CHAPTER SIX

SUMMARY, FINDINGS AND RECOMMENDATIONS
6.1 Introduction

The main objective of this study has been to review some of the main trends in Iranian economy over the period of 1971-2005 and the focus on the evolution of main macroeconomic variables related to fiscal, monetary and foreign trade performance of Iran during five year development plans together with consideration of political factors, such as oil shock, revolution, war and other factors. The other objective of this study is to develop a dynamic macroeconomic model to measure the impact of liquidity (M2), Real GDP and Import Price Index (IPI) on inflation in Iran. In fact, we tried to clarity the relationship among the 3 variables with inflation in Iran. This Chapter focuses on conclusion and major findings of the study and gives recommendations which have policy implications.

This Chapter is organized as follows: in section 6.2 we give the summary of study. Section 6.3 provides validation of hypothesis. Section 6.4 major findings. Finally; section 6.5 presents recommendations.

6.2 Summary of the study

This study comprises six Chapters. Five Chapters have already been presented, so summary of these Chapters is given below:

In Chapter 1, the overall view of the study has presented. The main purpose of this Chapter was to clarity the structure of the study. The introduction of the study, statement of problem, the importance of the study, the objectives of study, hypothesis, data and methodology limitation of study, Chapter scheme and some definitions such as
consumer price Index (CPI), inflation, liquidity (M2), Real GDP, Import Price Index (IPI), regression analysis, and cointegration, were explained. We emphasize the major steps in estimating the model in research methodology. However, we discussed in more detail the model and estimation in Chapter 4. Outcomes of this Chapter highlighted the perspective of the study.

In Chapter 2, the literature of the study was reviewed. The main purpose of Chapter 2 was conducting an overview, both theoretical and empirical of the of study of determinants and causes of inflation. This Chapter started with the introduction and definition of inflation. It focused on different types of inflation. There are two main schools of thought which attempt to explain the main determinants of inflation. The monetary approach led by Friedman. He argues that inflation is always and everywhere a monetary phenomenon whereas Neo-Keynesians and other critics of monetarism argue that the demand for money is directly linked to supply and the demand for money cannot be predicted. Keynesian economists state that the main determinants of inflation are aggregate demand in the economy rather than the money supply. According to Keynesians, the natural level of gross domestic product is a level of GDP where the economy is at its optimal level of production. If GDP increase beyond its natural level, inflation will accelerate as supplier increase their prices. Then, we presented the causes of inflation and effect of inflation. The effects of inflation can be divided into four categories such as effect on real income, on distribution of income and wealth and on output and on long-run economic growth.
Then we presented a theoretical framework for the analysis of the determinants of inflation. In extensive theoretical literature economists have argued that liquidity and real GDP and Import Price Index are determinants of inflation. In addition, extensive empirical studies have been concluding determinants of inflation in other countries. The main conclusion from Chapter 2 is that many economists have studied about determinants of inflation. They have used various econometric models to estimate the causes of inflation.

In Chapter 3, monetary and fiscal performance of Iran is presented. In order to determine the fiscal, monetary and foreign trade performance of Iranian economy, it was necessary to estimate the model. But, before doing so, it was useful to review some of the main trends in the Iranian economy over the period of 1971-2005. The aim of this Chapter was to examine the economic performance of the Iranian economy over the period 1971-2005, such as oil boom period (1973/1977), the Revolution and war (1978/1988) and the Five Years Development Plans period (1989/2004).

Besides, we focused on the inflation rate and inflationary trends of Iran in events of critical importance, including oil shocks, the 1979 Revolution, the 1980/1988 war with Iraq and the Five Year Development Plan. Inflationary trend in Iran over the period of 1971-2005 clearly showed that inflation level consistently has been in double-digits. The highest inflation rate was 49.4 per cent in 1995. Iran has experienced high inflation rates between 1973 and 1977 because of the oil price shocks in period 1973/1977. The post-revolution inflation rate was higher than the pre-revolution rate. The
liquidity (M2) and inflation started sharply to increase from oil boom period 1973/1977.

Chapter 4 provided the research methodology of the study. We reviewed theoretical and empirical literature in Chapter 2 exactly in order to choose the appropriate econometric model for determinants of inflation in Iranian economy. On the one hand, an empirical study needs to use appropriate estimation methods. On the other hand, an empirical study needs to use appropriate estimation methods. Thus, at first we focused on the model and source of data. In this study, the aim of the empirical analysis was to build a statistical model that would link such macroeconomic variables as Consumer Price Index (CPI), liquidity (M2), Gross Domestic Product (GDP) and Import Price Index (IPI). In the time series data these aggregates are used. We have used quarterly data in empirical analyses from 1971:Q1 to 2005:Q4. Quarterly data are obtained from annual data. The main source of annual data is from Central Bank of Iran (CBI). The main outcome from the Chapter 4 is that the section of variables for our baseline model is based on extensive theoretical and empirical literature.

Chapter 5 presented statistical analysis and empirical results. The main purpose of this Chapter is to empirically estimate of the equation of the macroeconomic model developed in Chapter 4. The model has been estimated by using the Microfit (4.0) package. In this analysis, we used quarterly data. The variables comprise the consolidated Consumer Price Index (CPI), liquidity (M2), GDP and Import Price Index (IPI). The information was according to time series, and duration of the study was 1971:Q1-2005:Q4. The main
sources of data related to model variables are from Central Bank of Iran.

However, it is important, before performing any empirical estimation of the macroeconomic model to analyze the time series in this study. Analysis of the data involves determining whether the series are stationary or non-stationary. Stationary data refer to the condition in which the mean and variance of the data series stay about same over the length of the series. Firstly, to test if the series are stationary or non stationary we used the Augmented Dickey-Fuller (1979) test, which examines the hypothesis that the variable in the equation has a unit root. According to ADF test, the variables in model are I(1).

Chapter 5 focused upon the estimation of the macroeconomic model developed by using efficient estimation techniques and appropriate data definition for Iran. By using Johansen and Juselius maximum likelihood approach for multivariate co integration test, results indicated that there are two co integration vectors among the series that cannot be rejected neither by the maximum eigenvalue teats nor by trace and the series are co integrated. This allows us to use co integration approaches with the series levels because the residuals of the model will be stationary and so the long run solution will not be spurious.

In addition, we used usual VAR toolbox. For this purpose, Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD) are also used to complete the analysis of the system. Results of the Impulse Response in the VAR system showed that the response of the Consumer Price Index (CPI) to shock in GDP
is too weak and takes eight quarter to die out. However, the response of CPI to shocks in Import Price Index (IPI) and liquidity (M2) is initially positive. Finally, we found that the forecast error variance of the Consumer Price Index (CPI) is almost exclusively accounted for by its innovations and Import Price Index (IPI).

6.3 Validation of Hypothesis

Using our econometric model, we have tested the hypothesis which is as follows:

1) Increase in liquidity does not have positive effect on Inflation. According to the estimated model liquidity has a positive influence on the price level. Thus, we cannot reject this hypothesis.

2) Increase in real gross domestic product (GDP) does not have positive effect on Inflation. According to the model, we would expect real GDP to have a negative influence on the price. Based on our estimation result, real GDP has a positive impact on the price level. So, we cannot reject this hypothesis.

3) Increase in import price index does not have positive effect on Inflation. The estimated coefficient of import price index is positive and statistically significant. This result shows that we cannot reject this hypothesis.
6.4 Findings

1) With a brief review of economy of Iran, especially after 1960, we can easily identify that Iran's economy has experienced many periods of high inflation, stagnation, expansion and recession. In the period of Mohammad Reza Shah Pahlavi Kingdom, with the policy focus on the oil sector, the sale of oil was very beneficial for the government in terms of budget revenue as well as for the economy as a whole. During the 1960s, the economy of Iran has experienced almost its best time. The rate of economic growth was quite high in these decades. The IMF Country Report (2004) states that during 1960/1976, the rate of growth of Iranian economy was the fastest in the world with a real economic growth rate of 9.8 on average and a real per capita income growth of 7 per cent on average.

2) Economic growth has fluctuated from 1966 till today. These fluctuations have been approximately between a range of -13 per cent and 18 per cent. Economy of Iran had the lowest (negative) GDP growth rate in 1979 which was -13.29 per cent and the highest GDP growth rate in 1976 which was 17.73 per cent. Therefore, it is obvious that the highest GDP growth rate occurred at the end of Pahlavi regime and the lowest GDP growth occurred after Islamic revolution, during the war between Iran and Iraq. During the 1960s and the early 1970s, Iran's GDP and consumption rates were between the ranges of 10 to 12 per cent. Also, in 1970's especially the private
investment growth was even faster and the government spent much of its revenue from oil on the public investment and consumption. During the same period, the government expenditure on public investment exceeded the private investment by 50 per cent and the public consumption was 50 per cent of private consumption. In 1973, because of a fall in international oil prices, the economy of Iran quickly plunged into a crisis. The world faced three major oil shocks in the last three decades:

a) 1973/1975 the Yom Kippur-Arab-Israeli-war
b) 1979/1980 Iranian Revolution and ensuing Iran-Iraq war
c) 1990/1991 Iraq’s invasion of Kuwait and the Gulf War

Regarding the price of oil per barrel, oil prices were stable starting from 1960 around $3 per barrel until 1972. These fluctuations have been between ranges of $5 per barrel. This instability has not been favorable for the Iranian economy, which is an exporter of oil.

3) Between 1977 and 1988, Iran experienced its Islamic Revolution and Iran-Iraq war, which have had significant negative impact on the country’s economy, reversing the direction of economic growth. Islamic Revolution which occurred in 1979 changed the economic history of Iran and also its modern political history. Iran’s economy changed into a public sector-dominated economy and during the eight years of war between Iran and Iraq, the economy of Iran suffered to a great extent. After the Iran and Iraq war, the Iranian government tried to restructure and rebuild the economy, which was damaged during the war. It also tried to redistribute the wealth
by a series of Five Year Development Plans. For this purpose, they removed the allotments and subventions after 1989 through changes on the rule of the rates and prices. Moreover, the size of government participation in the economy was reduced by privatization between the years 1989 and 1993. As the Iranian government tried hard to reconstruct and recover the oil production, the growth reached an annual average of 4.7 per cent between the years 1989/2002. Although this period was marked by frequent fluctuations in growth rate, the economy was affected by a decline during 1993/1994 when the price of oil decreased significantly due to the economic boycott. The crisis of debt improper policies had a great detrimental effect on growth by a 3.6 per cent fall during the years 1995/2000. Subsequently, in the Five year Development plan, the Iranian economy had an impressive development. By the year 2005, the government successfully smoothed the path of exports and consolidated exchange rates.

4) Inflation rate has been relatively stable in the last decade. Inflation rate fluctuated widely from 1980 to 2005. This fluctuation has been approximately between a range of 4.37 per cent and 49.11 per cent.

5) After the 1979 Islamic revolution, financial system of Iran has developed in different periods. In early 1980s, it experienced widespread nationalization. In 1990s, it experienced a reconstruction of the financial system, concentrating on reforming the regulatory conditions. For instance in the 2nd Five year development Plan, the improvement concentrated on
placing an interest rate on bank deposits at a position that
guaranteed positive real returns, giving out investment
certificates, and motivating the existence of individual credit
institutions. Moreover, in the 3rd Five year Development Plan
the reconstruction concentrated on reducing the use of executive
controls on interest rates and credit apportionment, reinvestment
of the state banks by issuing securities, and the establishment of
private banks and non bank credit organizations. Despite these
improvements, the policies were not sufficient to loosen up
financial repression in Iran.

6) The Iranian government obliges the Central Bank to use specific
monetary policies in support of catering for their current affairs
and fiscal policy. Thus, usually the money supply stays out of
control of the central Bank. In determining the quantity of
money, the most significant factors are how the monetary base
is controlled and the ways the money is supplied. Even though
the mix of private and state banking in Iran may be as a
structural problem is ideo-politically driven. There is still a big
deal which supports the establishment of state banking that
prevents healthy competition although privatization of the
majority of the state owned banks is on the agenda. All private
banks were nationalized after the revolution. Private banking
restarted its activity again only eight years ago and its growth
has been considerably fast.

7) Finally, monetary policy in Iran has not been successful in
meeting the inflation and monetary targets set in the Five year
development Plans, owing mainly to the monetary impact of
government spending out of oil revenue. Although the attainment of the inflation targets has improved somewhat recently, the objective of gradual reduction of inflation to single-digit level has not been achieved. Moreover, the implicit intermediate target of monetary policy, money growth, has been systematically missed. The problems encountered in adhering to the monetary targets are the main reasons for the persistence of double digit inflation in Iran. So these results suggest that controlling money growth is key to the success of the efforts to control inflation in Iran. The stability of the relationship between money and inflation also seems to indicate that money growth can be a useful intermediate target. The history of systematic underperformance vis-à-vis the monetary targets call for improving the coordination of fiscal policy with monetary policy and clearly subordinating exchange rate objectives in achieving the inflation targets.

6.5 Recommendations

1) It seems that liquidity (M2) growth plays a crucial role in determining inflation in Iran. So it is necessary for policy makers to control the high liquidity growth through Central Bank of Iran. Hence management of the total liquidity (M2) for economic growth is necessary.

2) Government revenue is dependent on the oil revenue. The oil price determined by international oil market leads to a decrease in oil revenue and hence to decrease in government revenue. So government has to reduce its dependence on oil revenue and has to increase other revenue sources.
3) It is necessary to decrease high current public expenditure, because budget deficit plays a role in determining inflation in Iran in the long-run. So, high public expenditure creates budget deficit. Therefore control of public expenditure is necessary.

4) Tax revenue forms a small proportion of total government revenues so it is necessary to increase the share of tax revenues in total government revenues.

5) There is a processing need for improving the current monetary policy framework while enhancing coordination between fiscal and monetary policies.

6) Reforming monetary policy alone will not remove inflationary pressures. The restricting of the banking system with a greater emphasis on private sector participation and competition, as well as other institutional reforms, are key to achieving sustainable low-inflation growth.

7) During the last three decades, Iran’s economy has witnessed high inflation and high fluctuations in economic growth as well as government budget so the Central Bank of Iran (CBI) must have good models to forecast inflation. There should be a possibility for Iranian government to adopt an inflation target regime for future Five Year Socio-economic Development Plans.