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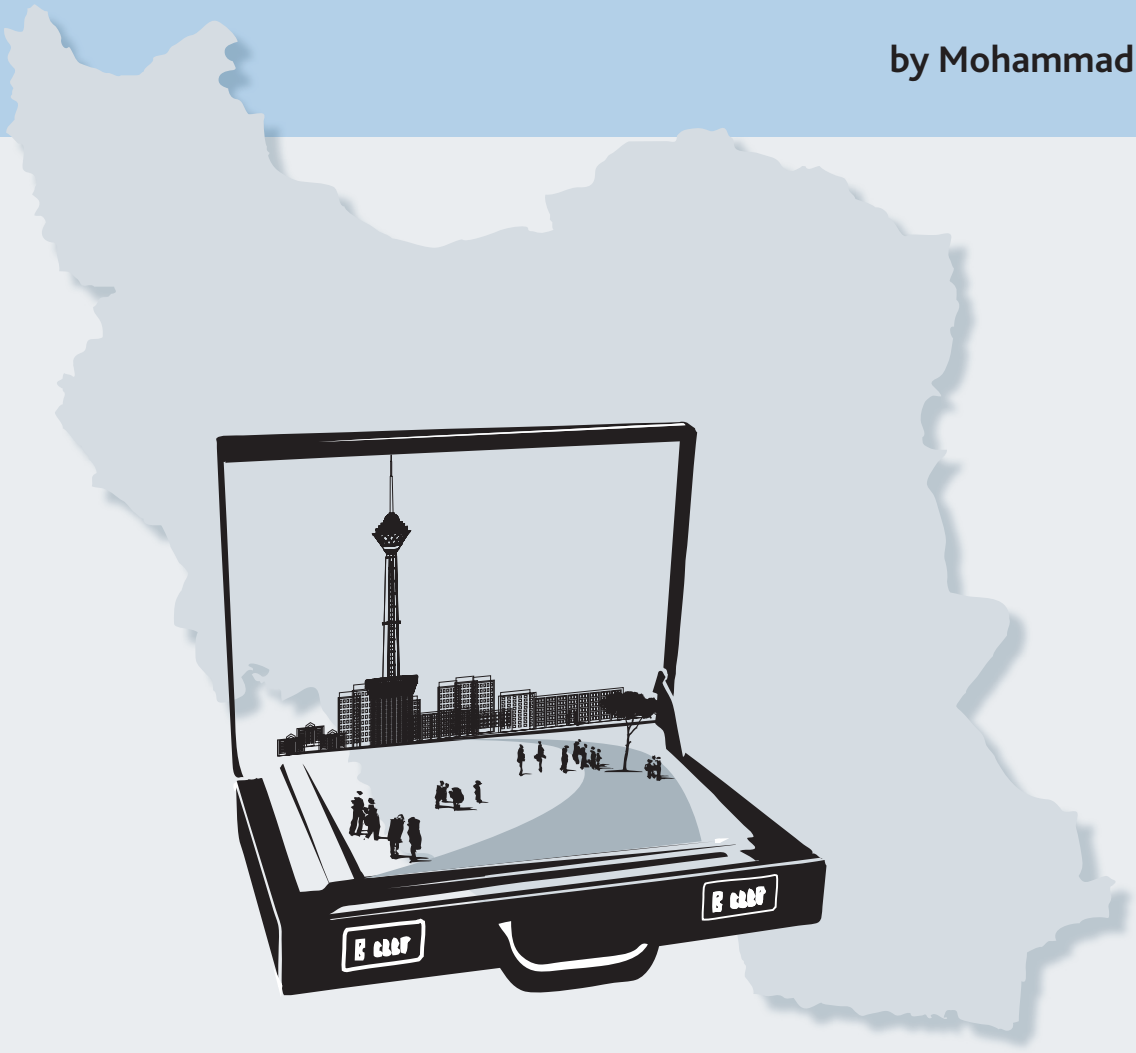
The Practice of Central Banking in the Islamic Republic of Iran: Is there Room for Reform?

by Mohammad R. Jahan-Parvar



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The Practice of Central Banking in the Islamic Republic of Iran: Is there Room for Reform?

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Mohammad Jahan-Parvar was born in Tehran, Iran. He is a financial economist. He completed his undergraduate studies with highest honours at Shahid Beheshti University (National University of Iran) in 1997. He subsequently received his MS in economics in 1999 from Illinois State University, and MS in statistics and PhD in Economics from University of North Carolina at Chapel Hill in 2003 and 2007 respectively. He was a professor of economics from 2007 to 2012 at ECU. He joined the US Federal Government in 2012, first at the Department of the Treasury and since 2013 at the Federal Reserve Board of Governors.

This working paper was produced for the Legatum Institute's workshop on Economic Reform in October 2013. The workshop was part of 'The Future of Iran' project, which is designed to encourage Iranians to begin thinking about the challenges they will face if, or when, they suddenly find themselves in a position to carry out major political, social and economic reforms.

The objective of this report is to outline some shortcomings in the practice of central banking in Iran, and suggest remedies for these problems. I write under the assumption that there is political will on the part of the Iranian government to a) implement reforms to improve the economic performance of the country, b) improve relationships with the international community, and c) integrate the country into the global trade, financial, and political system. Given these assumptions, this report proceeds as follows: First, I outline the differences in the practice of central banking and the conduct of monetary policy in Iran vis-à-vis the rest of the world. Second, I briefly discuss whether these differences have an impact on the effectiveness of monetary policy and the performance of the economy. Finally, I provide my recommendations.

1. The practice of central banking around the globe and in I.R. of Iran

The majority of central banks around the globe conduct monetary policy to achieve the dual objectives of low unemployment and stable price levels. The latter is often interpreted as targeting a low inflation rate. Since the Great Recession, an increasingly important third objective is maintaining the stability and health of the financial system. In practice, the first two objectives are achieved through targeting money supply, which in turn has an impact on investments through changes in interest rates. The last goal—financial stability—is achieved through supervision and regulation.

It is useful to know why and how central banks conduct monetary policy.[2] Among the four components of the gross domestic product (GDP)—consumption, government expenditure, investment, and foreign trade—investment in real assets such as plant and equipment tends to be the most sensitive to changes in market-determined interest rates. As a plus, changes in investment generally predict future employment well, since the state of investment outlays signals expectations of expansion or contraction in future hiring by the private sector.

Central banks do not aim for zero unemployment. Due to structural changes in the economy such as the introduction of new technologies or rigidities in the labour market or the flow of information, a certain level of unemployment is unavoidable. However, all central banks strive to mitigate the impact of downturns in business cycles on unemployment. On the other hand, central banks are also concerned about the impact of an overheated labour market on price levels, and hence inflation. Thus, central banks are often concerned with maintaining the so-called "natural rate of unemployment". As a result, they try to maintain interest rates that keep investment at a level that leads to this "natural level of unemployment".

Central banks are committed to stable price levels. As mentioned earlier, at least since the mid-1970s this objective is interpreted as keeping the inflation rate low. As Milton Friedman famously declared in 1970, "Inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output." Friedman's view, by and large, is accepted in macroeconomics. Thus, to combat inflation, most central banks target the supply of money in circulation.

The crucial question is what is the relationship between money supply and interest rates? To answer this question we should visit the idea of a risk-free interest rate. In the majority of markets, interest rates—borrowing and lending rates—are based on a mark-up on the rate paid on government debt. The idea behind this practice is that the government has the ability to raise funds through taxation and other methods, to meet its financial obligations and thus government bonds have a lower probability of default in comparison with debt issued by commercial entities. Hence, for residents of a country, interest paid on government debt is the least risky form of financial return they can receive. For governments with the best credit history, this rate is practically default free. Given a sufficiently large government debt –or bond—market, a central bank can manage money supply by trading government bonds. In doing so, the said central bank can also influence or set the risk-free rate using the market mechanism. When a central bank buys bonds, the price of bonds goes up and bond yield—which is the nominal bond return divided by bond's market price—falls. To buy these bonds, the central bank prints money and hence increases the money supply. The reverse process happens when the central bank sells bonds. Bond prices fall, their yields fall, and money supply falls as well. Commercial banks and corporate debt markets react to these events and adjust their interest rates accordingly. Thus, monetary policy changes the interest rate, which has an impact on investments, which in turn lead to changes in employment in due course.

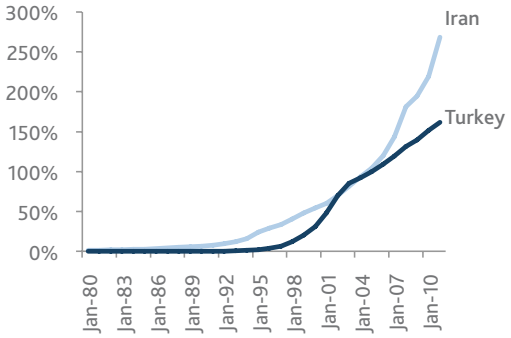
Bank Markazi Iran (the Central Bank of Iran, henceforth BMI) is an exception to this global practice. BMI does not target inflation, has a rudimentary notion of financial supervision and macroprudential policy, and only indirectly targets unemployment. At times, the sole objective of BMI seems to be maintaining either a fixed exchange rate or a "dirty float". In particular, BMI appears to target and defend certain "threshold" exchange rates.[3] In this report, I argue that these policies are counterproductive and offer some recommendations.

Even a cursory look at Figure 1 reveals that high inflation does not seem to worry the policymakers at BMI. Iran is one of a handful of countries that have sustained double-digit inflation for over three decades. Zimbabwe and Venezuela are among the other members of this group. To drive this point home, I plot the CPI of Turkey and Iran side by side. Turkey is a country that has gone through several significant episodes of financial turmoil in the 1980-2001 period, but has generally managed its macroeconomic stewardship better than Iran. Panel A in Figure 1 shows that by 2010, price levels in Iran stood significantly above that of Turkey's. In particular, notice that this trend in Iranian prices stems from the 1990s and then from 2005. These periods actually coincide with the global dampening of inflationary trends, often called "the Great Moderation".

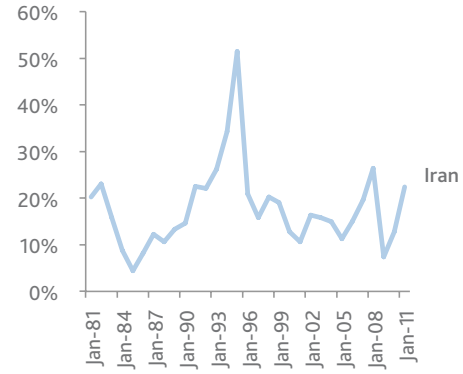
FIGURE 1: PRICE INDEX AND INFLATION

Source: Federal Reserve Bank of St. Louis.

PANEL A: CONSUMER PRICE INDEX (1980-2011) FOR IRAN AND TURKEY



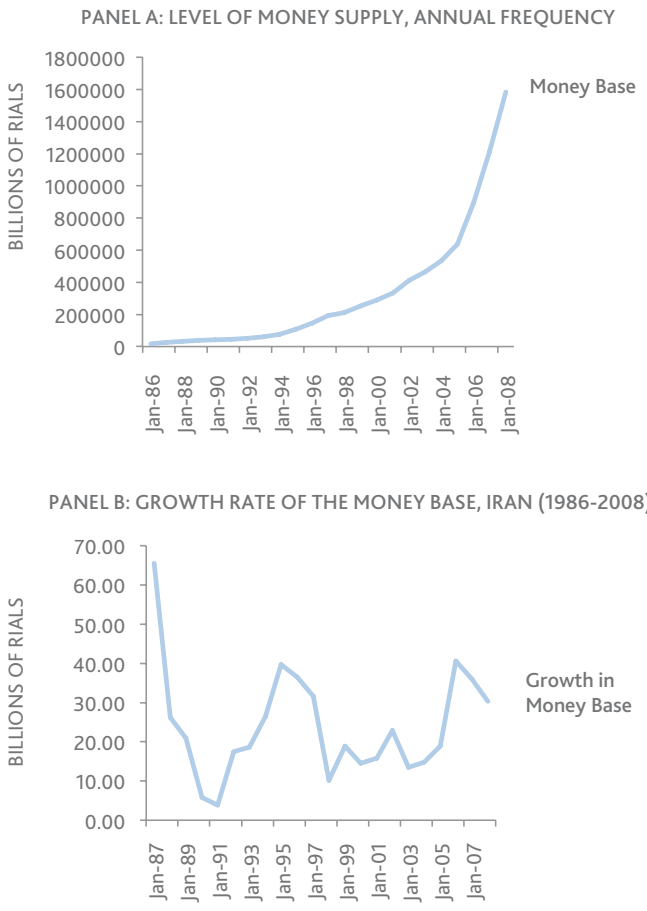
PANEL B: INFLATION IN IRAN (1981-2011)



This sustained high inflation is closely linked to unfettered growth of money supply in the 1980-2010 period. Figure 2 amply demonstrates this assertion. In particular, consider the growth rate of money base since 2004. As mentioned earlier, inflation is a monetary phenomenon. Growth in money base leads to monetary expansion, and hence to inflation. This outcome, in a case like Iran—a country with limited scope for expanding production rapidly—is due to a lot of money chasing an effectively fixed supply of goods and services, which leads to higher prices for the available supply of merchandise and services.

FIGURE 2: MONEY SUPPLY, IRAN (1986-2008), BILLIONS OF RIALS

Source: the Central Bank of Iran



One channel of involuntary monetary expansion for BMI is the practice of injecting oil revenues in the Iranian economy. Each year, the administration sets a budgetary price for oil revenues. This means that the value of oil exports is set in a fixed USD/IR Rial exchange rate, and BMI is then forced to transform the National Iranian Oil Company's revenues to Rials for government budgetary purposes.[4] This means that oil exports

automatically turn into Rials. The central bank does not have a control on this portion of monetary expansion. I propose a remedy to this problem later in the paper.

As mentioned earlier, BMI does not directly target unemployment. Following a long-standing tradition in the Islamic Republic's economic policymaking practice, unemployment targeting is done through providing subsidised loans to target industries or projects. In the absence of competitive financial markets, and given the practice of Islamic banking which in Iran is interpreted as fixing the interest rates below the inflation rate, credit is naturally in short supply and rationed. Access to credit is often based on who wins the favour of state officials or bankers. This procedure is often used as a policy tool. The executive branch directs the banking system—which is subordinated to the central bank—to extend credit at subsidised rates to a certain sector or project. In recent years recipients included the construction sector and a scheme for the expansion of small, high-yield firms.

Notice that this practice does not target the general level of unemployment, nor is it directly controlled by the central bank. BMI only acts as an agent of the executive branch. The in-built limited scope of this practice makes it unattractive by international standards, since a) certain skills and sectors are favoured over others without an objective economic justification, and b) the practice opens the door for massive rent-seeking, since these loans are typically heavily subsidised. Furthermore, expanding the balance sheet of the banking sector is not monetary policy. A by-product of an uncompetitive financial sector, subsidised interest rates, and preferential loans practice, is the weak relationship between interest rates and private investment in the Iranian economy. Figure 3 (p6) demonstrates this point.

At times, Islamic Republic officials have shown great interest in keeping the US Dollar/IR Rial exchange rate "stable". Often this goal translates into keeping the Iranian Rial artificially and unreasonably strong. The inevitable corrections that follow this policy are disruptive and add significant uncertainty to a business environment that has lurched from crisis to crisis for over three decades. Maintaining a strong currency in a high inflation economy is tantamount to a sizeable indirect tax on the tradable and export-oriented sectors of the economy. Such a policy is in direct conflict with the stated goals of the Iranian officials who advocate diversification of income sources, industrialisation, and attracting manufacturing oriented foreign direct investment.

Crucially, this practice is unsustainable. To better illustrate this assertion I present a simplified version of the system of equations that economists use to characterise foreign exchange relations.

(1) $$r = r^{*} + \pi^{e}$$

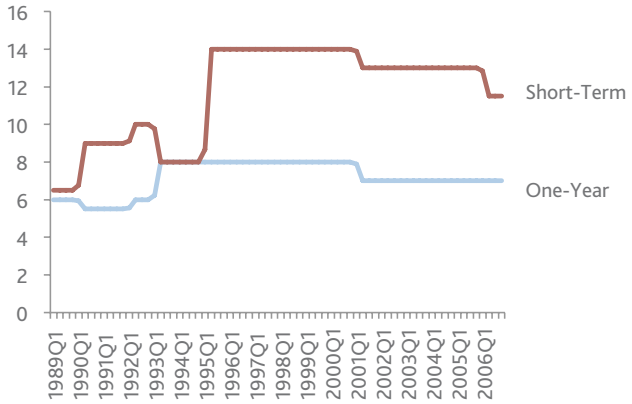
(2) $$E_t(S_{t+k}) = S_t \frac{(1+r^{f})}{(1+r^{h})}$$

Equation (1) reports nominal interest determination, where r is the nominal interest rate, r^* is the real interest rate, and π^e is the expected inflation. Equation (2) displays the

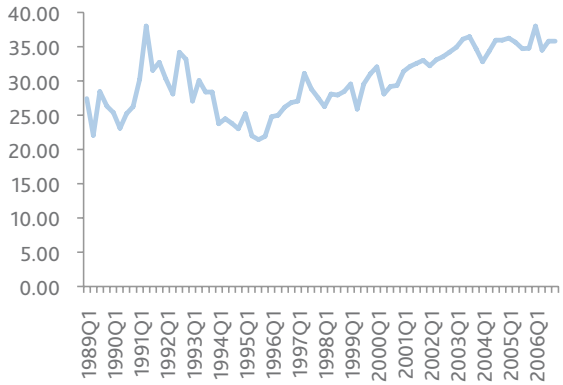
FIGURE 3: INTEREST RATES AND CAPITAL FORMATION, 1989-2006, QUARTERLY DATA

Source: Salehi-Esfahani et al. (2013)

PANEL A: SHORT TERM INVESTMENT AND ONE-YEAR INTEREST ON DEPOSITS



PANEL B: CAPITAL FORMATION TO GDP RATIO



so-called "uncovered interest parity" determination of exchange rates. In this equation, $E_t(S_{t+k})$ is the expected value of exchange rate k-periods in the future (t is the present time), S_t is the exchange rate today and expressed as one unit of foreign currency in terms of units of home currency, r^f is the nominal interest rate in the foreign country, and r^h is the nominal interest rate in the home country. Since expected inflation in home and foreign countries are embedded in nominal interest rates, it follows that the currency in the country with higher inflation expectations (or realised inflation) loses value against the currency of the country with lower expected (or realised) inflation.

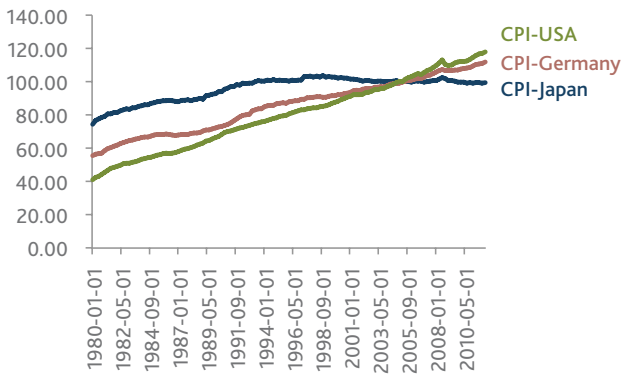
The vast majority of Iran's foreign trade is conducted in US Dollars. Thus, indirectly, the United States is a trendsetter for Iran's foreign trade. European countries, in particular

Germany, and Japan are other important trading partners. Figure (4) shows the price level dynamics in the US, Germany, and Japan. In comparison with Iranian CPI data presented in Figure (1), it is immediately clear that these countries have stable prices and low inflation. It follows from equation (2) that Rial must weaken (lose value) against US Dollar, Euro, and Yen, as long as the widening gap Iranian price levels and those of her trade partners persist. Panel B of Figure (4) depicts the USD/IR Rial exchange rate for the period ending in 2012, and shows that the predicted continuous devaluation of Rial vs. USD is not observed in the data. Instead, we observe abrupt adjustments in 2002 and 2011. While not presented, another significant devaluation of IR Rial took place in the 2012-13 period. When these adjustments take place, they tend to be violent. As an example, in the 2012-13 period, the Rial lost about 85% of its value against the US Dollar in less than a year, a record in the first two decades of the 21st century.

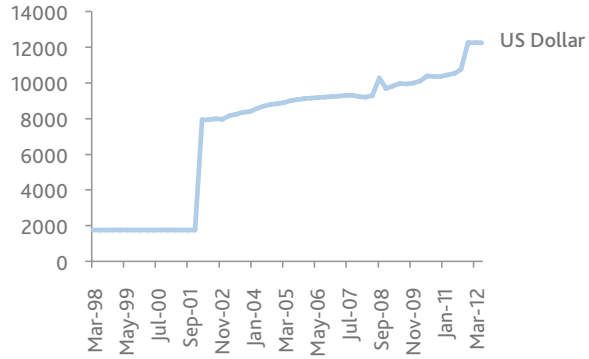
FIGURE 4: PRICE LEVELS AND EXCHANGE RATES

Source: St. Louis FED and BMI

PANEL A: CPI INDICES FOR THE US, GERMANY, AND JAPAN (1980-2010)



PANEL B: USD/IR RIAL EXCHANGE RATE, QUARTERLY DATA (1998-2012)



Given the sizable difference between Iran's inflation and those of its trading partners, any attempt to keep a "strong national currency" is equivalent to keeping a "de facto" fixed exchange rate.

I feel compelled to point out another harmful by-product of the Islamic Republic's economic policies in the last three decades. As mentioned earlier, the practice of Islamic banking in Iran has resulted in nominal interest rates that are fixed and below the inflation rate for extended periods, as shown on Panel A of Figure 3. From equation 1 it should be clear that such a policy results in negative real exchange rates. While a boon for borrowers, it is a significant burden on potential lenders. Real interest rates that remain negative for extended periods typically herald flight of capital, a perennial feature of Iran's post 1980-1988 war economic history. Absent the ability to take their capital to a more capital-friendly destination, capital owners are reluctant to commit to long-term investments in a high-inflation and negative real returns climate. Over time, this reluctance has a negative impact on the accumulation of physical capital, technology, and the expansion of production capabilities. In short, it results in the misallocation of resources and loss in economic efficiency.

Finally, the notion of supervision and macro-prudential policy on the part of BMI is rudimentary. BMI seems to have some problem in implementing conventional supervisory procedures, a problem that manifests itself through frequent banking scandals and the alarming size of non-performing loans to capital ratio of particularly privately owned banks. BMI has publicly circulated a number of white papers and policy reports.[5] These reports do not inspire much confidence in a central banker familiar with the accepted global practice of regulation, supervision, and macro-prudential policy making. It may be beneficial for Iran's financial sector to simply adopt the global common practice in macro-prudential policy and supervision.

2. Banking Sector and Financial Institutions

Iran has a reasonably monetised economy. Banking penetration is high, with close to 75% of adults having a bank account—either checking or savings. Some Iranian banks are quite large, with five of them represented among "Top 1000 Banks in the World" in 2012.[6] The main stock market in the country, the Tehran Stock Exchange (TSE), is relatively large for the size of Iran's economy—market capitalisation of the TSE was over 100 billion USD in 2012—and it seems to be "efficient" in financial economics sense, as shown by Jahan-Parvar and Mohammadi (2013). Other financial markets are nascent and very small. For example, corporate and government fixed income markets are not even equivalent to 5% of the TSE market capitalisation in 2012. Derivatives markets are practically non-existent.

This situation is the reverse of what you observe in the majority of other countries, where fixed-income asset markets are usually larger than equity markets by orders of magnitude. Notice that companies generally do not finance all their operations through issuing equity. In fact, credit and capital requirements of companies are mainly met

through borrowing in the form of raising funds through the issuance of corporate bonds or entering long-term credit and loan contracts. In general, equity determines ownership and acts as a market-determined gauge of governance and expected profitability of companies as well as collateral for loans, while corporate debt markets—which do not interfere with either governance or ownership—provide funding for operations and investment plans. This basic division of functions is absent in Iran.

As a result, the financial sector in general and banking sector in particular are both under developed and to a large extent fail in performing their main task, which is channelling "savings"—broadly defined—to investment and lending. Due to the country's isolation, Iranian banks do not have access to state of the art technology, knowhow, and best practices in banking and finance, be it retail or risk management.

Figure 5 displays two measures of success of banking sector in channelling deposits to loans. Panel A of this figure shows the ratio of bank credit and bank deposits to GDP. It is clear that banks extend less credit than deposits that they receive, an indicator of either considerable uncertainty in the business climate—a plausible assumption for Iran—and/or relative failure in channelling deposits to their most productive use. Panel B of the same figure compares banking sector credit to deposit ratio for Iran, Saudi Arabia, and Turkey. It is clear that the Saudi banking system extends more credit than both the Turkish and the Iranian banking systems. Given that between 1997 and 2002 Turkey experienced significant financial hardship, the notion that the extension of credit suffered due to uncertainty seems plausible.

Thus, it seems as if political volatility, inflation, unrealistic price of capital and credit extension by fiat are likely culprits for this apparent underachievement of Iran's banking sector.

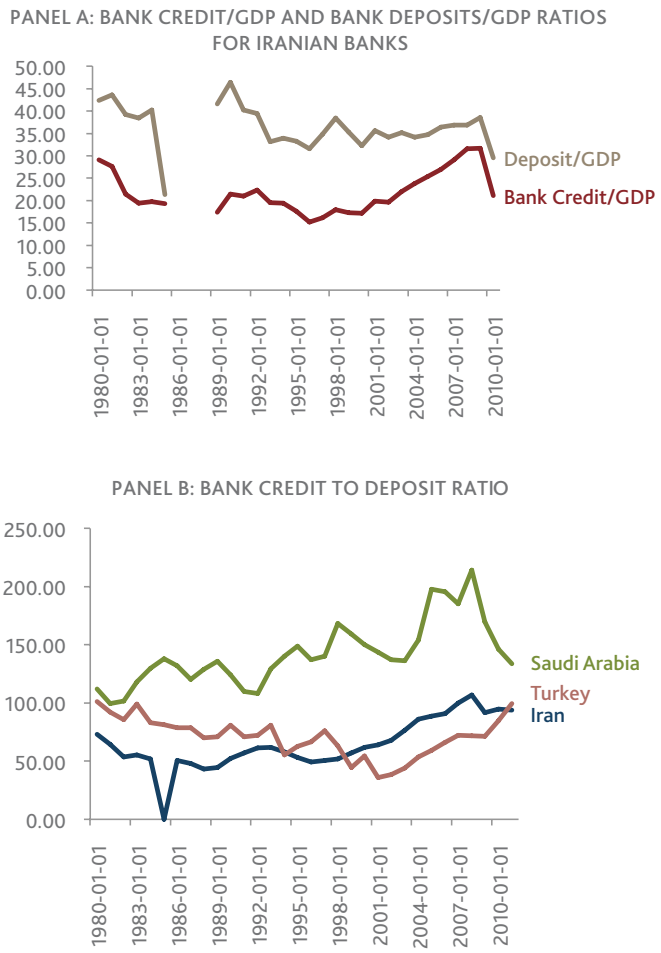
Another obvious shortcoming in the banking sector is its failure to comply with international banking regulations. While this observation may appear relatively unimportant at the moment, given the assumptions about political will in Tehran to improve the performance of the Iranian economy by making it more competitive and attracting foreign investment, regulatory compliance becomes crucially important if the country opens up. Given a genuine opening up of the Iranian economy, Iranian banks have to compete internationally and some of them may be bought by foreign firms. Either way, these banks need to quickly catch up with their foreign competitors. Closing the regulatory gap is easier than closing the technological and operational gap they face.

3. Stated Policies of the Rouhani Administration

Since his somewhat unexpected electoral victory in June 2013, Hassan Rouhani and his administration have repeatedly stated that they intend to end Iran's isolation, strive to remove crippling economic sanctions imposed in response to Iran's nuclear program, and reform the country's economic policy making.

FIGURE 5: THE BANKING SECTOR.

Source: St. Louis FED



Mr. Rouhani's economic plan hinges on privatisation. While a worthy cause, one need to bear in mind that a) Iran has been "privatising" its economy since 1990s, b) the legal framework for privatisation is still not in place, c) the process is and has been opaque and prone to corruption, and finally d) in the absence of a realistic price of capital (interest rates), it is almost impossible to price state-owned assets.

Among Rouhani's cabinet members, the minister of finance and economic affairs, Ali Tayeb-Nia, and the chairman of the BMI, Valiollah Seif acknowledge the necessity of combating Iran's inflation—which surpassed 40% a year in 2013. Mr Tayeb-Nia is said to be a supporter of introduction of derivatives markets in the mix of financial sector of the country.

While a firm commitment to rein in Iran's galloping inflation is extremely desirable, and in my opinion is in fact an imperative, the logic of the emphasis on derivatives market push is somewhat lost to me. Derivatives are useful in smoothing out undesirable fluctuations and transferring risks to entities with an appetite for risk from those businesses that lack such an appetite. At the root of all derivatives markets lies a realistic, market determined risk-free asset and a large and active bond market—both corporate and governmental. Iran lacks these fundamental markets, and thus will face significant difficulties in launching and maintaining a vibrant derivatives market. These facts are not lost to practitioners; they are at best lukewarm towards this effort on the administration's part.

The important question is whether such an effort is feasible, useful, and optimal. In my opinion, given the ambiguity about the administration and BMI's inflation fighting credibility, confusion about foreign exchange policy, and basic shortcomings in the financial system, the answer to this question is no. Adding instruments does not necessarily mean that financial markets are developed or function better. Derivatives may even destroy value, if not deployed judiciously. Some commentators go as far as calling them "weapons of financial mass destruction".[7] I personally treat such statements as somewhat melodramatic, but acknowledge the fact that trading and using derivatives is significantly more complicated and potentially more dangerous than equities, bonds, or commodities trading.

Notice that it is hard to detect a meaningful relationship between private investment and financial sector in the Iranian economy. If such a basic relationship is not in place, why should one insist on introducing insurance policies against risks that are not borne by the financial sector? Besides, what is the logic of introducing instruments that are sensitive to inflationary pressure in a high inflation economy?

To illustrate this issue, consider the impact of high inflation on the most basic form of derivatives, a futures contract. Equation (3) presents this contract:

$$F_{t\to T} = S_t \times [1 + r_t]^{(T-t)}, \quad (3)$$

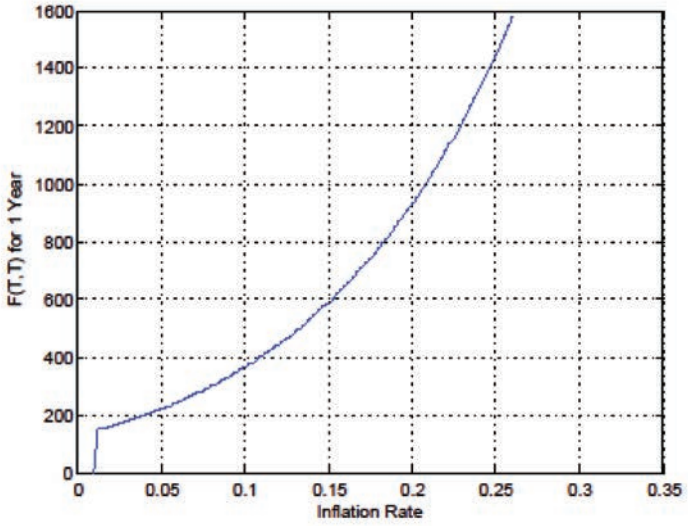
Where S_t is the spot price of the underlying asset, r_t is the nominal interest rate, t is the present time, and T is time of maturity. Inflation enters this relationship through nominal interest rates—see equation 1. Assume that the spot price of the underlying asset is 100 units of any currency, real interest rate is 2% per year, and time to maturity is 12 months. Figure 6 demonstrates the relationship between inflation and future contract price, $F_{t\to T}$. Notice that at inflation rate equal to 25%, this contract should sell for about 1400 units, which is a very steep price for an asset with current spot price equal to 100 units. For higher inflation rates, this formula yields even higher prices. The impact of inflation is more pronounced for more complex derivatives such as options, swaps, or 'swaptions'.

In short, it is prudent to let derivatives markets to grow organically. Creating these markets by fiat is unlikely to be successful in a high inflation environment. Iranian

officials tried such an experiment with Kish Island's crude petroleum exchange in 2008. That exercise, to put it mildly, did not succeed. Similar efforts are unlikely to fare better as long as inflation, price of capital, accounting and legal practices, and legal infrastructure shortcomings are not fully and credibly addressed.

FIGURE 6: FUTURES CONTRACT PRICES AND INFLATION

Inflation rate should be read as the number on the Figure times 100.



4. My Recommendations

In previous sections, I provided a sketch of how the current methods of central banking in Iran are detrimental to long-term macroeconomic stability and growth. International macroeconomic literature includes in-depth discussions on "impossible trinity" or "trilemma". Many policies pursued by Iranian authorities are classic cases of this trinity. Briefly, a small open economy such as Iran can pursue two of the following three macroeconomic policies, but cannot have all three of them at the same time. These policies are a) a fixed exchange rate b) independent interest rate setting and c) controls on capital flows. In practice, Iran has tried—in vain, I have to add—to implement all three elements of this trilemma. Movement of capital in and out of Iran is severely limited. Inward movement of capital is the main focus of international sanctions against the country, while outward movements are strictly controlled by the government. Iran's efforts to keep the exchange rates "stable" despite significant differences between the domestic inflation and inflation rates in Iran's trading counterparts is effectively equivalent to keeping a fixed exchange rate. Finally, setting nominal interest rates below the inflation rate is another name for (misguidedly) trying to maintain an independent monetary policy.

I believe that if the goal of the BMI is indeed long term macroeconomic and financial stability, the policies of: a) severe restrictions on capital flows and b) "practically" fixed exchange rates cannot be maintained and must be abandoned. Given the current practice, Iran faces massive illegal capital flight and substantial misallocation of resources, as evidenced by anaemic private investment and capital formation. This trend is harmful for long-term growth, employment prospects, and accumulation of human and physical capital, as well as for accumulating necessary resources to care for Iran's increasingly aging population.

It seems logical that first and foremost, BMI needs to focus on curbing a persistent and decades-long double-digit inflation. To this end, I suggest that the practice of immediately transforming hard currency earned from petroleum sales to Iranian Rials should be abandoned, as it tends to expand the money base and lead to inflation. Instead, I suggest that the Iranian state should, as proposed in the Khatami administration, deposit such earning in a sovereign wealth fund and finance its deficits through taxation or issuing government backed securities—bonds. Holding a sizeable portfolio of these bonds, BMI can engage in meaningful monetary policy by targeting money supply in the economy. These government bonds will in turn set the risk-free rate for the Iranian economy. In due course, once the risk-free rate is known, a corporate bond market can be established to address long-term funding needs to Iranian companies. Loan and tax-based funding of government expenditures pays long-term economic and political dividends.

Simultaneously, the practice of keeping interest rates below the inflation rate and constant for extended periods should be abandoned in favour of market-based and floating interest rates. A level of liberalisation is needed to allow banks and other financial institutions to develop the capacity to enter full-fledged and competitive markets for commercial and residential mortgage financing, life insurance, consumer loans, and commercial loans.

I personally favour abandoning the harmful obsession with "keeping a strong national currency", and believe that the Iranian Rial should float freely. As long as Iranian inflation is—on average—between five to ten times higher than its trade partners for the last two decades, maintaining a stable exchange rate is infeasible and harmful. If the objective is to foster foreign direct investment and aiming for low unemployment, realistic exchange rates and price of capital are necessary. My personal opinion is that the reasonable policy mix for Iran in the next five to ten years is free float of currency and independent interest rate determination, while maintaining reasonable controls on capital flows.

Usually, there are objections to liberalising the banking sector, market-based interest setting, and abandoning fixed exchange rates or dirty floats. Some may argue that market-determined interest rates, which by definition are above inflation rate, adversely affect investment in the economy. Based on records published by the BMI, I argue that private investment and capital formation and interest rates are almost independent of

each other, at the very least in the last ten years. Thus, domestic liberalisation is unlikely to affect capital formation adversely.

Finally, I argue for more independence for BMI. Currently, the chairman of the BMI serves at the pleasure of the Iranian president. Administratively, BMI is an extension of the office of the president and largely subservient to the Ministry of Treasury and Economic Affairs. Following the general practice in many developed and emerging markets, I argue that independence from the executive branch and reporting instead to the legislative branch, has long-term benefits.

REFERENCES

1. E-mail: mohammad.jahan-parvar@frb.gov. The views expressed in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or of any other person associated with the Federal Reserve System.
2. Throughout the paper, I assume that the country has a central bank. An alternative institution that some small open economies use for implementing monetary policy is a "Currency Board". For the sake of brevity, and given that Iran has a relatively large economy, I do not consider this alternative approach.
3. In 1995, the threshold was 1400 Rials per US Dollar, in more recent years, 10,000 Rials per US Dollar, and 20,000 Rials per US Dollar come to mind.
4. In practice, the process is as follows: the government sets a goal for price of oil exports per barrel in USD. Anything above this set price either goes to the administration's slush fund or for the period that it existed, to the Oil Contingency Reserve Fund. The budget also sets the expected USD/Rial exchange rate. BMI then buys this budget-mandated US Dollars from NIOC, and the proceeds are deposited to the administration's accounts. Notice that oil exports pay a substantial amount of Iranian government's operational expenses.
5. Available at http://www.cbi.ir/simplelist/1463.aspx.
6. Refer to the list of "Top 1000 World Banks", 2012. This list is published by *The Banker*, and available at http://www.thebanker.com/Top-1000-World-Banks.
7. These are the words of Warren Buffett, uttered in his 2003 "Annual Letter to Shareholders" of Berkshire Hathaway.

BIBLIOGRAPHY

Jahan-Parvar, M. R., and H. Mohammadi (2013) "Risk and return in the Tehran stock exchange," The *Quarterly Review of Economics and Finance,* 53(3), 238-256.

Obstfeld , M., J. C. Shambaugh and A. M. Taylor (2004) "The Trilemma in History: Tradeoffs among Exchange Rates, Monetary Policies, and Capital Mobility", *NBER Working Paper* No. 10396.

Salehi Esfahani,H., K. Mohaddes, and M. H. Pesaran (2013) "Oil exports and the Iranian economy," *The Quarterly Review of Economics and Finance*, 53(3), 221-237

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