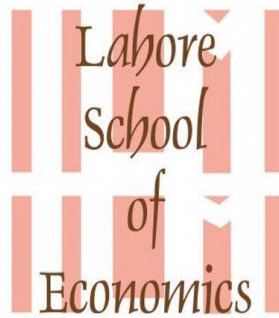


**CAPITAL ACCOUNT LIBERALISATION AND DEVELOPMENT
IN PAKISTAN**



Almazia Shahzad

Lahore School of Economics

**Thesis submitted to the Lahore School of Economics
in partial fulfilment of the requirements for the degree of
MPhil Development Studies**

2017

Supervised By

Dr. Khalil Hamdani

Abstract

This paper explores Pakistan's experience of capital account liberalisation and its effects on the economic performance of the country. Pakistan initiated the process as early as in the mid-1980s, however major policy changes were introduced towards the end of 1990s in response to IMF's conditions. Today most capital controls on inflow transactions have been relaxed and the country's capital account is essentially fully liberalised in that context, however the outflows by residents are not allowed to flow as freely. By using a multivariate VAR model on quarterly data from 1990-2015, the paper concludes no significant impact of opening of the capital account of Pakistan. A review of policies and trend of capital flows suggests that it is largely because a substantial portion of foreign inflows to Pakistan comprise of external debt (i.e., short-term commercial bank credit and official loans) rather than long term stable direct investment. Moreover, these funds have been used by the government to stabilise liquidity in the foreign exchange market instead of being directing towards productive investment. Fluctuation in economic performance of the country, large current account deficit, overvaluation of the exchange rate and political instability have in turn triggered capital outflows. In addition, insufficient design and implementation of complementary policies pertaining to reforms in domestic financial sector and fiscal discipline have limited any potential positive impact that opening up of capital account could have had on the economy.

Dedication

I dedicate this thesis to my parents who made every effort to continuously remind me of the reasons I wanted to pursue a MPhil Degree in Development Studies and opt for this topic for my dissertation. They made sure I stayed motivated till the last minute of finalisation of this document. I also dedicate this to my younger sister who makes me want to do better at things so that I can set an example.

Acknowledgements

I am really thankful to my supervisor Dr. Khalil Hamdani whose feedback and guidance helped me shape this document and the arguments contained in here, in the best possible manner. The questions that he raised after each review aided me in refining my ideas and looking at concepts in more depth.

I would also like to thank the Director of MPhil Development Studies, Dr. Rashid Amjad for facilitating me in every possible way so as to allow me to be able to complete this thesis. It was due to his support that during the course of writing this thesis, I was able to multi-task; work full time at the Cental Bank of Pakistan and also go abroad for an additional Masters Degree.

Contents

Abstract.....	i
Dedication.....	ii
Acknowledgements.....	iii
1 Introduction	1
2 Literature Review	2
2.1 Benefits of Financial Liberalisation	2
2.2 Costs of Financial Liberalisation.....	4
2.3 Preconditions and Sequencing for Financial Liberalisation.....	7
2.4 Financial Liberalisation Experience of Developing Countries	11
2.5 Financial Liberalisation Experience of Pakistan.....	12
2.6 Empirical Models	14
3 Evolution of the Definition of Capital Account	16
4 Measures of Capital Account Liberalisation	18
4.1 De Jure Indicators.....	19
4.2 De Facto Indicators	21
5 Capital Account Liberalisation and Capital Flows in Pakistan	25
6 Econometric Methodology	35
6.1 Theoretical Details of VAR Methodology	35
6.2 Impulse Response Functions.....	38
7 Variables & Data Sources.....	40
8 Empirical Analysis	41
8.1 Effect on Macroeconomic Variables.....	42
8.2 Forecast Error Variance Decomposition of Capital Account Openness	46
8.3 Boom-Bust Cycles.....	48
9 Conclusion and Policy Recommendations	49
References.....	54
Appendix.....	60

1 Introduction

Financial liberalisation has an internal and external dimension. The internal aspect refers to deregulation of the domestic financial markets and privatizing of domestic financial institutions; allowing them a role in mobilizing and mediating the movement of capital and determining interest rates. The external aspect refers to removing entry barriers for foreign financial institutions and the restrictions on foreign financial transactions; a process that took place in many developing countries in the late 1980s with mixed results and intense debate. This paper focuses on the latter aspect of financial liberalisation in Pakistan, in particular the opening of the capital account of the balance of payments, and examine how the process has impacted development and macroeconomic performance.

While there are ample international studies relating financial liberalisation and development, those pertaining to Pakistan are very scarce. Therefore, the motivation behind conducting a study on this issue was to add to the limited literature available on the subject. This paper assesses the impact of capital account opening in Pakistan on its course of development. It serves this objective by covering the response of a number of macroeconomic variables and total output to the liberalisation process. The paper makes an empirical contribution to the existing literature by updating past work with an analysis of recent data and employing a different econometric methodology than which has been used widely in the literature.

It is important to point out here that throughout this paper the terms financial liberalisation, capital account liberalisation, capital account opening and convertibility of capital account, all represent the same concept and therefore are used interchangeably.

2 Literature Review

2.1 Benefits of Financial Liberalisation

Capital account liberalisation has been defined in the literature as a process of dismantling legal and administrative impediments to the freedom of economic agents to transfer ownership claims across national borders. Proponents of capital account liberalisation such as Mathieson and Rojas-Suarez (1993), Quirk and Evans (1995), Eichengreen and Mussa (1998) and Fisher (1998) point to three benefits of free capital mobility; improved opportunity for diversification and risk sharing, efficient global allocation of savings and investment, and greater discipline on domestic policy makers.

The prospect for diversification and risk sharing protects households and firms against economic disturbances in home country. The resulting higher risk adjusted rate of return encourages savings and investment that contribute to economic growth. Acemoglu and Zilibotti (1997) highlight the possibility that improved opportunities for diversification enable agents to take riskier projects with proportionately higher returns, which subsequently lead to higher domestic GDP growth.

The neo-classical framework explains; when countries undergo the liberalisation process, resources flow from capital-abundant developed countries where the return to capital is low, to capital-scarce developing countries where the return to capital is high. This is because in countries where capital is abundant, the capital per worker ratio increases and therefore rate of return declines over time, while in developing countries the stock of capital per worker is small and marginal returns on investment are large. This flow of resources into the developing countries reduces their cost of capital, triggering an increase in investment and growth that

permanently raises their standard of living. Residents get the opportunity to base their consumption and investment decisions on world interest rates and prices for tradeables thus enhancing their welfare. While the endogenous growth framework discusses the spillovers associated with capital flows in the form of innovation, technology and skills along with the positive externalities that are created as a result. These comprise of improved efficiency of domestic financial markets leading to better resource allocation, and efficient financial intermediation by domestic institutions. Levine, Loayza and Beck (2000) found that financial intermediation had an affirmative shock on economic growth for a sample of 74 countries.

McKinnon (1973) and Shaw (1973) predicted that financial liberalisation would lead to economic growth through savings, investment and capital accumulation channels. Levine (1997) and Barro (1997) also study the variables that intermediate between capital account liberalisation and economic growth. Increase in investment, financial development, and stability of macroeconomic policies as a result of capital inflows have been identified as positively related to an economy's rate of growth.

Traditional policy regime in most developing countries operated on the principal that by exercising capital controls and regulations, they could retain domestic savings in the economy for investment purposes and simultaneously insulate the economy against external shocks. On the other hand, literature against financial repression is of the view that although interest rate ceilings reduce the cost of investment they also impede financial development which presumably increases the efficiency of investment and facilitates experimentation with new technologies hence paving the way for growth.

Given the relatively low endowment of physical capital and greater consumption volatility in developing countries, they gain the most from the process of liberalisation. Ang and McKibbin (2007) report financial liberalisation to have a positive effect in enhancing the development of financial sector in Malaysia, while Khan and Qayyun (2007) attribute long run growth in Pakistan to trade and financial liberalisation. Henry (1997) presented evidence that when stock markets are opened for foreign participation in a sample of developing countries, it is associated with subsequent investment booms. Levine and Zervos (1998) found that in case of 16 developing economies, after capital account was opened, their stock markets became larger and more liquid. Bekaert, Harvey and Lundblad (2001) learnt that financial liberalisation contributed 30% to the process of economic growth.

2.2 Costs of Financial Liberalisation

While opening the capital account to world financial markets increases capital inflows to the economy and creates a positive impact on economic growth, it must be kept in mind that it also brings about higher volatility in an economy and complicates its macro management process. Haque (2011) elaborates that apart from the usual domestic political pressures in an open capital economy, the policymakers must also anticipate the response of foreign investors to their actions. A loss of confidence in economic management or a delay in policy announcement can create a devastating impact on the country's currency and foreign exchange reserves. Moreover, speculations may lead to unpredictable short term movements in the interest rate which renders the monetary policy ineffective. Besides, when capital account is opened, the policymakers have to make the serious choice of losing either monetary policy independence or the control over

exchange rate (The Impossible Trinity). Hanson (1992) also discusses the possibility of avoiding taxes by switching portfolios internationally, as an example of capital account liberalisation limiting the impact of government policies.

Pindyck and Solimano (1993) and Ramey and Ramey (1995) argue that any benefits of capital account liberalisation can be offset by the greater volatility that it generates which in turn depresses investment and growth. Ranciere et al. (2006) carried out an empirical decomposition of the effects of financial liberalisation on growth and the incidence of crisis. It was observed that while financial liberalisation directly positively effects per capita GDP growth it also significantly increases the probability of twin crisis, i.e. banking and currency crisis, because banks tend to take more risks and reduce the screening of projects.

The risks associated with capital account liberalisation can be broadly be categorized into three types: macroeconomic risk, financial stability risk and risk of capital flow reversal. Capital flows lead to a higher demand for domestic currency thus causing the real exchange rate to appreciate, simultaneous there is a growth of credit in the economy which creates inflationary pressure and the domestic demand expands. This chain of events affects other macroeconomics variables in ways inconsistent with the domestic policy objectives of stable prices and exchange rate and increasing exports. The large fluctuations in exchange rate put additional strain on the real sector that may even result in the spread of “Dutch disease” thus worsening the balance of payment situation of the economy.

Moreover, capital flows are responsible for the second type of risk by pushing up equity, real estate and other assets prices, and reducing the quality of assets such as increasing the non-performing loans of the banks, thereby contributing to financial instability. History has shown

that there have been repeated booms and busts in capital inflows; this is because the global factors affecting foreign investment have cyclical components. At any point in time they could be a sudden reversal of capital inflows leading to depletion of foreign reserves, sharp currency depreciation and eventually trade deficit. In the Latin American experience, there were major capital inflows during the 1920s and late 1970s but were followed by capital outflows and major economic crisis in the 1930s and mid 1980s. The Mexican balance-of-payment crisis of 1994 is another example of the vulnerability of capital receiving countries to abrupt reversals.

A number of studies contradict the positive impact of capital account liberalisation on economic growth and investment, and instead indicate no significant relationship between the two. Rodrik (1998) relates investment to GDP ratio to the capital account openness and finds no trace of an effect. Similarly, Kraay (1998) finds no impact on gross domestic investment as a share of GDP by using three alternative measures of financial openness. He however leaves room for the possibility that investment might be positively affected by capital account openness only in countries where risk-adjusted returns exceed the world average. Rodrik and Subramanian (2008) find no correlation between an open capital account and higher investment rates; if anything, the relationship is found to be negative. There is strong evidence that rapid financial globalization has brought about greater consumption volatility in the emerging market economies thus negatively impacting stable growth prospects. Haque (2011) provides a conclusion that there is no clear evidence on financial globalization leading to higher rates of investment and accelerated economic growth in the developing world. And studies that are able to find a positive correlation between these variables are lacking in a clear direction of causation when the effects of other factors are controlled.

Tesar (1995) opposes the risk sharing argument of capital account liberalisation by estimating the gains from international risk sharing to be very small and hence from the inflows of capital. Stiglitz (2000, 2004) holds the view that the predictions of allocative efficiency as a result of capital account opening, hold only where there are no distortions to the economy other than barriers to free capital flows, while in reality there are many distortions in developing countries such as asymmetric information. Gourinchas and Jeanne (2004) make use of a calibrated neo-classical model to show that welfare gains for a typical developing country, switching from financial autarky to perfect capital mobility, are equal to only 1 percent permanent increase in domestic consumption.

Another aspect in which capital account liberalisation negatively impacts development is revealed in the IMF study conducted by Furceri and Loungani (2013) where a set of over 50 cases of capital account liberalisation in advanced economies were examined and demonstrated an increase in inequality by approximately 1 percent during the first year after liberalisation and by as much as 2 percent after five years.

2.3 Preconditions and Sequencing for Financial Liberalisation

Many developing countries took significant steps to liberalise their capital accounts, following the optimistic assessment of its impact on development. However, the difficulties encountered with the opening of external capital account and the financial crisis in many countries; Mexico (1994-95) East Asia (1997-98), Russia, Brazil and other Latin American countries (1998-99), generated a bust of research and debate on the necessary prerequisites and optimal sequencing

for a liberalised capital account in order to increase the effectiveness of the process and manage the risks posed by it.

The literature that emerged since the crisis, with substantial inputs from the multilateral agencies particularly the UNCTAD and IMF, stresses on the significance of an integrated approach. There is a need to treat capital account liberalisation as part of an economic reform program; it must be coordinated with other macroeconomic and exchange rate policy objectives. Emphasis is placed on a country specific process with establishing of necessary preconditions and careful selection of the components of capital account that are to be liberalised, such as long term vs. short term flows and/or flows acting as debt vs. equity.

During the financial crisis it was observed that most of capital inflows to middle income countries were debt generating thus resulting in huge debt accumulation. The financial systems of developing countries are not fully mature; their capital markets are not adequately liquid or deep, and the supervision of banks and the prudential regulations are weak, thus making them badly equipped to manage risk.

With weak regulatory framework, capital account liberalisation places immense pressure on the domestic banks and large inflows can often exceed their absorptive capacity thus leading to inappropriate lending decisions characterized by excessive risk taking which can culminate into financial system fragility. To make sure that benefits of capital account liberalisation outweigh the risks, strong institutions and markets are essential. Eichengreen (2001) argues that a positive impact on growth is visible when prudential supervision by the central banks is upgraded, creditor rights are strengthened, financial safety nets that create moral hazard are limited, transparent auditing and accounting standards are implemented and equitable bankruptcy and

insolvency procedures are adopted. Boyd and Smith (1992) argue that the process of financial integration in countries with weak financial and legal systems induces capital outflow from countries with better institutions, and often these countries that are already capital abundant. McKinnon and Pill (1996) regarded the liberalisation process of capital account to wait till the reform process in the banking sector of a country is completed. In a cross-country analysis conducted by Arteta, Eichengreen and Wyplosz (2001) evidence is available that the effect of capital account liberalisation on growth of a country varies with its degree of legal or institutional development. Edwards (2001) also finds that the rate of growth depends on the level of institutional quality of a country. Liberalisation boosts growth in high-income countries while decelerates it in low-income countries. Basher and Khan (2007) conclude that poor countries such as Bangladesh will be unable to reap the benefits of liberalised policies if basic infrastructure and good governance are not made available.

World Bank in the Global Development Finance Report (2006) pin points that financial prudence and stability; particularly low inflation and fiscal deficit, and adequate levels of foreign reserves to provide buffer against negative external shocks, as preconditions for safe transition to open capital account in developing countries. Similarly, Benu Schneider in her paper presented at the conference on ‘Capital Account Liberalisation: A Developing Country Perspective’ held at the Overseas Development Institute in London in June 2000, explained that macroeconomic rigueur, fiscal consolidation, independent monetary policy based on indirect policy tools and flexibility in exchange rate management are important preconditions for successful liberalisation efforts.

Under fixed exchange rate, capital inflows lead to increase in reserves as the central bank is obliged to buy excess foreign exchange. Then the money stock increases, prices go up, and currency appreciates in real terms. Although the central bank can resort to sterilized interventions

in the foreign exchange market but this policy cannot be sustained in the long run; it will run out of domestic assets and the cost of borrowing deposits from commercial banks will be too high. Alternatively, in a floating exchange rate regime capital inflow increases the demand for domestic currency resulting in nominal appreciation, thus for a partial pass-through effect this leads to real appreciation too. Although real appreciation of exchange rate is inevitable under open capital account system, whatever the exchange rate mechanism, the floating exchange is preferred over the fixed exchange rate regime as it gives the central bank the autonomy of controlling the monetary policy.

Moreover, if capital account is open in the presence of some capital controls still prevalent, the impact could be significantly negative. For instance Brecher and Diaz-Alejandro (1977) discuss that capital may flow to those sectors of the economy where it has a comparative disadvantage in case capital account is liberalised while import-competing industries are still protected. Brecher (1983) points out that when real wage is sticky in the downward direction, resources are channelized towards capital-intensive activities and at this point capital inflows can further aggravate this misallocation thereby reducing the incomes and welfare of domestic residents. Since financial markets and transactions taking place in developing countries are characterized by asymmetric information, drawing from Stiglitz's (2000) conclusion international financial liberalisation will not be welfare enhancing.

Another view on increasing the efficiency of capital account openness is the condition of current account liberalisation prior to capital account. McKinnon (1973) explains that this is because large capital flows could result in real exchange rate appreciation and erode trade competitiveness. The economy will also be faced with current account deficit problem as exports

will become expensive and decrease, while the imports will increase as importer will now find them relatively cheaper.

2.4 Financial Liberalisation Experience of Developing Countries

Private capital flows to the developing countries increased dramatically in the first half of 1990s. Researchers owe this to recessionary situation in this period in most developed countries such as the United States, Japan and European countries. There was a sustained decline in world interest rates that attracted investors to high-investment yields offered by the Asian and Latin American economies including Argentina, Brazil, Chile, China, India, Indonesia, Malaysia, Mexico and Thailand. At the time these countries were also showing signs of improving economic prospects. Fernandez-Arias (1993) provide an alternative explanation that many of these countries had high external debt burdens, lower interest rates affected their debt prices, reduced the default risk hence improving their creditworthiness.

However, in the second half of 1990s it was observed that the capital inflows had widened the current account deficit situation of these countries. The improved value of their domestic currencies had resulted in higher consumption of imported goods as opposed to exports that had become relatively expensive in the world market. Simultaneously the tightening of monetary policy in developed countries such as the United States in early 1994 resulted in a rise in interest rates and made the investment in Asia and Latin America relatively less attractive and also once again affected the debt burden of these economies. Moreover, the surge in portfolio flows in early 1990s to these economies had led to sharp increase in stock prices, which also suffered as a response to rise in interest rates.

China and India on the contrary withstood the contagion from East Asian crisis in 1997, as they had implemented a relatively restrictive capital account regime. Jadhav (2003) describes the India has pursued a gradual and incremental liberalisation process. The policymakers had laid emphasis on encouraging non debt creating flows while continued restrictions on short term commercial borrowings and capital outflows.

Gallagher et al. (2014) explains how regulation of the inflow and outflow of capital has been the cornerstone of China's development reforms. For more than three decades China's capital account policies were aimed at directing credit toward strategic development goals while maintaining financial stability. Despite these controls; contrary to the belief that capital controls hinder economic growth, China's growth rate was among the highest in the world; with more than 10 percent income growth per year for those decades. Although gradual capital account liberalisation had started in 1994 in China but it was still largely limited thus acted as buffer for the country from the wrecking effects of the Asia crisis. Today China has removed almost all restrictions for inward FDI and loosened controls over portfolio investments but cross border money market transactions and financial derivatives have remained under strict control. However, as a result of internationalization of China's currency in 2009, its capital account liberalisation process has accelerated.

2.5 Financial Liberalisation Experience of Pakistan

Referring now to the situation of Pakistan, which is the focus of this thesis, we see that the course of capital account liberalisation started quite early compared to other developing countries, in the late 1980s, and even prior to the process of trade liberalisation. Theory suggests

that this was not in line with the necessary preconditions established to increase the effectiveness of an open capital account. Literature suggests a varied impact of the process on Pakistan's economy. While Shahbaz et al. (2008) who explored the impact of opening of the capital account of the country on economic growth, found it to be positive, Khalid (2000) in an attempt to study the impact of financial liberalisation policies on savings, investment and growth of Pakistan concludes that after fifteen years of implementation of these policies there has not been any significant impact on these variables. Janjua (2011) talks about the ease for foreign investors in bringing in or taking out their capital, and remitting profits and dividends without restricts as a result of capital account liberalisation in Pakistan, but describes the capital account of the country as partially convertible. Therefore, suggests that the costs and benefits of a fully convertible capital account must be studied along with the preconditions, sequencing and optimal pace of before further liberalisation measures are taken.

Haque (2011) discusses how the inflow of foreign capital in Pakistan during the 2000s has gone primarily into raising the investment since the domestic savings had remained terribly low. This high dependency on foreign sources to finance domestic investment has rendered Pakistan's economic growth highly vulnerable to outside factors. Rodrik and Subramanian (2008) note, countries that grow more rapidly rely less on foreign finance. However, Haque makes it clear that the large inflow of external finance into the country cannot be solely attributed to the opening of the capital account policy rather the rupee convertibility also attracted significant portfolio investments, direct investment and workers' remittances. Both factors however have posed serious challenges for policymakers in terms of macroeconomic management and controlling tax evasion. The country needs to regulate and better supervise its financial sector and stock market activities. He points out that although the capital account is more and less free

of restrictions, the level of Pakistan economy's integration into the global market is limited, which has implications in terms of its ability to materialise the potential benefit of an open capital account.

Naveed and Mahmood (2016) use a multivariate cointegration technique and error correction model to examine the impact of external financial liberalisation on the economic growth of Pakistan. They find strong a significant negative impact of the process on growth in the long run. A similarity between their study and this paper is the use of Milesi-Ferretti and Lane's (2006) de facto measure of capital account liberalisation. They support their choice by arguing that in considering the gross stock of foreign assets and liabilities as a ratio to GDP, the measure better reflects the actual integration of the economy with the international capital markets. They shed light on stagnant position of total assets of the economy relative to GDP and the increasing liability to GDP ratio. They identify the 86 percent share of foreign loans in total liabilities as an explanation to why inflows have not contributed positively to growth.

2.6 Empirical Models

Almost all the studies investigating the empirical relationship between liberalisation of the capital account and economic growth augment a basic growth model, yet there are prominent differences in the results across these studies. This can be due to a number of factors that vary across these studies; country coverage – with some researchers analysing the state of well-developed industrial economies and others of developing economies, sample period under review accounts for the stage of liberalisation that the economy is in, measure of capital account controls

or liberalisation used and then there is the difference between applied methodology and estimation techniques.

A review of the various measures available and the empirical models used in the literature will help determine the optimal option to employ in this paper. In this subsection, I look at the latter aspect, while the former is discussed in detail in section 4.

Edwards (2001) estimates multiple regressions for a sample of 60 countries by using weighted least squares (WLS) estimation method. The weights in the model represented the national incomes of the countries included. His estimates suggest a negative relationship between capital account openness and growth but a positive coefficient on openness-income interaction term implies that countries with lower level of incomes suffer negative consequences for growth as a result of opening their capital account, while the same promotes growth in developed industrialised and rich emerging economies. This finding highlights a conceptual issue with treating capital account liberalisation as exogenous to the growth process. There is a potential for reverse causality where countries with a certain level of development maybe more or less prone to liberalising its capital account.

Arteta et al. (2001) cast doubt on the weighting of observations based on the level of income. They argue that this technique build in more influence of rich countries in the regression as compared to the poor countries. Hence they follow Edwards' framework but with ordinary least squares (OLS) estimation rather than WLS and also use different instruments for capital account liberalisation. Rodrik's (1998) paper is the most cited paper on this topic and also makes use of OLS in a cross sectional study including 100 countries. He finds no evidence of a significant

effect on growth of per capita income. Likewise, he concludes no relationship between capital account liberalisation and investment-to-income and/or inflation.

Many researchers address the exogeneity issue through the use of Instrumental Variable (IV) estimation. Grilli and Milesi-Ferretti's (1995) IV estimates do not support the hypothesis that the opening up of capital account promotes growth of income per capita.

Kraay (1999) carries out a cross sectional study and uses both OLS and IV (with past values of capital account liberalisation variables as an instrument). His regressions also return no significant effect on growth. However when he used a measure of volume of capital flows, he did find some results to be significant.

As already mentioned above that much of the literature that exists on capital account liberalisation, is panel or cross sectional in nature i.e. compares the effects across countries. Limited number of studies deal with time series analysis and those that do, also mostly rely on simple linear regressions using either OLS or IVs. I managed to come across only three such studies; Kim et al. (2004), Sethi (2012) and, Kandil and Trabelsi (2015), that make use of Vector Autoregressive (VAR) models to evaluate the macroeconomic implications of capital account liberalisation. The VAR model allowed for the flexibility in assuming that capital account liberalisation process was endogenous to the growth process. Effects of capital account movements on real GDP appeared to be significantly smaller in these studies as well.

3 Evolution of the Definition of Capital Account

The term capital account has a much narrow meaning for the International Monetary Fund (IMF) as opposed to the more generic usage by academic and economists. IMF splits the capital

account into capital and financial account. When referring to the capital account liberalisation or opening up of the capital account or facilitating capital mobility, the actual reference in terms of IMF's definition, is being made to the transactions under financial account. The Organisation for Economic Cooperation and Development (OECD) and United Nation's System of National Accounts (SNA) also abide by the same distinction.

The key source of classifying what falls under capital account and that under financial account is the IMF's Balance of Payment Manual (BPM). It is a complete comprehensive document that details all possible transactions and how to account for and record them in the Balance of Payment (BOP) statistics. At present the 6th edition of BMP (BPM6) is in use globally. Not many significant changes with respect to capital/financial account have been introduced in the shift from BPM 5th edition to the 6th. However, the coverage of financial flows and stocks significantly expanded and was restructured in BPM5. The earlier version (BPM4) was published in 1977. Since then there had been widespread alterations in the nature and composition of international financial transaction; financial innovations and new instruments had blurred the distinction between short and long term flows and made it difficult to identify resident-non-resident transaction. Moreover, the move towards liberalisation globally made the task of compilation and usage of data for policy and analysis purposes more challenging. Thus there was a need to update the procedures incorporating all the new developments. It was under BPM5 that the former capital account head in the BOP was redesigned as capital and financial account.

As per the formal definition, the major components of the capital account cover all transactions that involve the receipt or payment of capital transfers and the acquisition and/or disposal of non-produced non-financial assets. Transactions categorised as associated with capital transfer

consist of transfer of ownership of fixed assets such that nothing of economic value is being supplied to the other party in return. Common examples are debt forgiveness and migrants' transfers. Acquisitions and disposals mainly deal with intangibles such as patents, leases and licences etc. Land is not included but the only exception is the sale purchase of land by foreign embassies.

Financial account on the other hand deals with all transactions; net acquisition or disposal, associated with change of ownership of financial assets and liabilities. The standard components consist of direct investment, portfolio investment, financial derivatives, Special Drawing Rights (SDRs) allocated by the IMF to its members and reserve assets.

Based on the definitional difference, assessment of capital account liberalisation process deals with changes in flows to and from the financial account head of the BOP. This evolution of the definition has repercussion for data quality, which are discussed under section 7.

4 Measures of Capital Account Liberalisation

Despite numerous measures being available to researcher, it is also well established that the ability of these measures to fully capture the complexities of real world control is limited; thus measuring the extent of capital account openness of countries still remains a challenge. Here I present a brief discussion of some main indicators and compare them in terms of their merits and demerits. Most indicators can be grouped into two broad categories: de jure and de facto. The former trace the policy measures taken by governments to liberalise their capital accounts, while the latter examine the actual liberalisation that has taken place in terms of financial flows of a country.

4.1 De Jure Indicators

The primary source of de jure indicators is the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). The report covers four components – k_1 : existence of multiple exchange rates, k_2 : restrictions on current account transactions, k_3 : capital account restrictiveness and k_4 : requirement of surrender of export proceeds. Further it provides detailed information on these variables using two formats; as a text covering rules and regulations in place by countries to manage the international transactions in various asset categories, and the other is a tabular representation of whether there are any restrictions on residents' payments in current and capital account categories. Therefore, some indicators are based on the coding of the text and others on the table.

First class of indicators based on AREAER table are binary (0/1) measures and often make use of the k_3 component. Epstein and Schor (1992) were among the earliest developers of such an indicator, followed by Alesina et al. (1994), Garrett (1995), Grilli and Milei-Ferreti (1995). A value of one indicated an open capital account and zero for a closed economy. This largely limited the informational content; it did not account for the direction of capital flows (inflow or outflow) that was being targeted, it incorporated restrictions on residents only and grouped countries that were either partly or substantially but not fully open with those that were completely closed. This issue was alleviated to some extent by the introduction of a new tabular structure of AREAER in 1996. It captured more dimensions of k_3 by disaggregating into 13 subcategories.

The new improved tabular format steered the development of a second class of indicators that could now assume values besides 0 and 1. A prominent effort was by Johnston and Tamirisa

(1998) created a series of capital controls by summing the binary scores for each of the 13 categories for 40 countries in 1996. Later Brune and Guisinger (2006) made use of the same methodology premise but extended the data from 1970 to 2004 for 187 countries. For pre-1996 portion they coded the qualitative description available in the AREAER. The indicator is labelled Financial Openness Index (FOI) in the literature and hold merit as it is able to distinguish between inward and outward flows.

Chinn and Ito's (2002, 2006, 2008) KAOPEN is the first standardized indicator based on all four component of AREAER table. It attempts to measure the intensity of capital controls for which it relies on the assumption that intensity is correlated with the presence of different types of other restrictions on international transactions. Merits of this index are its wide coverage; 182 countries beginning from 1970 to 2015, and easy/public availability. But it suffers due to lack of information regarding prevalence of capital controls on different types of capital flows, direction of these flows and whether they are focused on residents or non-residents.

To cater to the limitations of the binary and subsequent measures, researchers created indices that could capture more information regarding magnitude and intensity of capital controls, and simultaneously have the ability to distinguish between resident and non-resident transactions. These indicators are based on the coding of the text of AREAER, which however produces an element of subjectivity in these measures. Quinn's (1997) CAPITAL index is the most cited in this category of capital account openness indicators. Bulk of the index is based on the coded information pertaining to k_2 and k_3 components of AREAER, also accounting for any relevant international agreements the country under consideration might have signed. It is available for 122 countries from 1949 until 2007, with complete coverage of OECD countries while that of less developed countries is less extensive. His indicator ranges from 0-4 reflecting two

categories of controls on capital transactions; by residents and non-residents. The larger value indicated weaker controls. Amidst its merits, the Quinn index is constrained by its inability to distinguish between inflows and outflows of capital. It is also not publicly available for use by researchers.

The most refined and widespread measure based on the AREAER text is by Schindler (2009) - the KA index. Each individual transaction under the subcategories of “Capital Transaction” section are coded for obtaining the indicator. A category was considered unrestricted only under the conditions that there were no restrictions imposed on it at all, the category was of an exceptional nature or if the restriction was merely notifying a competent authority. Aggregating the codes using this methodology yielded indices by residency status, asset category and in terms of inflows compared to outflows. The KA index is available from 1995-2005 for 91 countries. Klein (2012) expanded on Schindler’s dataset to cover the time period from 2006 to 2010, but in doing so he limited the coverage to 44 countries and only looked at the restrictions on inflows of capital. He then goes on to classify countries as either Open, Gate or Wall based on the percentage of capital controlled transactions. Countries with more than 70 percent and not less than 60 percent of their relevant transactions imposed with capital controls were identified as “Wall”, while those with less than 10 percent and no more than 20 percent as “Open”. “Gate” countries lie in between.

4.2 De Facto Indicators

What the de jure indicators of capital account openness fail to reflect is the extent to which policy measures taken by a country actually affect its capital flows; controls in one category of

assets may induce a change in flows in others asset flows. Neither do they necessarily capture the differences in various capital control regimes. Therefore, they might not be true indicators of a country's openness. De facto indicators present an alternative method of capturing the level of integration of a country's economy with that of the global economy.

The most generally used de facto indicator is Lane and Milesi-Ferretti's (2007) TOTAL index. It is a stock based measure and calculated by summing up a country's assets and liabilities relatively to its Gross Domestic Product (GDP). It includes Foreign Investment (both direct and portfolio), financial derivatives, loans, guarantees and securities.

Then there is FORU developed by Edison and Warnock (2003) which predicts capital account openness by observing the proportion of domestic equities available for purchases by foreigner. The data is available on monthly basis from 1989 till 2006. The attractiveness of this indicator is dependent on the fact that it targets openness aspect from two dimensions; first the whether or not a stock is available to foreign investors captures the legal restrictions which in turn have a bearing on its pricing dynamics.

From the discussion on difference in pricing stems another category of indicators; the idea behind these is that in more financially integrated economies the difference in external and domestic prices of similar assets diminishes due to arbitrage. Prominent researchers that came up with such measures are Quinn and Jacobson (1989) and Yeyati et al. (2009). However, a drawback is that arbitrage opportunities maybe limited by international frictions rather than domestic.

Other researchers derive the measure of limits placed on transactions pertaining to capital account or its openness, by using values of some key economic variables. Base on capital

account theory there are three such sets of variables; comparison of national savings rate with national investment rate, interest rate differential and international capital flows. The first two measures haven't really been employed for analysis purpose primarily due to constraints on availability of relevant information.

One of the early seminal works on quantitative measurement of the extent of capital mobility was by Feldstein and Horioka (1980). They analysed the behaviour of savings and investment in a number of countries. The rationale behind it was that the correlation between these two variables would act as a good indicator for barriers to capital movement. With stringent capital account restrictions, savings and investment are highly correlated, while in open economies that allow free capital mobility the link between the two is weak and/or almost non-existent. This approach however has been criticised on the basis that saving and investment in a country could be highly correlated regardless of the fact that there were no controls in place. Obstfeld (1986) shows that this could be the case because of the type of external shocks that hit the economy during that time period. Bayoumi (1990) shows that a high correlation could be a result of the government's efforts to target the current account.

Next the difference between the local and global interest rate (also referred to as onshore-offshore interest rate differential) could portray the state of capital account openness. In countries where there are no controls in place, this differential diminishes and transactions take place in a level playing field.

Overall, despite their conceptual advantage over de jure indicators, de facto indicators have their own limitations. The assumption is that capital flows are impacted by government policy stance on capital account openness however, the causality may run in the opposite direction. An

increase in capital flows maybe observed due to strong economic indicators of an economy, rather than an actual change in capital control measures, and consequently the government imposes controls to manage surges in inflows that can have destabilizing effects.

The availability of a vast variety of indicators is the reason behind conflicting results on the effects of capital account liberalisation on economic growth. Quinn et al. (2011) estimate the correlation between changes in 78 pairs of trade and finance related indicators. They estimate the correlation coefficients in changes to cater to potential issue of serial correlation. Here I discuss the results of only six indicators that have been discussed above; FOI, KOPEN, CAPITAL, KA, TOTAL and FORU. The first four are de jure measures and the correlation coefficients between them are statistically significant at 5% level and above but range from only 0.2 to 0.3 on annual basis. The authors check the coefficients on five year average basis and find that the range increase to 0.5 to 0.7. They highlight that lower correlation within table and text de jure measures (FOI & KOPEN vs CAPITAL & KA respectively) could be due to limited information in AREAER tables prior to 1996. However, the main reason as pointed out above is the difference in the aspects that these indicators capture. Quinn's index (CAPITAL) captures capital restrictions solely while Chinn and Ito's index (KOPEN) contains elements of capital as well as current account restrictions. The de jure and de facto measures on the other hand remain largely uncorrelated when observed from either annual or five year average criterion.

Similarly, Edison et al. (2002) in their comparison of the two different types of measures point out that analysing the correlation between them especially in the case of developing countries is complex. The de jure measures suggest that in 1970s there was a move towards liberalisation that reversed in the 1980s and resumed again in the 1990s but at a relatively slower phase. In

comparison the de facto measures show a slow opening up process in 1970s, followed by moderate increase in 1980s and acceleration in 1990s.

5 Capital Account Liberalisation and Capital Flows in Pakistan

Exchange controls were first implemented in Pakistan in 1954 in response to a serious balance of payment deficit. Post Korean War, the global demand for goods especially agricultural goods reduced and so did Pakistan's exports and foreign exchange receipts. The government decided against devaluation of its currency; maintaining a fixed official exchange rate required an outflow of foreign exchange reserves to bridge the demand and supply gap. Consequently, exchange rate controls were adopted. All foreign exchange proceeds and private holdings had to be surrendered to the Central Bank (State Bank of Pakistan – SBP) at the official exchange rate. Further, instead of auctioning the available foreign exchange in the open market and restricting the demand only to those willing to pay a premium rate, the government opted for a licensing system. While this did avoid an official dual exchange rate system it led to a black market for foreign currency. Nevertheless in 1956 the government did devalue its currency. In 1959 the government introduced the Export Bonus Vouchers Scheme to incentivise exports of manufactured goods. Under the scheme, against their exports, exporters received a certain percentage of the freight on board (FOB) as bonus vouchers. These could be used for the import of machinery and other industrial raw material. Towards the end of 1960s, these policies had led to a multiple exchange rate system being implemented in the country alongside a complex system of exchange control. The war of 1965 between India and Pakistan severely affected both the economies, in response to which India devalued its currency while Pakistan continued to maintain its exchange rate.

Soon after the war of 1971 broke out and East Pakistan (currently Bangladesh) separated from West Pakistan (currently Islamic Republic of Pakistan). A major proportion of Pakistan's exports were to Bangladesh, but after the separation, Pakistan experienced a large surplus of goods. The overvalued exchange rate and price discrimination between exporters and importers created by the export bonus voucher scheme were adding to the balance of trade problems of the country, which is why in 1972 the scheme was abolished, the rupee was devalued and the exchange rate was unified. Up until 1971, the rupee was pegged against British pound, which was then replaced by US dollar. In 1973 the government introduced Foreign Currency Accounts (FCAs) for non-resident Pakistanis in order to attract remittances. During this period the dollar was devalued with lead to an automatic appreciation of rupee.

In 1982, the government of Pakistan decided to move to a managed floating exchange rate system. Between 1982 and 1988 the rupee went through a large reduction in its overvaluation; a 47% depreciation in the exchange rate. The first major steps towards liberalisation of Pakistan's capital account was taken in mid 1980s with the introduction of foreign exchange bearer certificates that could be purchased by foreigners as well as Pakistanis using foreign exchange.

In the following years; between 1991 and 1994 dollar bearer certificates linked with London Interbank Offer Rate (LIBOR) rather than the domestic rate were introduced. Other reforms included allowing of residents to maintain FCAs, relaxation in the restrictions on the amount of foreign currency allowed for travelling purposes and those on foreign payments for the purpose of education, membership of professional institutes, royalties and advertisements. Much of these reforms were associated with the obligations laid down in Article VIII section 2, 3 and 4 of IMF Articles of Agreement, which the government formally signed in July 1994. Efforts were made to remove all foreign exchange controls, current account liberalisation was complete and rupee

became fully convertible. As can be seen from Figure 1; which shows the state of Balance of Payments (BOP) of Pakistan from 1990 to 2017, following this move towards liberalisation the capital account began displaying a gradual increase.

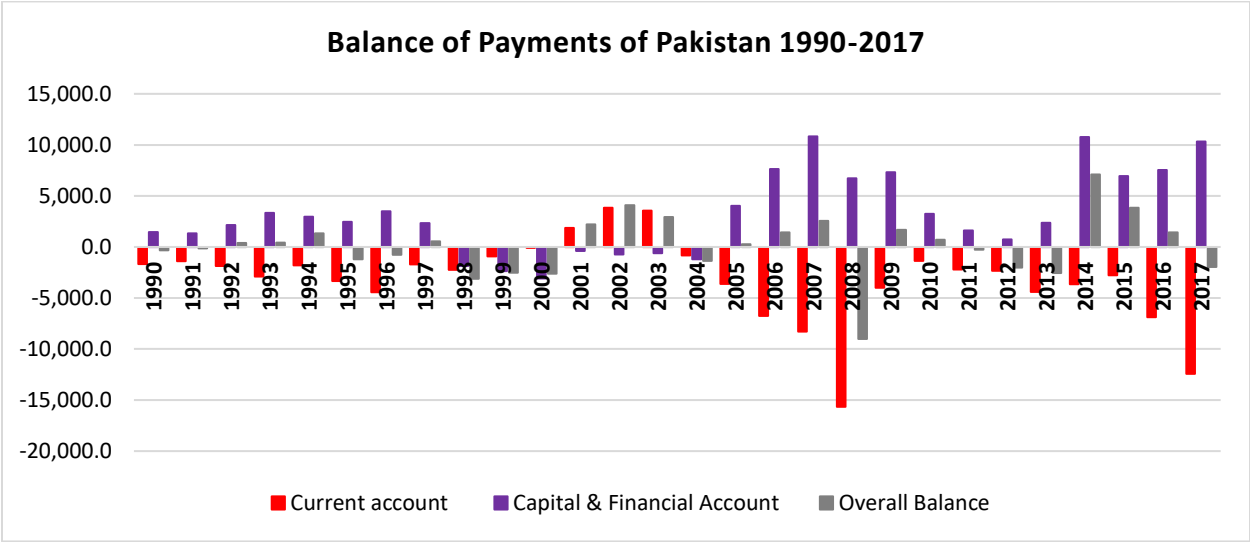


Figure 1 Balance of Payments of Pakistan 1990-2017

What is interesting to evaluate at this point is the composition of the capital account. Figure 2 illustrates this composition based on the information obtained from BOP statement for 1995-1996. A major portion of the of the foreign inflows (61.2%) comprise of other investments which were predominantly short and long terms loans by the government.

Composition of Financial Account of Pakistan 1995-1996

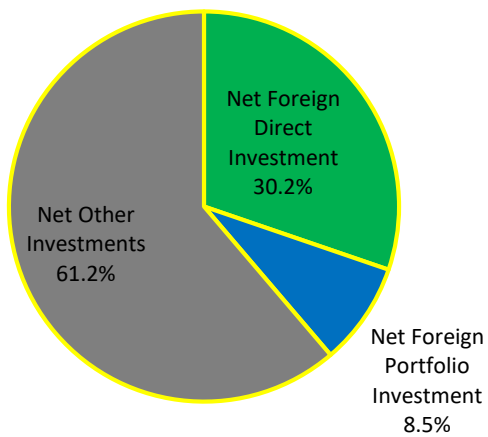


Figure 2 Composition of Financial Account of Pakistan 1995-1996

The liberalisation process met a setback when economic and financial sanctions were imposed by the international community on Pakistan in response to its nuclear test in 1998. Due to the unpredictable/bleak state of the economy, investors withdrew their money out of the country. The level of foreign exchange reserves fell sharply, there was uncertainty about the country's ability to meet its international financial obligations, i.e. principal and interest payments against external loan. These factors combined increased the speculative demand for dollar and increasing downwards pressure on rupee. A drastic step by the government at time was to freeze all FCAs overnight to prevent immediate and significant outflow of foreign exchange. This state of the economy is also evident from the trend in Figure 1; the capital account of Pakistan witnessed a sizable dip from a positive looking increasing trend in early 1990s.

In 1998, the managed floating exchange rate was replaced with a dual system that was made of three rate; an official exchange rate of rupee set by SBP, floating interbank rate where the Authorized Dealers (ADs) which were primarily commercial banks were permitted to quote their

own rates based on the demand and supply of the market, but within the buying and selling bands set by SBP, and the a composite rate which was a combination of the fixed and interbank rate. This mechanism of exchange rate was aimed to ensure exporters received the benefits of devalued rupee, facilitate remittance from overseas Pakistanis and curb speculative demand for foreign exchange at the same time.

The dual exchange rate system was a type of multiple exchange rate system and was in violation of IMF's Article VIII. Pakistan was desperately in need of IMF support at the time, and a major deal breaker was abandoning of the multiple exchange rate system and adoption of a unified market-based rate exchanged rate system. Although the government agreed to it in 1999, however unofficially there was a cap on rupee trading which was only removed in 2001.

A number of other restrictions on capital flows covering a much diverse area, were relaxed. Foreign Direct Investment in manufacturing, services, infrastructure, social and agricultural sector required no prior approval given that foreign equity investment was at least \$0.5 million. Investors could hold 100 percent equity in infrastructure and social sectors but for a maximum period of 2 years. Profits/dividends were allowed to be repatriated but up to 60 percent of total equity. In the agriculture sector a 60:40 percent ratio of equity was required to be maintained between foreign and Pakistani investor. There were no controls on liquidation. Outward direct investment however was subject to approval and so was the sale of an asset held by a Pakistani resident abroad. Proceeds of such sales were to be repatriated back to Pakistan through proper banking channel. Furthermore, there were no controls on the sale of securities or shares by residents within Pakistan and/or abroad, but proceeds from the latter were required to be repatriated. Banks were authorised to open Special Convertible Rupee Accounts (SCRAs) and all dividends, capital gains etc were required to be credited to these accounts for remittance abroad

without reference to SBP. Approval was however required for residents to purchase shares abroad, while non-residents were not permitted to sell the same in Pakistan. In terms of bonds, debt securities and other money market instruments non-residents were free to invest in Pakistan in registered/listed instruments, but residents were not permitted to carryout similar purchases abroad. Private sector entrepreneurs were allowed to obtain foreign currency loans from abroad for long term period under certain conditions, but financial credit was prohibited. For commercial banks, they were allowed to maintain foreign accounts (Nostro) but only up to a limit fixed by SBP and with no investment objective. Foreign exchange available with them through foreign currency deposit accounts was required to be invested or used within Pakistan solely. Interest rate on these deposit however will be linked with LIBOR. A common trend in these measures was the focus on relaxing controls on the inflow of capital relative to outflow.

Despite the sizeable measure, Figure 1 shows that the capital account activity did not respond much. One of the major cause of the stagnated situation was the 9/11 incident, after which global investment picture was blurred.

In mid 2000s and onwards, the focus of the liberalisation process shifted towards reforms in the domestic financial sector which proved to be an essential accompaniment to the opening up of Pakistan's capital account. These reforms revolved around strengthening of the regulatory system, privatization of banks, easing foreign banks entry and operations in the country, complying with international banking regulations and moving towards market determined interest rates. Nevertheless new initiatives for facilitating capital account liberalisation continued to be introduced as well. Formation of the Exchange Companies was a key step by SBP to ensure development of a well-documented foreign exchange market in the country and help curb the number of unauthorised moneychangers that had spawned in the new liberalised environment. A

complementary effort to this was the elimination of a differential rate between the open market and the interbank market; this was made possible but the establishing of Karachi Interbank Offer Rate (KIBOR). Consequently, the economy saw an influx of home remittances channelled through the formal system. Another major benchmark was the setting up of a Swap Desk at SBP to ensure liquidity in the foreign exchange forward market. This led to rationalising of the forward premiums and hence supported both the interbank market and, exporters and importers.

Moreover, with respect to policies on outflows, the limit on the balance held by banks in their Nostro accounts was withdrawn. Pakistani residents including companies and firms were allowed to make equity based investments (excluding portfolio investment) in companies abroad, subject to SBP's approval and on repatriable basis. In 2005 locally established mutual funds were given the permission to invest up to 30 percent of their aggregate mobilised funds abroad for the purpose of diversifying their portfolios. It was still dependent on SBP and Security and Exchange Commission of Pakistan's (SECP) approval and was subject to a cap of \$15 million in permissible categories only.

Referring back to Figure 1, Pakistan economy began showing signs of recovery in its capital account from 2005, witnessing a record surplus by 2007. This substantially offset the widening current account deficit of the country. To better understand the situation, Figure 3 helps analyse the composition of the capital account in 2005-2006.

Composition of Financial Account of Pakistan 2005-2006

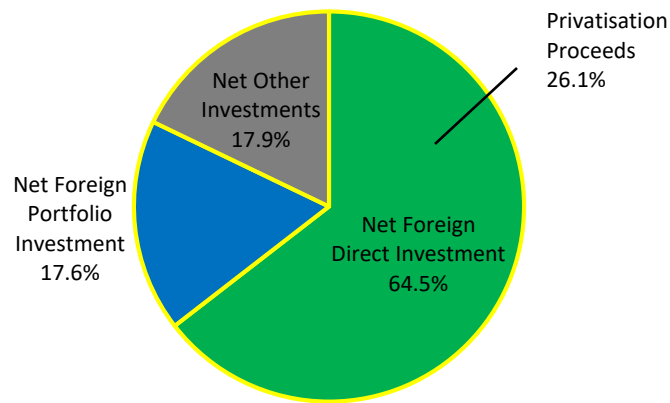


Figure 3 Composition of Financial Account of Pakistan 2005-2006

Unlike in 1995-1996, major proportion of foreign inflows (64.5%) was on account of foreign direct investment. Digging a bit deeper into the sources of this investment reveal that the domestic financial sector reforms particularly privatisation contributed massively. The flotation of Euro bonds increased the portfolio investment. Consequent upon expansion of equity financed avenues, the economy was less dependent on debt finance.

Figure 1 however also highlights the drastic decline in the capital account surplus from 2008 until 2012. Much of this was owed to the global financial crisis that left the foreign investors more risk averse. Significant portion of the activity in the capital account in 2008 was short term debt for earthquake relief that hit the country in the same year. Further political instability and the energy crisis in the country added to the disincentives for investors, thus significantly slowing down of privatisation process. At the same time, the oil prices rose in the international market which coupled with the widening current deficit and growing speculative activity in the foreign exchange market pushed down the value of Pakistani rupee.

This led the State Bank of Pakistan (SBP) to intervene; the minimum percentage of inward remittances required to be surrendered by exchange companies to the interbank market was raised from 10 to 15 percent. There were also required to bring minimum 25 percent of their foreign currency exports in their foreign currency account with banks in Pakistan. All nostro accounts of exchange companies held outside Pakistan were directed to be abolished and their balances to be shifted to commercial banks in Pakistan. Further all Advance payment against imports was restricted to 50 percent value of imports initially and then further reduced to 25. All transactions of US \$ 50,000 or above on account of outward remittances or sales of foreign exchange required SBP's approval.

The capital account continued to contract for following five years until it began showing signs of recovery by 2013, reasons being the on-going domestic issues all negatively impacting investors' confidence and increasing the cost of doing business. In 2010 also the IMF stand-by agreement was suspended which impacted the inflows from other International Financial institutions and donors. In 2014, after the issuance of Eurobonds by the government and realisation of proceeds from the 3G/4G licencing auctions, Figure 1 shows the capital account to take on an upward trend.

Year 2015 and 2016 saw a rise in the foreign direct investment to the country with the signing of CPEC. However, simultaneously the current account deficit also began to expand as imports of machinery and other related items from China increased. In terms of portfolio investment, outflows due to repayments against Eurobonds were dominant, while the global equity market also witnessed volatility owing to the devaluation of Chinese yuan, hike in the federal funds rate, reduction in oil prices and the Britain's vote to leave the EU.

Figure 4 reviews the composition of the capital account in 2015-16; the level of foreign direct investment and portfolio investment inflows turned out to be insufficient to finance the growing current account deficit, thus the government had to resort to external debt financing.

Composition of Financial Account of Pakistan 2015-2016

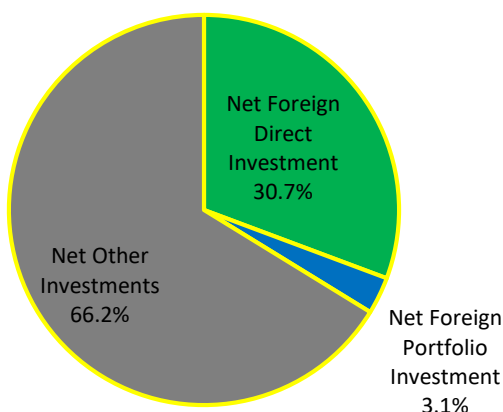


Figure 4 Composition of Financial Account of Pakistan 2015-2016

In 2017, while Figure 1 shows that the surplus in the financial account rose significantly and aided in financing the current account deficit, most of the inflows were debt generating in nature. The government relied heavily on short term commercial loans, which exposes the economy to volatility risk. In addition to bridging the current account deficit, the borrowings were more an outcome of the government's efforts to artificially maintain the level of exchange rate. Given that the move is a violation of IMF's Article VIII, the government might have to devalue the rupee in case it seeks financial support from the IMF or other International Financial Institutions; and so was the case of devaluation of rupee in December 2017.

Today much of the policies introduced in late 1990s are still in place; there are no restrictions on inward flows of capital while outflows remain under scrutiny requiring prior approval from SBP. In essence this difference in policy stance towards allowing free movement of capital both ways is why Pakistan's capital account is categorised as partially liberalised. However, a point of concern is that despite a liberalised environment for inflows, a large portion of inflows comprise of external debt, i.e. short term commercial bank credit and official loans from International Financial Institutions and donors, rather than long term stable direct investment. This implies that the liberalisation process did aid the country to tap into the pool of global savings which the proponents of opening of capital account argue helps generate economic activity. Potential negative effects associated with mounting external debt liabilities can be properly managed if the funds are directed towards financing efficient productive capital. The idea is to generate sufficient level of earning for the government to service the debt without having to rely on further borrowing. In case the government resorts to raising public debt for debt servicing purposes, this leads to the crowding out of investment to the private sector thus further dampening growth prospects. This has been the state of affairs in Pakistan; external debt has been primarily used to stabilise foreign exchange liquidity in the market rather than for productive investment reasons.

6 Econometric Methodology

6.1 Theoretical Details of VAR Methodology

Vector Autoregressive (VAR) models are multivariate linear time series models that are designed to capture the joint dynamics of multiple time series. It facilitates the inclusion of endogenous variables in an econometric analysis by treating them as a function of their own lagged values.

The two main purposes of a VAR model are forecasting and structural analysis. In the context of this paper, I am employing the VAR model for structural analysis purpose, i.e. to investigate the response of macroeconomic variables to a shock/change in the capital account openness of Pakistan. This objective requires that an economic reasoning is set behind the VAR model; such VAR models are referred to as Structural VAR (SVAR). A basic VAR model, where no economic intuition has been imposed is called a Reduced Form VAR (RF-VAR).

Let's assume a RF-VAR of order p or simply VAR(p); the term order p is another way of saying that the model has p lags.

$$Y_t = \varphi_1 Y_{t-1} + \varphi_2 Y_{t-2} + \dots + \varphi_p Y_{t-p} + u_t$$

Where $Y_t = [y_{1t}, y_{2t}, \dots, y_{nt}]'$, a vector of 'n' variables and so are all its lagged values. The dimension on the vector is nx1. The φ 's are the coefficient matrices of nxn dimension and u_t is a vector of stochastic error terms and has a nx1 dimension. This overall model describes the evolution of Y_t overtime as a function of its past realisations plus a stochastic error term. The error term is the key in deriving further analysis, therefore we make certain assumptions about its nature.

The error term is white noise, i.e. has zero mean and is serially uncorrelated with its own lagged values. This can be written down as:

1. $E(u_t) = 0$

2. $E(u_t u_\tau') = \begin{cases} \Omega & \text{if } \tau = t \\ 0 & \text{otherwise} \end{cases}$

$u_t u_\tau'$ is a variance – covariance matrix and Ω has a non-zero finite value. It is important to mention here that it is not assumed to be diagonal until now. This means that error terms of

individual equations can be contemporaneously correlated. The orthogonality of error terms becomes essential when talking about the SVARs.

The structure of the variance-covariance matrix $\Omega = \begin{bmatrix} \sigma_{u_1}^2 & \sigma_{u_1 u_2}^2 & \dots & \sigma_{u_1 u_n}^2 \\ \sigma_{u_2 u_1}^2 & \sigma_{u_2}^2 & \dots & \sigma_{u_2 u_n}^2 \\ \cdot & \cdot & \dots & \cdot \\ \cdot & \cdot & \dots & \cdot \\ \sigma_{u_n u_1}^2 & \sigma_{u_n u_2}^2 & \dots & \sigma_{u_n}^2 \end{bmatrix}$ where $\sigma_{u_1 u_n}$ and

all similar off-diagonal elements are the non-zero contemporaneous covariance between each of the n variable.

Another important aspect to note is that the ordering of variables does not matter in a VAR model since each variable is simply being expressed as a linear function of its own lagged values and those of all other variables, however it will become important when the model is converted from RF-VAR to SVAR.

The VAR model is estimated by Ordinary Least Squares (OLS) and the resulting estimates are consistent and efficient, given that the model's stationarity is ensured. This aspect is of significance due to its implications on the response to innovations. A VAR(p) model is covariance stationary when its first and second order moments are finite and time invariant. This can be written as:

1. $E(y_t) = E(y_{t+j}) = \mu$ where j runs from 0 to ∞ and represents future time period
2. $E \left[(y_t - \mu)(y_{t+j} - \mu)' \right] = E \left[(y_s - \mu)(y_{s+j} - \mu)' \right] = \Gamma_j$ where s is another time period,
i.e. $s \neq t$

Next in a VAR model is the choice of number of lags 'p' to be incorporated in the model. If p is too short, the model maybe poorly specified and the white noise property of the error term might

not be obtained. If however p is too large, degrees of freedom are lost. With each extra lag n^2 coefficients will have to be estimated. The presence of many coefficients with little data results in an overspecified model. A number of information based criterion are available for selecting the optimal lag length; these include Akaike Information Criterion, Schwarz Information Criterion and Hannan-Quinn Information Criterion. A general rule of thumb developed by practitioners is to select lags based on the frequency of data. For instance when using monthly data p is often set as 12, and 4 in case of quarterly data.

6.2 Impulse Response Functions

In order to estimate a dynamic response to a structural shock, we need to understand and evaluate the relationship between the residual of a RF-VAR and those of a SVAR. Let's assume that the SVAR takes the form:

$$A_0 Y_t = A_0 \phi_1 Y_{t-1} + A_0 \phi_2 Y_{t-2} + \dots + A_0 \phi_p Y_{t-p} + A_0 u_t$$

Notice that it can be retrieved by multiplying the RF-VAR with a matrix A_0 . It can be further simplified to:

$$A_0 Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_p Y_{t-p} + \varepsilon_t$$

All we know about the A_0 matrix is that, $A_0 u_t = \varepsilon_t$ or $u_t = A_0^{-1} \varepsilon_t$. The RF-VAR estimations provides the variance-covariance matrix of error terms ' Ω '. From there we can extend our understanding about ε_t :

$$E(u_t u_t') = \Omega = E(A_0^{-1} \varepsilon_t \varepsilon_t' A_0^{-1'})$$

The A_0 is a $n \times n$ matrix and therefore has n^2 unknowns, while Ω although has $n \times n$ dimension as well, it only has $[n(n+1)]/2$ distinct elements since it's a symmetric matrix. There are more unknowns than the number of equations; thus the system is under identified. In order to find a unique set of solution, the system must be identified, i.e. equal number of equations and unknowns. Therefore econometricians impose additional restrictions on the A_0 . The most common and widely used technique for imposing these restrictions is Cholesky Decomposition. It transforms the A_0 matrix into a lower triangular matrix; we impose the orthogonality restriction. In economic sense, this means we assume the shocks to be uncorrelated with each other.

The most relevant and appropriate method to assess the impact of shocks is through the impulse response functions (IRF). To find these IRFs, we transform the RF-VAR into an $MA(\infty)$ model, that helps express Y_t as a sum of past shocks u_t . We perform the transformation by introducing a lag operator.

$$Y_t - \varphi_1 Y_{t-1} - \varphi_2 Y_{t-2} - \dots - \varphi_p Y_{t-p} = u_t$$

$$Y_t(I - \varphi_1 L - \varphi_2 L^2 - \dots - \varphi_p L^p) = u_t$$

$$(I - \varphi(L))Y_t = u_t \quad \text{given that } \varphi(L) \text{ is an invertible matrix and become } \psi$$

$$Y_t = (I - \varphi(L))^{-1}u_t$$

$$Y_t = u_t + \psi_1 u_{t-1} + \psi_2 u_{t-2} + \dots$$

From the structural form we know: $u_t = A_0^{-1}\varepsilon_t$, therefore, the $MA(\infty)$ can also be written in terms of structural shocks:

$$Y_t = A_0^{-1}\varepsilon_t + \psi_1 A_0^{-1}\varepsilon_{t-1} + \psi_2 A_0^{-1}\varepsilon_{t-2} + \dots$$

The impulse response functions can be derived by taking the derivative of the equation above with respect to the shocks (ε_t), i.e. $\frac{\partial Y_t}{\partial \varepsilon_t} = A_0^{-1}$. To assess the response of the shock at time period t in the future ($t+k$ period ahead), we can observe that A_0^{-1} matrix remains fixed and is sequentially multiplied by ψ_{t+k} . Therefore, it can be said that the impulse responses of the variables to a shock are primarily governed by the A_0^{-1} matrix. However, in practice we don't need to calculate the A_0 matrix or its inverse, the statistical softwares are capable of doing these in the back end and provide us with the outcomes.

An advantage of using the VAR analysis is that it offers a variance decomposition technique which aids in detecting the causal relationship between variables. It explains how much a shock to each specific variable in the model affects other variables.

7 Variables & Data Sources

The data for this paper has been collected from various publications of the State Bank of Pakistan, including the Handbook of Statistics on Pakistan Economy and Statistical Supplements of the Annual Reports (State of the Economy). Additionally, as we saw earlier that the definition of capital account has changed over time and so has the procedure of compiling relevant data, clarity regarding the methodology and conventions used for compilation of data was obtained internally from the Statistics and Data Warehouse Department (S&DWH) of State Bank of Pakistan. Assistance was also sought for transforming old data that had not been formally updated to new standards of BPM6, for use in this study.

Quarterly data has been used for estimation from the period 1990Q1 to 2015Q4. The variables included in the model are; two alternative indicator of capital account liberalisation (a de jure and a de facto indicator), nominal exchange rate (NEER), level of investment (INV) and consumption (CON) in the economy, current account balance as a percentage of GDP (CA_GDP), Money Supply (M2), Real GDP (REAL_GDP), price index (CPI). All variables are expressed in logarithm except nominal exchange rate, percentage of current account balance in the total GDP and the inflation indicator. From the wide variety of measures available as discussed earlier in section 4, KOPEN index developed by Chinn & Ito (2002, 2006, 2008) is selected as a de jure indicator of capital account openness of Pakistan, while Lane and Milesi-Ferretti's (2007) TOTAL index is chosen from the de facto indicators. The selection of these two indicators is primarily based on the availability factor in reference to Pakistan.

8 Empirical Analysis

I tried to understand if the observed fluctuations in the time series data of some macroeconomic variables such as nominal exchange rate, investment and consumption levels, current account balance, money supply, economic growth and price levels, can be explained by changes in the state of capital account liberalisation process of Pakistan. Prior to carrying out a formal analysis, the data is tested for stationarity by making use of the Augmented Dickey Fuller (ADF) test. Results show that all variables are non-stationary at level, but stationarity is achieved at first differences. The variables are said to be integrated of order one - I(1).

Then the choice of lags that should be included in the VAR model is crucial; econometricians either arbitrarily fix the number of lags or decide on the optimal length by using a range of selection criteria available. I first estimated a VAR(1) model, i.e. with lag 1 and conduct the

residual autocorrelation test. The rationale behind the test is that if one lag is sufficient, residuals won't be autocorrelated. Residuals of VAR estimated using KOPEN turn out to be correlated, therefore I resorted to a five lag order criterion available in EViews; namely Likelihood Ratio, Final Prediction Error, Akaike Information Criterion, Schwarz Information Criterion and Hannan-Quinn Information Criterion. The optimal lag length turns out to be 4. While in the case of TOTAL, the lag of order 1 was sufficient. I therefore run two VAR models; VAR(4) using KOPEN and VAR(1) using TOTAL as a measure of capital account openness in Pakistan, for first differenced series.

A limitation of selecting this econometric model is that the Johansen Cointegration Test reveals that there is a stationary linear combination between the variables, i.e. they are cointegrated. Hence the coefficients of the VAR model might not be efficient. In such cases, a Vector Error Correction Model (VECM) is more suited. The technique has been applied in literature, and by Naveed & Mehmood (2016) in the context of Pakistan. They do make use of the TOTAL index for measuring capital account liberalisation in the country, but their variables differ from those used here. I however, pursue with a VAR model here since the focus is to observe the impulse responses of the shock to capital account openness. Those interested in the subject can address this aspect for further digging up on the impact capital account opening has had on Pakistan's economy.

8.1 Effect on Macroeconomic Variables

I expanded the VAR model discussed in the previous section, incorporating the chosen variables. The ordering of the variables is of immense significance in a VAR model and as decided earlier that the proxy for capital account liberalisation will be first and the X vector containing

macroeconomic variables of the economy that are of interest in our analysis will be second. Ordering of variables within the X vector is equally important. It is expected that an increase in capital account openness will result in more capital inflows which in turn will appreciate the nominal exchange rate (assuming Pakistan theoretically has a flexible exchange rate regime). Investment is kept in the third place on the basis that more inflows would be channelized towards investment, followed by consumption in the fourth place that increased partly also on account of appreciation of the currency. Ideally consumption would increase less than investment if a country properly capitalises on its capital inflows. In the fifth place we expect to observe current account to run in a deficit as exports will become expensive and cheaper imports will derive a wedge between the two. Due to the increase in international reserves, money supply is expected to grow so we place it at sixth, and subsequently in the seventh place real growth may increase. Increase in money and real growth leads to an upward inflationary pressure.

The impulse response functions (IRFs) have been generated using Monte Carlo simulation method with 500 repetitions and 95% probability bands for each variable included in the VAR. The responses are available for 24 quarters (or 6 years) to a one standard deviation shock in capital account liberalisation measure. Figure 3 displays IRFs for KOPEN and Figure 4 is for TOTAL.

In Figure 3, as expected a capital flow shock led to the appreciation of domestic currency, however by the third quarter it displays a move towards depreciation. This was potentially due to the monetary authority's intervention in the foreign exchange market, as the current account witnessed a deficit. To offset the excess demand for local currency due to its appreciation, the Central Bank (State Bank of Pakistan-SBP) had to buy foreign currency from the market. The consequent accumulation of foreign reserves caused the money supply to increase. But overall

the money supply response is volatile implying that there were efforts to sterilise the foreign exchange intervention by selling government securities or bonds in the open market. In the long run exchange rate and current account returned to their pre-shock values and maintained their level, and subsequently the money supply began showing a downward movement.

In line with economic theory, capital inflows boosted investment and increased consumption, however it is important to note that the impact was short lived. Despite opening up of the capital account, a possible explanation for the fall in investment could be lack of investment opportunities in the country, unavailability of sufficient skilled human capital, low domestic financial development, poor institutional quality and political situation. As Rodrik and Subramanian (2008) argue that under such circumstances the appreciated currency and loss in international competitiveness actually couple up and result in a decline in the return on investment (ROI), thereby decreasing investment. The impulse response figure depicts that although initially when the shock hits the economy, the GDP variable at that point in time increases but the trend does not persist and it instantly declines afterwards. In the very long run the low level of aggregate demand components leave the economic performance of the country unchanged. A movement in money supply larger than the real output exerts an upward pressure on prices. However, in our model it is hard to find any significant pattern of movement of the price index.

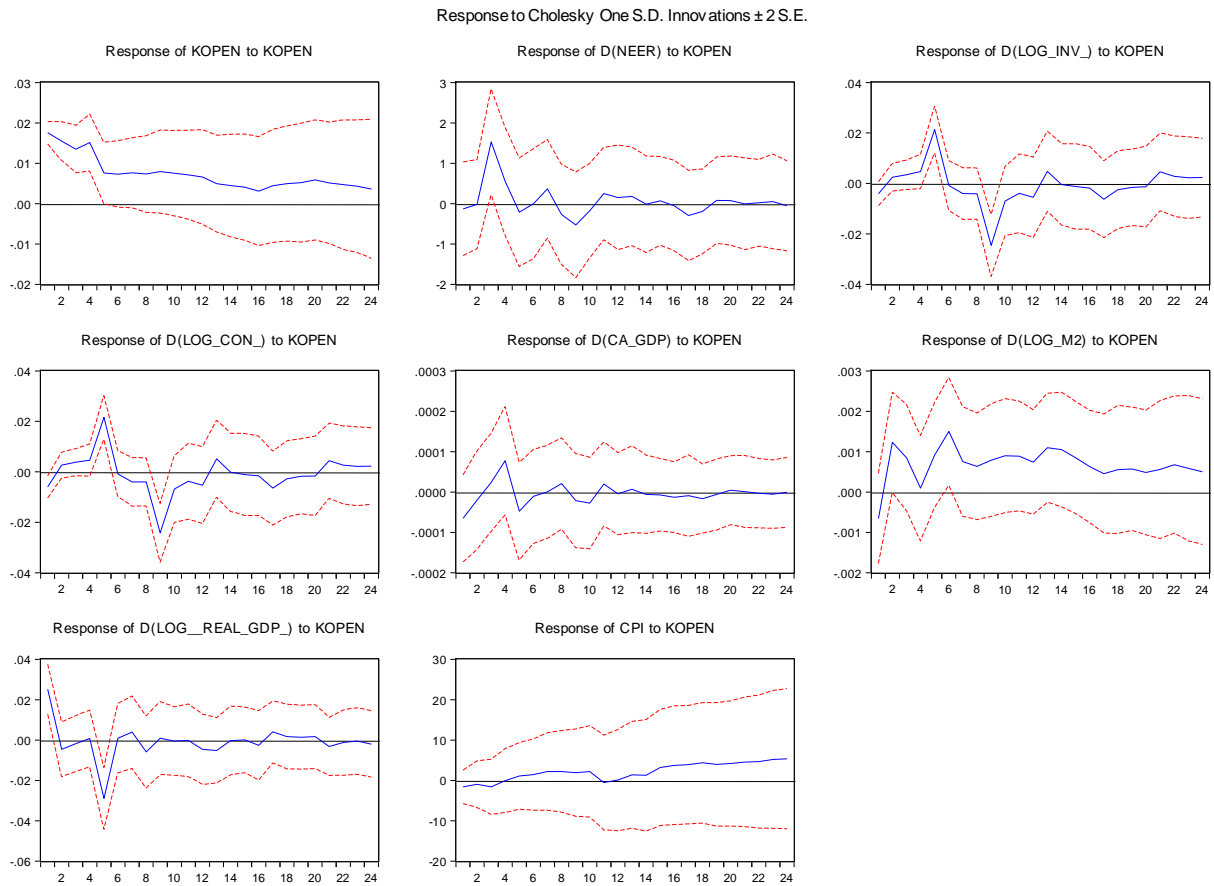


Figure 5 Impulse Response to shock in KOPEN

When the capital account liberalisation proxy is changed to TOTAL, the results paint a more stagnant and unresponsive picture of the economy and its macroeconomic aggregates as compared to the sharp rise and falls observed when using KOPEN. The nominal exchange rate does appreciate initially as a response to increase in capital flows but the magnitude is far less. On average the rate remains stable and so does the current account balance. In the first quarter both investment and consumption increase but tend to decline in the following quarters, and return to their initial level; a conclusion similar to what was observed earlier. Contrary to the output's response under KOPEN, the economy doesn't experience a rise in output instead it slightly plunges and then quickly returns back to its old level prior to the shock. While the

inflation index declines significantly. The conclusions here indicate that the capital account openness process did not attach sufficient inflows to alter the course of economic performance.

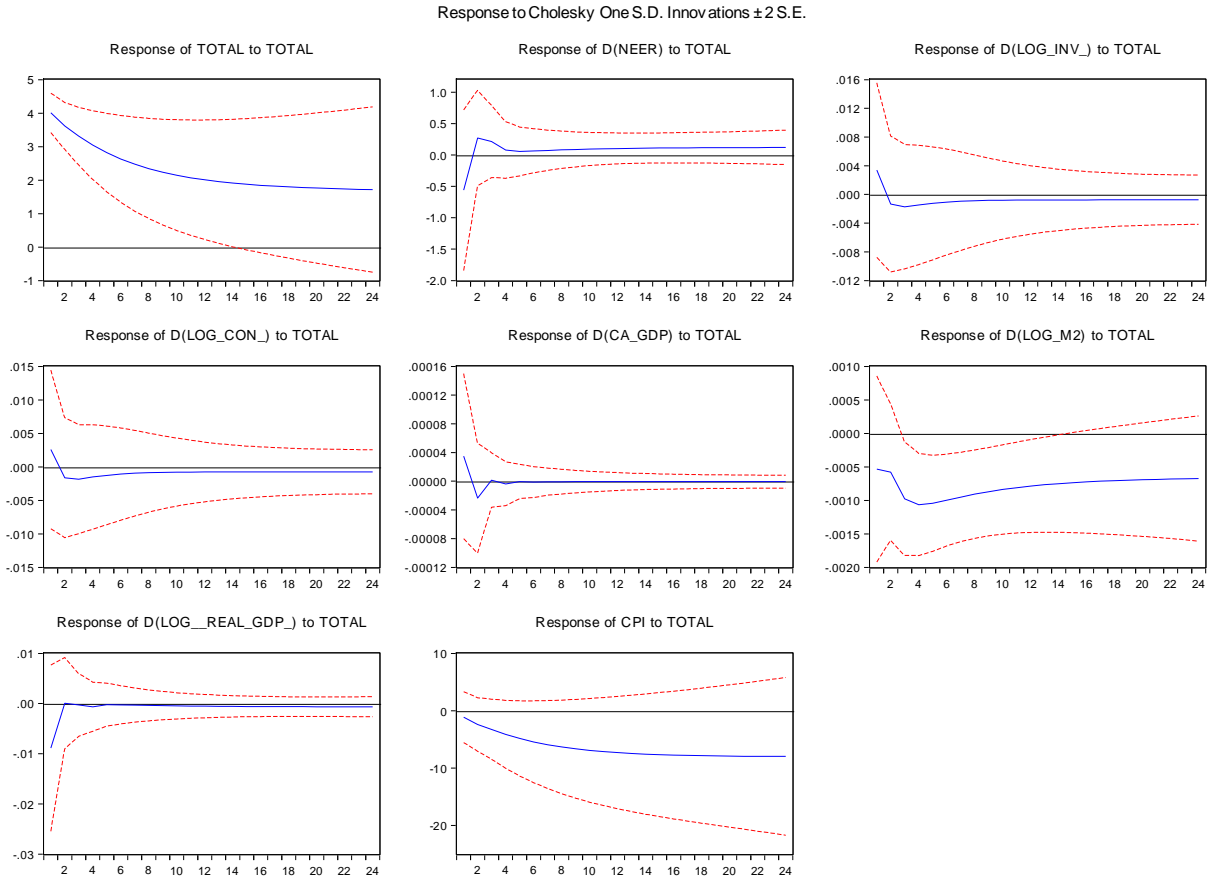


Figure 6 Impulse Response to shock in TOTAL

8.2 Forecast Error Variance Decomposition of Capital Account Openness

The variance decomposition indicates which variables are affected more in the short term and which have a long term impacts as response to capital account opening shock. The table below calculates the variance decomposition for future period forecasts ($k = 4, 8, 12$).

Variance Decomposition of KOPEN								
Period	KOPEN	NEER	INV	CON	CA_GDP	M2	Real_GDP	CPI
4	74.13	0.99	6.44	11.22	4.90	0.22	1.32	0.77
8	56.31	8.57	4.83	11.33	3.87	5.34	3.18	0.57
12	43.32	18.79	4.38	22.92	3.46	4.49	2.15	0.48

Table 1 Variance Decomposition of KOPEN

In the short run, i.e. within a year's span the influence on KOPEN itself to a capital account liberalisation shock is dominant, which dissipates gradually over time (74%-43%). Likewise the shock also contributes to change in consumption, nominal exchange rate and the share of current account balance in the total GDP. In the long run, 23% of the total variability is expected to come from consumption, while nominal exchange rate accounts for 19%. However, the effects on real GDP appear significantly small.

The results reported in the second table of variance decomposition of the TOTAL measure are quite different from those of KOPEN; in the long run a shock to capital account liberalisation process still accounts for 75% variation in its own measure – TOTAL. Moreover, the effects on all other key macroeconomic variables are negligible apart from price level that has a variability of 24% by the twelfth quarter.

Variance Decomposition of TOTAL								
Period	TOTAL	NEER	INV	CON	CA_GDP	M2	Real_GDP	CPI
4	95.78	0.09	0.11	0.01	0.04	0.00	0.00	3.97
8	85.42	0.09	0.09	0.03	0.02	0.06	0.00	14.28
12	75.37	0.08	0.07	0.03	0.02	0.14	0.01	24.28

Table 2 Variance Decomposition of TOTAL

8.3 Boom-Bust Cycles

According to economic theory, the marginal returns for economies with capital controls are high as they move towards more liberalised policies as inflows are expected to substitute for the lack of domestic capital. The period following liberalisation is usually characterized by capital surges, domestic credit expansion, substantial increase in investment and consumption, expansion of economic activity, appreciation of real exchange rate and asset price bubbles. Over time, however such a boom phase does not last and the process tends to reverse itself. Continued appreciation of exchange rate worsens the international competitiveness of exports and increase the demand for imports, thereby generating a current account deficit. Consequently, the investors begin to negatively view the state of the economy and this reversal in expectations slows down the momentum of capital flows. As investors withdraw their investments, net capital inflows decline, exchange rate adjusts and the bubble bursts, hence triggering the bust phase.

I investigate whether any symptoms of boom and bust cycles were evident in the Pakistani economy after liberalisation of the capital account. The IRFs of consumption and investment using KOPEN demonstrate that the economic activity or output is not closely linked with the aggregate demand variables. Both investment and consumption variables experienced high volatility as compared to GDP. They did not increase as predicted by economic theory, and possible explanation could be the lack of investing avenues available in the country, weak institutions and law enforcement, and unpredictable political situation.

9 Conclusion and Policy Recommendations

Limited literature is available on the dynamics of the relationship between capital account liberalisation and the economic performance of Pakistan. This paper attempted to fill the gap by evaluating the impact of opening of capital account of Pakistan on its growth and other macroeconomic variables by using a VAR model on quarterly data from 1990 to 2015. In order to quantify the extent of capital account liberalisation, two different kinds of measures were used; de jure and de facto. The idea was to further provide a comparison between the results from using different indicators capturing different aspects of capital account controls, and shed light on any significant differences. Such an assessment would aid in identifying the cause behind mixed results on the impact of the liberalisation process on macro economy. Results of the paper conclude no significant contribution of capital account liberalisation on the economic growth and development of the country, regardless of the indicator type.

A number of factors particular to Pakistan can help explain why potential positive impacts of the liberalisation process could not be exploited by the economy. Experience of most developed countries that were able to benefit from the process points to a set of preconditions that are central to mitigating the volatility risk associated with greater short capital flows, followed by careful timing and sequencing of the liberalisation reforms. Pakistan's sequencing of the reforms was rather less coherent and not carefully designed, and it embarked on the road of capital account convertibility prior to fully liberalising its current account, while other necessary preconditions have not even yet been fully met.

The country needs to rigorously pursue financial sector reforms with a view to strengthening the banking system, making it more transparent and market forces driven, all of these under the umbrella of a well-defined regulatory framework and effective supervision. Towards mid 2000s

we saw in section 5 that reforms in the domestic financial sector especially privatisation significantly boosted capital inflows and reduced the reliance on foreign borrowings. However, those reforms were not sufficient and much needs to be done on this front.

The quality of institutions has also been identified in literature as a requisite to positive significant contribution of capital account liberalisation towards growth. Mahmood (2013) raises the point that given Pakistan's fully liberalised current account, absence of strong institutions accommodates illegal capital flows. By export under-invoicing or import over-invoicing the trade account can be utilised for unauthorised movement of capital in and out of the country. Presence of alternative informal channels of money transfer, commonly known as the Hundi/Hawala system further facilitate unofficial activity in the capital account. Such transactions result in loss of foreign exchange to the government, tax evasion and even create room for corruption; allowing black money to be easily transferred out of the country to safe havens. Also these unauthorised transactions remain largely unaccounted in a formal empirical analysis.

Another explanation for the inability of capital inflows to fuel economic growth of the country is the substantial portion of external debt in these inflows. As discussed in section 5, around 60-65 percent composition of the capital account was comprised of official loans from International Financial Institutions and donors, such as the IMF and WB. Given that much of the inflows were debt generating in nature, Pakistan remained unable to tap into the pool of global savings, which the proponents of capital account liberalisation argue encourages economic growth. This assessment is similar to that made by Naveed and Mahmood (2016). A more worrisome aspect is that these funds are being utilized by the government to sustain liquidity in the foreign exchange market rather than diverting them towards productive investment opportunities that could in turn

generate income for servicing debt liabilities and simultaneously stimulate economic activity. Consequently, it has resorted to further external borrowings or raising public debt which has had implications for private sector investment. The government needs to shift its focus to attracting non-debt generating stable and long term sources of inflows. Foreign direct investment relative to portfolio investment should be targeted, reason being short term capital flows are volatile in nature and also pro-cyclical. This means that in times of economic slowdown and policy austerity they become negative. Over the years, Pakistan has experienced phases of capital flight which have disrupted the potential positive impact of liberalisation on the economy; a trend consistent with that experience by East Asian and Latin American economies towards the end of 1990s. Additionally, the government should further its efforts to facilitate and increase foreign remittances from Pakistani working abroad which will ease the current account deficit situation and release the pressure on debt based capital inflows.

One more issue that has constraint Pakistan and many other developing economies in reaping the benefits of the external financial liberalisation is the lack of fiscal discipline. When the central banks monetise the government deficit, it exerts an inflationary pressure on the economy affecting domestic demand and triggering a downwards trend in the economy which coupled with an open capital account can lead to crisis like situations. Also the policies of the monetary authority lose their effectiveness. On top of this, the government has also been artificially managing and maintaining the exchange rate, form the concept of 'Impossible Trinity' this situation implies a loss of monetary independence of SBP to control monetary policy and hence its ability to use the interest rate flexibly to stabilise the economy.

Meager performance of Pakistan's economy, large current account deficit, expectations of major exchange rate realignment and political instability have combined to undermine the liberalisation

process. Any potential positive impact has been reversed or neutralized due to loss of investors' confidence and consequent capital outflows.

Furthermore, despite Pakistan's large efforts towards removing restrictions on capital account transactions, the economy is only partially liberalised, with outflows from residents still facing restrictions and approval requirements. Most researcher (Haque, 2011; Naveed and Mehmood, 2016) also argue that the actual level of integration of Pakistan's economy into the global economy is limited compared to other emerging markets, which is why benefits associated with capital account liberalisation have not been fully materialised.

While it is clear that Pakistan needs to increase its involvement in the international market, does it also need to pursue complete capital account convertibility? The answer might not be as simple as a yes or no. The need for further opening measures can be better analysed once all other necessary requirements and supporting factors are in place. The performance of the economy under those circumstances can better indicate a gap in liberalisation policy initiatives. Any further move towards liberalisation needs to be gradual and carefully implemented.

Some of the aspects that haven't been explored in this paper but future researchers can delve into and probably gain valuable insights include, assessing the terms of various IMF support programmes, which have been at the centre of policy debates. Financial loans from the Fund are accompanied with conditions and mandatory stability policies, impacts of which have been argued to be limited to short to medium term growth objectives and have failed to help achieve long term growth and stability. The negotiating governments should adopt a cautious approach when agreeing to conditions of a support programme, such that they would not be counterproductive to any growth momentum in the economy.

Moreover, study of the evolution of the institution's views on capital account liberalisation policies will also shed light on the rationale behind capital account liberalisation policies of Pakistan discussed in section 5. IMF that once was the biggest proponent of fully opening up of capital account and prescribed it as a carpet policy to all emerging economies, has shifted gears over the years. It now endorses the view that under certain circumstances (discussed in section 2 in detail), regulating cross border financial flows is optimal.

References

Acemoglu, D., & Zilibotti, F. (1997). Was Prometheus Unbounded by Chance? Risk Diversification and Growth. *Journal of Political Economy*, 105(4), 709-751.

Ang, J. B., & McKibbin, W. J. (2007). Financial Liberalization, Financial Sector Development and Growth: Evidence from Malaysia. *Journal of Development Economics*, 84(1), 215-233.

Arteta, C., Eichengreen, B., & Wyplosz, C. (2001). When Does Capital Account Liberalization Help More Than It Hurts?. (*NBER Working Paper 8414*). Cambridge, MA: National Bureau of Economic Research.

Barro, R. J. (1997). Determinants of Economic Growth: A Cross-Country Empirical Study. Cambridge, Mass. mit Press.

Bekaert, G., Harvey, C. R., & Lundblad, C. T. (2001). Does Financial Liberalization Spur Growth?. (*NBER Working Paper 8245*). Cambridge, MA: National Bureau of Economic Research.

Brune, N. E., & Guisinger, A. (2006). Myth or Reality? The Diffusion of Financial Liberalization in Emerging Economies. Available via the Internet: www.princeton.edu/~pcglobal/conferences/IPES/papers/brune_guisinger_F900_1.pdf

Chinn, M. D., & Ito, H. (2002). Capital Account Liberalization, Institutions and Financial Development: Cross Country Evidence (*NBER Working Paper 8967*). Cambridge, MA: National Bureau of Economic Research.

Daianu, D., & Vranceanu, R. (2003). Opening the Capital Account of Developing Countries: Some Policy Issues. *Acta Oeconomica*, 3, 245-271.

Edison, J. H., Klein, W. M., Ricci, L., & Sloek, T. (2002). Capital Account Liberalization and Economic Performance: Survey and Synthesis. (*NBER Working Paper 9100*). Cambridge, MA: National Bureau of Economic Research.

Eichengreen, B., & Mussa, M. (1998). Capital Account Liberalization: Theoretical and Practical Aspects. *International Monetary Fund*. Occasional Paper No. ??.

Eichengreen, B. (2001). Capital Account Liberalization: What Do Cross-Country Studies Tell Us?. *The World Bank Economic Review*, 15(3), 341-365.

Fischer, S. (1998). Capital Account Liberalization and the Role of IMF. Should the IMF Pursue Capital Account Convertibility? Peter Kenen ed. *Essays in International Finance*, 207, Princeton, Princeton University Press.

Gallagher, K. P., Ocampo, J. A., Zhang, M., & Yongding, Y. (2014). Capital Account Liberalization in China: A Cautionary Tale. *A Global Economic Governance Initiative Policy Brief*, 2, 1-6.

Global Development Finance Report : The development Potential of Surging Capital Flows. (2006). *The World Bank*.

Gourinchas, P. O., & Jeanne, O. (2004). The Elusive Gains from International Financial Integration. *IMF Working Paper*, 1-47.

Hanson, J. A. (1992). Opening the Capital Account - A Survey of Issues and Results (*WPS 901*). World Bank: Policy Research Working Papers.

Haque, I. (2011). The Capital Account and Pakistani Rupee Convertibility: Macroeconomic Policy Challenges. *The Lahore Journal of Economics*, 16, 95-121.

Henry, P. B. (1997). Do Stock Market Liberalizations Cause Investment Booms?. *Stanford University Graduate School of Business*. Research Paper No. 1504.

Hye, M. A., & Wizarat, S. (2013). Impact of Financial Liberalization on Economic Growth: A Cases Study of Pakistan. *Asian Economic and Financial Review*, 3(2), 270-282.

IMF (International Monetary Fund). (2010). *Annual Report on Exchange Arrangements and Exchange Restrictions*. Washington D.C., USA: International Monetary Fund.

IMF. *International Financial Statistics* (various Issues). Washington D.C., USA: International Monetary Fund.

Jadhav, N. (2003). Capital Account Liberalization: The Indian Experience. Presented at *A Tale of Two Giants: India's and China's Experience with Reform and Growth*.

Janjua, A. (2007). Pakistan's External Trade: Does Exchange Rate Misalignment Matter for Pakistan?. *Special Edition of Lahore Journal of Economics*.

Khalid, A. M (2000). Macroeconomic Effects of Financial Liberalization in Pakistan: An Assessment. Economics and Finance School of Business, Band University, Australia.

Khan, M. A., & Qayyum, A. (2007). Trade Liberalization, Financial Development and Economic Growth. *Pakistan Institute of Development Economics*, Working Papers 19.

Kraay, A. (1998). In Search of the Macroeconomic Effects of Capital Account Liberalization. *The World Bank Group*.

Kim, S., Kim, H. S., & Wang, Y. (2004). Macroeconomic Effects of Capital Account Liberalization: The Case of Kore. *Review of Development Economics*, 8(4), 624-639.

Levine, R., & Renelt, D. (1992). A Sensitivity Analysis of Cross-Country Growth Regressions. *American Economic Review*, 82(4), 942–963.

Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35(2), 688–726.

Levine, R., & Zervos, S. (1998). Capital Control Liberalization and Stock Market Development. *World Development*, 26(7), 1169–1183.

Levine, R., Loayza, N., & Beck, T. (2000). Financial Intermediation and Growth: Causality and Causes. *Journal of Monetary Economics*, 46, 31-77.

Mahmood, Z. (2013). Reverse Capital Flight to Pakistan: Analysis of Evidence. *The Pakistan Development Review*, 52(1), 1-15.

Mathieson, D. J., & Rojas -Suarez, L. (1993). Liberalization of Capital Account: Experiences and Issues. *International Monetary Fund*. Occasional Paper No. 103.

McKinnon, R. I. (1973). *Money and Capital in Economic Development*. Brooking Institution, Washington, D.C.

McKinnon, R. I., & Pill, H. (1997). Credible Economic Liberalizations and Over Borrowing. *American Economic Review*, 87(2), 189-193.

Munir, S., Chaudhry, I. S., & Akhtar, M. H. (2013). Financial Liberalization and Economic Growth in Pakistan: Empirical Evidence from Co-integration Analysis. *Pakistan Journal of Social Sciences*, 33(2), 227-241

Naveed, S., & Mahmood, Z. (2016). External Financial Liberalization and Economic Growth: The Evidence from Pakistan. *Journal of Business & Economics*, 4(3), 21-31.

Naveed (2017). Capital Account Liberalization and Economic Growth: An Empirical Analysis for Pakistan. *International Journal of Economic Theory and Application*, 8(1), 68-98.

Quinn, D. (1997). The Correlates of Change in International Financial Regulations. *American Political Science Review*, 91(3), 531-551.

Quinn, D., Shindler, M., & Toyoda, M. A. (2011). Assessing Measures of Financial Openness and Integration. *IMF Economic Review*, 59(3).

Quirk, P. J., & Evans, O. (1995). Capital Account Convertibility: Review of Experience and Implications for IMF Policies. *International Monetary Fund*. Occasional Paper No. 131.

Rodrik, D. (1998). Who Needs Capital Account Convertibility. Should the IMF Pursue Capital Account Convertibility? Peter Kenen ed. *Essays in International Finance*, 207, Princeton, Princeton University Press.

Schneider, B. (2000). Conference on Capital Account Liberalization: A Developing Country Perspective. Conference Report. *Overseas Development Institute*.

Sethi, N. (2012). Inflows and their Macroeconomic Impact in India a VAR Analysis. *The Romanian Economic Journal*, XV(46), 93-142.

Shaw, E. (1973). *Financial Deepening in Economic Development*. Oxford University Press.

State Bank of Pakistan (Various issues). Annual Reports. Karachi, Pakistan: State Bank of Pakistan

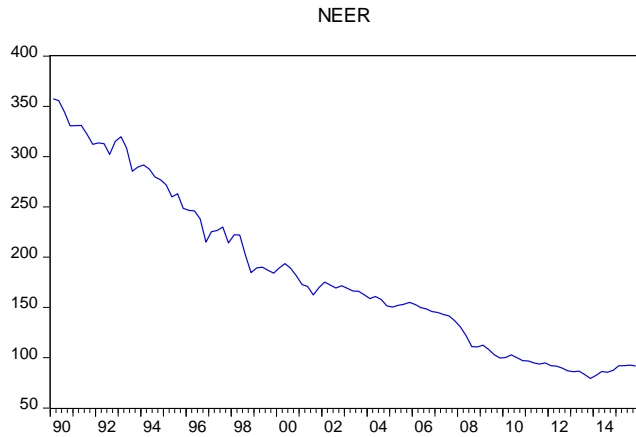
State Bank of Pakistan. (2015). Handbook of Statistics on Pakistan Economy. Karachi, Pakistan: State Bank of Pakistan

Stiglitz, J. E. (2002). Globalization and Its Discontents. W.W.Norton.

Tesar, L. L. (1995). Evaluating the Gains from International Risk Sharing. *Carnegie-Rochester Conference Series on Public Policy*, 42, 95-143.

Appendix

EViews Output: Test for Stationarity of Variables



Null Hypothesis: NEER has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 5 (Automatic - based on SIC, maxlag=12)

Null Hypothesis: D(NEER) has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 4 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.730177	0.9676
Test critical values: 1% level	-4.054393	
5% level	-3.456319	
10% level	-3.153989	

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.930908	0.0000
Test critical values: 1% level	-4.054393	
5% level	-3.456319	
10% level	-3.153989	

*MacKinnon (1996) one-sided p-values.

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(NEER)
 Method: Least Squares
 Date: 12/30/17 Time: 17:41
 Sample (adjusted): 1991Q3 2015Q4
 Included observations: 98 after adjustments

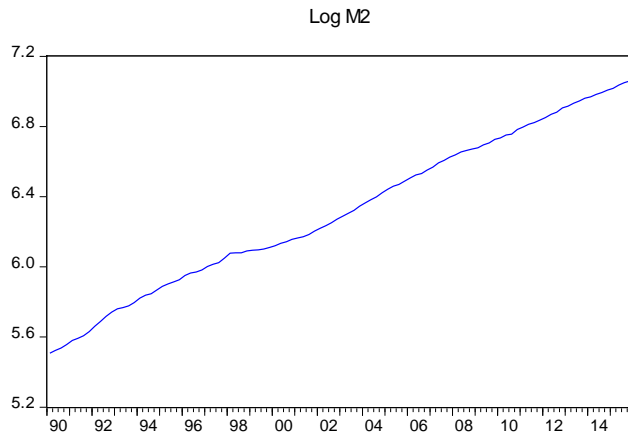
Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(NEER,2)
 Method: Least Squares
 Date: 12/30/17 Time: 17:41
 Sample (adjusted): 1991Q3 2015Q4
 Included observations: 98 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NEER(-1)	-0.024973	0.034201	-0.730177	0.4672
D(NEER(-1))	0.048444	0.101793	0.475912	0.6353
D(NEER(-2))	-0.264581	0.099770	-2.651900	0.0095
D(NEER(-3))	-0.154395	0.100317	-1.539075	0.1273
D(NEER(-4))	0.222494	0.095631	2.326593	0.0222
D(NEER(-5))	-0.325022	0.098417	-3.302488	0.0014
C	0.546653	11.24342	0.048620	0.9613
@TREND("1990Q1")	0.003256	0.092206	0.035311	0.9719

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NEER(-1))	-1.539457	0.259565	-5.930908	0.0000
D(NEER(-1),2)	0.570333	0.233879	2.438578	0.0167
D(NEER(-2),2)	0.286846	0.189122	1.516725	0.1328
D(NEER(-3),2)	0.118762	0.139233	0.852972	0.3959
D(NEER(-4),2)	0.333343	0.097504	3.418744	0.0009
C	-7.562109	1.753034	-4.313726	0.0000
@TREND("1990Q1")	0.068558	0.022387	3.062370	0.0029

R-squared	0.301688	Mean dependent var	-2.439920
Adjusted R-squared	0.247375	S.D. dependent var	6.230871
S.E. of regression	5.405526	Akaike info criterion	6.290828
Sum squared resid	2629.774	Schwarz criterion	6.501846
Log likelihood	-300.2506	Hannan-Quinn criter.	6.376181
F-statistic	5.554616	Durbin-Watson stat	1.998655
Prob(F-statistic)	0.000024		

R-squared	0.644242	Mean dependent var	-0.010273
Adjusted R-squared	0.620786	S.D. dependent var	8.755455
S.E. of regression	5.391643	Akaike info criterion	6.276327
Sum squared resid	2645.353	Schwarz criterion	6.460967
Log likelihood	-300.5400	Hannan-Quinn criter.	6.351010
F-statistic	27.46533	Durbin-Watson stat	2.001828
Prob(F-statistic)	0.000000		



Null Hypothesis: LOG_M2 has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 4 (Automatic - based on SIC, maxlag=12)

Null Hypothesis: D(LOG_M2) has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 4 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.089808	0.1145	Augmented Dickey-Fuller test statistic	-3.550586	0.0396
Test critical values: 1% level	-4.053392		Test critical values: 1% level	-4.054393	
5% level	-3.455842		5% level	-3.456319	
10% level	-3.153710		10% level	-3.153989	

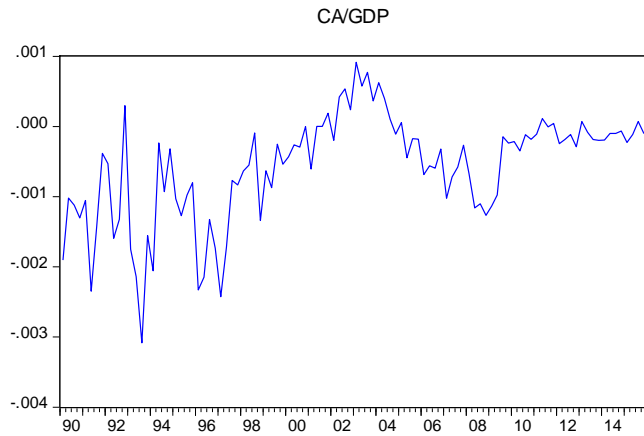
*MacKinnon (1996) one-sided p-values.

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG_M2)
 Method: Least Squares
 Date: 12/30/17 Time: 17:39
 Sample (adjusted): 1991Q2 2015Q4
 Included observations: 99 after adjustments

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG_M2,2)
 Method: Least Squares
 Date: 12/30/17 Time: 17:40
 Sample (adjusted): 1991Q3 2015Q4
 Included observations: 98 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_M2(-1)	-0.074361	0.024066	-3.089808	0.0026	D(LOG_M2(-1))	-0.523348	0.147398	-3.550586	0.0006
D(LOG_M2(-1))	0.246671	0.090777	2.717324	0.0079	D(LOG_M2(-1),2)	-0.108290	0.153122	-0.707214	0.4812
D(LOG_M2(-2))	0.058786	0.093535	0.628484	0.5312	D(LOG_M2(-2),2)	-0.090103	0.134595	-0.669438	0.5049
D(LOG_M2(-3))	-0.065934	0.094165	-0.700194	0.4856	D(LOG_M2(-3),2)	-0.185736	0.118035	-1.573573	0.1191
D(LOG_M2(-4))	0.434386	0.091930	4.725192	0.0000	D(LOG_M2(-4),2)	0.282013	0.099742	2.827412	0.0058
C	0.417881	0.133092	3.139781	0.0023	C	0.008925	0.002785	3.204743	0.0019
@TREND("1990Q1")	0.001078	0.000353	3.051096	0.0030	@TREND("1990Q1")	-2.04E-05	2.05E-05	-0.996397	0.3217
R-squared	0.306357	Mean dependent var	0.014933	R-squared	0.510805	Mean dependent var	-2.58E-05		
Adjusted R-squared	0.261120	S.D. dependent var	0.006438	Adjusted R-squared	0.478551	S.D. dependent var	0.007703		
S.E. of regression	0.005534	Akaike info criterion	-7.487631	S.E. of regression	0.005563	Akaike info criterion	-7.476702		
Sum squared resid	0.002818	Schwarz criterion	-7.304138	Sum squared resid	0.002816	Schwarz criterion	-7.292061		
Log likelihood	377.6377	Hannan-Quinn criter.	-7.413390	Log likelihood	373.3584	Hannan-Quinn criter.	-7.402018		
F-statistic	6.772191	Durbin-Watson stat	1.747179	F-statistic	15.83666	Durbin-Watson stat	1.942489		
Prob(F-statistic)	0.000006			Prob(F-statistic)	0.000000				



Null Hypothesis: CA_GDP has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 4 (Automatic - based on SIC, maxlag=12)

Null Hypothesis: D(CA_GDP) has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 2 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.918267	0.1614
Test critical values: 1% level	-4.053392	
5% level	-3.455842	
10% level	-3.153710	

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.429839	0.0000
Test critical values: 1% level	-4.052411	
5% level	-3.455376	
10% level	-3.153438	

*MacKinnon (1996) one-sided p-values.

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(CA_GDP)
 Method: Least Squares
 Date: 12/30/17 Time: 17:19
 Sample (adjusted): 1991Q2 2015Q4
 Included observations: 99 after adjustments

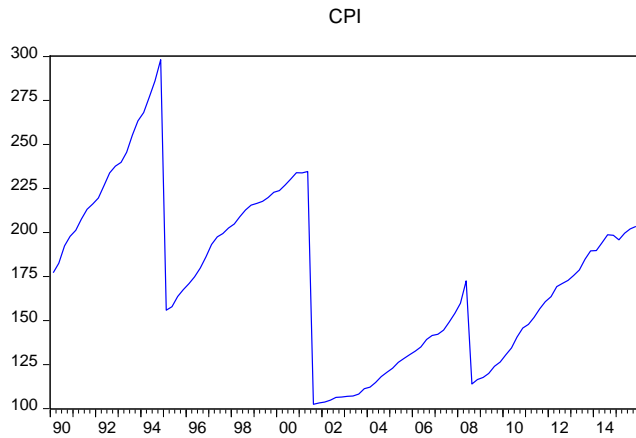
Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(CA_GDP,2)
 Method: Least Squares
 Date: 12/30/17 Time: 17:28
 Sample (adjusted): 1991Q1 2015Q4
 Included observations: 100 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CA_GDP(-1)	-0.294328	0.100857	-2.918267	0.0044
D(CA_GDP(-1))	-0.187076	0.124411	-1.503687	0.1361
D(CA_GDP(-2))	-0.070798	0.118446	-0.597722	0.5515
D(CA_GDP(-3))	-0.123224	0.112224	-1.098017	0.2751
D(CA_GDP(-4))	0.234832	0.100021	2.347831	0.0210
C	-0.000372	0.000171	-2.173836	0.0323
@TREND("1990Q1")	4.08E-06	2.24E-06	1.816946	0.0725

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CA_GDP(-1))	-2.067081	0.219206	-9.429839	0.0000
D(CA_GDP(-1),2)	0.601919	0.166880	3.606888	0.0005
D(CA_GDP(-2),2)	0.317116	0.096168	3.297538	0.0014
C	4.36E-05	0.000110	0.397344	0.6920
@TREND("1990Q1")	-3.39E-07	1.80E-06	-0.188157	0.8512

R-squared	0.324244	Mean dependent var	9.64E-06
Adjusted R-squared	0.280173	S.D. dependent var	0.000586
S.E. of regression	0.000498	Akaike info criterion	-12.30564
Sum squared resid	2.28E-05	Schwarz criterion	-12.12214
Log likelihood	616.1291	Hannan-Quinn criter.	-12.23140
F-statistic	7.357310	Durbin-Watson stat	1.852075
Prob(F-statistic)	0.000002		

R-squared	0.719830	Mean dependent var	8.34E-08
Adjusted R-squared	0.708034	S.D. dependent var	0.000963
S.E. of regression	0.000521	Akaike info criterion	-12.23470
Sum squared resid	2.57E-05	Schwarz criterion	-12.10444
Log likelihood	616.7349	Hannan-Quinn criter.	-12.18198
F-statistic	61.02001	Durbin-Watson stat	1.884687
Prob(F-statistic)	0.000000		



Null Hypothesis: CPI has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

Null Hypothesis: D(CPI) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.174257	0.2169	Augmented Dickey-Fuller test statistic	-10.37295	0.0000
Test critical values: 1% level	-3.495021		Test critical values: 1% level	-3.495677	
5% level	-2.889753		5% level	-2.890037	
10% level	-2.581890		10% level	-2.582041	

*MacKinnon (1996) one-sided p-values.

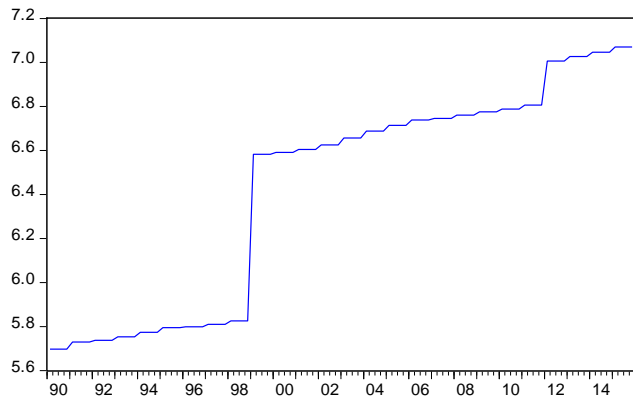
*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(CPI)
 Method: Least Squares
 Date: 12/30/17 Time: 17:31
 Sample (adjusted): 1990Q2 2015Q4
 Included observations: 103 after adjustments

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(CPI,2)
 Method: Least Squares
 Date: 12/30/17 Time: 17:31
 Sample (adjusted): 1990Q3 2015Q4
 Included observations: 102 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI(-1)	-0.091064	0.041883	-2.174257	0.0320	D(CPI(-1))	-1.036299	0.099904	-10.37295	0.0000
C	16.23023	7.611788	2.132249	0.0354	C	0.213487	2.053806	0.103947	0.9174
R-squared	0.044713	Mean dependent var	0.255534	R-squared	0.518300	Mean dependent var	-0.040000		
Adjusted R-squared	0.035255	S.D. dependent var	20.55665	Adjusted R-squared	0.513483	S.D. dependent var	29.73581		
S.E. of regression	20.19104	Akaike info criterion	8.867582	S.E. of regression	20.74095	Akaike info criterion	8.921511		
Sum squared resid	41175.50	Schwarz criterion	8.918741	Sum squared resid	43018.72	Schwarz criterion	8.972981		
Log likelihood	-454.6805	Hannan-Quinn criter.	8.888303	Log likelihood	-452.9970	Hannan-Quinn criter.	8.942352		
F-statistic	4.727394	Durbin-Watson stat	1.980027	F-statistic	107.5982	Durbin-Watson stat	2.002269		
Prob(F-statistic)	0.032021			Prob(F-statistic)	0.000000				

Log (Real GDP)



Null Hypothesis: LOG__REAL_GDP_ has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

Null Hypothesis: D(LOG__REAL_GDP_) has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.124854	0.5257	Augmented Dickey-Fuller test statistic	-10.26455	0.0000
Test critical values: 1% level	-4.049586		Test critical values: 1% level	-4.050509	
5% level	-3.454032		5% level	-3.454471	
10% level	-3.152652		10% level	-3.152909	

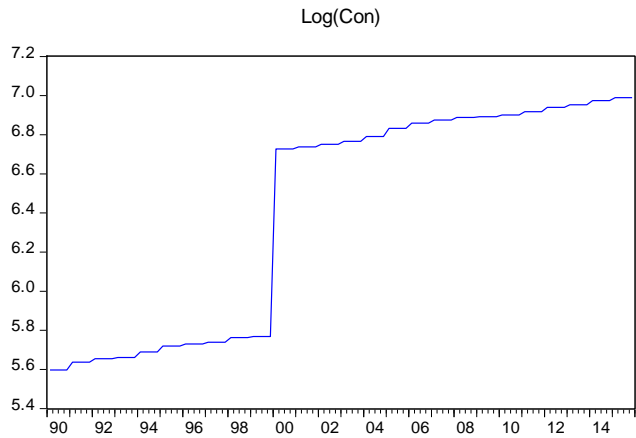
*Mackinnon (1996) one-sided p-values.

*Mackinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG__REAL_GDP_)
 Method: Least Squares
 Date: 12/30/17 Time: 17:32
 Sample (adjusted): 1990Q2 2015Q4
 Included observations: 103 after adjustments

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG__REAL_GDP__2)
 Method: Least Squares
 Date: 12/30/17 Time: 17:32
 Sample (adjusted): 1990Q3 2015Q4
 Included observations: 102 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG__REAL_GDP_(-1)	-0.089495	0.042118	-2.124854	0.0361	D(LOG__REAL_GDP_(-1))	-1.031006	0.100443	-10.26455	0.0000
C	0.518336	0.236884	2.188141	0.0310	C	0.017150	0.015878	1.080104	0.2827
@TREND("1990Q1")	0.001342	0.000703	1.910070	0.0590	@TREND("1990Q1")	-6.24E-05	0.000262	-0.237600	0.8127
R-squared	0.043585	Mean dependent var	0.013327	R-squared	0.515572	Mean dependent var	0.000000		
Adjusted R-squared	0.024456	S.D. dependent var	0.076957	Adjusted R-squared	0.505785	S.D. dependent var	0.111015		
S.E. of regression	0.076010	Akaike info criterion	-2.287204	S.E. of regression	0.078044	Akaike info criterion	-2.234117		
Sum squared resid	0.577755	Schwarz criterion	-2.210464	Sum squared resid	0.602996	Schwarz criterion	-2.156912		
Log likelihood	120.7910	Hannan-Quinn criter.	-2.256122	Log likelihood	116.9400	Hannan-Quinn criter.	-2.202854		
F-statistic	2.278535	Durbin-Watson stat	1.970033	F-statistic	52.68228	Durbin-Watson stat	2.002269		
Prob(F-statistic)	0.107728			Prob(F-statistic)	0.000000				



Null Hypothesis: LOG_CON_ has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

Null Hypothesis: D(LOG_CON_) has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.749433	0.7219	Augmented Dickey-Fuller test statistic	-10.18227	0.0000
Test critical values: 1% level	-4.049586		Test critical values: 1% level	-4.050509	
5% level	-3.454032		5% level	-3.454471	
10% level	-3.152652		10% level	-3.152909	

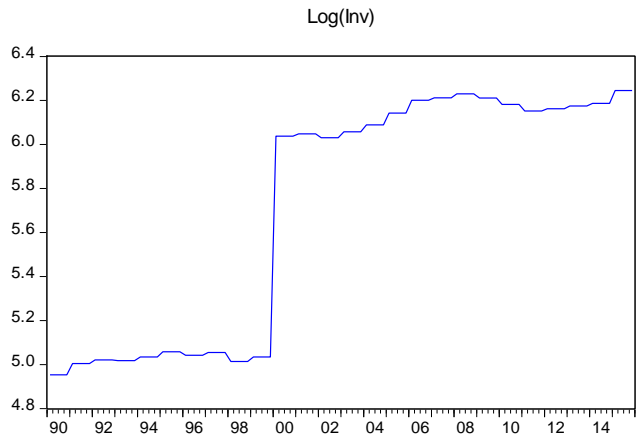
*MacKinnon (1996) one-sided p-values.

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG_CON_)
 Method: Least Squares
 Date: 12/30/17 Time: 17:35
 Sample (adjusted): 1990Q2 2015Q4
 Included observations: 103 after adjustments

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG_CON_2)
 Method: Least Squares
 Date: 12/30/17 Time: 17:35
 Sample (adjusted): 1990Q3 2015Q4
 Included observations: 102 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_CON_(-1)	-0.066366	0.037936	-1.749433	0.0833	D(LOG_CON_(-1))	-1.022867	0.100456	-10.18227	0.0000
C	0.385879	0.209588	1.841133	0.0686	C	0.021975	0.019499	1.126979	0.2625
@TREND("1990Q1")	0.001018	0.000730	1.394131	0.1664	@TREND("1990Q1")	-0.000153	0.000322	-0.473073	0.6372
R-squared	0.031530	Mean dependent var	0.013523		R-squared	0.511548	Mean dependent var	0.000000	
Adjusted R-squared	0.012160	S.D. dependent var	0.094498		Adjusted R-squared	0.501680	S.D. dependent var	0.135682	
S.E. of regression	0.093922	Akaike info criterion	-1.864021		S.E. of regression	0.095780	Akaike info criterion	-1.824553	
Sum squared resid	0.882125	Schwarz criterion	-1.787281		Sum squared resid	0.908209	Schwarz criterion	-1.747348	
Log likelihood	98.99709	Hannan-Quinn criter.	-1.832939		Log likelihood	96.05222	Hannan-Quinn criter.	-1.793290	
F-statistic	1.627819	Durbin-Watson stat	1.972480		F-statistic	51.84052	Durbin-Watson stat	2.001541	
Prob(F-statistic)	0.201517				Prob(F-statistic)	0.000000			



Null Hypothesis: LOG_INV_ has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

Null Hypothesis: D(LOG_INV_) has a unit root
 Exogenous: Constant, Linear Trend
 Lag Length: 0 (Automatic - based on SIC, maxlag=12)

	t-Statistic	Prob.*		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.762818	0.7156	Augmented Dickey-Fuller test statistic	-10.13077	0.0000
Test critical values: 1% level	-4.049586		Test critical values: 1% level	-4.050509	
5% level	-3.454032		5% level	-3.454471	
10% level	-3.152652		10% level	-3.152909	

*MacKinnon (1996) one-sided p-values.

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG_INV_)
 Method: Least Squares
 Date: 12/30/17 Time: 17:36
 Sample (adjusted): 1990Q2 2015Q4
 Included observations: 103 after adjustments

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(LOG_INV_2)
 Method: Least Squares
 Date: 12/30/17 Time: 17:38
 Sample (adjusted): 1990Q3 2015Q4
 Included observations: 102 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_INV_(-1)	-0.066120	0.037508	-1.762818	0.0810	D(LOG_INV_(-1))	-1.017841	0.100470	-10.13077	0.0000
C	0.340912	0.183423	1.858615	0.0660	C	0.020556	0.020525	1.001518	0.3190
@TREND("1990Q1")	0.000946	0.000694	1.362965	0.1760	@TREND("1990Q1")	-0.000146	0.000340	-0.429651	0.6684
R-squared	0.031670	Mean dependent var	0.012545	R-squared	0.509012	Mean dependent var	0.000000		
Adjusted R-squared	0.012304	S.D. dependent var	0.099557	Adjusted R-squared	0.499093	S.D. dependent var	0.142620		
S.E. of regression	0.098943	Akaike info criterion	-1.759862	S.E. of regression	0.100939	Akaike info criterion	-1.719634		
Sum squared resid	0.978962	Schwarz criterion	-1.683122	Sum squared resid	1.008675	Schwarz criterion	-1.642429		
Log likelihood	93.63288	Hannan-Quinn criter.	-1.728779	Log likelihood	90.70135	Hannan-Quinn criter.	-1.688371		
F-statistic	1.635295	Durbin-Watson stat	1.964289	F-statistic	51.31721	Durbin-Watson stat	2.001024		
Prob(F-statistic)	0.200063			Prob(F-statistic)	0.000000				

EViews Output: Stationarity of VAR Model

Roots of Characteristic Polynomial
 Endogenous variables: KOPEN D(NEER) D(LOG_I...
 Exogenous variables:
 Lag specification: 1 4
 Date: 12/30/17 Time: 17:56

Root	Modulus
0.994310	0.994310
-0.899299 - 0.049734i	0.900673
-0.899299 + 0.049734i	0.900673
0.008686 + 0.880990i	0.881033
0.008686 - 0.880990i	0.881033
-0.846461 + 0.244163i	0.880972
-0.846461 - 0.244163i	0.880972
0.831183 + 0.290163i	0.880375
0.831183 - 0.290163i	0.880375
0.872764 + 0.070644i	0.875618
0.872764 - 0.070644i	0.875618
-0.039062 + 0.836033i	0.836945
-0.039062 - 0.836033i	0.836945
0.569891 - 0.584782i	0.816545
0.569891 + 0.584782i	0.816545
-0.217720 - 0.781082i	0.810858
-0.217720 + 0.781082i	0.810858
-0.547756 - 0.573267i	0.792888
-0.547756 + 0.573267i	0.792888
0.302481 + 0.719275i	0.780289
0.302481 - 0.719275i	0.780289
0.019901 - 0.712854i	0.713131
0.019901 + 0.712854i	0.713131
0.520602 + 0.394072i	0.652931
0.520602 - 0.394072i	0.652931
0.638139	0.638139
0.245046 + 0.562916i	0.613939
0.245046 - 0.562916i	0.613939
-0.438611 - 0.397522i	0.591949
-0.438611 + 0.397522i	0.591949
-0.564919	0.564919
-0.218554	0.218554

Roots of Characteristic Polynomial
 Endogenous variables: TOTAL D(NEER) D(LOG_IN...
 Exogenous variables:
 Lag specification: 1 1
 Date: 12/30/17 Time: 17:53

Root	Modulus
0.998160	0.998160
0.828531	0.828531
-0.373375	0.373375
0.349787	0.349787
-0.026528 - 0.236395i	0.237879
-0.026528 + 0.236395i	0.237879
0.061821	0.061821
1.09e-05	1.09E-05

No root lies outside the unit circle.
 VAR satisfies the stability condition.

No root lies outside the unit circle.
 VAR satisfies the stability condition.

EView Output: Lag Order Selection Criteria

VAR Lag Order Selection Criteria

Endogenous variables: KOPEN D(NEER) D(LOG_INV_) D(LOG_CON_) D(CA_GDP) D(LOG_M2) D(...

Exogenous variables:

Date: 12/20/17 Time: 20:20

Sample: 1990Q1 2015Q4

Included observations: 99

Lag	LogL	LR	FPE	AIC	SC	HQ
1	1157.523	NA	3.53e-20	-22.09137	-20.41372*	-21.41259
2	1208.602	85.64732	4.67e-20	-21.83033	-18.47503	-20.47277
3	1251.864	65.54917	7.51e-20	-21.41139	-16.37843	-19.37505
4	1481.425	310.7190*	2.97e-21*	-24.75606*	-18.04545	-22.04094*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

VAR Lag Order Selection Criteria

Endogenous variables: TOTAL D(NEER) D(LOG_INV_) D(LOG_CON_) D(CA_GDP) D(LOG_M2) D(...

Exogenous variables:

Date: 12/20/17 Time: 20:21

Sample: 1990Q1 2015Q4

Included observations: 101

Lag	LogL	LR	FPE	AIC	SC	HQ
1	607.3126	NA	2.94e-15*	-10.75867*	-9.101560*	-10.08782*
2	653.1494	77.15092	4.30e-15	-10.39900	-7.084785	-9.057309

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

EView Output: VAR Estimates

Vector Autoregression Estimates
 Date: 12/20/17 Time: 19:56
 Sample (adjusted): 1991Q2-2015Q4
 Included observations: 99 after adjustments
 Standard errors in () & t-statistics in []

	KOPEN	D(NEER)	D(LOG_INV_)	D(LOG_CON_)	D(CA_GDP)	D(LOG_M2)	D(LOG_REAL_)	CPI
KOPEN(-1)	0.885746 (0.13891) [6.37655]	23.39553 (42.0606) [0.55623]	-0.191853 (0.17141) [-1.11928]	-0.070185 (0.15926) [-0.44069]	-0.000796 (0.00396) [-0.20096]	0.120928 (0.03979) [3.03913]	0.198163 (0.44469) [0.44563]	-126.5650 (157.470) [-0.803574]
KOPEN(-2)	-0.032334 (0.27005) [-0.15616]	40.19773 (52.6956) [0.64116]	0.406283 (0.25450) [1.59014]	0.331862 (0.23647) [1.39793]	0.000918 (0.00588) [-0.15541]	-0.045764 (0.05908) [-0.77159]	-0.603012 (0.66262) [-0.90973]	264.4753 (233.807) [1.12674]
KOPEN(-3)	0.055698 (0.20624) [0.27005]	-26.58543 (62.4503) [-0.42571]	-0.022354 (0.26450) [-0.08478]	-0.033456 (0.23647) [-0.14148]	0.002099 (0.00588) [-0.35673]	-0.122102 (0.05908) [-2.06674]	0.235165 (0.66262) [0.35617]	-272.5854 (233.807) [-1.16586]
KOPEN(-4)	-0.048989 (0.15416) [-0.31778]	-32.58238 (46.6794) [-0.69800]	-0.009498 (0.19023) [-0.04993]	-0.025985 (0.17675) [-0.14702]	-0.000890 (0.00440) [-0.20232]	0.111560 (0.04416) [2.52629]	-0.520005 (0.49382) [-1.05367]	97.26659 (174.762) [0.55656]
D(NEER(-1))	0.000312 (0.00038) [0.81699]	-0.100389 (0.11559) [-0.86770]	9.62E-05 (0.00247) [0.20410]	7.21E-06 (0.00244) [0.01647]	-1.53E-05 (0.00244) [-1.40085]	-0.000192 (0.00011) [-1.75845]	-0.001234 (0.00122) [-1.00960]	-0.368778 (0.43315) [-0.85139]
D(NEER(-2))	-0.000625 (0.00038) [-1.63729]	-0.033945 (0.11563) [-0.29357]	-0.000414 (0.00047) [-0.87798]	-0.000469 (0.00044) [-1.07029]	1.71E-05 (0.00044) [0.37404]	6.94E-05 (0.00011) [0.63443]	1.43E-05 (0.00122) [0.01173]	0.226240 (0.43290) [0.52252]
D(NEER(-3))	-0.000253 (0.00038) [-0.66933]	-0.017770 (0.11459) [-0.15508]	-7.72E-05 (0.00047) [-1.6529]	-0.000236 (0.00043) [-0.54386]	-7.76E-06 (0.00011) [-0.71865]	2.91E-05 (0.00011) [0.26889]	-0.000872 (0.00121) [-0.72002]	0.694822 (0.42991) [1.61960]
D(NEER(-4))	-0.001173 (0.00038) [-3.1239]	0.383187 (0.11408) [3.36898]	0.000192 (0.00046) [0.41381]	0.000198 (0.00043) [0.45817]	-8.59E-06 (0.00011) [-0.75914]	2.67E-05 (0.00011) [0.24721]	-0.000279 (0.00121) [-0.23163]	-0.328421 (0.42710) [-0.76896]
D(LOG_INV_(-1))	0.509675 (0.39432) [1.29227]	-94.95934 (119.400) [-0.79530]	0.761258 (0.48659) [1.56448]	0.068100 (0.45211) [0.15063]	-0.000365 (0.01125) [-0.03247]	-0.083572 (0.11296) [-0.73986]	-0.060381 (0.11296) [-0.54783]	572.5007 (447.022) [1.28070]
D(LOG_INV_(-2))	0.259056 (0.47880) [0.57722]	127.4928 (124.239) [0.93817]	0.347066 (0.50619) [0.62669]	0.081492 (0.47031) [0.15837]	-0.008246 (0.01170) [-0.64403]	-0.131825 (0.11750) [-1.02540]	0.033819 (0.11750) [0.28354]	-946.4052 (445.926) [-2.13601]
D(LOG_INV_(-3))	0.805007 (0.46018) [1.74933]	-21.09083 (139.341) [-0.15136]	-0.653499 (0.56785) [-1.13683]	-0.747576 (0.52761) [-1.40083]	0.010044 (0.01313) [0.76317]	0.273080 (0.13182) [2.07181]	3.000594 (1.47318) [2.03681]	150.6756 (521.677) [0.28681]
D(LOG_INV_(-4))	-2.574360 (0.34364) [-7.49142]	-27.86755 (104.054) [-0.26782]	1.245368 (0.42405) [2.93688]	1.754774 (0.39400) [4.45380]	-0.012882 (0.00980) [-1.31397]	0.060306 (0.09844) [0.61263]	-7.562766 (1.10011) [-6.87458]	-139.2639 (389.565) [-0.35749]
D(LOG_CON_(-1))	-0.496157 (0.41021) [-1.20953]	110.4387 (124.239) [0.88913]	-0.556717 (0.50619) [-1.09983]	0.146742 (0.47031) [0.31201]	0.000308 (0.01170) [0.2635]	0.103541 (0.11750) [0.88116]	0.182750 (0.11750) [1.53916]	-584.4911 (445.926) [-1.25690]
D(LOG_CON_(-2))	-0.265324 (0.46567) [-0.56977]	-130.8193 (141.002) [-0.92778]	-0.177650 (0.57462) [-0.30916]	0.088553 (0.53390) [0.16586]	0.007488 (0.01329) [0.56366]	0.120892 (0.13339) [0.90630]	-0.056341 (0.149074) [-0.37779]	1086.298 (527.896) [2.05779]
D(LOG_CON_(-3))	-0.821007 (0.47880) [-1.71086]	10.73880 (145.305) [0.07390]	0.763109 (0.59916) [1.28869]	0.866990 (0.47031) [1.87579]	-0.010279 (0.01170) [-0.75080]	-0.281503 (0.11750) [-2.40785]	-3.050710 (0.11750) [-2.59852]	-209.6014 (445.926) [-0.46229]
D(LOG_CON_(-4))	2.719329 (0.36084) [7.53605]	16.83889 (109.262) [0.15412]	-1.647581 (0.44527) [-3.70854]	-2.179788 (0.41371) [-5.29183]	0.012801 (0.01029) [1.24279]	-0.073656 (0.10336) [-0.70953]	7.905911 (1.45517) [5.43354]	135.4715 (409.063) [0.33117]
D(CA_GDP(-1))	-5.818879 (3.91423) [-1.48660]	1422.431 (1185.22) [1.20014]	-1.743547 (4.83007) [-0.36098]	0.340803 (4.88778) [0.07594]	-0.447616 (0.11167) [-4.00840]	2.724423 (1.12124) [2.42983]	-3.764329 (12.5307) [-0.30041]	-7823.324 (4437.32) [-1.76307]
D(CA_GDP(-2))	-5.363442 (1.75856) [-2.99449]	560.6626 (124.239) [4.44344]	-0.123000 (0.50619) [-0.24371]	1.471264 (0.47031) [3.12011]	-0.306490 (0.01170) [-2.57285]	3.012409 (0.11750) [2.56183]	1.317906 (0.11750) [11.25690]	540.9053 (445.926) [1.21427]
D(CA_GDP(-3))	-8.421535 (4.38449) [-1.92075]	-828.6632 (1327.61) [-0.62418]	5.381019 (5.41036) [0.99459]	7.406151 (0.52695) [14.2329]	-0.378702 (0.02695) [-14.2329]	-0.163001 (1.25595) [-0.12976]	-5.074117 (1.4362) [-3.53150]	-16098.92 (4970.43) [-3.23894]
D(CA_GDP(-4))	3.262310 (0.40994) [7.94771]	-338.5091 (131.741) [-2.56911]	-4.416456 (0.50619) [-8.82249]	-1.644760 (0.46944) [-3.50267]	0.179297 (0.01168) [15.44428]	0.653119 (0.11750) [5.55971]	14.18250 (0.11750) [120.310]	-7633.227 (445.926) [-17.11427]
D(LOG_M2(-1))	0.133756 (0.36941) [0.36208]	213.4805 (111.856) [1.90854]	-1.959460 (0.45594) [-4.30084]	-1.848218 (0.42354) [-4.36957]	0.013098 (0.01054) [1.24279]	0.243520 (0.0582) [4.19337]	3.241431 (1.18259) [2.74178]	177.7375 (418.775) [0.42426]
D(LOG_M2(-2))	0.349334 (0.39269) [0.88982]	-35.55616 (118.876) [-0.29910]	0.458312 (0.48445) [0.94605]	0.236664 (0.45012) [0.52578]	0.000680 (0.01120) [0.06072]	0.120441 (0.11246) [1.07097]	-1.194597 (1.25681) [-0.95050]	1479.181 (445.057) [3.32358]
D(LOG_M2(-3))	-0.284167 (0.40994) [-0.69404]	-191.7420 (124.239) [-1.54659]	0.781984 (0.50524) [1.54775]	0.695777 (0.46944) [1.48216]	-0.023865 (0.01168) [-2.04310]	-0.313118 (0.11750) [-2.66971]	-1.849152 (0.11750) [-15.78531]	-400.7869 (445.926) [-0.86347]
D(LOG_M2(-4))	0.710017 (0.39864) [1.78109]	-4.947554 (120.708) [-0.04099]	-1.482438 (0.49191) [-3.01361]	-1.413514 (0.45705) [-3.08266]	-0.027327 (0.01137) [-2.40286]	0.388908 (0.11419) [3.40574]	4.304966 (1.27618) [3.37332]	-273.6459 (451.916) [-0.60552]
D(LOG_REAL_GDP_(-1))	-0.043015 (0.03788) [-1.13550]	2.418909 (11.4706) [0.21071]	0.154235 (0.0463) [3.29946]	0.139794 (0.04343) [3.21861]	-0.006688 (0.0108) [-0.61770]	-0.009571 (0.01085) [-0.88204]	-0.189525 (0.12127) [-1.56280]	50.61168 (42.9446) [1.17853]
D(LOG_REAL_GDP_(-2))	-0.040182 (0.03916) [-1.02602]	-6.819495 (11.8584) [-0.57508]	0.131971 (0.04833) [2.73083]	0.126786 (0.04490) [2.82351]	-0.006688 (0.00112) [-6.01585]	-0.005834 (0.01122) [-0.52002]	-0.057979 (0.12537) [-0.46245]	6.868459 (44.3967) [0.15466]
D(LOG_REAL_GDP_(-3))	-0.026066 (0.03877) [-0.67234]	-5.081126 (11.7391) [-0.43284]	0.190640 (0.04784) [3.98497]	0.185587 (0.04445) [4.17522]	-0.000346 (0.00111) [-0.31250]	0.013943 (0.01111) [1.25555]	-0.155593 (0.12411) [-1.25365]	23.56179 (43.9498) [0.53611]
D(LOG_REAL_GDP_(-4))	0.079017 (0.02805) [2.81735]	0.298391 (8.48242) [0.03514]	0.495910 (0.03481) [14.2184]	0.457210 (0.03216) [14.2184]	-0.000450 (0.00080) [-0.56247]	-0.012711 (0.00803) [-1.58218]	0.178800 (0.08979) [1.99140]	6.219078 (31.7947) [0.19560]
CPI(-1)	9.12E-05 (0.00010) [0.00010]	-0.003140 (0.03178) [-0.09890]	-0.000162 (0.00013) [-1.24972]	-0.000162 (0.00012) [-1.34881]	7.45E-06 (3.0E-06) [2.48675]	3.58E-05 (3.0E-05) [1.19198]	0.000447 (0.00034) [1.33051]	1.012116 (0.11898) [8.50632]
CPI(-2)	-0.000205 (0.00015) [-1.36684]	-0.059255 (0.04544) [-1.30407]	0.000576 (0.00019) [3.11039]	0.000524 (0.00017) [3.04847]	-6.02E-06 (4.3E-06) [-1.40553]	-4.63E-05 (4.3E-05) [-1.07810]	-0.000909 (0.00048) [-1.89224]	-0.103478 (0.17012) [-0.60828]
CPI(-3)	0.000109 (0.00014) [0.79595]	0.093607 (0.04128) [2.26757]	-0.000410 (0.00017) [-2.43673]	-0.000330 (0.00016) [-2.11291]	-1.30E-06 (3.9E-06) [-0.33486]	1.33E-05 (3.9E-05) [0.34080]	0.000589 (0.00044) [1.34889]	-0.030048 (0.15455) [-0.19442]
CPI(-4)	7.60E-06 (9.5E-05) [0.08014]	-0.042249 (0.02872) [-1.47088]	2.26E-05 (0.00012) [0.19289]	-9.62E-06 (0.00011) [-0.88444]	1.96E-06 (2.7E-06) [-0.72323]	-1.19E-05 (2.7E-05) [-0.43968]	8.94E-05 (0.00030) [0.29432]	0.060662 (0.10754) [0.56409]
R-squared	0.804064	0.498153	0.931204	0.934987	0.501364	0.582915	0.649170	0.885450
Adj. R-squared	0.713407	0.269565	0.899373	0.904907	0.270652	0.389335	0.486845	0.832449
Sum sq. resids	0.020649	1893.196	0.031442	0.027143	1.68E-05	0.001694	0.211617	26536.37
S.E. equation	0.151755	43.52400	0.020159	0.020159	0.000125	0.000125	0.000125	5.075494
F-statistic	8.869305	2.145384	29.25459	31.08274	2.173115	3.020602	3.992029	16.70639
Log likelihood	279.0487	-286.5446	258.2348	265.5114	631.1749	402.8179	163.8559	-417.2369
Akaike AIC	-4.990883	-6.435240	-4.570400	-4.717402	12.10454	-2.491247	-0.075494	0.075494
Schwarz SC	-4.152056	-7.274070	-3.731573	-3.878975	-11.26572	-6.652420	-1.824928	9.914320
Mean dependent	0.159002	-2.41352	0.013052	0.013052	9.64E-07	0.001933	0.013052	1.815494
S.D. dependent	0.032793	6.204392	0.068290	0.068271	0.000586	0.006438	0.006438	48.61949
Determinant resid covariance (dof adj.)	3.16E-22	1.39E-23	1.48E-22	1.48E-22	1.48E-22	1.48E-22	1.48E-22	1.48E-22
Determinant resid covariance	1.48E-22	1.48E-22	1.48E-22	1.48E-22	1.48E-22	1.48E-22	1.48E-22	1.48E-22
Log likelihood	-4.990883	-6.435240	-4.570400	-4.717402	12.10454	-2.491247	-0.075494	0.075494
Akaike information criterion	-4.990883	-6.435240	-4.570400	-4.717402	12.10454	-2.491247	-0.075494	0.075494
Schwarz criterion	-4.152056	-7.274070	-3.731573	-3.878975	-11.26572	-6.652420	-1.824928	9.914320

Vector Autoregression Estimates
Date: 12/20/17 Time: 19:55
Sample (adjusted): 1990Q3 2015Q4
Included observations: 102 after adjustments
Standard errors in () & t-statistics in []

	TOTAL	D(NEER)	D(LOG_INV_)	D(LOG_CON_)	D(CA_GDP)	D(LOG_M2)	D(LOG_R...	CPI
TOTAL(-1)	0.900515 (0.04462) [20.1829]	0.105345 (0.06723) [1.56683]	-0.000645 (0.00062) [-1.03693]	-0.000578 (0.00061) [-0.95475]	-2.53E-06 (6.2E-06) [-0.40861]	-0.000170 (7.2E-05) [-2.37262]	-6.73E-05 (0.00086) [-0.07865]	-0.267632 (0.23259) [-1.15068]
D(NEER(-1))	0.024777 (0.06790) [0.36491]	-0.088243 (0.10232) [-0.86243]	0.000995 (0.00095) [1.05073]	0.000871 (0.00092) [0.94577]	2.35E-06 (9.4E-06) [0.24938]	-0.000253 (0.00011) [-2.32656]	-0.002182 (0.00130) [-1.67455]	-0.076502 (0.35395) [-0.21614]
D(LOG_INV_(-1))	2.520165 (53.4639) [0.04714]	19.57860 (80.5649) [0.24302]	1.108819 (0.74565) [1.48705]	0.434790 (0.72548) [0.59931]	-0.005282 (0.00742) [-0.71196]	0.085488 (0.08574) [0.99711]	-0.121090 (1.02596) [-0.11803]	-19.91217 (278.699) [-0.07145]
D(LOG_CON_(-1))	-0.611869 (56.4149) [-0.01085]	-0.900656 (85.0117) [-0.01059]	-0.611695 (0.78680) [-0.77744]	0.068236 (0.76553) [0.08914]	0.005482 (0.00783) [0.70026]	-0.090740 (0.09047) [-1.00301]	0.115969 (1.08258) [0.10712]	41.59985 (294.082) [0.14146]
D(CA_GDP(-1))	-175.6561 (695.468) [-0.25257]	68.11772 (1048.00) [0.06500]	-3.032639 (9.69951) [-0.31266]	-1.566215 (9.43722) [-0.16596]	-0.365425 (0.09650) [-3.78668]	1.791409 (1.11526) [1.60627]	-24.08459 (13.3458) [-1.80466]	-3986.980 (3625.37) [-1.09974]
D(LOG_M2(-1))	8.477537 (58.8561) [0.14404]	289.7134 (88.6904) [3.26657]	-1.434678 (0.82085) [-1.74779]	-1.261401 (0.79865) [-1.57941]	-0.006342 (0.00817) [-0.77653]	0.467855 (0.09438) [4.95701]	-0.296803 (1.12943) [-0.26279]	165.1194 (306.808) [0.53818]
D(LOG__REAL_GDP_(-1))	-0.150978 (5.82882) [-0.02590]	15.56244 (8.78346) [1.77179]	0.109979 (0.08129) [1.35288]	0.118207 (0.07909) [1.49450]	-0.000118 (0.00081) [-0.14566]	-0.011122 (0.00935) [-1.18991]	0.001696 (0.11185) [0.01516]	17.03791 (30.3848) [0.56074]
CPI(-1)	-0.020922 (0.00859) [-2.43667]	-0.021112 (0.01294) [-1.63165]	3.57E-05 (0.00012) [0.29784]	3.21E-05 (0.00012) [0.27576]	1.36E-07 (1.2E-06) [0.11456]	5.51E-06 (1.4E-05) [0.40011]	6.08E-05 (0.00016) [0.36870]	0.924321 (0.04476) [20.6507]
R-squared	0.686729	0.138618	0.357227	0.333926	0.139874	0.068746	0.079038	0.823956
Adj. R-squared	0.663401	0.074472	0.309361	0.284325	0.075822	-0.000603	0.010456	0.810847
Sum sq. resids	1510.339	3429.612	0.293779	0.278105	2.91E-05	0.003884	0.556173	41041.71
S.E. equation	4.008421	6.040301	0.055904	0.054393	0.000556	0.006428	0.076920	20.89531
F-statistic	29.43716	2.160989	7.463045	6.732221	2.183752	0.991309	1.152457	62.85113
Log likelihood	-282.1827	-324.0084	153.6132	156.4095	623.8598	374.2378	121.0623	-450.5977
Akaike AIC	5.689857	6.509969	-2.855162	-2.909989	-12.07568	-7.181133	-2.216908	8.992111
Schwarz SC	5.895737	6.715850	-2.649281	-2.704109	-11.86980	-6.975253	-2.011028	9.197991
Mean dependent	-37.09608	-2.586112	0.013060	0.013753	9.00E-06	0.015052	0.013458	175.6110
S.D. dependent	6.909026	6.278615	0.067270	0.064296	0.000579	0.006426	0.077326	48.04427
Determinant resid covariance (dof adj.)		1.53E-15						
Determinant resid covariance		7.97E-16						
Log likelihood		615.1783						
Akaike information criterion		-10.80742						
Schwarz criterion		-9.160376						