achieve a high level of savings, but the impact of liberalization of financial system may ease the constraints of borrowing, cannot be determined a priori, because the borrowing constraints may reduce the motivation to save (Bandiera et al., 2000).

Capital account liberalization may improve efficiency of the domestic financial system through international competition due to the introduction of international standards, as well as the possible risk of “flight to quality” from the foreign intermediaries (Klein & Olivei, 2008). The branches of foreign banks can increase the total size of the national banking system, and introduce financial innovation that widens the scope of financial services. These efficiencies and scope gains of the financial sector may stimulate the domestic and foreign savings. The domestic savings may increase due to wider bank services and foreign saving may increase through endorsing capital inflows.

²⁶ If government runs a budget deficit, the private sector will respond by saving extra to balance this unwanted influence on the future generations.

²⁷ They point out that the impact of financial liberalization on private savings has received little attention in the context of developing countries. The literature on the determinants of saving has been subject of cross-country and panel data studies. Further, Ang and Mckibbin (2007) claim that the findings of these studies are unreliable because it fails to capture and consider the aspects of economic history and financial liberalization and environment of developing countries.

The trade liberalization impacts economic growth indirectly through the determinants of growth, i.e., investment (Ferrantino, 1997), what Barro and Sala-i-Martin (1990) calls the engine of economic growth.²⁸ Investment includes saving, used in current production (and imports) for except current consumption (and exports). Trade liberalization affects savings through exports, and the propensity to save is higher in the export sector relative to other sectors (Maizels, 1968).

Based on the above theoretical discussion, this study writes the private saving function as follows:

$$RPS = f(PPI, RDR, OAD, PS, LI) \quad (3.11)$$

For estimation, the general function in equation 3.11 is rewritten as follows:

$$\begin{aligned} \ln(RPS) = & \beta_0 + \beta_1 \ln(PPI) + \beta_2(RDR) + \beta_3 \ln(OAD) + \beta_4 \ln(PS) \\ & + \beta_4 \ln(LI) + v_i \end{aligned} \quad (3.12)$$

Where, \ln refers to natural logarithms, and β_s to the coefficients of respective variables. The RPS, PPI, RDR, OAD, PS and LI are the real private savings, per capita real private income, real deposit rate, old age dependency, public saving and liberalization indicators (i.e. financial liberalization index, capital account liberalization index, and trade liberalization indicators), respectively. The v_i is the error term.

3.3.3 Liberalization and Private Investment

The dynamics of private investment are based on the neo-classical model of Jorgenson (1967, 1971). This study considers relevant essential features of developing

²⁸ In empirical work of Mason (1988) suggests that savings are positively correlated with investment. Further, Levine and Renelt (1992) conclude that a higher share of investment (i.e., gross fixed capital formation) in GDP involves a higher rate of GDP growth rate.

countries. In the neoclassical investment model, firms' maximize utility of a consumption stream emphasizing on the production function which connects the flow of output to the flows of labour and capital services (Jorgenson, 1967). Through the acquisition of investment goods, firms supply capital services. The capital demand is consequently a derived demand. In the Cobb-Douglas production function (equation 3.13) the anticipated capital stock can be positively related to output planned/level of production (Y^e) and negatively to the anticipated rental cost of capital (C) as follows:

$$K = \alpha Y_t^e C_t^{-1} \quad (3.13)$$

Where, α is the distribution parameter. There are three components that determine the cost of capital, (equation 3.13). They are interest rate, the firm's received opportunity cost if it trades the capital goods, and capitalizes the earnings $R P k_t$; r and $P k_t$ respectively indicate the nominal bank lending rate, and the price of capital goods. The depreciation of the capital goods is the second component, which is measured $\delta P k_t$ where, δ is the rate of depreciation. The gain/loss from anticipated deviations in price of capital is given by:

$$\Delta P k_t = \pi_t^e P k_t$$

Where π_t^e is the anticipated fluctuation in price of capital goods. These are deflated by general price (P) level in order to convert in real terms.

$$C_t = P k_t \frac{(r + \delta + \pi_t^e)}{P} \quad (3.14)$$

In equation 3.15 the gross private investment is represented by:

$$I_{i,t} = \Delta K_{i,t} + \delta K_{i,t-1} \quad (3.15)$$

Equation 3.15 indicates that the gross private investment is collection of net and replacement components. The actual capital stock reaches the anticipated level in the short term. Thus, equation (3.15) is a function of lagged investment and adjustment coefficient as in equation (3.16).

$$I_{i,t} = [1 - (1 - \delta)L]\beta K_{i,t}^* + (1 - \beta)I_{i,t-1} \quad (3.16)$$

In equation 3.16 β represents the adjustment coefficient, and L refers to the lag operator, (e.g. $LK_{i,t}^* = K_{i,t-1}^*$)

In the long run firms invest to get their anticipated capital stock to the anticipated investment, as specified by a distributed lag of the changes in desired capital stock as follows:

$$I_t = \sum_{j=0}^J \beta_j \Delta K_{t-j}^* \quad (3.17)$$

Substituting the desired capital stock from equation (3.13) into equation (3.17), this study finds that private investment is a function of cost of capital, output, and adjustment coefficient;

$$I_t = \sum_{j=0}^J \beta_j \Delta (\alpha Y_{t-j}^e C_{t-j}^{-1}) \quad (3.18)$$

According to the theoretical literature in the section 3.1, β_j is generally a function of economic aspects that influence the capacity of private stockholders to attain the anticipated level of investment.

Jorgenson investment model considers a perfect financial market where unrestricted supply of capital is available for firms. Under this outline, the capital user cost is a vital determinant of private investment. Within this context, attention has usually been focused on the implications of investment tax credits and depreciation rules on the cost of capital.

On the other hand, the firms are incapable to access unlimited supply of credit in financially repressed systems, while the neoclassical model assumes competitive market. Stiglitz and Weiss (1981) point to the credit restraints due to market imperfections (i.e., asymmetric information and agency problems) in developing countries. Thus, credit restraints discourage investment projects, in general.

In the seminal work on financial liberalization, McKinnon (1973) and Shaw (1973) explain the problem of financial repression in the developing countries and offer a new model in the policy of financial liberalization. They define that financial repressionist policies were the main reasons of low investment and poor economic performance of developing countries in the 1960s. In the controlled financial market, the funds are allocated on the willingness of policy makers, so both quantitative and qualitative investment suffer. Their theories suggest that loan issued at artificially low interest rate, directed credit programs, and high reserve requirements are major distortions in the financial systems. These can prevent efficient resource allocation by reducing savings and capital accumulation. Consequently, they support financial liberalization policies, which refer to the process of elimination of financial repression in order to motivate private investment and economic growth.

In contrast, the neo-structuralists suggest that it is not necessary for financial liberalization to lead investment because the formal financial systems are subject to reserve requirements, which contain a leakage in the intermediation process, the neo-structuralists claim that unorganized markets do better in intermediating process between savers and investors (Van Wijnbergen, 1982 and Taylor, 1983). The control on interest rate may increase savings in the existence of supremacy of financial systems (Stiglitz, 1994b).

The neo-structuralists agree with McKinnon–Shaw school of thought on the reserve requirements because it may cause leakage in the intermediation process (Fry, 1988). On the other hand, Courakis (1984) shows that higher reserve requirements increase deposit rate and thus the size of loanable funds, under the assumption that the demand for loanable funds is not perfectly inelastic. Schwarz (1992) argues that directed credit programs boost investment in the targeted sectors and thus adds to gains.

Further, the financial openness may assist the domestic financial system, thus more efficient allocation of capital, more investment and thus to higher economic growth in the country (Levine, 2001).

Lahiri (2001) argues that capital mobility can be destabilizing in the sense that it increases the chance of multiple equilibrium. Bhagwati (1998), Rodrik (1998), and Stiglitz (2000) show that financial openness is not necessarily welfare augmenting in the presence of distortions e.g., trade barriers, weak institutions, and/or macroeconomic imbalances; or information asymmetries. Thus, it appears that the impact of financial sector policies on private investment is theoretically ambiguous.

Baldwin (1989) explores the effects of trade policy on capital accumulation (human, knowledge, and physical). He suggests that medium-run growth or accumulation works through savings and investment. Trade liberalization increases efficiency of resource allocation; and the possibility of consumption and investment in the static model (Francois, McDonald, & Nordstrom, 1999). Trade liberalization is vital for increased productivity, employment creation, and wages as they relate to higher levels of private investment (Krueger, 1978).

In the developing countries, public investment can complement private investment by collaborating in the area of infrastructure (Sundararajan & Thakur, 1980). Higher productivity of capital increases the overall resource availability by stimulating output. Contrariwise, public investment can crowd out private investment if the public sector directly competes with private sector in the production of goods (Blejer & Khan, 1984).

In line with the above theoretical discussion, this study proposes the following general form of empirical model of long-run private investment function:

$$I_t = f(\text{PPI}, \text{RIR}, \text{PI}, \text{LI}) \quad (3.19)$$

The estimable function is as follows:

$$\text{Ln}(I) = \alpha_0 + \alpha_1 \text{Ln}(\text{PPI}) + \alpha_2(\text{RIR}) + \alpha_3 \text{Ln}(\text{PI}) + \alpha_4 \text{Ln}(\text{LI}) + v_i \quad (3.20)$$

Where, **Ln** refers to natural logarithms and **αs** represent the coefficients of respectively variables to be estimated. The I, PPI, RIR, PI, and LI, respectively, represent real private investment, per capita real private income, real interest rate (user cost of capital), real private investment, and liberalization indicators (i.e. financial

liberalization index, capital account liberalization index, financial openness and trade liberalization indicators). The v_i refer to the error term.

3.3.4 Trade and Capital account Liberalization

Over the last twenty years, many developing countries have adopted a policy of financial integration. However, many of them have also gone through severe episodes of financial crises, raising much controversy among academicians and policymakers about the timing and the desirability of financial liberalization. Rodrik (1998) and Stiglitz (2000) point out that the benefits from financial integration can be misleading. So they caution against rushing to financial openness. However, Bekaert et al. (2005) and Henry (2003) provide tentative support in favour of significant benefits from financial openness. Aizenman and Noy (2003) explain that in the model of public finance, the financial openness is endogenously determined by the authorities. Furthermore, the magnitude of capital flight is determined by the private sector.

The agents take this risk as exogenous and decide their ideal portfolio by considering the benefit from the greater interest rate on offshore deposits against the risk of seizure. The optimal portfolio captures hazard, the prospect of capital flight interception, and the related rates of interest. Whereas the prospect of interception is endogenously determined by policies and the economic structure, but is exogenous for an atomistic agent. Specifically, more trade openness makes capital flight easier. Thus, the probability of capital outflow of a typical agent increases with the income spent on application as compared to trade openness, and deteriorations with the size of the total capital outflow.

The fiscal authorities face problem to fund the given fiscal expenditures on public goods based on two kind of taxes: income tax, and financial repression. These taxes are expensive: income tax is related with assembly costs, and applying financial repression needs direct outlay on observing and regulating trade invoices. In these situations, greater tax collection cost, higher fiscal outlay and lower trade openness would increase the “optimal” financial repression.

The question of optimal sequence has been presented by McKinnon (1991). He argues that liberalization in the trade sector must lead to capital account liberalization. Whereas liberalizing capital accounts is the last step of economic liberalization which must be applied only if trade openness is attained. Further, the goods market liberalization is frequently appealed to be a precondition for financial liberalization policy/capital account liberalization (Tornell et al., 2004). Chinn & Ito (2006) check the hypothesis that whether trade liberalization is a precondition for openness of capital account. The current thesis tests same hypothesis as Chinn and Ito (2006).

$$\begin{aligned} \text{Ln(KAOPEN)}_t = & \beta_0 + \beta_1 \text{Ln(TI)}_{t-1} + \beta_2 \text{Ln(Y)}_t + \beta_3 \text{Ln(GBD)}_t \\ & + \beta_4 \text{Ln(IR)}_t + v_t \end{aligned} \quad (3.21)$$

Eq. (3.21) is a model of financial openness (KAOPEN) expressed as a function of trade liberalization indicator (TI), per capita GDP (Y), government budget deficit (GBD), and international reserves (IR). Ln is natural logarithms, and β s refer to the coefficients of the respectively variables, to be estimated.

Government budget deficit and international reserves are the determinants of capital controls. Because the tax system is less developed, the countries control capital as the

source of government revenue (Grilli & Milesi-Ferretti, 1995).²⁹ This study also includes the per capita GDP in model to control the level of economic system development. These variables are assumed to control for the overall drift of macroeconomic variables. Including these macro-variables, this study tests, whether trade openness is a precondition for financial openness by adding 1-year lagged variable for the trade openness indicator.³⁰

Rajan and Zingales (2003), Aizenman and Noy (2003), and Chinn and Ito (2006) find positive impact of trade openness on financial openness.

3.4 Estimation Strategy

3.4.1 Unit Root and Co-integration

To check for stationarity of the time series, this study applies the unit root test. Stationary of time series implies three things. (a) Mean reversion – indicates that a stationary series varies around a constant long run mean. (b) Finite variance of a stationary time series, which shows that the variance is time invariant. (c) A stationary time series has a finite (auto) covariance that depends on the lag, not on the time. This suggests that the theoretical autocorrelation decays fast as the lag length increases.

Regressions run on non-stationary time series produces a spurious result. To avoid such results, it is necessary to check for stationarity using a unit root test. This study uses Augmented Dickey Fuller (ADF) unit root test to define the level of integration. The ADF unit root test is based on the following regression.

²⁹ The government commitment in seigniorage is inflation rate and reserve ratio. These seigniorage measures may be source of multicollinearity because of its correlation with the level of government budget deficit; the opposite of which is regularly the reason for seigniorage (Chinn & Ito, 2006). So, this study decides not to include seigniorage-associated variables in our estimation model.

³⁰ Aizenman and Noy (2004) include one year lag of trade openness variable in the model.

$$\Delta Y_t = \beta Y_{t-1} + x_t' \delta + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + \dots + \beta_p Y_{t-p} + \lambda_t \quad (3.22)$$

Where λ_t is pure white noise error term, Y_t is a time series, Δ is the first difference operator, x_t' is an optional exogenous variable, which consists of constant, or constant and trend, β and δ are parameters to be estimated. The null hypothesis of a unit root involves testing $\beta = 0$ against the alternative hypothesis $\beta < 1$ using the conventional test. Dickey and Fuller (1979) indicate that under the null hypothesis of a unit root test does not follow the conventional student's t-distribution. They develop asymptotic outcomes and simulate the critical level for different test and sample sizes. Mackinnon (1996) considers a larger set of simulations than those tabulated by Dickey and Fuller. This study uses the MacKinnon critical value in order to find the order of integration by using ADF.

3.4.2 Co-integration

Since co-integration technique became available in the empirical literature, the tool has become the weapon of choice for estimation of dynamic models involving long run equilibrium relationship.

ARDL Co-integration Approach

There are several co-integration tests available much due to the work of Engle and Granger (1987)³¹, Phillips and Hansen (1990), (Johansen, 1991, 1995) multivariate tests, Gregory and Hansen (1996) (for unknown structural break), ECM test of Banerjee, Dolado, and Mestre (1998), among others. In recent years the autoregressive

³¹ This is a classical approach to residual based co-integration tests.

distributed lag (ARDL) approaches to co-integration has become popular in empirical investigation.

The key feature of the ARDL approach to co-integration is that it can be used when the regressors are different orders of integration (Pesaran, Shin, & Smith, 2001). The approach takes sufficient numbers of lags to capture the data generating process in a general-to-specific modelling context (Laurenceson & Chai, 2003). ARDL co-integration approach easily applies to the small sample. The bounds testing for co-integration is based on estimating a simple Unrestricted Error-Correction Model (UECM) which can be expressed as follows in a tri-variate case – Y, the dependent variable, and X & Z the independent variables.

$$\Delta \ln(Y)_t = \beta_0 + \beta_1 \sum_{j=1}^k \Delta \ln(Y)_{t-j} + \beta_2 \sum_{j=0}^k \Delta \ln(X)_{t-j} + \beta_3 \sum_{j=0}^k \Delta Z_{t-j} \quad (3.23)$$

$$+ \varpi_1 \ln Y_{t-1} + \varpi_2 \ln X_{t-1} + \varpi_3 \ln(Z)_{t-1} + \mu_{1t}$$

The terms with the summation signs in equation (3.23) represent the error correction dynamic while the second part (term with ϖ s) correspond to the long run relationship. The F-test and t-statistic are used for testing a long run relationship. The Narayan (2005) critical values for the bounds are used for F-test. The null hypothesis of no co-integration $\langle H_0 : \varpi_1 = \varpi_2 = \varpi_3 = 0 \rangle$ is tested against the alternate of co-integration: $\langle H_0 : \varpi_1 \neq \varpi_2 \neq \varpi_3 \neq 0 \rangle$. The asymptotic distribution of this F-statistic is nonstandard, regardless of whether the series are I(0), I(1) or mutually co-integrated. The decision rule for long run relationship is: If the computed F-statistic exceeds the upper bound I(1), then the null hypothesis is rejected, suggesting co-integration among the series. On the other hand, if the computed F-statistic lies below the lower bound I(0), the null hypothesis is sustained, indicating no co-integration among the series (Pesaran et al.,

2001). If the test statistic lies between the bounds, the test is inconclusive. The t-statistic is tested through $\varpi_1 = 0$ in Eq. 3.23. If co-integration is found, the following long run model is estimated:

$$Ln(Y)_t = \beta_0 + \sum_{j=1}^{\rho} \beta_{1j} Ln(Y)_{t-j} + \sum_{j=0}^{\rho} \beta_{2j} Ln(X)_{t-j} + \sum_{j=0}^{\rho} \beta_{3j} Ln(Z)_{t-j} + \eta_t$$

The lag order of the ARDL model is chosen by minimizing the Schwarz Bayesian Criterion (SBC). The ARDL specification of the short run dynamics can be derived from error correction model (ECM) of the following form:

$$\begin{aligned} \Delta Ln(Y)_t &= \beta_0 + \sum_{j=1}^{\rho} \beta_{1j} \Delta Ln(Y)_{t-j} + \sum_{j=0}^{\rho} \beta_{2j} \Delta Ln(X)_{t-j} \\ &+ \sum_{j=0}^{\rho} \beta_{3j} \Delta Ln(Z)_{t-j} + \lambda ECM_{t-1} + v_t \end{aligned}$$

Where ECM_{t-1} is the error correction term, defined as

$$\begin{aligned} ECM_t &= Ln(Y)_t - \beta_0 - \sum_{j=1}^{\rho} \beta_{1j} Ln(Y)_{t-j} - \\ &- \sum_{j=0}^{\rho} \beta_{2j} Ln(X)_{t-j} - \sum_{j=0}^{\rho} \beta_{3j} Ln(Z)_{t-j} \end{aligned}$$

All coefficients of the short term equation are related to the short run dynamics of the model converging to equilibrium; and λ representing the speed of adjustment for short run discrepancy, approaching the long run equilibrium.

3.5 The Data Sources and the definition of variables

This study employs annual time series data from 1971-2013, from different sources. Most of the data are taken from the World Bank online database, World Development Indicators (URL: <http://data.worldbank.org/>). The remaining data are obtained from the State Bank of Pakistan and Pakistan Economic Survey.

The compilation of data is based on the latest publication of the sources noted above. In some cases when data on series are not available directly, proxies have been used by standard transformation methods as discussed in 3.5.1 & 3.5.2.

3.5.1 Capital Stocks

The World Bank database has been used to calculate the capital stock series. This study uses the Hall and Jones (1999) formula to estimate the initial capital stock in Pakistan. The formula is as follows:

$$K_0 = \frac{GFK_0}{\delta + g_{GFK}}$$

Where, K_0 represents the initial capital stock; and GFK_0 the gross fixed capital formation in the initial period, g_{GFK} shows the rate of growth in the fixed capital formation³², and δ the depreciation. This study assumes a 5% depreciation per annum. The initial gross fixed capital formation data are taken from WDI of the World Bank, which stands at US\$1435.112 million, The following equation is used to compute the capital stock series.

$$K_t = (1 - \delta)K_{t-1} + GFK_t$$

³² The average growth rate by the sample.

3.5.2 Real Deposit Rate

The real deposit rate (RDR) shows the rates of return on deposits³³ minus expected inflation π_t^* . The π_t^* is not directly observed, so this study uses the adaptive expectations model to describe the formation of expectations, proposed by Cagan (1956). This study assumes that economic agents form expectations based on the past experience; and learning from their errors. The model $\pi_t^* - \pi_{t-1}^* = \gamma(\pi_t - \pi_{t-1}^*)$ suggests that the expectations are reviewed every period by a fraction γ of the difference between inflation rate today (π_t) and its expectation during the previous period π_{t-1}^* . This study assumes $\gamma = 1$, such that the current inflation rate is same as the expected inflation rate. For inflation rate this study uses the GDP deflator. The real interest rate is defined as follows:

$$\text{RDR}_t = \text{Rate of Return on Deposit}_t - \text{inflation rate}_t$$

3.5.3 Real Interest Rate

The real interest rate (RIR) is the user cost of capital; and the lending interest rate adjusted for inflation (as used by the GDP deflator).

3.5.4 Financial indicators

This study uses the dataset of Abiad et al. (2010) over the period 1973-2005. The data preceding 1973 and post 2005 are extended, as applicable, using the information from several publications of financial sector assessment, and financial stability reviews of the State Bank of Pakistan. The capital account liberalization index is taken from Chinn and Ito (2006), available at URL: <http://web.pdx.edu/~ito/Chinn->

³³ The weighted average rates of return on total deposits.

[Ito_website.htm](#). The de facto indicator of financial openness uses total stock of assets and liabilities as constructed by Lane and Milesi-Ferretti (2007).

3.5.5 Trade indicators

To identify the trade liberalization date (de jure) this study applies the procedure by Wacziarg and Welch (2008), and the trade openness variable is constructed by taking the ratio of exports plus imports to GDP.

3.5.6 GDP, Investment and Savings Data

The real gross domestic product (GDP), real private saving, real public saving, real private investment, and real public investment are in millions of US\$. The real GDP, in constant prices, is from WDI, while the other savings and investment variables are from State Bank of Pakistan. These are in nominal terms so needed to be adjusted by the GDP deflator.

3.5.7 Private Income

This study adds private consumption and private saving to find aggregate private income, but adjust by the GDP deflator to convert into real terms. Real per capita private income is obtained by dividing real private income with population.

3.5.8 Skill Labor Force

Secondary school enrollment has been used as of indicator of skilled labor force. The data come from various issues published in the Pakistan Economic Survey over the years.

3.5.9 Old Age Dependency (OAG)

This data is taken from the World Bank, world development indicators. This study defines the OAG is as follows: Age dependency ratio, old, is the ratio of older dependents--people older than 64--to the working-age population--those ages 15-64. Data shows the proportion of dependents per 100 working-age population.

CHAPTER 4

ECONOMIC LIBERALIZATION REFORMS IN PAKISTAN

In this chapter, this study presents financial and trade reforms separately. Beginning 1980's Pakistan chose to implement liberalization policies to increase efficiency of financial markets; create conditions for market-based more effective monetary and credit policies; strengthen capital and market-based financial institutions for proper allocation of local resources; achieve economies of scale and enhances the competitiveness among local produces to enable them to compete in the international market.

Section 4.1 describes financial reforms; section 4.2 outlines the trade liberalization policies, and section 4.3 presents financial and trade indicators in Pakistan.

4.1 Financial Liberalization Reforms in Pakistan

In this sub-section this study presents reforms in the financial sector– the liberalization of banking, stock market and capital account. In retrospect, the damage inflicted on the financial sector due to repression policies of the 1970s and 1980s devastated the Pakistan economy. The extent was so serious that the government was left with few options other than adopting the reforms recommendations by the World Bank and the International Monetary Fund (IMF) in an effort to revitalize financial sector. To help the process, the World Bank initially provided a loan of \$150 million in 1989 followed by additional \$200 million in 1997 under the Financial Sector Adjustment Loan (FSAL). In 1995, another loan of \$ 216 million was granted under Financial Sector Deepening and Intermediation Project (FSDIP). In addition a further loan of \$300 million came from the World Bank in 2001, for Financial Structure

Restructuring and Privatization Project (FSRPP). The support included both financial and technical aspects (Hanif, 2003).

4.1.1 Banking Sector Reforms

The Act of 1974 for nationalizing commercial banks was modified to improve the efficiency of the banking sector. Amendments to the Act in 1991 allowed privatization of commercial banks. During 1991-93, the Muslim Commercial Bank (MCB) and the Allied Bank Limited were partially privatized and their supervision was transferred to the private sector. In 1997 the Habib Credit & Exchange Bank (HCEB) were privatized. The half-privatized commercial banks were completely privatized in 1997. The United Bank Limited (UBL), Investment Corporation of Pakistan (ICP) and Industrial Development Bank of Pakistan (IDBP) were presented for privatization in 2002, and 2003 respectively. The 23.5% shares of the National Bank of Pakistan (NBP) in 2004-05 was successfully floated through the Stock Market (Janjua, 2004; Khan & Khan, 2007).

Currently, the state owned banking industry has reduced its investment advances, assets, and similar items significantly as compared to 1990 level. In 1990, state has owned 90 % of the banking assets. In contrast, today private banks own over 70 percent of the banking assets (SBP, 2013).

To ensure competition and improve efficiency within the sector, the government allowed foreign banks to open their branches. In 1991 ten new commercial banks were approved for operation; and eleven more added under Pakistani ownership. In 1995, restriction was imposed to rein in mushroom growth (Janjua, 2004). Between 1997 and 2001, foreign bank branches were fully liberalized. This allowed private banks to gain

market shares. The system of credit rationing was eliminated from 1992, and substituted by a relatively flexible control through the fixing of Credit Deposit Ratio (CDR) in each quarter; but eliminated on September 30, 1995.

In March 1995 interest rate was liberalized by eliminating limits on maximum lending rates of banks and NBFIs.³⁴ Along with its minimum lending rate was also eliminated on July 26, 1997. The limits on task-based financing was eliminated in October 1995. This empowered banks and financial institutions to set their rates the market would bear. Further liberalization included, allowing banks and other financial institutions to set their own deposit rates. All these helped banks to make higher profit versus the era of financial repression (Hanif, 2003).

In February 1994, the State Bank of Pakistan (SBP), the central bank, was made more autonomous by promulgating ordinances (1997). The aim was to amend the State Bank of Pakistan Act 1956, Banking Companies Ordinance 1962 and Banks Nationalization Act 1974 which allowed the State Bank to conduct an independent monetary policy, regulate the banking sector, and limit government borrowing from the Central Bank. The core and non-core functions of SBP were separated in 1999-2000. These changes helped the SBP to play its role in the areas of conduct of monetary policy; supervise the financial sector; manage foreign exchange and other payment system. However, the SBP responsibility was left to the retail banking and treasury functions (Hanif, 2003).

In 1994 the State Bank of Pakistan (SBP) introduced Prudential Regulation in order to maintain its supremacy and credit classification. This includes several features of

³⁴ For trade related mode of financing.

commercial bank operation. In 2002 SBP announced specific Prudent Regulations for microfinance institutions (MFIs) which are different from commercial banks by nature and activities. In 2004 additional Prudent Regulations on banking process were issued to cover corporate/commercial banking, small and medium enterprises, financial and consumer financing agencies. The rules & regulations of non-bank financial institutions (NBFIs) changed in 2003, to include leasing, investment banks, housing finance companies, discount houses and venture capital companies.

In January 2000, in response to rising demand for microfinance the strategies were modified to accelerate the process of microfinance sector development.³⁵ In this context, Finance Bill was presented, which comprised alterations in the description of the poor, improvement in the controls of the SBP in the removal of the Board of Directors (BODs), yielding consent and permitting extra funds in marketable securities.

In 2000 further amendments were made in the Insurance Act 1958 offering distinct guidelines; and published through auspices of the Ministry of Commerce (MOC) in 2002. The amendments were introduced to make the laws compliant with the Islamic codes. The MOC published instructions and guidelines for the formation of Takaful insurance in 2005. Due to the rising need for agricultural credit in 2005 the SBP designed Prudent Regulation for agri-financing which allowed banks to present new financial schemes for agricultural sector. They are credited for input purchase, machinery, equipment, livestock and support cooperative farming. Prudent Regulations were implemented by the SBP in 2009 to support financing of consumers, small and medium enterprises and commercial/corporate banking.

³⁵ The Ministry of Finance and the SBP have worked under the support of the Asian Development Bank (ADB).

In 1996 the financial system was on the verge of collapse with about a third of banking assets stuck in the form of non-performing loans (NPLs). The loan default cases remained unsettled due to the unproductive judicial structure. In 1997 the banking courts were established to enforce the new loan recovery laws and apply motivational schemes for recovering loan from debtors.³⁶ According to section 36(1) of the SBP Act, 1956 it is mandatory for all scheduled banks to preserve a balance-return fee with the SBP, to the extent of an amount that is equivalent to 5% of their demand and time deposit liabilities.

In order to efficiently regulate monetary policy, scheme for open market operations was presented, and debt management reforms announced. The objectives were to decrease the segmentation in the government debt market, explain the implications of cost of increasing long run government debt, launch a rate of return on market based structure for government securities, and cover the way for application of monetary policy by instruments of secondary monetary regulator. In January 1992 the bearer tools such as five years Foreign Currency Bearer Certificates (FCBCs) and US Dollar Bearer Certificates (DBC), etc. were introduced to mobilize foreign exchange.

4.1.2 Stock Market Reforms

The stock market is a critical part of the economy in mobilizing domestic financial resources and fostering a dynamic investment climate. Of the three stock exchanges in Pakistan (Karachi, Lahore and Islamabad), Karachi Stock Exchange (KSE), created in 1947, dominates all others. The Lahore Stock Exchange (LSE) and the Islamabad Stock Exchange (ISE) were set up in 1974 and 1997 respectively. In 2002 the KSE was judged the best performer by the 'Business Week' the US news magazine. To improve

³⁶ The SBP introduced two different incentive schemes to provide an opportunity to loan defaulters to pay their overhead and regularize the remaining amounts.

the efficiency, the following steps were taken by the policy makers. KSE 100 index came into being in November 1991.

To enable electronic transfer of stocks, Central Depository Company (CDC) of Pakistan Limited was set up in 1997 partnership with International Finance Corporation (IFC), Citibank, other leading commercial banks and development finance institutions (DFIs). The Securities and Exchange Commission of Pakistan was formed in 1991 when KSE got connected to foreign investors via Reuters. A general manager of the KSE was hired. The CDC registers and conserves the transfer of securities in the form of an electronic book-entry. The exchange in future agreements began in 2003. From August 2005, the Security and Exchange Corporation of Pakistan (SECP) started to phase out trade by replacing it with a facility called Continuous Funding System (CFS) by encouraging investors to use futures trading.

4.1.3 Capital Account Liberalization

In accordance with Article XIV of the Article of Agreement of the IMF, Pakistan imposed various controls on payments and transfers for current international transactions for a long time. As part of liberalization of the financial sector in 1991, the Pak Rupee (currency) was made convertible in July 1994 under the IMF Article VIII. The foreign Pakistani citizens were allowed to open and preserve foreign currency accounts with banks in Pakistan on the same basis as non-residents. These foreign currency accounts were exempted from wealth and income taxes and no questions was asked about the source of income.

In 1996-97 the Special Convertible Rupee Account (SCRA) was opened and allowed inward portfolio investment without prior approval if the transactions take

place through SCRA (Haque, 2011). These accounts facilitated foreign investors to invest in listed securities on stock exchange. In 1998 the dual exchange rate system was accepted. This was changed in 1999 by a market established exchange rate structure which set a narrow band. In July 21, 2000 finally the unofficial cap on the exchange rate was removed.

Now in Pakistan current account is fully convertible, while capital account is partially liberalized. There are no limits on FDI inflow; but outflow needs SBP's prior consent and full explanations. Likewise, there are no constraints on portfolio inflow if they are received through Special Convertible Rupee Account (SCRA). Conversely, portfolio investment in a foreign country is not permitted. The foreign currency lending in a foreign country is totally restricted, but foreign currency borrowing from abroad is permitted based on defining terms and conditions and registration of loan with SBP authorized dealer.

4.2 Trade Liberalization

The import quotas on non-capital goods were removed and restrictions on imports have been eased towards a comprehensive tariff reform beginning in June 1987. The number of tariff rate was reduced from 17% to 10%, an equal 12.5% sales tax was replaced by previous rate that varies across goods and maximum tariff rate decreased from 225% to 125%. The maximum tariff rate on imports levied 25% in 2005 (Husain, 2005; Kemal et al., 2001). Import substitution policies, created earlier, had an anti-export bias in the allocation of resources which added to inefficiency. So, import substitution was replaced by export promotion.

In order to enhance the level of foreign direct investment, if not all, most economic sectors were opened providing for 100% foreign ownership. The main aims of the reforms were to achieve self-reliance, strengthen the industrial base, root out inefficiency, enhance the exports and contain trade deficit.

4.3 Financial and Trade Indicators in the Case of Pakistan

According to the existing literature, there are two measures –de jure and de facto – to develop financial and trade liberalization indicators. The former refers to the date of liberalization, and the latter to the actual flow and stock of capital. This study uses both measures to examine the impact of liberalization of financial and trade sectors.

4.3.1 Construction of Financial Liberalization Index

Researchers developed financial indicators like financial liberalization index³⁷ using de jure method, and other proxies to estimate the de facto impact of financial openness. This study considers domestic financial- and external account liberalization separately.

First, Bandiera et al. (2000) utilize various financial institutional reforms and regulations like interest rate deregulation, pro-competition measures, reserve requirements, directed credit, bank ownership, prudential regulations, stock market reform and international financial liberalization to construct financial liberalization index. Following Bandiera et al., approach, Laeven (2003) creates financial liberalization index for thirteen developing countries³⁸ by using interest rate deregulation, reduction of entry barriers, reserve requirements, removal of credit controls, privatization of state banks and strengthening of prudential regulation.

³⁷The literature indicates (table 4.1) that various researchers developed a financial liberalization by using the reforms of banking sector, stock market and capital account liberalization.

³⁸ The list of countries, i.e. Argentina, Brazil, Chile, India, Indonesia, Malaysia, Mexico, Pakistan, Peru, Philippines, Rep. Korea, Taiwan, Thailand.

Nair (2004) uses six indicators of financial liberalization in India to develop financial liberalization index. The indicators are: interest rate liberalization, reduction in reserve requirements, pro-competition measures, increased prudential regulation, stock market development and international financial liberalization.

Following Bandiera et al. (2000), the Laeven (2003) and Nair (2004) indices use binary (0, 1) variables where 1 refers to financial liberalization and 0 financial repressions. In recent times many countries have chosen to move away from financial restrictions (Edison & Warnock, 2003). Using categories of liberalization as fully repressed, partially repressed, partially liberalized, and fully liberalized, Abiad and Mody (2005) construct financial liberalization index for 35 countries.³⁹ For Nepal, Shrestha et al. (2007) use eight components of financial liberalization to develop a financial indicator. They are: interest rate liberalization, removal of entry barriers, reduction in reserve requirements, easing credit controls, introduction of Prudential Regulations, stock market reform, privatization of state-owned banks and external account liberalization.

Ahmed (2007) constructs financial liberalization for Botswana. He uses the interest rate liberalization, exchange rate liberalization, reduction in reserve requirement, authorization of new and privatization of existing banks and securities markets as indicators of financial reforms. Abiad, Detragiache, and Tressel (2010) component of financial liberalization i.e. credit controls and reserve requirements, aggregate credit ceilings, interest rate liberalization, banking sector entry, capital account transactions, privatization in the financial sector, securities markets and banking sector supervision.

³⁹ They cover six different features of liberalization, with credit controls, interest rate controls, entry barriers, regulations, financial privatization, and international liberalization.

They use data from 90 countries that include Pakistan. Ang (2011b) uses this database to construct a financial liberalization index for 22 OECD and non-OECD countries.

As noted earlier, this study considers domestic and external financial liberalization separately. For Pakistan, this study develops domestic financial liberalization using 6 items: credit controls, interest rate controls, entry barriers/pro-competition measures, banking sector supervision, privatization of financial institutions and security markets. In addition to each dimension, a score of 0, 1, 2 or 3 is assigned, to indicate the states, identified as fully repressed, partially repressed, partially liberalized, and fully liberalized, respectively. The aggregation of these six components is used to obtain an overall measure of domestic financial liberalization. This study uses data and codes from of Abiad et al. (2010) over the period 1973-2005. The data predating 1973 and post 2005 are extended, as appropriate, using the information from various issues of financial sector assessment, and financial stability review from the State Bank of Pakistan.

Table 4.1 Summary of Review of Literature on Financial Liberalization Index

Author(s)	Country	Method	Type	Financial Liberalization Indicator
Bandiera et al. (2000)	Chile, Ghana, Indonesia, Malaysia Korea, Mexico, Turkey, Zimbabwe	Principal component method	Binary (Take value 0-1) 0 : For financial repression (Govt control) 1 : For correspond to the years after a particular financial reform is introduced	1. Interest rate deregulation 2. Pro-competition measures 3. Reserve requirements 4. Directed credit 5. Bank ownership 6. Prudential regulations 7. Stock market reform 8. International financial liberalization
Achy (2001)	Egypt, Jordan, Morocco, Tunisia, Turkey	Principal component method	Binary (Take value 0-1) 0 : For financial repression (Govt control) 1 : For correspond to the years after a particular financial reform is introduced	1. Interest rate liberalization 2. Reduction of reserve requirements 3. Reduction of direct credit to priority sectors 4. Bank ownership (more privatization) 5. Pro-competition policies 6. Prudential regulation 7. Development of securities Markets 8. International financial liberalization
Laeven (2003)	Argentina, Brazil, Chile, India, Indonesia ,Malaysia ,Mexico, Pakistan , Peru ,Philippines , Rep. Korea, Taiwan, Thailand	Sum of the individual components	Binary (Take value 0-1) 0 : For financial repression (Govt control) 1 : For correspond to the years after a particular financial reform is introduced	1. Interest rates 2. Entry barriers 3. Reserve requirements 4. Credit controls 5. Privatization 6. Prudential reg.
Nair (2004)	India	Principal component method	Binary (Take value 0-1) 0 : For financial repression (Govt control) 1 : For correspond to the years after a particular financial reform is introduced	1. Interest rate liberalization, 2. Reduction in reserve requirements, 3. Pro-competition measures, increased 4. Prudential regulation, 5. Stock market development 6. International financial.

Abiad and Mody (2005)	35 countries	Sum of the individual components	0 : Fully repressed 1: Partially repressed 2: Partially liberalized 3: Fully liberalized	1. Credit controls 2. Interest rate controls 3. Entry barriers 4. Regulations 5. Financial privatization 6. International liberalization
Shrestha et al. (2007)	Nepal	Principal component method	1 : For fully liberalization 0.50: If the liberalization is completed in two phases, then 0.5 is assigned for the first phase. If liberalization is completed in three phase, then the number given as follows: first phase is 0.33, the second phase is 0.66 and 1 for the last phase	1. Interest rate liberalization 2. Removal of entry barriers 3. Reduction in reserve requirements 4. Easing credit controls 5. Introduction of prudential regulations 6. Stock market reform 7. Privatization of state-owned banks 8. External account liberalization
Ahmed (2007)	Botswana	Principal component method	Binary (Take value 0-1) 0 : For financial repression (Government control) 1 : For correspond to the years after a particular financial reform is introduced	1. Interest rate liberalization 2. Exchange rate liberalization 3. Reduction in reserve requirement 4. Authorization of new banks 5. Privatization of banks 6. Securities markets
Fowowe (2008)	Nigeria	Sum of the individual components	Binary (Take value 0-1) 0 : For financial repression (Government control) 1 : For correspond to the years after a particular financial reform is introduced	1. Bank denationalization and restructuring, 2. Interest rate liberalization, 3. Strengthening of prudential regulation, 4. Abolition of direct credit, 5. Free entry into banking, 6. Capital account liberalization, 7. Stock market deregulation
Abiad, Detragiache, and Tressel (2010)	91 countries	Sum of the individual components	0 : Fully repressed 1: Partially repressed 2: Partially liberalized 3 : Fully liberalized	1. Credit controls and reserve requirements 2. Aggregate credit ceilings 3. Interest rate liberalization 4. Banking sector entry 5. Capital account transactions 6. Privatization in the financial sector 7. Securities markets

				8. Banking sector supervision
Ang (2011b)	22 OECD and non OECD countries	Sum of the individual components	0 : Fully repressed 1: Partially repressed 2: Partially liberalized 3 : Fully liberalized	1. Credit controls and reserve requirements 2. Interest rate restraint 3. Entry barriers in the banking sector 4. Prudential regulations and supervision 5. Privatization in the financial sector 6. Restrictions on international capital flows 7. Securities market policy
Owusu and Odhiambo (2014)	Nigeria	Principal component method	1 : For fully liberalization 0.50: If the liberalization is completed in two phases, then 0.5 is assigned for the first phase. If liberalization is completed in three phase, then the number given as follows: first phase is 0.33, the second phase is 0.66 and 1 for the last phase	1. Interest rate liberalization, 2. Removal of entry barriers, 3. Reduction in reserve requirements, 4. Easing credit controls 5. Introduction of Prudential Regulations, 6. Stock market reform, 7. Privatization of state-owned banks 8. External account liberalization

4.3.2 Capital Account Liberalization

Eichengreen (2001) points to the difficulties in measuring capital account liberalization. Most measures are qualitative and rules-based, but some go beyond an on/off classification, capture the strength with which restrictions are imposed (Edison et al., 2004). While attempts have been made in the literature to define the degree and intensity of capital account restrictions, such attempts failed to fully capture the challenges reflected by real-world capital restrictions (Chinn & Ito, 2006).

Chinn and Ito (2006) identify some drawbacks in the conventional methods used in capital account restrictions. First, conventional methods of quantifying financial openness (or capital account restrictions) fail to justify for the intensity of financial openness. Most of the measures use binary variables that are based on a set of on/off clarification, called, indicator of multiple exchange rates (k1); the restrictions on current account (k2); restrictions on capital account transactions (k3); and requirement to surrender of export proceeds (k4). These variables are established based on the IMF's categorical listing described in Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). The classification method was changed to allow further disaggregation in 1996, reflecting the complication of capital controls policies.

Second, IMF-based variables are too aggregated to show the complexity of actual financial openness or capital account restrictions. The capital account restrictions vary subject to the path of capital flows (i.e., in- or outflows) in line with the direction of financial transactions. This problem improves only marginally in the AREAER under the new disaggregation of the k3 category into 13 subsets. Using this disaggregation, Johnston and Tamirisa (1998) create time series for capital account restrictions after 1996, which is not sufficiently long. Later, Miniane (2004) constructs capital account

openness index using the Johnston and Tamirisa (1998) method and extends the series to 1983 for 34 countries.

An overall measure of intensity of capital controls based on qualitative coding, from 0 to 14 range has been developed by Quinn (1997). The qualitative information bounds in the several issues of AREAER relating to k_2 and k_3 , augmented by information about whether the OECD and European Union countries in question has moved into international contracts with international organizations. The most comprehensive index of capital account liberalization developed by Chinn and Ito (2002) including Pakistan. They updated data on capital account liberalization for 182 countries over the period of 1970-2013 in May 2015.

This study uses the Chinn and Ito de jure capital account openness index, which is based on the capital openness on the first standardized principal component of the k_1 to k_4 binary variables. The variable takes a value of 1 when the capital controls are not present. For capital transactions controls k_3 the authors use the share of a five year window. Therefore, t is proportion of five years covering year t and the earlier four years that the capital account was open:

$$SHAREk_{3,t} = \left[\frac{k_{3,t} + k_{3,t-1} + k_{3,t-2} + k_{3,t-3} + k_{3,t-4}}{5} \right]$$

$KAOPEN_t$ = the first standardized principal component of $k_{1,t}$, $k_{2,t}$, $SHAREk_{3,t}$, and $k_{4,t}$

The main advantage of the $KAOPEN$ index is that it measures the intensity of capital controls, to the extent that the intensity is connected with the presence of other limitations on universal transactions (Chinn & Ito, 2006).

4.3.3 Financial Openness (de facto)

In order to estimate the de facto impact of financial openness on macroeconomic variables, previous studies use various proxies of financial openness. Table 4.2 shows that Kar (1983), Zebib and Muoghalu (1997), Aizenman (2004), Gutiérrez, (2007), Choong, Baharumshah, Yusop, and Habibullah (2010), Spatafora and Luca (2012), and Law and Azman-Saini (2013) use the sum of net inflows-outflows of foreign direct investment as a percentage of GDP as a financial openness indicator.

Further few studies, like Choong, Baharumshah, Yusop & Habibullah, (2010), and Law & Azman-Saini (2013) use portfolio investment flows (% of GDP) that covers transactions in equity securities and debt securities as an indicator of financial openness. The external debt issued (% of GDP) is used as an indicator of financial openness by Jenkins (1998), Achy (2001), Acosta & Loza (2005), Gutiérrez (2007), Beck & Demirguc-Kunt, (2009), Haroon & Nasr (2011), and Spatafora & Luca (2012).

Table 4.2 Literature on Financial Openness Indicators

Author (Year)	Country	Indicators of Financial Openness
Kar (1983)	Brazil	Gross capital inflow Gross capital outflow
Zebib and Muoghalu (1997)	Developing Countries	Net inflow
Jenkins (1998)	Zimbabwe	External debt to GDP
Achy (2001)	Egypt, Jordan, Morocco, Tunisia, Turkey	External debt/GDP
Aizenman (2004)	All countries (subject to data availability)	Financial openness measures (gross private capital in-flows + gross private outflows)*100/GDP
Acosta and Loza (2005)	Argentina	External debt (% GDP)
M. Salahuddin, R. Islam, and S. A. Salim (2009)	Albania, Algeria, Bangladesh, Chad, Egypt, Ethiopia, Indonesia, Iran, Jordan, Malaysia, Mali, Mauritania, Morocco, Niger, Oman, Pakistan, Saudi Arabia,	Ratio of total debt service to GNI

	Senegal, Syria, Tunisia and Turkey	
Gutiérrez (2007)	Latin America	FDI net inflows External debt, total (DOD, current US\$)
Frimpong and Marbuah (2010)	Ghana	External debt/GDP
Choong, et al. (2010)	Developed and Developing Counties	FDI Portfolio investment
Haroon and Nasr (2011)	Pakistan	Total amount of debt servicing
Lim and Kim (2011)	23 Developing countries	Sum of the gross stocks of foreign assets and liabilities as a share of GDP
Spatafora and Luca (2012)		Net equity inflows (percent of GDP) Net debt inflows (percent of GDP) Net bond inflows (percent of GDP)
S. H. Law and W. Azman- Saini (2013)	Malaysia	FDI inflows Portfolio inflows
(Naghavi & Lau, 2014)	27 Emerging markets	Sum of equity in- and outflows as a share of GDP: annual capital flows
Saadaoui (2015)		Gross foreign assets as sum of foreign assets and liabilities

This study uses the de facto measure of financial openness following Lane and Milesi-Ferretti (2007), grounded in the total stock of foreign assets and liabilities.

4.4 Construction of Trade Liberalization Index

This study recognizes that several indicators of trade liberalization have been in the literature.

4.4.1 Krueger (1978) and Bhagwati (1978) Liberalization and Bias

Krueger (1978) and Bhagwati (1978) measure trade orientation through the structure of protection and the implied bias against exports. They define the concept of liberalization and bias by using the idea of quantitative restrictions (QR) and effective exchange rates (EER). The level of trade regime bias (B) at time t is measured by the

ratio of the effective exchange rate paid by importers (EER_M) to the effective exchange rate paid by exporters (EER_X).

$$B_t = \frac{EER_M}{EER_X} = \frac{E_M(1+t+n+PR)}{E_X(1+s+r)} \quad (4.1)$$

Further, the effective exchanges for imports is defined as follows

$$[EM(1 + t + n + PR)]$$

Where, E_M , t , n and PR refer to the nominal exchange rate applied to imports, effective import tariff (average), import charges (other), and related premium in the presence of import licences (PR). Likewise,

$$[EX(1 + s + r)]$$

Where, E_X refers to the nominal effective exchange rate on exports, s the exports subsidies and r the incentives to exports. If $B > 1$ shows that import-substitution policy is followed by the country. The trade regime neutral if $B = 1$. Lastly, the country is involved in an export promotion policy if $B < 1$. Balassa (1982) points out that the Krueger (1978) ignores the tariffs protection effect, and the quantitative restrictions, ignoring which can produce a stronger bias against exports.

4.4.2 Leamer (1988) Openness Index

Leamer (1988) uses the trade intensity ratio (TIR), measured by the ratio of overall trade surplus/ deficit to GDP or GNP. He outlines the model and describes the trade at the three- digit SITC (Standard International Trade Classification, Revision 2) disaggregation level; and points the calculated residuals of the model to trade barriers,

then develops the trade intensity imports (M) from exports (X) at the three-digit SITC level of disaggregation measured by the following formulation:

$$TR^* = \frac{\sum_i |X_i - M_i|}{GNP} \quad (4.2)$$

The set of commodity categories refers as \sum_i in eq. 4.2. The commodities are probable to be either imported or exported but not both, at each lowest level of combination. Leamer (1988) study also estimates the intra-industry trade measure as follows:

$$IIT = \left[\frac{\sum_i (|X_i| + |M_i|)}{\sum_i |X_i - M_i|} \right] - 1 = \left[\frac{TIR^*}{TIR} \right] - 1 \quad (4.3)$$

Eq. 4.3 shows the difference between trade surplus (TIR*) and total trade (TIR) and if IIT is equal to zero, then no intra-industry trade exists at present level of disaggregation. Santos-Paulino (2005) criticises Leamer model arguing that she did not forecast the possible arrays of trade under a trade liberalized environments; and the assumption that world's average level of protection will be adopted by each country is implausible.

4.4.3 Dollar (1992) Distortion Index

Dollar (1992) creates two distinct indices, viz., the real exchange rate (RER) distortion index and an RER variability index to measure outward-orientation. The method is inadequate because it does not consider export duties, taxes, tariffs, export subsidies and other realistic non-tariff barriers (Santos-Paulino, 2005).

4.4.4 Sachs and Warner (1995) Openness Index

The Sachs and Warner (S-W) openness index takes values [0, 1]; 0, for a closed economy; and 1, if it satisfies at least one of the following conditions:

1. Non-tariff barriers cover 40 per cent or more of trade.
2. Average tariff rates are 40 per cent or more.
3. A black-market exchange rate that has depreciated on average by 20 percent or more relative to the official exchange, during the 1970s and 1980s.
4. The country follows a socialistic controlled economic system.
5. The country has a state monopoly for major exports.

Sachs and Warner (1995) establish a liberalization date of country using the above five criteria. The trade liberalization dates to 2001 was extended by Wacziarg and Welch (2008) for a sample of 141 countries that includes Pakistan.

4.4.5 The Heritage Foundation Index of Economic Freedom

A separate de jure measure of trade freedom is constructed every year by the Heritage Foundation, since 1995, as discussed by the survey study of Santos-Paulino (2005).⁴⁰ The index takes the value from zero to 100. It measures government obstruction to free flow of goods and services by imposing tariff and non-tariff barriers. For example, a country may achieve the maximum score of 100, if it scores 0 in trade-weighted average tariff rates, and also in non-tariff barriers.

⁴⁰ Since 1995, the Heritage Foundation constructs the Economic Freedom Index (EFI) on annual basis for world. The ten categories of freedom cover by the EFI, one of which is trade openness.

This study uses Wacziarg and Welch's (2008) de jure trade liberalization date for Pakistan. It may be noted that the trade freedom index from the Heritage Foundation is available from 1995-2013; while our sample covers 1971-2013. Due to this limitation, this study relies on the Wacziarg and Welch approach for the date of trade liberalization. For Pakistan the year of trade liberalization is considered to be 2001.

4.4.6 De Facto Indicator of Trade Openness

For the de facto measures of trade openness, (see table 4.3) the most popular proxy is trade volume (imports plus exports) as a share of GDP. The de facto measure is an outcome of the interaction between market forces and the implementation of prevailing regulations. Wacziarg and Welch (2008) show that some countries do not have a huge trade flow while they are comparatively open to foreign trade on a de jure basis. On the other hand, de facto level of trade openness is quite high even the countries follow trade restrictions but less effective in actual implementation.

Table 4.3 Literature on de facto Trade Openness Indicator

Author (Year)	Country	Indicators of trade openness index
Acosta and Loza (2005)	Argentina	Exports + Imports (% GDP)
Haroon and Nasr (2011)	Pakistan	Indirect taxes
Shaheen et al. (2013)	Pakistan	Exports + imports/ GDP
Mercan et al. (2013)	Brazil, China, India, Russian Federation, and Turkey	Export + Import/ GDP

CHAPTER.5

RESULTS AND DISCUSSION

One of the basic assumptions of classical linear regression models is the stationarity of the series – mean, variance, and covariance – each independent of time. However, in empirical exercise, it is prudent to check for the order of integration of each series for a possible long run equilibrium relationship, known as co-integration. This study employs the ADF unit root test in order to examine the order of integration. The null hypothesis to be tested is: the time series is non-stationary.

Table 5.1 reports the ADF unit root test results for the series of real economic growth (Y), real per capital GDP (PC), real capital stock (K), skill labor force (L), per capita real private income (PPI), real deposit rate (RDR), real interest rate (RIR), real private investment (I), real private savings (PRS), old age dependency (OAD), real public savings (PS), real public investment (PI), budget deficit (BD), international reserve (IR), financial openness (FO), trade openness (TO), and financial liberalization index (FLI); each is non-stationary at levels, except the de jure capital account openness index (K-Open). After first differencing, each series turns stationary regardless of the inclusion of trend and/or intercept. Thus, all variables exhibit I(1) property, except capital account liberalization.

Table 5.1 ADF Unit Root Test Results

Variables	Level			1 st Difference		
	Constant	Constant, Linear Trend	None*	Constant	Constant, Linear Trend	None
Ln(Y)	-1.648	-0.490	4.520	-5.071 ^a	-5.646 ^a	-1.6765 ^c
Ln(PC)	-0.578	-1.851	2.645	-4.941 ^a	-4.861 ^a	-2.775 ^a
Ln(K)	-1.833	-2.095	2.329	-3.876 ^a	-4.084 ^b	-2.983 ^a
Ln(L)	0.125	-2.436	2.441	-5.569 ^a	-5.681 ^a	-4.421 ^a
Ln(PPI)	-1.465	1.366	0.228	-4.601 ^a	-5.258 ^a	-4.653 ^a
RDR	-2.408	-2.360	-0.768	-5.822 ^a	-5.891 ^a	-5.827 ^a
RIR	-1.237	-0.987	-1.246	-12.187 ^a	-12.415 ^a	-12.308 ^a
Ln(I)	-1.803	-2.416	1.300	-5.143 ^a	-5.492 ^a	-4.624 ^a
Ln(PI)	-1.803	-2.416	1.300	-5.143 ^a	-5.492 ^a	-4.624 ^a
OAD	-1.415	-0.809	-0.078	-2.589 ^c	-3.089 ^c	-2.366 ^b
Ln(PRS)	-0.212	-2.802	2.885	-5.135 ^a	-5.171 ^a	-4.016 ^a
Ln(PS)	-1.197	-2.197	0.454	-6.907 ^a	-5.824 ^a	-2.350 ^b
Ln(IR)	-2.226	-2.637	0.307	-7.496 ^a	-7.512 ^a	-7.514 ^a
Ln(BD)	-2.349	-2.747	-0.695	-8.058 ^a	-7.942 ^a	-8.157 ^a
Ln(K_Open)	-9.061 ^a	-8.837 ^a	-3.586 ^a	-	-	-
Ln(FO)	-2.367	-2.291	-0.271	-5.474 ^a	-5.385 ^a	-5.548 ^a
Ln(TO)	-1.871	-1.697	0.121	-4.083 ^a	-4.315 ^a	-4.134 ^a
Ln(FLI)	-0.758	-2.697	-0.866	-5.261 ^a	-5.308 ^a	-5.287 ^a

* Without constant and trend.

Note: Ln refers to natural logarithm, Y to real economic growth, PC to capita real private income, K to real capital stock, L to skill labor force, PPI to per capita real private income, RDR to real deposit rate, RIR to real interest rate, I to real private investment, PRS to real private saving, OAD to old age dependency, PS to real public savings, PI to real public investment, FO to financial openness, TO to trade openness, BD to budget deficit, IR to international reserve, K_Open to capital account liberalization, and FLI to financial liberalization index.

a: indicates 1% level of significance.

b: indicates 5% level of significance.

c: indicates 10% level of significance.

5.1 Impact of Liberalization of Financial and Trade Sector on Economic Growth

The impact of financial and trade liberalizations on economic growth has drawn much research attention after the emergence of new growth theories. In 1980s, many developing countries have put into practice the endogenous growth theory model with liberalization is deployed as a vehicle for economic growth. However, empirical evidence on the results of such liberalizations is inconclusive. Pakistan has gone great length to achieve a sustainable economic growth by liberalizing her financial and trade sectors from the 1980's. This present research is motivated by the academic curiosity to examine the impact of the strategy on the economy of Pakistan. The study considers both financial and trade sector reforms.⁴¹

While some previous studies have shown that reforms in financial and trade sectors in a country can lead to economic growth, their poor management can lead to disastrous crisis. For example, Diamond and Dybvig (1983) argue that banks operate within the traditional model cause real economic loss. Singh (1997) points out that financial liberalization in terms of expansion of stock markets in developed countries hampers development. Rodriguez and Rodrik (1999) in their survey find little evidence in support of a claim that reforms like reduced tariff rate and removal of non-tariff barriers to trade has strong link, if any, with economic progress.

This study applies the following model of economic growth (outlined in section 3.

3.1) :

$$\ln(Y_t) = \theta + \beta \ln(K_t) + \delta \ln(L_t) + \alpha \ln(LI_t) + \mu_t$$

⁴¹ The main objectives of these reforms were to improve the efficiency of financial markets, to formulate the market-based and relatively more efficient monetary and credit policies, and lastly to strengthen the capital and market-based financial institutions.

Where Y_t , L_t , K_t and LI_t respectively refer to the real GDP, skilled labor force, real capital stock, and liberalization indicators (i.e. financial liberalization index, capital account liberalization index, financial openness, trade openness, and trade liberalization). The \ln stands for natural logarithms, and θ , β , and δ the slope coefficients of respective variables. The term μ_t refers to the error correction term.

This study uses the ARDL bounds testing approach to co-integration, proposed by Pesaran et al. (2001), to explore a long run equilibrium relationship among the variables defined above. The short run dynamics are estimated by using the ARDL based error correction model.

Table 5.2. Critical Values for ARDL Modeling Approach

K = 3	0.10		0.05		0.01	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
F_V	3.740	4.780	4.450	5.560	6.05	7.458
F_{III}	2.893	3.983	3.535	4.733	4.983	6.423
t_V	-3.13	-3.84	-3.41	-4.16	-3.96	-4.73
t_{III}	-2.57	-3.46	-2.86	-3.78	-3.43	-4.37

Notes: k is number of regressors, F_V represents the F-statistic of the model with unrestricted intercept and trend, F_{III} represents the F-statistic of the model with unrestricted intercept and no trend. t_V and t_{III} are the t ratios for testing ϖ_1 in equation (3.23) is respectively with and without deterministic linear trend.

Source: Narayan (2005) for F-statistics and Pesaran *et al.* (2001)

for t-statistic.

The bound critical values for F-statistics, presented in table 5.2, are from Narayan (2005) which better suits small samples. This study presents bound testing results for a long run relationship using five different models, in table 5.3.

In model 1, this study assumes that economic growth is determined by real capital stock, skilled labor force and the state of financial liberalization, measured by the index.

In model 2, economic growth is determined by real capital stock, skilled labor force, and capital account liberalization. In the models 3 to 5, real capital stock and skilled labor force are present in all 5 models. However, the variables: trade liberalization, trade openness, and financial openness appear as determinants, sequentially in each of the models 3-5, only one at a time, respectively. The long run models are estimated under two scenarios, as suggested by Pesaran et al. (2001): F_{III} represents the F-statistic of the model with unrestricted intercept and no trend, and F_V represents the F-statistic of the model with unrestricted intercept and restricted trend (Pesaran et al. 2001, p 295-296).

The bound test results presented in table 5.3 confirm long run relationship in all the models (1 - 5) from the scenarios (F_{III} , F_V , t_{III} , t_V). Table 5.4 shows the long run coefficients estimated by using the ARDL approach. The results of long run coefficients show that skill labor force and real capital stock are positively related with real economic growth. A 1% increase in human capital (skill labor force) increases real economic growth in the range of **0.513** to 1.008%. The one percentage increase in real capital stock enhances economic growth in the range of 0.441 to 0.619%. All results are interpreted as on an average and *ceteris paribus*.

The de jure financial liberalization index is positively linked with economic growth in the long run. This finding corroborates those of Shrestha et al. (2007) for Nepal, Ahmed (2007) for Botswana, Babajide Fowowe (2008), Owusu and Odhiambo (2014) for Nigeria. A 1 % increase in domestic financial liberalization increases real economic growth by 0.034%. This conforms to prediction by McKinnon and Shaw_(1973); but contravenes that of Robinson (1952), Lewis (1955), and Lucas (1988). They argue that financial liberalization is not the main driver of economic growth. Of financial

liberalization index, out of six indicators, five refer to financial liberalization in banking sector, which permits entry of new banks or open new branch in remote areas of Pakistan. The expectation is that these banks will channel funds to the productive sectors, and promote economic growth. Based on our results, it appears that further liberalization in banking and stock market sector will be beneficial to the economy of Pakistan.

The nexus of capital account liberalization and economic growth is statistically insignificant, while the de facto financial openness is negatively related to growth. Dornbusch (1976) finds a negative link between financial openness and growth in the real sector. Edison et al. (2002) and Klein and Olivei (2008) also find a negative impact of financial openness indicators on economic growth.

A 1% increase in financial openness reduces economic growth by 0.201%. The negative impact of de facto financial openness on economic growth is credited to a host of factors. Generally a country's international assets and liabilities are anticipated to be of similar size of order. But, in Pakistan case on average assets have less than one third of its foreign liabilities, therefore indicating its net investment position as strongly negative. An additional vital aspect of Pakistan's foreign investment position is that total assets relative to GDP have remained stagnant in the range of 6 to 15 percent during the sample period. While liabilities to GDP increased from last few years, if disaggregate total liabilities into foreign loans and FDI, it is shown that foreign loans account for almost 86.07 percent of total liabilities while FDI inflow in contrast account only for 10.6 percent of total liabilities. This poor performance of Pakistan's foreign investment

position points to the fact that a huge amount of debt liabilities shows the dependence of Pakistan's economy on external sources.⁴²

The long run results also show that trade liberalization is statistically insignificant related with economic growth, but a de facto indicator of trade openness is negatively linked with economic growth. A one percent increases in trade openness causes a decline in economic growth by 0.024 percent. This result contrasts the theoretical statement of Lucas (1988) and Romer (1990), and earlier empirical findings of Ghatak et al. (1995), Véganzonès and Winograd (1998), Chuang (2000), Shafaeddin (2005), Dutta and Ahmed (2004), Okuyan et al. (2012). However, there are empirical studies like Kind (2002) and Kim (2011) who document a negative impact of trade openness on economic growth in the case of developing countries.

Grossman and Helpman (1991), Young (1991) and Rivera-Batiz (1995) state that trade openness causes economic growth through a channel of efficient allocation of resources and the spillover effect of technology. The import of capital goods is an important channel for foreign technology and knowledge to flow into the domestic economy. But in the case of Pakistan, the negative coefficient is due to the higher percentage of import of consumer good (60%) as compared to the capital goods (40%). After trade liberalization of year 2001 import increases much faster relative to exports.

Table 5.5 confers the results for short run coefficients of ARDL based error correction model. The results indicate that capital stock and labor force are positively related with economic growth in the short run according to theory. Financial openness, similar to the result for long run, is negatively linked with economic growth in the short

⁴²A number of studies in case of Pakistan have concluded that the debt has negatively affects the growth rate. (Ahmed and Shakur, 2011; Malik et al, 2010).

run. The de jure trade liberalization index is negatively associated with economic growth in the short run as compare to long run results it is insignificant. For the negative effect of trade liberalization on economic growth, Romer (1990) argues that this implies the local resources of the country are unable to effectively use the technology generated by the trade liberalization.

The financial liberalization index and capital account liberalization are statistically insignificant, but the financial openness coefficient is negative and statistically significant. The zero impact of capital account liberalization is due to less inflow of foreign direct investment as explained above in the long run results. According to theory, the capital account liberalization allows foreign investors to invest in the real sector of the host country. However, this is a weak channel in the case of Pakistan, so the impact of capital account liberalization on economic growth is statistically insignificant.

Consistent with expectations, the coefficient of error correction term in all models is negatively and statistically significant, which indicates the speed of adjustment back to long run equilibrium value. The coefficient of error correction term is in the range of 0.042 to 0.287, implying that adjustment takes place on a yearly basis.

Table 5.3 Bound test Results of Economic Growth Models

Model	Without Deterministic Trends		With Deterministic Trends		Decision H_0
	F_{III}	t_{III}	F_V	t_V	
Model – 1: (Y, L, K, FLI)	2.617 ^c	-1.217 ^c	4.835 ^a	-3.927 ^a	Rejected
Model – 2: (Y, L, K, K_Openness)	1.959 ^c	-1.669 ^c	5.273 ^a	-4.455 ^a	Rejected
Model – 3: (Y, L, K, FO)	2.821 ^c	-1.412 ^c	5.835 ^a	-3.887 ^a	Rejected
Model – 4: (Y, L, K, TLI)	4.074 ^a	-1.158 ^c	5.299 ^a	-2.531 ^c	Rejected
Model – 5: (Y, L, K, TO)	1.853 ^c	-1.716 ^c	6.279 ^a	-3.304 ^b	Rejected

Note: H_0 indicates no co-integration. The optimum lag is selected by using the Schwarz Bayesian criterion. Lag is number of lags, F_{III} represents the F-statistic of the model with unrestricted intercept and no trend. F_V represents the F-statistic of the model with unrestricted intercept and trend. The t_V and t_{III} are the t ratios for testing ϖ_1 in equation (3.23) is respectively with and without deterministic linear trend.

‘c’ indicates that the statistic lies below the 0.10 lower bound

‘b’ that it falls within the 0.10 bounds.

‘a’ that it lies above the 0.10 upper bound.

Table 5.4 Long Run Coefficients of Economic Growth Model

	(1)	(2)	(3)	(4)	(5)
Intercept	2.434 ^a	2.294 ^a	5.449 ⁱ	1.905 ^a	5.383 ^a
Ln(K)	0.617 ^a	0.609 ^a	0.441 ⁱ	0.619 ^a	0.571 ^a
Ln(L)	0.915 ^a	0.988 ^a	0.513 ⁱ	0.914 ^a	1.008 ^a
de jure					
Ln(FLI)	0.034 ^b	-	-	-	-
Ln(TLI)	-	-0.022	-	-	-
Ln(K_Opennes)	-	-	0.002	-	-
de facto					
Ln(FO)	-	-	-	-0.201 ^c	-
Ln(TO)	-	-	-	-	-0.024 ^b

Note: Ln shows the sign of natural logarithm, Y stands for real economic growth, K stands for real capital stock, L stands for skill labor force, FLI stands for financial liberalization index, TLI stands for trade liberalization index, K_Openness stands for capital account liberalization index, FO stands for financial openness index, TO stands for trade openness.
a; indicate 1% level of significance.
b indicate 5% level of significance.
c indicate 10% level of significance.

Table 5.5 Short Run Coefficients of Economic Growth Model

	(1)	(2)	(3)	(4)	(5)	
	Intercept	0.022 ^a	0.0003	-0.001	0.004	-0.002
	$\Delta(\text{Ln K})$	0.109 ^b	0.137 ^a	0.141 ^a	0.155 ^a	0.162 ^a
	$\Delta(\text{Ln L})$	0.125 ^c	0.044	0.144 ^a	0.108 ^a	0.106 ^a
de jure	$\Delta(\text{Ln FLI})$	0.0007	-	-	-	-
	Ln TLI	-	-0.029 ^c	-	-	-
	$\Delta(\text{Ln K_Openness})$	-	-	0.0015	-	-
de facto	$\Delta(\text{Ln FOI})$	-	-	-	-0.074 ^a	-
	$\Delta(\text{Ln TO})$	-	-	-	-	0.015
	ECM(-1)	-0.212 ^a	-0.042 ^a	-0.067 ^b	-0.134 ^a	-0.287 ^a
	R – squared	0.635	0.556	0.591	0.666	0.613

Note: Ln shows the sign of natural logarithm, Y stands for real economic growth, K stands for real capital stock, L stands for skill labor force, FLI stands for financial liberalization index, TLI stands for trade liberalization index, K_Openness stands for capital account liberalization index, FOI stands for financial openness index, TO stands for trade openness.

a; indicate 1% level of significance.

b indicate 5% level of significance.

c indicate 10% level of significance.

5.2 Impact of Economic Liberalization on Private Saving

It is established opinion that saving offers the capital for financing in physical capital investment, and also a significant determinant of economic growth. The saving rate indicates unequal regional trends, which is possible significant implications for economic growth. The objective of this section is to investigate the impact of financial/trade liberalization on private saving, which provides useful input as to which liberalization policies are most effective in raising private saving in the case of Pakistan.

The economic liberalization like financial and trade liberalization policies have been followed by various developing countries, including Pakistan to attain and endorse higher level of output/ economic growth. The relationship between financial/trade liberalization and private saving is not only an important, but also a vital topic for both researchers and policy makers. Numerous researchers have investigated this link, but the results are mixed. According to McKinnon-Shaw (1973) hypothesis, financial liberalization increases the real interest rate that could induce the savers to save more. The economic growth of any economy subjects of capital accumulation, and this needs investment with corresponding savings (Thirlwall, 2004).

The impact of financial/trade liberalization on private saving is estimated by using the following equation that is derived in section 3.3.2.

$$\begin{aligned} \ln(RPS) = & \beta_0 + \beta_1 \ln(PPI) + \beta_2 (RDR) + \beta_3 \ln(OAD) \\ & + \beta_4 \ln(PS) + \beta_4 \ln(LI) + v_i \end{aligned}$$

In the private savings equation RPS, PPI, RDR, OAD, PS, and LI respectively confers real private saving, real per capita private income, real deposit rate, old age

dependency, public saving, and financial/trade liberalization indicators i.e. financial liberalization index, capital account liberalization index, trade liberalization, financial openness and trade openness). In the equation Ln shows the sign of natural logarithms and βs represent the slope coefficients of respectively variables. v_i is the error correction term.

Table 5.6 presents the bound critical values and table 5.7 shows co-integration test results.⁴³ The co-integration results indicate that the long run association exists in all the five models. After establishing the long run relationship, this study then estimates the long run coefficients by using the ARDL approach. Table 5.8 indicates that per capita real private income is positively related with the private savings (in all five models) with the long run elasticity of **1.288** to 2.304. This finding suggests that private savings increase with the positive growth in per capita private income. Hence the growth enhancing policies may increase savings in Pakistan economy. This result is consistent with earlier results of Edwards (1996), Athukorala and Sen (2002), Athukorala and Tsai (2003), Larbi (2013), El-Seoud (2014) and Gök (2014).

The real deposit rate is also positively associated with private savings, a 1% increase in real deposit rate enhances private savings in the range of 0.023 - 0.039%. The positive impact of real deposit rate on private savings conforms to the estimates obtained by Athukorala and Tsai (2003), Athukorala and Sen (2004), Shrestha (2008) and Touny (2008). Based on the results, this study conjecture that the interest rate reforms in Pakistan have boosted private saving. Given the low response of private

⁴³ Five models are investigated under two scenarios as recommended by Pesaran *et al.* (2001), which are F_{III} represents the F-statistic of the model with unrestricted intercept and no trend, and F_V represents the F-statistic of the model with unrestricted intercept and trend. The intercept in all these situations are unrestricted (Pesaran *et al.* 2001, p 295-296).

saving to real deposit rates, the effect of interest rate liberalization on private saving is expected to be temporary.

The results suggest that public saving is unlikely to crowd out private savings, so the change in government fiscal state may have influenced private saving in Pakistan. A 1% increase in public saving increases private saving from 0.005 to 0.007%. This finding is similar to those found by El-Seoud (2014) for Bahrain.

The long run results show that old age dependency negatively impacts private savings⁴⁴ and is consistent with the LCM that the private sector saves less particularly, those in older age group relative to working population. This is in line with previous findings, e.g., Ang (2009), Khan., Gill, and Haneef (2013) and Gök (2014). The emerging demographic transition in Pakistan has played a role in increasing private savings.

Financial system liberalization is found to have played a positive part in the stimulation of private saving. A 1 percent increase in financial system liberalization yields approximately a 0.112 percent increase in private saving. This positive coefficient is consistent with the theory that saving rises with the availability of risk-sharing financial instruments and an improvement in the financial system. An important policy suggestion emerging from the results is that it is vital for the government to liberalize the financial system, i.e. bank sector and stock market in order to mobilize private savings.

⁴⁴ The negative link between old age dependency and private savings is true in one model, but in other models the coefficient is statistically insignificant.

The results (in table 5.8) show that capital account liberalization and financial openness both are negatively associated with the private savings. A 1% increase in capital account liberalization and financial openness decreases private saving respectively 0.133 and 1.09% suggesting that the external financial liberalization has not helped to mobilize private savings in Pakistan efficiently.

The trade liberalization is found to have an insignificant effect on private saving but trade openness is negatively related with private saving. Athukorala and Sen (2004) also find that trade indicator (trade openness) is negatively linked with private savings in India. El-Seoud (2014) documents that trade openness (terms of trade) is negatively associated with private saving. According to Maizels (1968), trade liberalization affects private savings by increasing export income. Pakistan exports are more biased in favor of agriculture and raw materials. Primary goods face a very low price in foreign markets, compared to final good. So, less earnings from exports translate in low income and lower private savings.

Estimated short run coefficients presented in Table 5.9 show that per capita private income, real interest rate and public saving are positively related to private saving in Pakistan; as is the domestic financial liberalization index which is consistent with the long run results.

The results also show that both capital account liberalization and financial openness are negatively related with private savings in the short run, a pain in the line with the long run results. In theory, capital account liberalization predicts that the effects on private saving manifests through increased efficiency of financial sector thereby

boosting capital inflow. Thus, capital account policies are either ineffective or counter-productive to augment the private savings in Pakistan and need to be revisited.

The results show that the impact of trade liberalization and trade openness on private savings in the short run is insignificant. The error correction term shows the speed of adjustment is negative and statistically significant. The estimates suggest that private saving adjust at an annual average rate ranging between 0.154 and 1.088 towards the long run equilibrium.

Table 5.6 Critical Values for ARDL Modeling Approach

K = 5	0.10		0.05		0.01	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
F_V	3.012	4.147	3.532	4.800	4.715	6.293
F_{III}	2.458	3.647	2.922	4.268	4.030	5.598
t_V	-3.13	-4.21	-3.41	-4.52	-3.96	-5.13
t_{III}	-2.57	-3.86	-2.86	-4.19	-3.43	-4.79

Notes: k is number of regressors, F_V represents the F-statistic of the model with unrestricted intercept and trend, F_{III} represents the F-statistic of the model with unrestricted intercept and no trend. t_V and t_{III} are the t ratios for testing ω_1 in equation (3.23) is respectively with and without deterministic linear trend.

Source : Narayan (2005) for F-statistics and Pesaran et al. (2001) for t-statistic.

Table 5.7 ARDL Co-integration Analysis of Private Saving Model

Model	Without Determintic Trends		With Determintic Trends		Conclusion
	F_{III}	t_{III}	F_V	t_V	
Model – 1: (RPS, PS RDR, PPI, OAD, FLI)	5.214 ^a	– 5.386 ^a	4.997 ^a	–5.328 ^a	Rejected
Model – 2: (RPS, PS RDR, PPI, OAD, TLI)	8.667 ^a	–6.778 ^a	9.068 ^a	–6.966 ^a	Rejected
Model – 3: (RPS, PS RDR, PPI, OAD, K_Open)	3.121 ^a	– 4.405 ^a	4.163 ^a	–4.331 ^a	Rejected
Model – 4: (RPS, PS, RDR, PPI, OAD, FO)	8.888 ^a	–6.932 ^a	8.996 ^a	–6.979 ^a	Rejected
Model – 5: (RPS, PS RDR, PPI, OAD, TO)	5.419 ^a	– 4.861 ^a	5.169 ^a	–4.755 ^a	Rejected

Note: H_0 indicates no co-integration. The optimum lag is selected by using the Schwarz Bayesian *criterion*. Lag is number of lags, F_{III} represents the F-statistic of the model with unrestricted intercept and no trend. F_V represents the F-statistic of the model with unrestricted intercept and trend. The t_V and t_{III} are the t ratios are respectively with and without deterministic linear trend.

‘c’ indicates that the statistic lies below the 0.10 lower bound

‘b’ that it falls within the 0.10 bounds and

‘a’ that it lies above the 0.10 upper bound.

Table 5.8 Long Run Coefficient of Private Saving Model

	1	2	3	4	5
Intercept	-12.224 ^b	-16.159 ^a	-12.779 ^a	1.095 ^a	-7.189 ^c
Ln(PPI)	2.304 ^a	1.288 ^a	1.998 ^a	2.297 ^a	1.667 ^a
RDR	0.039 ^a	0.024 ^a	0.025 ^a	0.023 ^a	0.025 ^b
Ln(PS)	0.007 ^c	0.005 ^b	-0.032	0.037	0.045 ^b
Ln(OAD)	0.104	0.375	0.437	-0.108 ^c	0.773
de jure					
Ln(FLI)	0.112 ^b	-	-	-	-
Ln(TLI)	-	0.044	-	-	-
Ln(K_Open)	-	-	-0.133 ^c	-	-
de facto					
Ln(FO)	-	-	-	- 1.095 ^a	-
Ln(TO)	-	-	-	-	-0.883 ^c

Note: Ln stands for natural logarithms, PPI for per capita real private income, RDR for real deposit rate, PS for real public savings, OAD for old age dependency, FO for financial openness index, FLI for financial liberalization index, TLI trade liberalization index, K_Open for capital account liberalization index, FO for financial openness, and TO for trade openness.

a; indicate 1% level of significance.

b indicate 5% level of significance.

c indicate 10% level of significance.

Table-5.9 Short Run Coefficients of Private Saving Model

	(1)	(2)	(3)	(4)	(5)
Intercept	-0.019	0.033	0.015	-0.036	0.033
$\Delta\text{Ln}(\text{PPI})$	2.184 ^a	1.607 ^a	2.501 ^a	2.797 ^a	1.662 ^a
ΔRDR	0.023 ^a	0.024 ^a	0.017 ^a	0.016 ^a	0.024 ^a
$\Delta\text{Ln}(\text{PS})$	-0.008	0.034 ^a	0.015 ^a	0.005	-0.005
$\Delta\text{Ln}(\text{PS}(-1))$	0.015 ^c	-	0.028 ^a	-	0.033 ^a
$\Delta\text{Ln}(\text{OAD})$	0.052	0.363	0.221	-0.137	-1.048 ^a
de jure					
$\Delta\text{Ln}(\text{FLI})$	0.019 ^b	-	-	-	-
TLI	-	0.052	-	-	-
$\Delta\text{Ln}(\text{K_Open})$	-	-	-0.064 ^a	-	-
de facto					
$\Delta\text{Ln}(\text{FO})$	-	-	-	-0.043 ^b	-
$\Delta\text{Ln}(\text{TO})$	-	-	-	-	-0.031
$\text{ECM}(-1)$	-0.932	-1.006 ^a	-0.667 ^a	-1.088 ^a	-0.154 ^a
R – squared	0.812	0.853	0.799	0.837	0.827

Note: Ln shows the sign of natural logarithms, PPI stands for per capita real private income, RDR stands for real deposit rate, PS stands for real public savings, OAD stands for old age dependency, K_Open capital account openness index, FOI stands for financial openness index, TO stands for trade openness, TLI stands for trade liberalization index, and FLI stands for financial liberalization index.

a; indicate 1% level of significance.

b indicate 5% level of significance.

c indicate 10% level of significance.

5.3 Impact of Economic Liberalization on Private Investment

For empirical purpose, this study uses the following specification as discussed in section 3.3.3.

$$I = f(\text{PPI}, \text{RIR}, \text{PI}, \text{LI})$$

In log linear form, the equation is written as follows:

$$\text{Ln}(I) = \alpha_0 + \alpha_1 \text{Ln}(\text{PPI}) + \alpha_2 (\text{RIR}) + \alpha_3 \text{Ln}(\text{PI}) + \alpha_4 \text{Ln}(\text{LI}) + v_i$$

Where I, PPI, RIR, PI and LI respectively refer to real private investment, per capita real private income, real interest rate, real public investment and de facto and de jure indicators of economic liberalization (i.e. financial liberalization index, capital account liberalization index, trade liberalization, financial openness, and trade openness). *Ln* indicates natural logarithms and α 's represent the slope coefficients of respectively variables. The v_i is the error term.

Table 5.11 reports the results of t- and F-statistics for the bounds tests.⁴⁵ In terms of the results, the null hypothesis of no co-integration for the private investment equation is rejected at the 10% level for five models. The long-run coefficient of the private investment model, reported in Table 5.12 indicates that private investment is positively related with real per capita private income which is in line with the predictions of the neoclassical model. A 1% increase in per capita real private income is expected to stimulate private investment by 1.088 to 2.327 percent. The finding that income/output is an important determinant of private investment is consistent with of Sakr (1993), Shrestha and Chowdhury (2007), and Ang (2009). Elasticity of real

⁴⁵ The Schwarz's Bayesian information criteria (SBC) is used in the lags selection process.

interest rate with respect to private investment is -0.010 to 0.019 statistically significant suggesting little, if any, evidence to support real interest rate (user cost of capital) as a useful determinant of private investment in Pakistan.

The public investment is positively related with the private investment which indicates a rise in government investment is associated with an increase in private sector investment. Thus, the current efforts made by the Pakistan government to spend on infrastructure development may stimulate, rather than crowd out private capital formation.

The coefficient of financial liberalization index is positively related with private investment, indicating that internal financial reforms (e.g., banking and stock market) stimulate private investment in Pakistan. A 1% increase in LnFLI increases private investment by 0.0855%. The expansion of banking service such as new banks and more branches improve access to banking services and lowers the banking transaction cost. This happens due to increased competition and willingness of individuals to save; and thus make more fund available for investment.

As for external financial liberalization, the estimates of the effect of capital account liberalization and financial openness on private investment in Pakistan are statistically insignificant. It is plausible that external financial liberalization is less effective in boosting private investment because of the less capital inflow.

This study finds that trade liberalization is statistically insignificant. The trade openness is negatively related with private investment. A 1% increase in trade

openness reduces private investment by 3.162%. In terms of the theory, the effect of trade liberalization on private investment through higher efficiency in resources allocation may not be achieved due to poor management. Pakistan still is an exporter of raw material which in part is a cause of low investment and income in the export sector.

The short run coefficients presented in table 5.13 show that the coefficient of real per capital private income is positively and the real interest rate is negatively associated with private investment. Results also show that the public investment is positively related with the private investment.

Financial liberalization index is found to play a positive role in stimulating private investment in the short- as well as the long run. Based on the results, it appears that internal financial liberalization can help to promote private investment in Pakistan.

Trade liberalization and trade openness are statistically insignificant in the short run. Interestingly, the capital account liberalization and financial openness are positively related with the private investment in Pakistan. This positive juxtaposition may be due to the spending of some part of debts for building infrastructure, further stimulating the economic activities. This in turn has affected the private investment positively in the short run. Further, the error correction term is negative and significant. It shows the speed of adjustment from short run disequilibrium to long run equilibrium. The results indicate that adjustment takes place at a speed of 33.9 to 91.5 percent per year.

Table 5.10 Critical Values for ARDL Modeling Approach

K = 4	0.10		0.05		0.01	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
F_V	3.298	4.378	3.980	5.104	5.224	6.696
F_{III}	2.638	3.772	3.178	4.450	4.394	5.914
t_V	-3.13	-4.04	-3.41	-4.36	-3.96	-4.96
t_{III}	-2.57	-3.66	-2.86	-3.99	-3.43	-4.60

Notes: k is number of regressors, F_V represents the F-statistic of the model with unrestricted intercept and trend, F_{III} represents the F-statistic of the model with unrestricted intercept and no trend. t_V and t_{III} are the t ratios for testing ϖ_1 in equation (3.23) is respectively with and without deterministic linear trend.

Source: Narayan (2005) for F-statistics and Pesaran *et al.* (2001) for t-statistic.

Table 5.11 ARDL Co-integration Analysis of Private Investment Model

Models	Without Determintic Trends		With Trends	Determintic		Conclusion
	F_{III}	t_{III}		F_V	t_V	
				H_0		
Model – 1: (I, PPI RIR, PI, FLI)	4.636 ^a	-4.676 ^a	4.504 ^a	-4.397 ^a	Rejected	
Model – 2: (I, PPI RIR, PI, TLI)	3.127 ^c	-3.856 ^a	4.158 ^b	-4.649 ^a	Rejected	
Model – 3: (I, PPI RIR, PI, K_Open)	4.649 ^a	-2.903 ^b	4.597 ^a	-3.638 ^b	Rejected	
Model – 4: (I, PPI, RIR, PI, FOI)	5.648 ^a	-5.031 ^a	5.442 ^a	-4.102 ^a	Rejected	
Model – 5: (I, PPI, RIR, PI, TO)	5.579 ^a	-3.806 ^a	8.574 ^a	-3.745 ^b	Rejected	

Note: H_0 indicates no cointegration. The optimum lag is selected by using the Schwarz Bayesian criterion. Lag is number of lags, F_{III} represents the F-statistic of the model with unrestricted intercept and no trend. F_V represents the F-statistic of the model with unrestricted intercept and trend. The t_V and t_{III} are the t ratios are respectively with and without deterministic linear trend.

'c' indicates that the statistic lies below the 0.10 lower bound

'b' that it falls within the 0.10 bounds and

'a' that it lies above the 0.10 upper bound.

Table 5.12 Long Run Coefficients of the Private Investment Model

		1	2	3	4	5
	Constant	-5.251 ^a	-7.016 ^a	-7.558 ^a	-2.310	-2.387
					1.088 ^a	1.266 ^a
	Ln(PPI)	1.591 ^a	2.327 ^a	1.787 ^a		
					-0.010	-0.019 ^b
	RIR	0.0006	-0.002	0.021		
	Ln(PI)	0.524 ^a	0.255 ^b	0.813 ^a	0.257 ^b	1.774 ^a
de jure						
	Ln(FLI)	0.085 ^b	-	-	-	-
	Ln(TLI)	-	-0.173	-	-	-
	Ln(K_Open)	-	-	-0.286	-	-
de facto						
	Ln(FO)	-	-	-	0.363	-
	Ln(TO)	-	-	-	-	-3.162 ^a

Note: Ln shows the sign of natural logarithm, PPI stands for per capita real private income, RIR stands for real interest rate, PI stands for real public investment, FLI stands for financial liberalization index, TLI stands for trade liberalization index, K_Open stands for capital account liberalization index, FO stands for financial openness index, TO stands for trade openness.

a; indicate 1% level of significance.

b indicate 5% level of significance.

c indicate 10% level of significance.

Table 5.13 Short Run Coefficients of Private Investment Model

		(1)	(2)	(3)	(4)	(5)
de jure	Intercept	0.033	0.008 ^c	0.038 ^c	0.039 ^c	0.014
	$\Delta\text{Ln(PPI)}$	0.631 ^b	0.434 ^b	0.543 ^a	0.607 ^a	0.443 ^c
	ΔRIR	-0.000	-0.007 ^c	-0.005	-0.011 ^b	-0.002 ^c
	$\Delta\text{Ln(PI)}$	0.302 ^b	0.303 ^c	0.743	0.265 ^b	0.247 ^c
	$\Delta\text{Ln(FLI)}$	0.054 ^c	-	-	-	-
	TLI	-	-0.021	-	-	-
	$\Delta\text{Ln(K_Open)}$	-	-	-0.021	-	-
de facto	$\Delta\text{Ln(K_Open}(-1))$	-	-	0.129 ^a	-	-
	$\Delta\text{Ln(FOI)}$	-	-	-	0.118 ^a	-
	$\Delta\text{Ln(TO)}$	-	-	-	-	0.011
	ECM(-1)	-0.869	-0.339 ^b	-0.453	-0.915 ^a	-0.451 ^c
	R – squared	0.547	0.647	0.625	0.632	0.611

Note: Ln shows the sign of natural logarithm, PPI stands for per capita real private income, RIR stands for real interest rate, PI stands for real public investment, FLI stands for financial liberalization index, TLI stands for trade liberalization index, K_Open stands for capital account liberalization index, FOI stands for financial openness index, TO stands for trade openness.

a; indicate 1% level of significance.

b indicate 5% level of significance.

c indicate 10% level of significance.

5.4 Trade and Capital Account Liberalization

Now this study examines whether trade liberalization is necessary for financial liberalization. As many have advocated (McKinnon, 1991 and Tornell et al., 2004, among others). From an empirical point of view, this study examines this question using a simple model [described in 3.3.4] that can account for the determinants of financial restrictions or openness.

The results of co-integration reported in Table 5.14 show no co-integration if this study includes trade liberalization as a determinant of capital account liberalization. However, this study finds a long run relationship in the presence of trade openness. Interestingly, when capital account liberalization is replaced with financial openness in both specifications, study finds a long run relationship. It infers that trade de facto impact is more powerful as compared to its de jure impact on capital account liberalization.

The long run results presented in Table 5.15 show that the coefficient of per-capita GDP is positively and significantly associated with capital account liberalization and financial openness, and is significant. A 1% increase in per capita GDP raises capital account liberalization by 2.014%; and financial openness by 0.753 to 1.125%. The international reserve (IR) is positively associated with the external financial liberalization. A 1% increase in IR raises de jure financial liberalization by 0.1215% and de facto financial openness by 0.033%. The budget deficit is positively associated with the de facto financial openness. A 1% rise in budget deficit increases the de facto financial openness 0.205 to 0.331%.

The de facto trade openness (at lag-1) affects both de jure capital account liberalization and de facto financial openness positively. On the other hand de jure trade liberalization is positively related with de facto financial openness. The positive impact of trade liberalization/openness on external financial liberalization shows that the openness in goods transactions is a precondition for external financial liberalization. Based on the results, this study concludes that the openness in goods market appears to be a precondition for external financial liberalization. The finding thus conforms to the earlier empirical results of McKinnon (1991), Tornell et al. (2004) and Chinn and Ito (2006).

Table 5.14 ARDL Co-integration Analysis of Capital Account Liberalization

Models	Without Determintic Trends		With Determintic Trends		Conclusion
	F_{III}	t_{III}	F_V	t_V	
	H_0				
Model – 1: (K_Open, PC IR, BD, TLI)	0.4846 ^c	-2.511 ^c	1.982 ^c	-3.335 ^b	Not Rejected
Model – 2: (K_Open, PC IR, BD, TO(-1))	11.763 ^a	-7.381 ^a	11.288 ^a	-7.263 ^a	Rejected
Model – 3: (FO, PC IR, BD, TLI)	7.157 ^a	-3.887 ^a	6.642 ^a	-3.794 ^b	Rejected
Model – 4: (FO, PC IR, BD, TO(-1))	5.239 ^a	-3.762 ^a	7.189 ^a	-3.711 ^b	Rejected

Note: H_0 indicates no co-integration. The optimum lag is selected by using the Schwarz Bayesian criterion. Lag is number of lags, F_{III} represents the F-statistic of the model with unrestricted intercept and no trend. F_V represents the F-statistic of the model with unrestricted intercept and trend. The t_V and t_{III} are the t ratios are respectively with and without deterministic linear trend.

'c' indicates that the statistic lies below the 0.10 lower bound

'b' that it falls within the 0.10 bounds and

'a' that it lies above the 0.10 upper bound.

Table 5.15 Long Run Coefficients of the Capital Account Liberalization

Dependent Variable	K_Open	FO	
	2	3	4
Constant	-0.349	-0.281	0.737
Ln(PC)	2.014 ^b	0.753 ^c	1.125 ^c
LN(IR)	0.121 ^c	0.017	0.033 ^c
Ln(BD)	0.188	0.331 ^b	0.205 ^b
de jure			
Ln(TLI)	-	0.169 ^c	-
de facto			
Ln(TO(-1))	0.359 ^c	-	0.287 ^b

Note: Ln refers to natural logarithm, PC to per capita GDP, IR to international reserves, BD to budget deficit, TLI to trade liberalization, TO to trade openness, K_Open to capital account liberalization index, and FOI to financial openness index.

a indicate 1% level of significance.

b indicate 5% level of significance.

c indicate 10% level of significance.

CHAPTER 6

CONCLUSION AND POLICY IMPLICATIONS

6.1 Conclusion

This thesis examines the influence of economic liberalization (financial and trade) on private savings, private investment and economic growth for Pakistan's economy. Further, study also checks whether trade liberalization is a precondition for openness of capital account liberalization. Using annual data from 1971-2013 for empirical analysis, this study contributes to the existing literature is exploring the impact of economic liberalization indicators (de jure and de facto) on economic growth through different channels.

This study employs ADF in order to determine the level of integration, while the autoregressive distributed lag (ARDL) co-integration approach is used to check for long run association among the variables. Since a long run relationship exists, the next step is to estimate long run and short run coefficients. The auto-regressive distributed lag approach to co-integration used in the study has the following advantages over other co-integration methods. First, it can be used irrespective of whether the variables are purely $I(0)$, $I(1)$ or mutually co-integrated. Second, a dynamic error correction model is derived by a simple linear alteration. Finally, all the variables are assumed to be endogenous.

The unit root test results indicate that all the variables are integrated of order one or $I(1)$ except capital account liberalization. The ARDL results indicate that a long run

relationship exists between economic growth, private savings and investment. The estimates of the economic growth model show that human capital, real capital stock and financial liberalization index (banking and stock market) are positively related with economic growth. The results of this study also indicate that the de facto financial openness index and trade openness are negatively associated with economic growth. The negative impact of financial liberalization on economic growth corroborates Dornbusch (1976), Edwards (2001), Edison et al. (2002) and Klein and Olivei (2008). This study finds that a one percent increase in financial openness index impedes long run economic growth on average by 0.201 percent. The negative impact of de facto financial openness on economic growth is credited to a host of factors. Generally a country's international assets and liabilities are anticipated to be of similar size of order. But in Pakistan average assets are less than one third of Pakistan's foreign liabilities, indicating a strongly negative net investment position. Another vital aspect of Pakistan's foreign investment position is that total assets relative to GDP has remained stagnant in the range of 6 to 15 percent during the sample period, while liabilities to GDP increased during the last few years. If total liabilities are disaggregated into foreign loans and FDI, this study finds that foreign loans account for almost 86.07 percent of total liabilities, while FDI inflows account for only 10.6 percent of total liabilities. The poor performance of Pakistan's foreign investment position points to the dependence of the economy on external sources. The negative coefficient may also be attributed to vulnerability of the economy to shocks as a result of the big bang approach to openness rather than the incremental approach, without the safeguard and derogatory clauses emphasized by Jones (2003) and Singh (2003).

The long run results also show that the de facto indicator of trade openness is negatively linked with economic growth, corroborating Kind (2002) and Kim (2011) who report negative impact of trade openness on economic growth for developing countries. Grossman and Helpman (1991), Young (1991) and Rivera-Batiz (1995) state that trade openness causes economic growth through efficient allocation of resources and the spillover effects of technology emanating from import of capital goods embodying foreign technology and knowledge. But in Pakistan, the negative coefficient may be attributed to the higher percentage of imports of consumer goods (60 %) as compared with capital goods (40%). Since imports increase much faster as compared with exports after trade liberalization, the great volume of consumer goods did not cause the kind of spillover effects propounded by the theory.

This study finds that the long run per capita real private income, real deposit rate, public savings and financial liberalization are positively associated with private savings, while capital account liberalization, financial openness index and trade openness are negatively related with private savings in the long run. Financial liberalization has been found to play a positive role in stimulating private savings. The positive coefficient is consistent with the theory that savings increase with the availability of risk-sharing financial instruments and improvement in the financial system. An important policy suggestion emerging from the result is that it is vital for the government to liberalize the financial system, i.e. banking sector and stock market in order to mobilize private savings. The results also show that capital account liberalization and financial openness are negatively associated with private savings,

which suggests that external financial liberalization has not helped to mobilize private savings in Pakistan efficiently.

The trade openness is found to have a negative effect on private savings, lending support to the earlier findings of Athukorala and Sen (2004) and El-Seoud (2014) since Pakistan exports mostly agriculture and primary goods with low prices in the international markets as compared with final goods.

This study also finds that per capita real private income, public investment, and financial liberalization are positively related to private investment in the long run. Moreover, public investment in power, water, roads, etc. through making the infrastructure available gives impetus to private investments. Similarly, financial liberalization i.e. liberalization of the banking sector and stock market increase investments by making investment opportunities available to investors.

The real interest rate and trade openness are negatively related to private investment in the long run. The positive impact of trade liberalization on private investment emanating from higher efficiency in resource allocation might not have been achieved due to poor management. Pakistan's exports still comprise large quantities of primary goods and raw material which explains the low investment and income levels in the export sector. The short run results indicate that capital account liberalization and financial openness are positively associated with private savings.

Table 6.1 Summary of Results

	Economic Growth		Private Saving		Private Investment		Capital Account Libearlaization	
	Long Run	Short Run	Long Run	Short Run	Long Run	Short Run	Long Run	
	Ln(Y)	Ln(Y)	Ln(RPS)	Ln(RPS)	Ln(I)	Ln(I)	K_Open	FO
Ln(K)	+ve	+ve	-	-	-	-	-	-
Ln(L)	+ve	+ve	-	-	-	-	-	-
Ln(FLI)	+ve	x	+ve	+ve	+ve	+ve	-	-
Ln(TLI)	X	-ve	x	x	x	X	-	+ve
Ln(K-Open)	X	X	-ve	-ve	x	+ve	-	-
Ln(FO)	-ve	-ve	-ve	-ve	x	+ve	-	-
Ln(TO)	-ve	x	-ve	x	-ve	X	+ve	+ve
Ln(PPI)	-	-	+ve	+ve	+ve	+ve	-	-
Ln(PI)	-	-	-	-	+ve	+ve	-	-
Ln(PC)	-	-	-	-	-	-	+ve	+ve
RDR	-	-	+ve	+ve	-	-	-	-
RIR	-	-	-	-	-ve	-ve	-	-
LnIR	-	-	-	-	-	-	+ve	+ve
Ln(PS)	-	-	+ve	+ve	-	-	-	-
Ln(OAD)	-	-	-ve	-ve	-	-	-	-
Ln (BD)	-	-	-	-	-	-	X	+ve

Note: X stands for statistically insignificant coefficient, +ve stands for positive and statistically significant coefficient, -ve stands for negative and statistically significant coefficient, Ln refers to natural logarithm, Y to real economic growth, PC to capita real private income, K to real capital stock, L to skill labor force, PPI to per capita real private income, RDR to real deposit rate, RIR to real interest rate, I to real private investment, PRS to real private saving, OAD to old age dependency, PS to real public savings, PI to real public investment, FO to financial openness, TO to trade openness, BD to budget deficit, IR to international reserve, K_Open to capital account liberalization, and FLI to financial liberalization index.

The study also finds a positive association of trade openness with capital account liberalization. Furthermore, the study concludes that trade liberalization and trade openness are positively associated with external financial openness, showing that the openness in goods transaction is a prerequisite for external financial liberalization. These findings provide vital input for devising liberalization policies.

6.2 Policy Implication

This study finds that the financial liberalization index (i.e. banking and stock market liberalization) is impacting positively on economic growth, private savings and investment in Pakistan. This is understandable as liberalization in the banking sector makes banking services available to wider areas enabling people to use banking services and deposit money in banks rather than hoard it, which can be used productively if money is channelled through the banking sector, as is borne out by the positive coefficient on financial liberalization index in the investment equation. This study suggests more liberalization in banking and stock market, so that banks spread their branches far and wide in remote areas in order to mobilize savings and channel them towards productive investment opportunities.

The results of this study indicate that capital account and trade liberalization are negatively (statistically insignificant) related with economic growth, private savings and investment, suggesting that these liberalization policies are counter-productive in Pakistan. There is, therefore, need for further research that explores how these policies can have a positive impact on economic growth.

In the savings model, this study finds that the deposit rate (also known as savings rate) has a positive impact on savings and in the investment model, the real interest rate (also known as the lending rate) has a negative impact on investment. Together the two findings point to the wide spread between the interest rate and the deposit rate which, for most years, has been above 7 percent. GOP should increase the deposit rate in a way that it is above the inflation rate, causing an increase in savings. The real interest rate has been on the higher side for the last several years, which adversely affects private investments as is borne by the negative coefficient on this variable. By lowering the real interest rate and increasing the deposit rate, the GOP can reduce the spread, thus increasing both savings and investments in Pakistan.

Moreover, public investment has a positive impact on private investment; the most effective way to increase private investments in the country would be through enhancing public investments. Public investments by making power, water, roads and other infrastructure available can play an important role in increasing private investments in the country.

Skilled labor force has a positive impact on economic growth, indicating that human capital is playing an important role in the growth process. Presently Pakistan is spending 2.1 % of its GDP on education (GOP 2011), which is much lower than other regional countries like India, Bangladesh and Nepal. Increase in expenditure on education and its effective allocation is vital in order to sustain economic growth by enhancing human capital.

This study suggests trade openness is a prerequisite for capital account liberalization. It infers that trade liberalization should be followed by that capital account liberalization.

6.3 Direction for Further Research

In the light of findings, this study suggests further research should concentrate on formulating an economic liberalization model that is consistent with economic growth and stability. Such a model should take into consideration those aspects of reforms that are adversely impacting on savings, investment and growth in Pakistan. It is also needed to be explored whether the adverse impact is on account of poor governance or it is due to the adoption of the 'Big Bang' approach rather than the incremental approach, as discussed in Hanke (1988) and emphasized by Jones (2003) and Singh (2003). Further research on these issues will help to identify those factors that are negatively affect on growth in Pakistan.

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Appendix

Table 1A Diagnostic Test of Economic Growth Model

	Test Statistics	LM Version	F Version
Model-1			
	A:Serial Correlation	CHSQ(1)= 2.297[0.13]	F = 1.967[0.17]
	B:Functional Form	CHSQ(1)= 1.396[0.23]	F = 1.169[0.28]
	C:Normality	CHSQ(1)= 0.784[0.67]	Not applicable
	D:Heteroscedasticity	CHSQ(1)= 1.478[0.22]	F = 1.459[0.23]
Model-2			
	A:Serial Correlation	CHSQ(1)= 0.548[0.45]	F = 0.436[0.51]
	B:Functional Form	CHSQ(1)= 0.135[0.71]	F = 0.106[0.74]
	C:Normality	CHSQ(1)= 1.066[0.58]	Not applicable
	D:Heteroscedasticity	CHSQ(1)= 0.883[0.34]	F = 0.859[0.36]
Model-3			
	A:Serial Correlation	CHSQ(1)= 2.011[0.158]	F = 1.012[.27]
	B:Functional Form	CHSQ(1)= 1.797[0.18]	F =1.521[0.22]
	C:Normality	CHSQ(1)= 0.999[0.61]	Not applicable
	D:Heteroscedasticity	CHSQ(1)= 0.829[0.36]	F = 0.806[0.37]
Model-4			
	A:Serial Correlation	CHSQ(1)= 0.524[0.46]	F = 0.414[0.52]
	B:Functional Form	CHSQ(1)= 0.054[0.81]	F = 0.042[0.83]
	C:Normality	CHSQ(1)= 0.437[0.81]	Not applicable
	D:Heteroscedasticity	CHSQ(1)= 0.141[0.71]	F = 0.135[0.71]
Model-5			
	A:Serial Correlation	CHSQ(1)= 0.421[0.39]	F = 1.627[0.18]
	B:Functional Form	CHSQ(1)= 1.261[0.26]	F = 1.078[0.31]
	C:Normality	CHSQ(1)= 1.137[0.56]	Not applicable
	D:Heteroscedasticity	CHSQ(1)= 0.157[0.69]	F = 0.151[0.71]

Table 2A Diagnostic Test of Private Savings Model

	Test Statistics	LM Version	F Version
Model-1	A:Serial Correlation	CHSQ(1)= 1.522[0.21]	F = 1.316[0.25]
	B:Functional Form	CHSQ(1)= 1.352[0.26]	F = 1.096[0.32]
	C:Normality	CHSQ(1)=1.171[0.55]	Not applicable
	D:Heteroscedasticity	CHSQ(1)=2.198[0.13]	F = 1.209[0.32]
Model-2	A:Serial Correlation	CHSQ(1)= 0.127[0.72]	F = 0.101[0.75]
	B:Functional Form	CHSQ(1)= 0.811[0.36]	F = 0.251[0.61]
	C:Normality	CHSQ(1)= 1.909[0.385]	Not applicable
	D:Heteroscedasticity	CHSQ(1)=1.061[0.303]	F = 1.037[0.315]
Model-3	A:Serial Correlation	CHSQ(1)=1.122[0.28]	F = 0.933[0.34]
	B:Functional Form	CHSQ(1)= 1.573[0.52]	F = 1.355[0.62]
	C:Normality	CHSQ(1)=2.288[0.31]	Not applicable
	D:Heteroscedasticity	CHSQ(1)=1.149[0.46]	F = 1.056[0.56]
Model-4	A:Serial Correlation	CHSQ(1)= 0.331[0.565]	F = 0.278[0.601]
	B:Functional Form	CHSQ(1)= 0.368[0.544]	F = 0.309[0.581]
	C:Normality	CHSQ(1)= 0.884[0.643]	Not applicable
	D:Heteroscedasticity	CHSQ(1)= 0.724[0.395]	F = 0.702[0.407]
Model-5	A:Serial Correlation	CHSQ(1)= 0.533[0.465]	F = 0.437[0.513]
	B:Functional Form	CHSQ(1)= 1.016[0.76]	F =1.360[0.18]
	C:Normality	CHSQ(1)= 2.492[0.288]	Not applicable
	D:Heteroscedasticity	CHSQ(1)=2.482[0.115]	F =2.512[0.121]

Table 3A Diagnostic Test of Private Investment Model

	Test Statistics	LM Version	F Version
Model-1	A:Serial Correlation	CHSQ(1)= 0.0618[0.804]	F = 0.051[0.822]
	B:Functional Form	CHSQ(1)=2.462[0.11]	F = 2.416[0.129]
	C:Normality	CHSQ(1)= 0.207[0.901]	Not applicable
	D:Heteroscedasticity	CHSQ(1)= 0.012[0.912]	F = 0.011[0.915]
Model-2	A:Serial Correlation	CHSQ(1)= 0.018[0.891]	F = 0.015[0.901]
	B:Functional Form	CHSQ(1)= 1.971[0.160]	F = 1.722[0.198]
	C:Normality	CHSQ(1)=0.333[0.847]	Not applicable
	D:Heteroscedasticity	CHSQ(1)=2.047[0.152]	F = 2.049[0.160]
Model-3	A:Serial Correlation	CHSQ(1)=0.138[0.71]	F = 0.115[0.735]
	B:Functional Form	CHSQ(1)=2.445[0.118]	F = 2.164[0.150]
	C:Normality	CHSQ(1)= 0.448[0.799]	Not applicable
	D:Heteroscedasticity	CHSQ(1)=1.078[0.299]	F = 1.053[0.311]
Model-4	A:Serial Correlation	CHSQ(1)=1.048[0.141]	F =2.661[0.112]
	B:Functional Form	CHSQ(1)= 1.901[0.210]	F = 1.181[0.161]
	C:Normality	CHSQ(1)=1.134[0.35]	Not applicable
	D:Heteroscedasticity	CHSQ(1)=0.691[0.406]	F = 0.669[0.418]
Model-5	A:Serial Correlation	CHSQ(1)=0.154[0.694]	F = 0.129[0.721]
	B:Functional Form	CHSQ(1)=2.164[0.141]	F = 1.901[0.177]
	C:Normality	CHSQ(1)=1.160[0.560]	Not applicable
	D:Heteroscedasticity	CHSQ(1)=2.212[0.137]	F = 2.224[0.144]

Table 4A Diagnostic Test of Capital Account Liberalization Model

	Test Statistics	LM Version	F Version
Model-2	A:Serial Correlation	0.185[0.667]	0.163[0.689]
	B:Functional Form	0.551[0.458]	0.489[0.489]
	C:Normality	2051.8[.000]	-
	D:Heteroscedasticity	1.9106[.167]	1.9063[.175]
Model-3	A:Serial Correlation	1.335[0.28]	1.011[0.13]
	B:Functional Form	0.974E-3[0.97]	0.806E-3[0.97]
	C:Normality	0.731[0.69]	-
	D:Heteroscedasticity	0.781[0.37]	0.756[0.39]
Model-4	A:Serial Correlation	1.182[0.13]	1.063[0.11]
	B:Functional Form	0.292[0.58]	0.251[0.61]
	C:Normality	2.3471[0.31]	-
	D:Heteroscedasticity	0.104[0.74]	0.099[0.75]