



Stanford Iran 2040 Project

An Academic Platform for Research on Iran's Long-Term Sustainable Development

Central Banking in Iran

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About the Stanford Iran 2040 Project

The Stanford Iran 2040 Project is an academic initiative that serves as a hub for researchers all around the world—particularly scholars of the Iranian diaspora—to conduct research on economic and technical matters related to the long-term development of Iran and to evaluate their possible implications in a global context.

The project encourages quantitative and forward-looking research on a broad array of areas relating to Iran's economic development. It seeks to envision the future of the country under plausible scenarios. The sectors that will be covered within the first phase of the project include the economy, energy, water, environment, food and agriculture, and transportation. The project has been co-sponsored by the Hamid and Christina Moghadam Program in Iranian Studies and the Freeman Spogli Institute for International Studies at Stanford.

Stanford Iran 2040 Project

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Executive Summary

Herein, we discuss the evolution of macroeconomic policies in Iran and provide an overview of the country's monetary policy landscape. The latter part discusses the structural aspects of the Central Bank of Iran (CBI) and evaluates its performance based on key monetary and banking variables. At the end, we set forth institutional and policy reforms to improve monetary policy outcomes in the future.

After decades of low and non-inclusive economic growth, Iran's economy seems to be approaching a significant turning point. Of the twenty-six million people in the labor market, upwards of three million, mostly young and highly educated, are not only unemployed but becoming unemployable. Severe water scarcity has become the new norm, suggesting that the output from the agriculture sector will shrink. Hence, food security for the country's large and growing population can no longer be taken for granted. Crude oil production has already reached its levels before the nuclear sanctions and, in the absence of large investments, significant production growth in the short to mid-term seems unlikely. Despite taking draconian import control measures to push the country's import substitution agenda toward industrialization, the manufacturing and industrial sectors have struggled to find a way to incentivize innovation and attract private investments, thereby becoming trapped in a prolonged period of poor productivity, which has eliminated their competitive advantage.

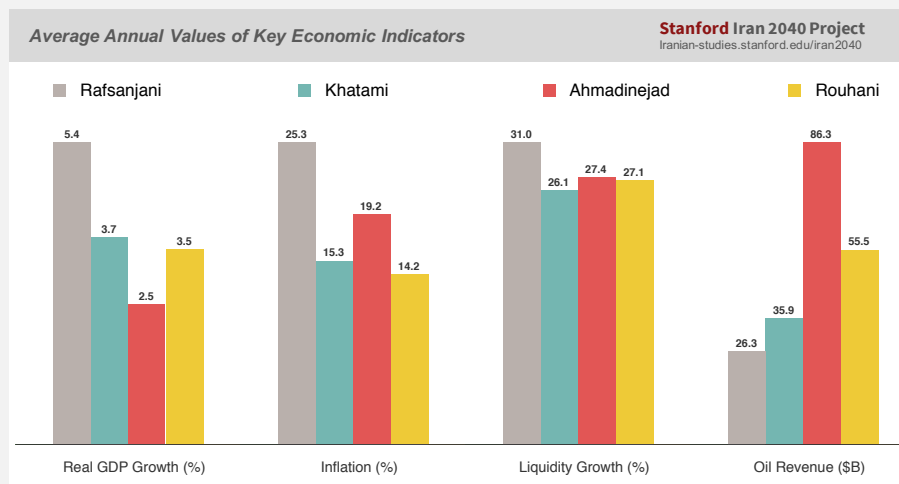


Figure ES1. Average annual values of key economic indicators by the last four presidents.

On the financial front, bouts of instability—which have reached a historically unprecedented level—are making the underpinnings of the economy increasingly fragile. The financial sector is heading for a *Wile E. Coyote* moment where the overall stability of the banking system and the value of currency can both plunge suddenly. High positive real interest rates (nominal interest rate minus inflation) have dampened investment for a prolonged period, while—considering the sluggish realities of the real sector—private savings will be channeled to the currency market (hence depreciating the rial and accelerating capital flight) should the interest rate be reduced. The banking system—with enormous amounts of non-income-generating assets—faced a severe

cash flow problem and essentially turned into a country-wide Ponzi scheme, with growing pressure first on the balance sheets and subsequently on the real sector. Another looming challenge facing the economy is the pension funds crisis. While Iran is still in the midst of its demographic window of opportunity when the ratio of the working age population to elderly is high, some of the country's largest pension funds are already becoming insolvent. As large cohorts of the population approach retirement age, the country's pension time bomb not only will erode the economic well-being of vulnerable pensioners but also will leave no fiscal space for capital expenditure. In the absence of a prompt and determined policy response, these crises are likely to be compounded in an accelerating manner.

With an average inflation rate of 20% over the past three decades, the Central Bank of Iran has systematically failed to achieve its primary goal of price stability. Many reasons are behind the poor outcome of Iran's monetary policy, among which are the fiscal dominance and lack of proper monetary instruments at the CBI's disposal. The government's chronic fiscal deficit has been, directly or indirectly, financed through borrowing from the central bank (seigniorage) instead of issuance of government papers. The government has been unwilling (or unable) to collect tax from the *bonyads* (which are large quasi-private conglomerates), reduce energy subsidies, and borrow from the lenders in the market (from liquidity). Instead, by systematically filling the budget gap by increasing the money supply, the government and the CBI have implicitly been collecting a hidden regressive tax from all citizens. As such, it can be said that the CBI has acted as the bank of the government rather than the bank of the country.

In addition, the CBI has a limited set of instruments at its disposal for conducting effective monetary policy. This is primarily due to the lack of a developed financial sector in the country and the obligation of the central bank to operate based on the *Islamic finance* framework. The latter has given rise to another macroeconomic vulnerability: a stronger procyclical linkage between the financial and the real sectors.

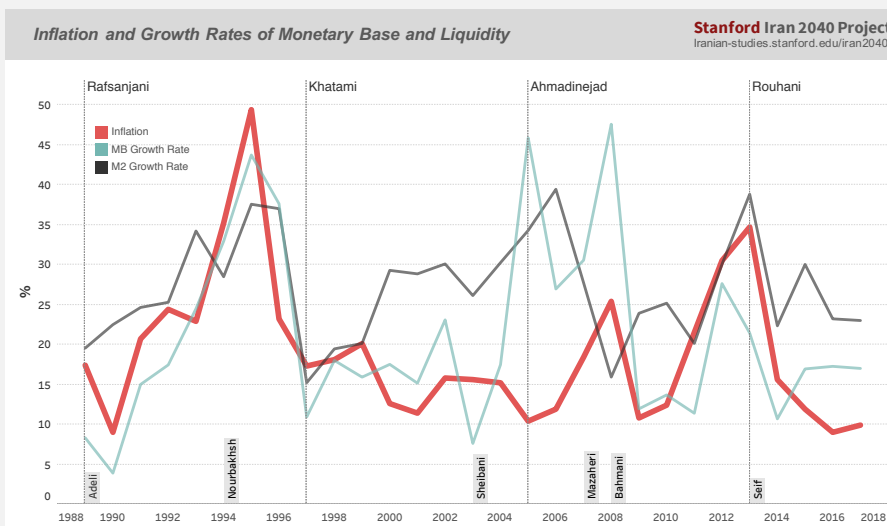


Figure ES2. Inflation and growth rates of monetary base and liquidity between 1989 and 2017.

Furthermore, the banking system in Iran is faced with multiple intertwined crises that have brought the country's financial sector to the verge of a major collapse. In fact, it is now plausible that the consequences of previous irresponsible actions and economic misconduct, which have thus far been limited to low output growth, will morph into a full-fledged financial crisis that would, in turn, result in a significant loss of output and employment. The root cause of problems in the banking system in Iran has some elements from fiscal dominance, institutional weakness of the CBI, endemic corruption, and a general misconduct in the banking system itself. Trends in the financial soundness indicators demonstrate a marked deterioration of the banking sector's health in terms of accumulation of non-income-generating assets (non-performing loans (NPLs) and claims on government), build-up of debt to the central bank, decline in capital adequacy ratio (CAR) which represents banks' ability to absorb losses, and lower return on assets (ROA) which represents banks' profitability.

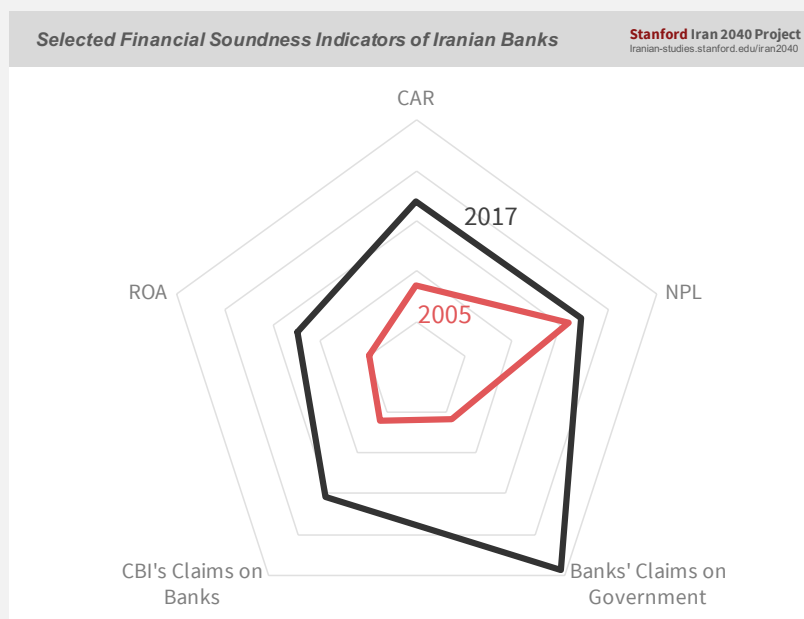


Figure ES3. Comparison of selected financial soundness indicators of Iranian banks in 2005 and 2017. For all variables, the center represents the desirable side of the range and the outmost layer represents the undesirable side. The considered range for all indicators was 0–15%, except for the ROA, for which a range of 0–1% was considered.

Major structural and operational reforms are needed in order to restore the ability of the CBI to conduct effective monetary policy. First and foremost, the issue of chronic fiscal dominance needs to be addressed as sound public finance is a decisive prerequisite for monetary policy. One can infer from the historical monetary data presented earlier that high inflation—as long as it would not have seemed to provoke social unrest—has persistently been of little concern to both the legislative and executive branches of the Iranian government. In addition to much-needed fiscal reforms, Iran should embark on a number of fundamental reforms in the structure, governance, and operation of the central bank to avoid a similar catastrophic outcome from monetary policy in the future. These reforms can be broadly categorized into those that (a) target the objectives of the CBI, (b) improve the governance of the central bank, (c) create more effective tools for implementing monetary policy, and (d) enhance bank supervision.

Central Banking in Iran

The Central Bank of Iran (CBI, *Bank-e-Markazi*) is a government organization that conducts the nation's monetary policy. The CBI was originally established in 1960 by Iran's first Monetary and Banking Act [1] to issue currency and serve as the government's banker. The Second Monetary and Banking Act of 1972 [2] expanded the CBI's responsibilities to include the issuance of currency, implementation of monetary policy, and supervision of the banks. According to this act, the CBI's objectives were defined as follows:

- Maintaining the value of the currency
- Maintaining equilibrium in the balance of payments
- Facilitating trade transactions
- Assisting the economic growth of the country

The expansion of economic activities in the 1960s and 1970s was accompanied by a rapid growth of the banking sector in Iran; by 1978, there were three dozen commercial and specialized banks, of which twenty-eight were private [3]. However, soon after the revolution, banks and other industries were nationalized (details can be found in the Banks Nationalization Act [4] and the Law for Administration of the Banks [5]). This transformation—along with a general contraction in the level of economic activities—warranted an extensive bank consolidation which ultimately reduced the number of banks to about a dozen [3], a development that substantially eliminated competition in the banking sector. It is generally believed that the changes in the structure and governing rules of the central bank, along with the departure of many of its experts and policy makers, hurt the performance of the banking sector at that time (see reference [6] for more details on the evolution of the Central Bank of Iran before the revolution). In 1983, the banking rules were amended to comply with the principles of a usury-free Islamic finance framework, including the concept of a non-interest-bearing banking system [7]. A defining feature of Islamic banking is the prohibition on predetermined payments (i.e., interest or *riba*) in all forms of transactions, thus restricting the use of funds solely to a profit-and-loss-sharing basis [8]. Today, Iran is probably the only country in the world whose financial operation is fully compliant with Islamic finance principles [9]. In addition to the rules and regulations above, the monetary policy implemented by the CBI is meant to be consistent with five-year development plans and annual government budgets.

1. Evolution of Macroeconomic Policies in Iran (1979–2018)

This section provides a brief chronicle of how Iran's macroeconomic policies have evolved in the post-revolution era. To put the discussion into context, we begin by showing the changes that have occurred in a number of key macroeconomic indicators through this period (**Figure 1**). The top panel shows the average annual values for real GDP growth (%), inflation (%), liquidity growth (%), and oil revenue (billion dollars) grouped by presidential cycles since 1989. The bottom panel depicts the trends in the real GDP per capita and the contributions of the oil and non-oil sectors between 1978 and 2017. **Figure 2** shows the CBI and banks' claims (top panel) and change in public debt from the banking system (bottom panel), both as percentages of GDP.

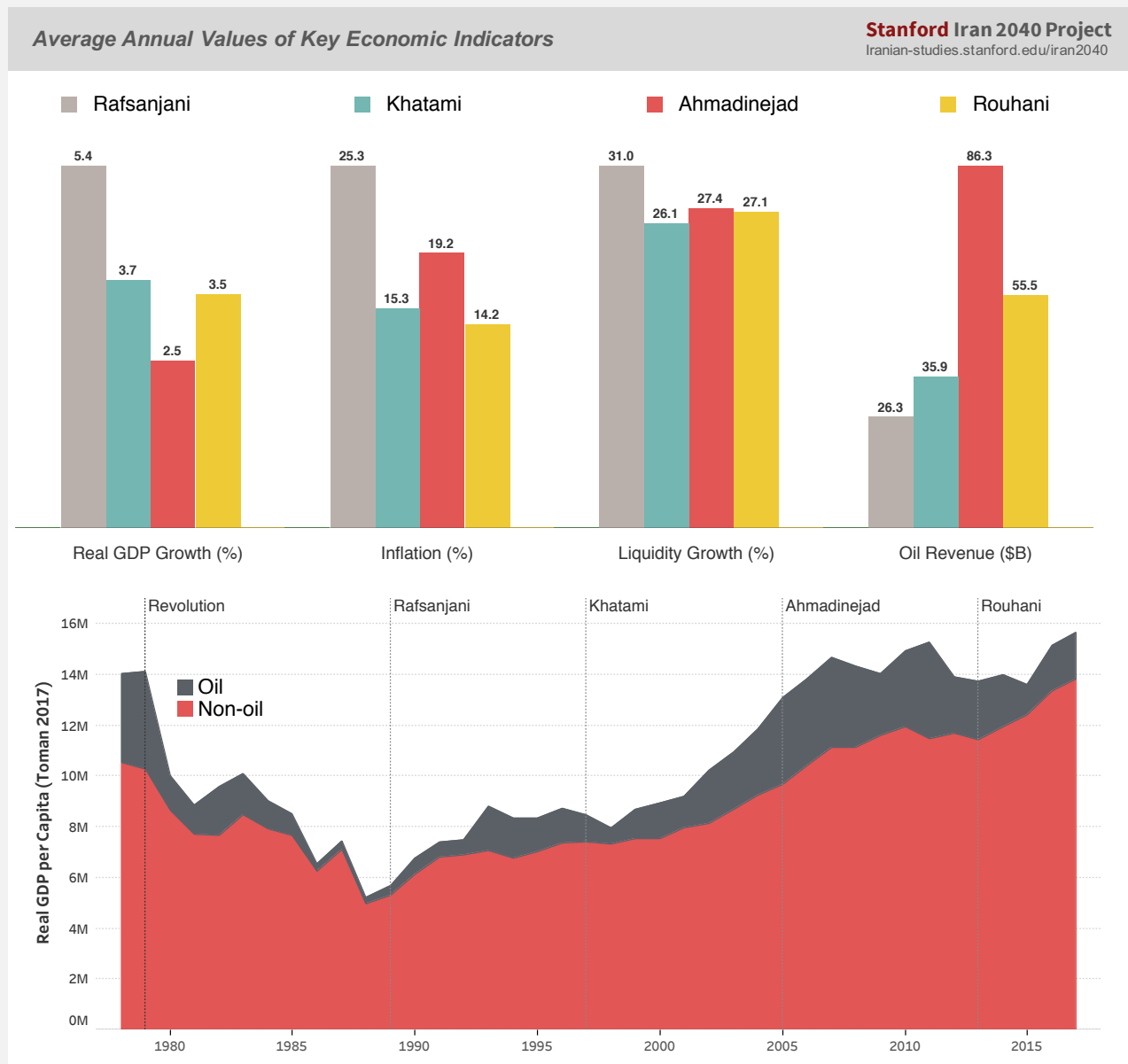


Figure 1. Average annual values of real GDP growth (%), inflation (%), liquidity growth (%), and oil revenues (\$billion) (top panel), and real GDP per capita (in 2017 *toman*) between 1978 and 2017 (bottom panel) [10, 11]. See **Appendix A** for a comparison of the GDP per capita of Iran and selected countries.

Owing to the Islamic Republic's anti-capitalism views—which back in the day were advocated as a cure-all for poverty and inequality—a prolonged and devastating war with Iraq, and a rapidly growing population, the first decade after the revolution was associated with a marked rise in the role of government in the economy and a dramatic decline in people's income. Eventually, in 1988, when per capita oil revenue had plunged to half a dollar per day and the government budget deficit had surpassed 50% of total expenditures [10], Iran accepted the United Nations proposal (UNSC Resolution 598) to end the war. The costs of war and heavy subsidies left behind a legacy of massive public debt from this time period.

After the economic contraction of wartime, in a move perceived as an economic U-turn, Rafsanjani adopted structural reforms that encompassed various degrees of price liberalization, exchange rate unification, industrial privatization, and a relaunch of the stock exchange market. Within the first few years of this period (also known as the reconstruction period), utilization of the unused production capacity [12] and increased public and private investments [13] helped the economy end its downward trend. The first domestic public bonds (*oragh-e-mosharekat*) after the revolution were issued in this period to finance a municipal project in Tehran. However, despite a modest initial success, the economy gradually moved into stagflation due in part to the maturity of foreign debts that were accumulated in the period, new US sanctions, falling oil prices, and a high rate of liquidity growth. Ultimately, when inflation approached 50% in 1995, the core policy changes (price liberalization and unification of exchange rate) were reversed to avoid social instability.

Khatami's presidency (1997–2005) started with widespread hopes for a change toward better governance. The beginning of this period coincided with the Asian contagion that caused oil prices to fall below \$10/barrel. However, from 1999 through the end of Khatami's presidency in 2005, the economy expanded steadily thanks to the reduction of tension with the West and the gradual rise of oil prices. Over this period, the real GDP per capita rose from \$1,200 to \$3,800 and inflation eased from 20% to 10% [10, 14]. The establishment of the Oil Stabilization Fund (OSF, *Hesab-e-Zakhire-Arzi*), reduction of government borrowing from the central bank, modest progress in privatization (including licensing private banks and private insurance companies), and unification of the exchange rate were among the important developments at this time.

The CBI and Banks' Claims, and Change of Public Debt from Banking System

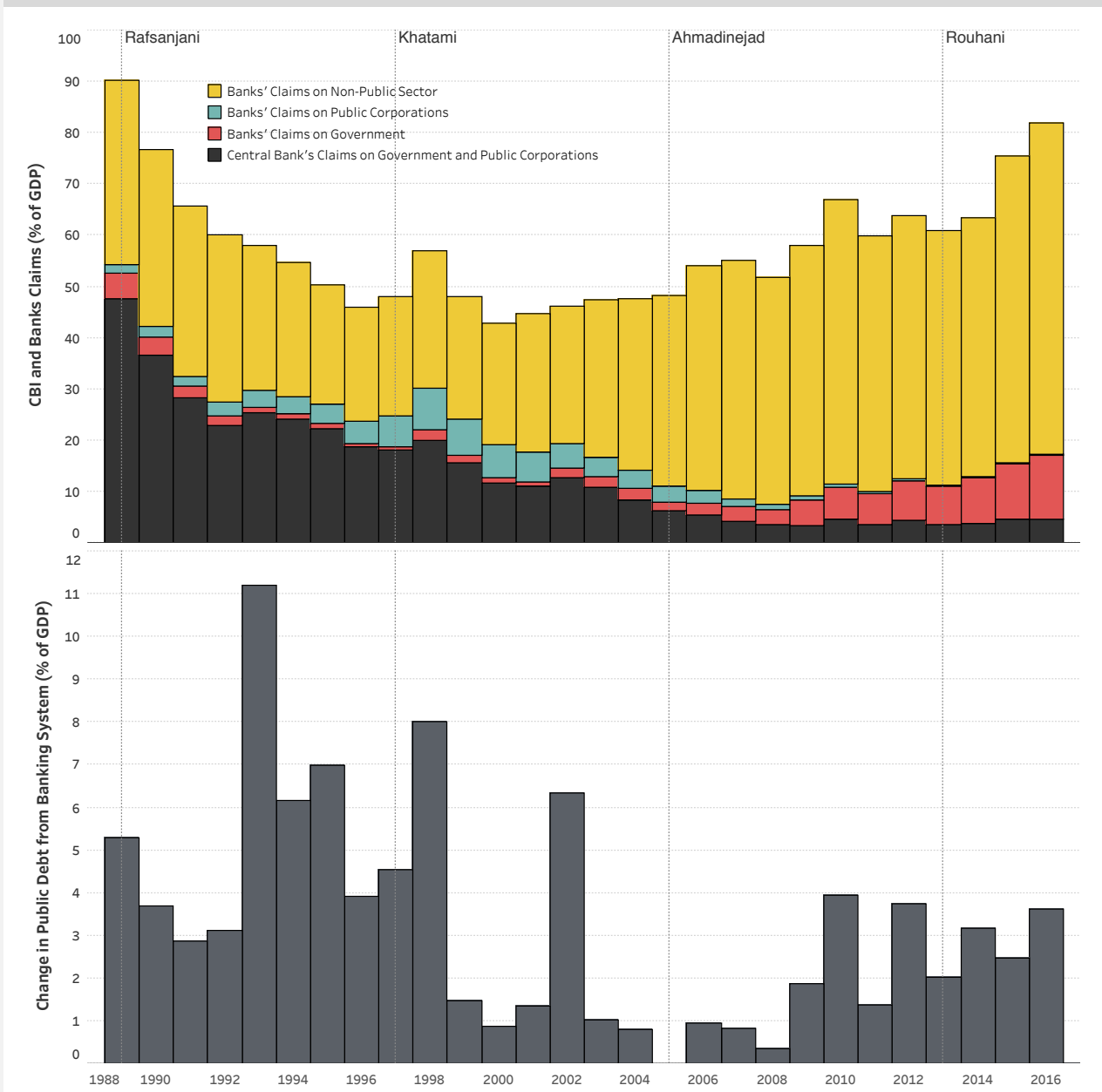
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Figure 2. The CBI and banks' claims (top panel) and increase of public debt from the banking system (bottom panel), both as percentages of GDP [10]. The sum of the CBI's and banks' claims on government and public corporations in the top panel corresponds to the cumulative public debt to the banking system relative the GDP.

With about \$700 billion in oil export proceeds [10], Ahmadinejad's presidency (2005–13) was arguably Iran's golden opportunity for economic growth and development. However, by the time Ahmadinejad left office in 2013, per-capita GDP and job numbers were the same as when he assumed office eight years earlier. Furthermore, the adverse implications of his populist policies have lasted well beyond his presidency, especially for the banking sector due to greatly increased bad loans and public debt (**Figure 2**). In addition to exhausting the large government

allowance from oil revenues, Ahmadinejad spent over \$140 billions of what was supposedly the intergenerational savings of the nation kept in the Oil Stabilization Fund and the National Development Fund of Iran (NDFI, *Sandogh-e-Tose'e Meli*). Enabled by the massive inflow of petrodollars, another significant development was the doubling of imports to control inflation.

One key policy change during Ahmadinejad's presidency was energy price reform, which also served as the precursor for the consequential cash transfer scheme. Soaring domestic consumption of liquid fuels along with rising oil prices increased the (implicit) government subsidies on gasoline and diesel from nearly \$7 billion in 2003 to over \$37 billion in 2008 (See **Appendix B**). The energy price reform that was implemented along with the fall of oil prices after the global financial crisis helped lower the effective subsidies of petroleum-derived fuels in 2009 and 2010. However, as early as 2011, depreciation of the rial in conjunction with the rise of global oil prices implicitly reversed the price changes, rendering the reform ineffective. The hasty and ill-designed direct cash transfer program—the twin sister of energy subsidies reform—initially helped the poor and lowered inequality. But it steadily lost its impact over time as the government failed to adjust the payments with inflation. Since the first payment in 2010, the purchasing power of the cash subsidies declined almost threefold.

Besides direct cash payments, Ahmadinejad implemented other seemingly poverty relief programs such as handing out shares of government-owned corporations to low-income households (*Saham-e-Edalat*), providing affordable housing for poor families (*Maskan-e-Mehr*), and supporting small enterprises and short-term projects (*Tarh-e-Bongahhaye-Zood-Bazdeh*). Poor planning and endemic corruption, along with the sheer size of these schemes, turned these ill-designed programs into some of Iran's most consequential failures of recent decades. Instead of taking corrective action, the government turned to the banking system for rescue and, as such, during Ahmadinejad's presidency, the banks' claims on the government increased from 1.7% to 7.8% of GDP [10] (**Figure 2**). The directed lending to the government and government-owned corporations gave rise to a massive build-up of frozen assets in the banks' balance sheets, which in turn left them with no choice but to borrow heavily from the central bank. As a result of these developments, the landscape of Iran's financial sector underwent profound changes with far-reaching consequences for the wider economy. With impaired balance sheets due to rising non-performing loans (NPLs) and contraction of cash flow-generating assets, the banks started to compete to attract more deposits to fill the holes in their balance sheets. At the same time, the Non-Bank Financial Institutions (NBFIs)—which faced overly relaxed supervision from the central bank—started to mushroom into the financial sector, raising the liquidity demand in the system and pushing up the deposit interest rates. With higher interest rates, the cost of borrowing in the real sector increased and thereby put additional pressures on the banks' balance sheets, which soon resulted in a vicious cycle of higher interest rates and accumulation of NPLs. In the meantime, the sanctions of 2012—which, among other provisions, directly targeted the CBI and major banks—accelerated the downward trend of the financial system.

During Ahmadinejad's last year in office, the economy entered full-fledged stagflation. Economic activities plunged, the rial depreciated to half its value, and inflation rose to about 40%—a rate which had not been seen in two decades.

When Rouhani took office in 2013, the economy had already contracted by 8% in real terms and by 34% in dollar terms compared to 2011. Stagflation, along with large amounts of toxic assets, had brought the banking system to the verge of a major crisis. While crude oil exports were already cut by half because of the sanctions, the fall of oil prices further reduced Iran's oil export revenue to about a quarter of its pre-sanctions level. It was under these circumstances that Iran signed the Joint Comprehensive Plan of Action (JCPOA) in July 2015. In parallel, high interest rates along with what was seen as a better outlook for the economy helped ease inflation from 35% in 2013 to about 10% in 2015. After the implementation of the JCPOA in January 2016, economic growth started to rise from deep negative rates, largely due to the increase in oil exports. However, similar to his predecessors, Rouhani failed to implement deep structural reforms and, perhaps naively, assumed that the nuclear deal would suffice to foster the country's economic growth and alleviate unemployment.

Today, after decades of insufficient and non-inclusive economic growth, the signs of stress in the Iranian economy are multiplying. Of the twenty-six million people in the labor market, upwards of three million, mostly young and highly educated, are not only unemployed but becoming unemployable. Severe water scarcity has become the new norm, suggesting that the output from the agriculture sector will shrink in the future. Hence, food security for the country's large and growing population can no longer be taken for granted. Crude oil production has already reached its levels before the nuclear sanctions. In the absence of large investments and use of advanced extraction technologies, significant production growth in the short to mid-term seems unlikely [15]. Despite taking draconian import control measures to push the country's import substitution agenda toward industrialization, the manufacturing and industrial sectors have struggled to find a way to incentivize innovation and attract private investments. These sectors thereby become trapped in a prolonged period of poor productivity, which has eliminated their competitive advantage. Given Iran's chronic shortage of capital and lack of access to advanced technologies and management skills, foreign direct investments (FDI) could have played a prominent role in advancing the economy. However, besides the mismanagement of existing resources in the country, irresponsible political decisions of the past decades have prevented Iran from attracting FDI to the extent that corresponds to the country's intrinsic potentials. As a result, Iran has failed to capitalize on the advantage of its low labor costs in the global market.

On the financial front, bouts of instability—which have reached a historically unprecedented level—are making the underpinnings of the economy increasingly fragile. The financial sector is heading for a twin crisis where the overall stability of the banking system and the value of currency can both plunge suddenly. High positive real interest rates have dampened investment for a prolonged period, while—considering the sluggish realities of the real sector—private

savings will be channeled to the currency market (hence depreciating the rial and accelerating capital flight) should the interest rates be reduced. The banking system—with enormous amounts of non-income-generating assets such as NPLs—has essentially turned into a country-wide Ponzi scheme, with growing pressure on the balance sheets. Another looming challenge facing the economy is the pension funds crisis. While Iran is still in the midst of its demographic window of opportunity when the ratio of the working age population to elderly is high [16], some of the country's largest pension funds are already becoming insolvent. As large cohorts of the population approach retirement age, the country's pension time bomb not only will erode the economic well-being of vulnerable pensioners but also will leave no fiscal space for capital expenditure in the future.

In the absence of a prompt and determined policy response, these crises are likely to be compounded in an accelerating manner. The first step to shore-up the crisis is to implement structural reforms in the financial system, starting from the central bank and government financing. The next section discusses this issue in more detail.

2. Central Bank Structure and Performance

In this section, we first discuss the existing structure and institutional set-up of the CBI and subsequently evaluate its performance over the past few decades. A central bank's primary goal, according to decades-long international consensus, is to ensure price and financial stability, to which other goals should be subordinated. In fact, price and financial stability perhaps constitutes the only promise that central banks can deliver in the long run [17]. As such, we only assess the performance of the CBI with regard to achieving these goals while acknowledging that the CBI was also assigned other goals that under specific conditions might have been inconsistent with the price stability goal.

Structure of the CBI

Interaction between fiscal and monetary policy, the Islamic finance framework, and institutional governance are the key elements pertinent to the performance of Iran's central bank.

As discussed earlier, the government of Iran has chronically run significant fiscal deficits over the past four decades. With limited access to international financial markets and an underdeveloped domestic financial sector, the government has always tapped into the domestic banking system and the NDFI for financing the budget deficit (**Figure 2**). The fiscal dominance has resulted in the loss of central bank control over its balance sheet and impaired its ability to carry out an effective monetary policy. In an attempt to address this issue, legislation was passed in the early 2000s to ban the government from financing the deficit through seigniorage (borrowing directly from the central bank). However, before long, the reform proved unviable as the government was (and still is) permitted to borrow from the state-owned banks—an act with an indirect but equally harmful impact on the CBI's balance sheet. The composition of the CBI's

balance sheet (**Figure 3**) is also affected through the purchase of government petrodollars. To keep the balance sheet intact, the CBI has to go through a full sterilization process by which oil dollars are exchanged for rial in the foreign exchange market (from M2, i.e., sum of currency, demand deposits, and time deposits).

Analytical Central Bank Balance Sheet		Stanford Iran 2040 Project iranian-studies.stanford.edu/iran2040
Assets	Liabilities	
Net Foreign Assets	Currency in Circulation	
Net Claims on Public Sector	Bank Required Reserves	
Claims on Banks		
Other Items Net	Bank Excess Reserves	

Figure 3. Analytical central bank balance sheet. Over the past decades, due to the persistent depreciation of the rial, the value of the *other items net* in Iran has mostly been in the negative zone.

Another pivotal feature pertinent to the CBI performance is the role that Islamic finance principles play where they have created a strong linkage between the real and financial sectors—causing risk spillover between the two sectors and adding to the vulnerability of the economy as a whole. Also, the Islamic finance framework has created a complex and burdensome environment for the government to issue public debt with suppressive impacts on the development of financial markets. Hence, the CBI has been deprived of open market operation tools. Moreover, the impact of the Islamic finance framework extends to other monetary tools such as the discount window, repurchase agreements (repos), reverse repos, and interest rates on excess reserves, as they are not seen as compliant with Sharia law. As such, the CBI ought to utilize more direct instruments (e.g., statutory determination of the profit rate and credit rationing), which are known to distort resource allocation. Furthermore, the contractual nature of Islamic banking undermines the central bank potential for supervision, adding to the risks of an already troubled banking system.

Type	Instrument	Remarks
Direct	Banking profit rates	Determination of profit rate or expected rate of return on banking facilities and the minimum and maximum profit rates or expected rate of return for investment projects, partnerships, and other facilities
	Credit ceiling	Limiting banks, specifying the mechanisms for use of funds and determining the ceiling of loans and credits in each sector
Indirect	Required reserve ratio	Determination of required reserve ratio (typically within 10% to 30%) depending on banks' liabilities' composition and field of activity
	Open market operations	Utilization of participation papers and investors' partnership in economic activities and payment of profit upon the approval of the Parliament
	Open deposit account	Absorbing the bank's excess resources in a special deposit account and paying profit to these deposits on the basis of specific rules

Table 1. Summary of monetary policy tools available to the central bank in Iran [18].

Another consequential factor in central bank performance is the quality of its governance. Independence, transparency, and accountability are considered the three pillars of good governance for modern central banking. While many central banks around the world—from both economically advanced and developing countries—have already been granted more independence and autonomy to protect the long-term interests of their nations against the demands of short-sighted politicians, no change with this regard has occurred in Iran as the CBI can neither independently set monetary policy goals nor conduct monetary policy. In practice, the appointment and removal of CBI's governors have been based solely on the discretion of the government which almost never makes meaningful efforts to justify such decisions to the wider public. As such, the central bank in Iran has chronically served as a quasi-fiscal arm to finance the unsustainable policies of different governments while simply overlooking its primary task of ensuring price stability. In addition, the members of the Money and Credit Council (MCC, *Shoraye-Pool-va-E'tebar*), the highest authority for setting monetary policy, are appointed based on their official positions and not for their professional expertise and merits. While certain benefits can be obtained from some level of coordination between the MCC and the government, the heavy presence of government officials among the MCC members not only has undermined the independence of the CBI but has routinely created a conflict of interest.

Today, communication with the public and transparency in design and implementation of monetary policy play a key role in the basket of tools that central banks use to influence

expectations. However, the CBI has failed to effectively communicate with stakeholders and has persistently surprised the public, leading to uncertainty among market participants and hence suboptimal outcomes. Lack of transparency has severely damaged the reputation of the central bank, resulting in public mistrust of central bank policies.

Price Stability and Money Growth

Despite the substantial progress that central banks around the world have made to keep inflation in a desirable range (2–4%), Iran has persistently experienced high (average 20%) and volatile (STDev 9%) inflation over the past three decades. High inflation is known to discourage investment, stimulate capital flight, distort income distribution, and make long-term decision-making by economic agents challenging. In the late 1970s and 1980s, high inflation was a matter of daily life in many countries. However, in the late 1980s and early 1990s, switching from quantitative measures and currency pegging to directly targeting inflation through interest rates allowed many countries to overcome their persistently high inflation. Today, only about twenty countries around the world have two-digit inflation rates, with half a dozen of them dealing with inflation of 20% or higher [11].

The structure of CBI's assets and liabilities (**Figure 3**) provides important insights into the dynamics of monetary policy in Iran. The expansion of the CBI's balance sheet can be primarily attributed to the budget deficit and, to a lesser degree, to the partial sterilization of oil revenue (**Figure 4**). In rough terms, this expansion can be attributed to direct financing of the government deficit (Rafsanjani's two terms and Khatami's first term), an increase in oil revenues (Khatami's second term and Ahmadinejad's first term), and financing of the government deficit indirectly through state-owned commercial banks (Ahmadinejad's second term and both of Rouhani's terms). As discussed in the previous section, since the early 2000s, there has been a shift in the source of government budget financing from the central bank to commercial banks, which consequently reduced CBI's claims on government and expanded its claims on banks (**Figure 4**). Therefore, the shift in the source of government financing has not mitigated its adverse impact on high-powered money.

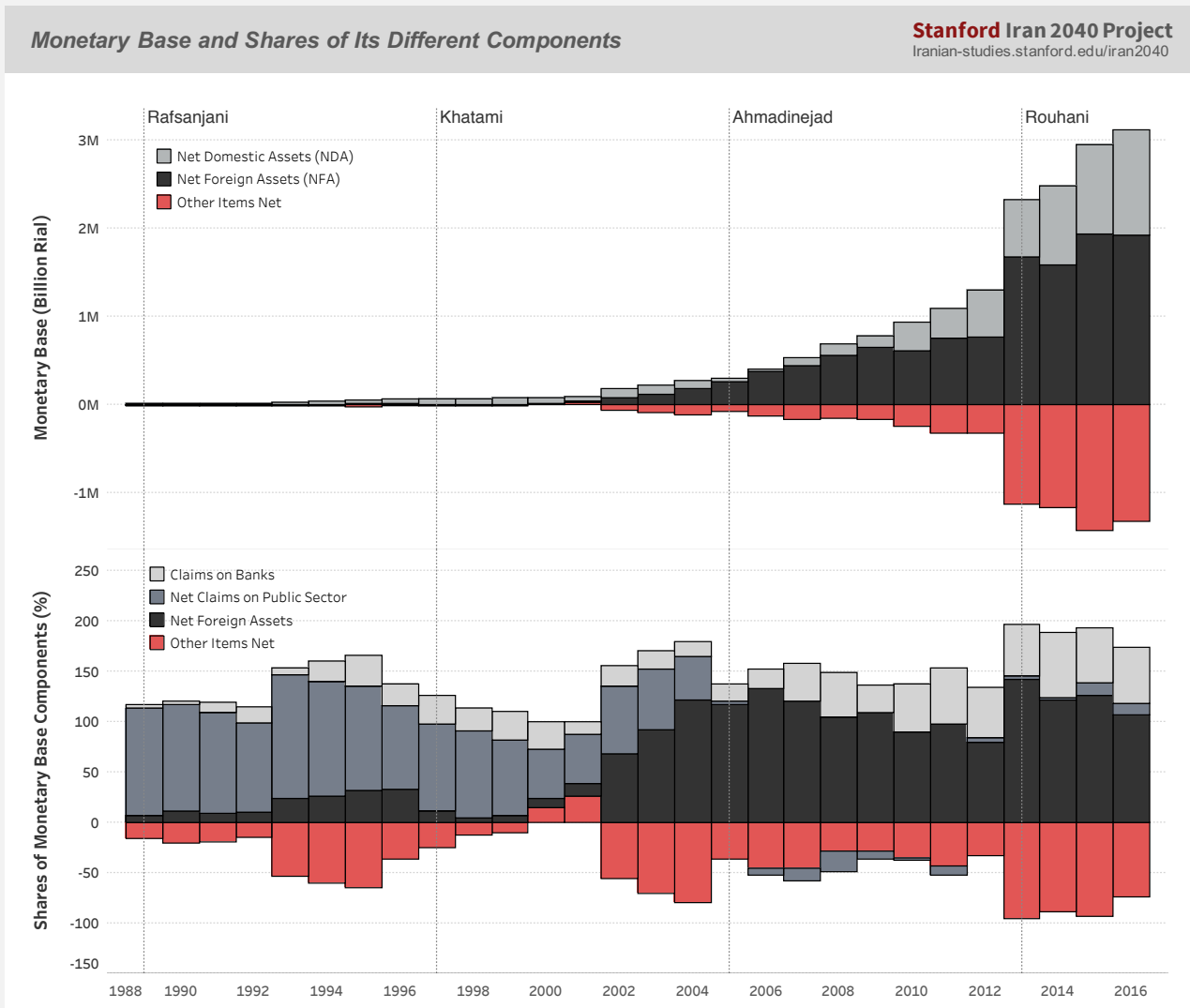


Figure 4. Trends in the size of monetary base (top graph) and shares of its different components (bottom graph) [10].

Over the past three decades, the amount of liquidity (M2) in Iran has expanded at a very high rate (an average of 27% per year) and a small relative variability (STDev 6.5%) (**Figure 5**). As expected from the quantitative theory of money [19], in the absence of permanent non-monetary shocks, inflation in the long run is highly correlated with liquidity growth but inflation dynamics in the short-term, as shown in **Figure 5**, are more strongly correlated with changes in the monetary base. In addition, the real interest rate and currency exchange rate also affected inflation by changing the velocity of money and the prices of imported goods, respectively (**Figures 6–8**).

During the '90s, inflation was closely correlated with the growth rates of both the monetary base and liquidity. In this period, the real interest rate was predominantly in deep negative levels and the velocity of money (ratio of nominal GDP to liquidity) was on the rise. Subsequently, the relatively high economic growth rates of the 2000s in conjunction with the positive real interest rates (hence lower velocity) pushed inflation down and disconnected it from the rising liquidity

growth rates. Between 2011 and 2014, despite a closer correlation between liquidity growth and inflation, the significant contraction in the level of economic activities, which was further helped by the very high real interest rate in 2014, substantially reduced the velocity of M2 money stock. Between 2015 and the end of 2017, very high real interest rates—along with relative stability in the currency exchange market—made time deposits, by a large margin, the most attractive option for private funds, pushing M2 money velocity to unprecedented low levels. The current lower-than-unity velocity of money means that, on average, each unit of money is not even fully transacted in the real sector for one time. Today, monetary policy in Iran transmits through the economy by the interest rate that prevails in the market rather than by the sizes of different monetary aggregates. Between 2000 and 2017, the growth rate of liquidity (M2), on average, has been almost three times higher than that of the nominal GDP. Ultimately, the discrepancy between nominal GDP and liquidity will be balanced by inflation and/or loss in bank assets.

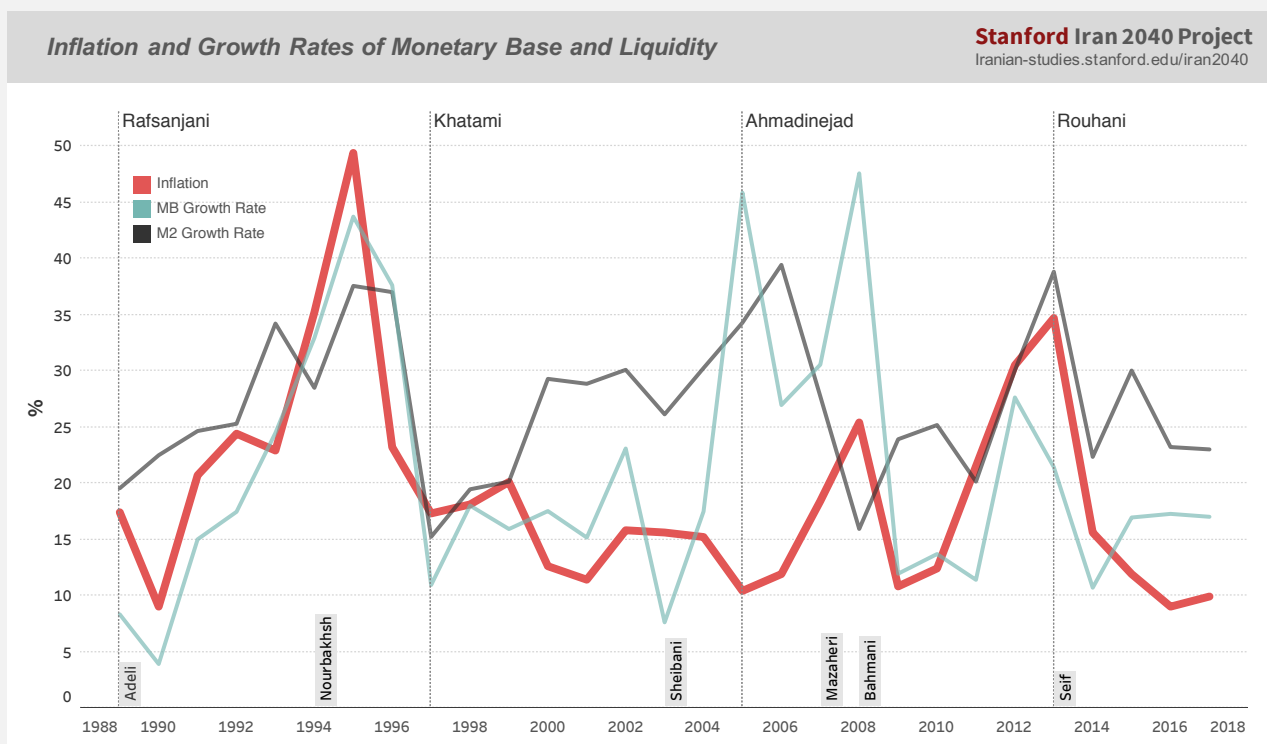


Figure 5. Trends in inflation and growth rates of monetary base (MB) and liquidity (M2) [10].

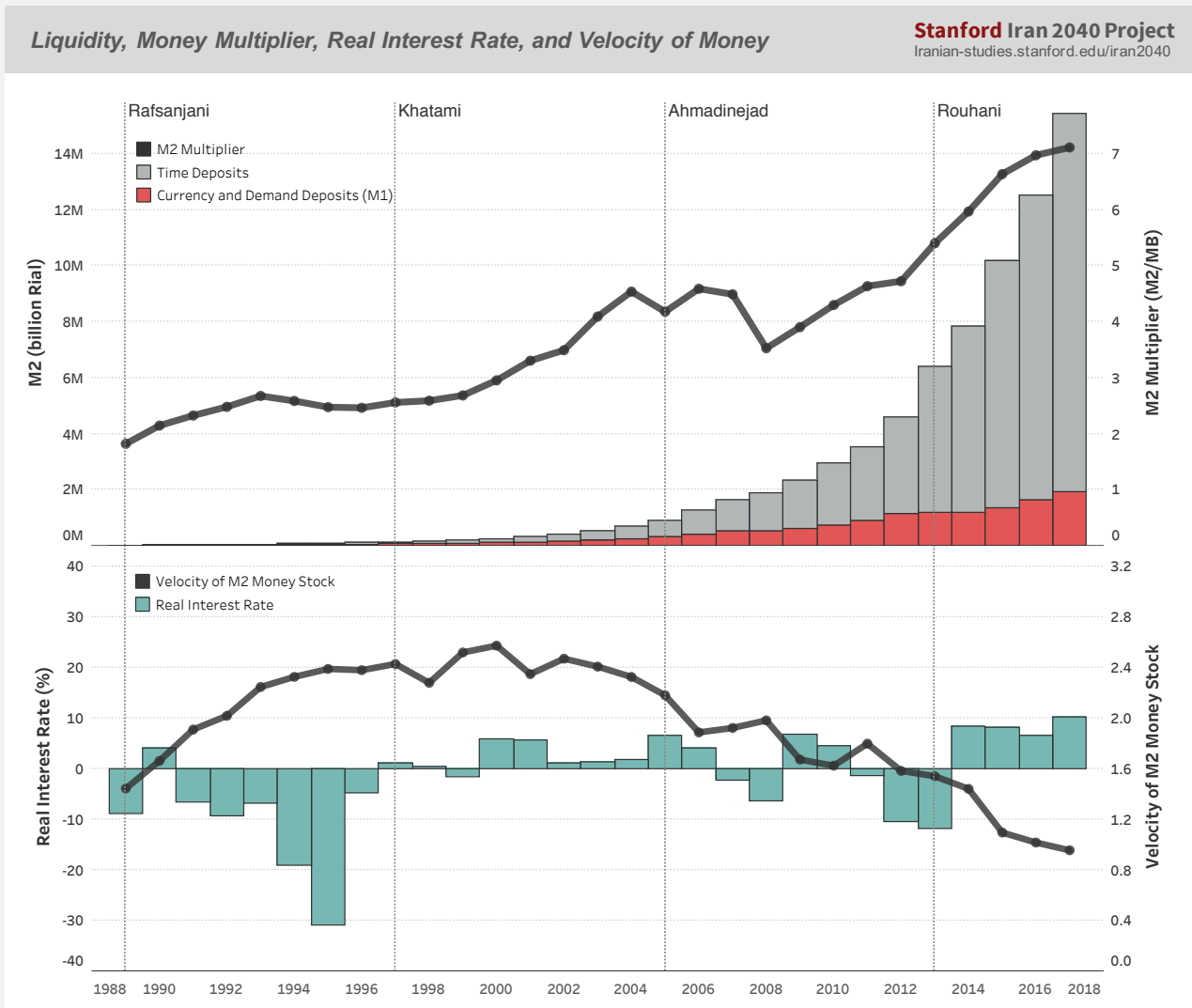


Figure 6. Trends in liquidity (M2) components and money multiplier (top panel) and real interest rate and velocity of M2 money stock (bottom panel) [10]. The velocity of M2 money stock was calculated as the ratio of nominal GDP to liquidity (M2). The real interest rate was calculated by subtracting inflation from the average nominal interest rate on one-year deposits.

Exchange Rate and Balance of Payments

Analogous to the central banks of several other large commodity exporters (for example, OPEC members [20]), the Central Bank of Iran has historically used the exchange rate as a nominal anchor to control inflation. The extent to which the CBI can effectively utilize the exchange rate for this purpose depends on its stock of foreign assets and amount of imports.

Over the past three decades, on average, the values of Iran's exports and imports of goods and services (**Figure 7**) were equal to 20% and 19% of its GDP, respectively [10]. During this time, the export of crude oil constituted 66% (\$1.2 trillion) of the total exports (\$1.7 trillion), although its share of total exports has declined over time [10]. In the '90s, gross international reserves (GIR) were persistently below \$10 billion before starting to rise at an average rate of \$6 billion per year

to reach \$125 billion in 2015, thanks to the rise in export revenues of crude oil, natural gas liquids (NGL), and petrochemicals. However, since 2015, and despite maintaining a surplus in the current account, the GIR has decreased due to rising capital and financial account outflows, including considerable central bank intervention in the currency market to curb the rial's depreciation rate.

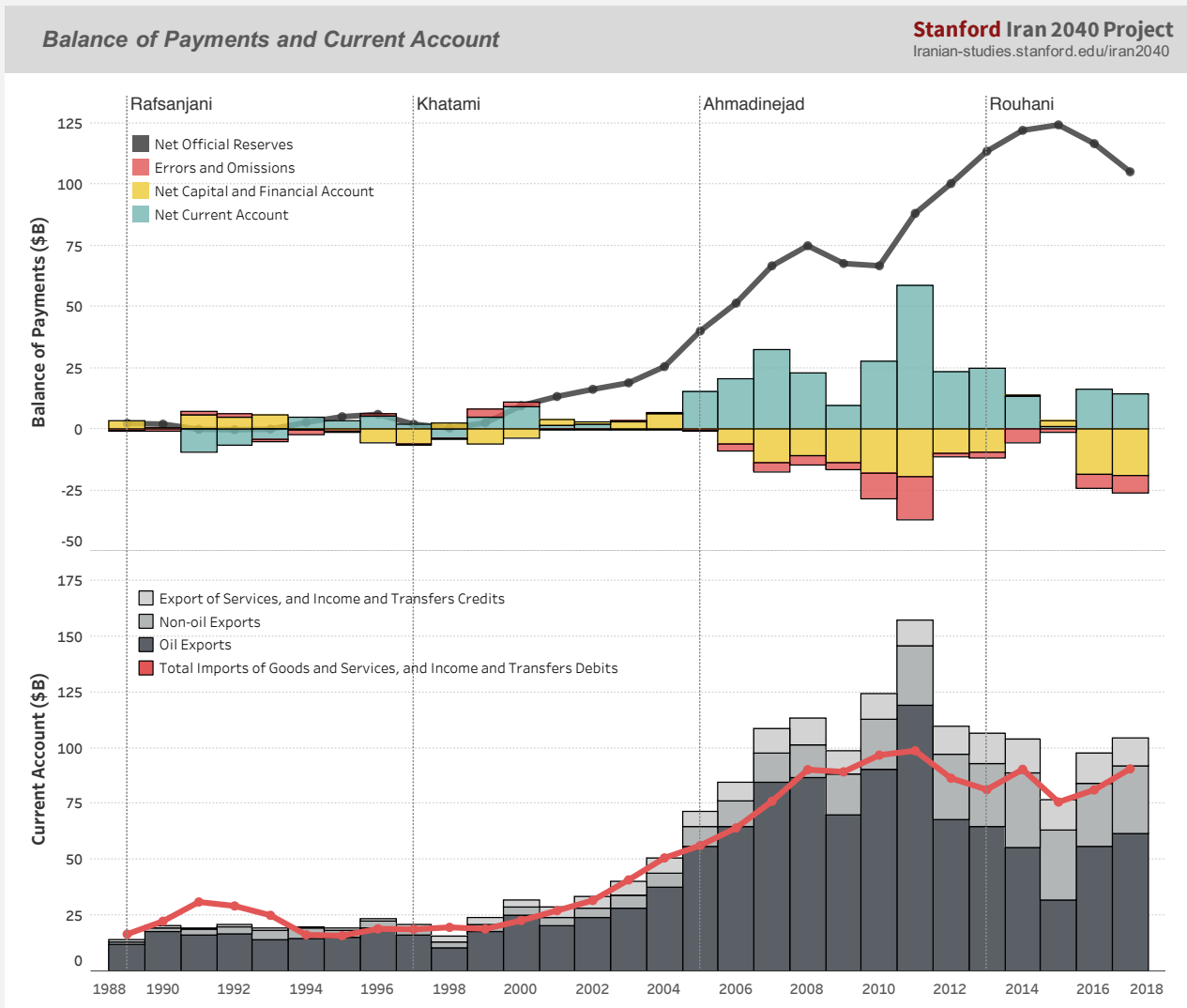


Figure 7. Balance of payments (gross international reserves, net current balance, net capital and financial balance, and errors and omissions) (top panel), and current account (bottom panel) [10].

For decades, the *de jure* exchange rate regime of Iran has been managed floating while the *de facto* policy was a fixed exchange rate (2002–2010) and soft peg (crawl-like arrangement) (2010–present) with an anchor to a composite currency [20]. As a general rule, fundamental negative market pressure on a currency would reduce private wealth (depreciation of local currency) or public wealth (reduction of a central bank's foreign reserves), or a mix of both. For a country like Iran that does not formally practice currency peg, the extent to which currency market forces are

systematically absorbed by the central bank's foreign assets rather than reflecting themselves in the exchange rate is what is commonly referred to as the central bank's *fear of floating*.

Another important characteristic of Iran's currency exchange policy has been its multiple currency practices (MCP) (**Figure 8**) and various forms of restrictive measures on imports. Different exchange rates were used to prioritize the import of essential goods (e.g., staple foods) and to push the government's import substitution agenda that was seen as a critical component of Iran's industrialization process. For example, the official exchange rate (*rasmi*) was designated for the import of essential goods, competitive (*reghabati*) and preferential (*tarjihhi*) for the import of specific goods, and floating (*azad*) for other goods [21, 22]. The first plan to unify multiple exchange rates in Iran after the revolution materialized in 1993 but was abandoned in the same year in the midst of the foreign debt crisis and high inflation (**Figure 5**). The second attempt to phase out MCP took place in 2002 amid more favorable economic conditions. However, on the first decennial anniversary of the reform, the central bank once again returned to the multiple exchange rate practice and stayed with it until now. More recently, the CBI has used various measures to stabilize the exchange rate in the market. However, these attempts, which include an extremely strict form of capital controls, have not been successful and the exchange rate market has experienced its most turbulent episodes in decades. The multiple exchange rate regime of the past few decades not only has resulted in suboptimal allocation of Iran's scarce resources but also has allowed for the growth of powerful rent-seeking groups and corruption.

Since 1989, the rial has depreciated at an average annual rate of 18% as shown in **Figure 8**. The depreciation has occurred in both forms of crawling (2002–2010) and bouts (2012 and 2018), the latter of which could possibly be attributed to speculative attacks. Today, the net foreign assets of the CBI (\$55 billion at the end of 2017) are at their lowest within the past ten years (**Figure 8**). With increasing private savings, the central bank reserves are in a more vulnerable position once these savings leave bank deposits to buy foreign currencies. This points to the diminishing power of the CBI to influence the currency market which would in turn adversely affect the effectiveness of the CBI's de facto currency peg in the future.

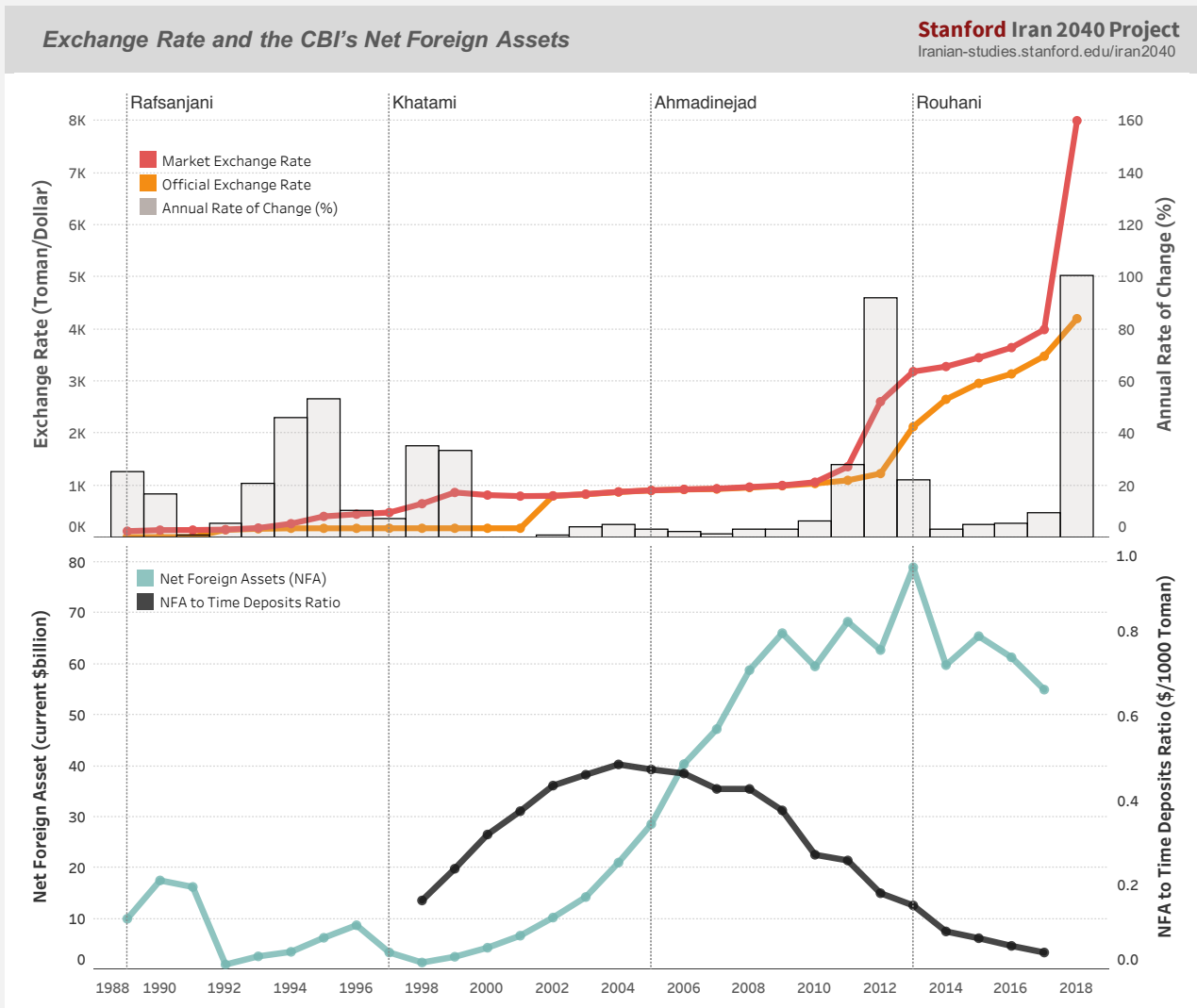


Figure 8. Nominal official and market exchange rates of dollar, and rial annual depreciation rate (top panel), and trends of the CBI's net foreign assets and its ratio to banks' time deposits (bottom panel).

Besides the exchange rate premium of the free market rate over the official rate as shown in **Figure 8**, relative movements in the exchange rate and domestic prices can also provide important insights into the extent of disequilibrium in the foreign exchange market. To this end, the nominal effective exchange rate (NEER) and real effective exchange rate (REER) indices of Iran, both normalized by their respective values in 1989, are depicted in **Figure 9**. NEER is a weighted average of indexed nominal bilateral rates which gives the price of the rial in terms of Iran's trading-partner currencies, whereas REER is obtained by adjusting NEER to take into account relative price indices. As this figure shows, Iran experienced a large decline in its REER in the ensuing years of war and reached its bottom in 1993 when the country underwent an external debt crisis. The next downward correction of REER occurred with the implementation of the exchange rate unification plan in 2002. After that, with the oil boom as its main driver, the REER almost monotonically increased until 2012 when sanctions triggered a bout of rial depreciation. Today, the REER in Iran stands close to its value a decade ago when, contrary to

now, the stock of the country's international reserve was on the rise.

An overvalued nominal exchange rate along with high domestic inflation and relatively low inflation among Iran's major trading partners (China, UAE, and Europe) has led to an appreciation of the REER, which was estimated to be overvalued by 12–16% in 2017 [23]. The overvaluation of the rial has reduced the competitive advantage of Iran's domestic products, thus hindering their export and hurting resource allocation. In fact, this is a classic example of the Dutch disease where the non-oil tradable sector of the country suffers from an overvalued exchange and cheap imports while inflation in the non-tradable sector rises. Saving the oil revenue would help mitigate the negative impacts of foreign currency inflows (the Dutch disease).

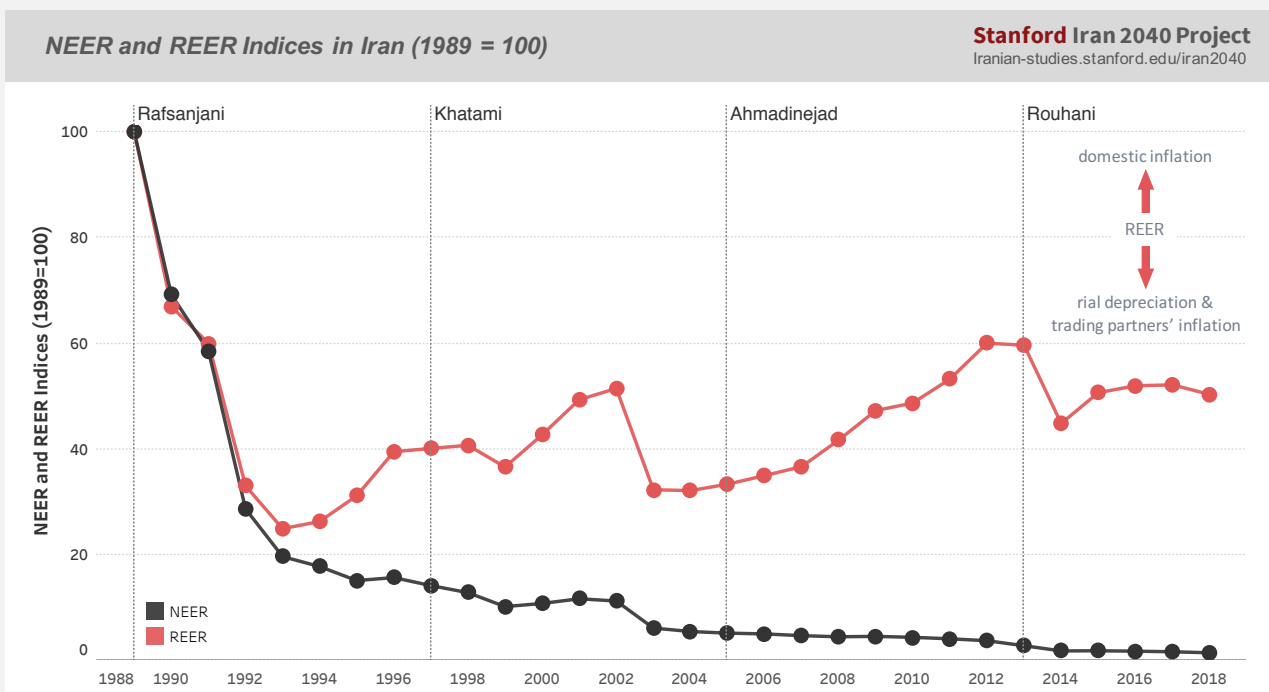


Figure 9. Trends in nominal effective exchange rate and real effective exchange rate in Iran indices (1989 = 100) based on consumer price index (CPI). Data obtained from reference [11] and modified to account for multiple currency rates used for imports between 1994 and 2001 before the second exchange rate unification in 2002.

The recent developments in the foreign exchange market clearly demonstrate the confusion and the lack of coherent policy actions by the CBI. It abandoned the official multiple currency arrangement but failed to maintain a unified rate in the foreign exchange-starved market. The CBI stubbornly tries to defend an unsustainable fixed exchange rate regime. While the flexible exchange rate setup could serve the country better and provide a natural cushion for external shocks, the CBI continues to follow the failed steps of the past, which will result in the loss of the country's foreign reserves.

Financial Stability

In addition to securing price stability, the CBI is responsible for the overall stability of the banking system. As such, the CBI is expected to set and enforce prudential regulations of banks and routinely update them in accordance with the best international standards. In this section, we provide an assessment of the CBI's performance in regard to its role in safeguarding the stability of the banking system.

The banking system in Iran is faced with multiple intertwined crises that have brought the country's financial sector to the verge of a major collapse. In fact, it is now plausible that the consequences of previous irresponsible actions and economic misconduct, which have thus far been limited to low output growth, will morph into a full-fledged financial crisis that would, in turn, result in a significant loss of output and employment. The root cause of problems in the banking system in Iran has some elements from fiscal dominance, institutional weakness of the CBI, endemic corruption, and general misconduct in the banking system itself.

Figure 10 delineates the extent to which some of the key financial soundness indicators (FSI) of the Iranian banks have changed between 2005 and 2017. These indicators include capital adequacy ratio (CAR), the NPL ratio, banks' claims on government, and banks' debts to the CBI, to the total loans, and the return on assets (ROA). The considered range for all indicators was 0–15%, except for the ROA, for which a range of 0–1% was considered. The chart was created such that, regardless of the variable, the center represents the desirable side of the range and the outmost layer represents the undesirable side. The figure depicts a marked deterioration of the banking sector's health in terms of accumulation of non-income-generating assets (NPLs and claims on government), build-up of debt to the central bank, decline in banks' ability to absorb losses (CAR), and lower profitability (ROA).

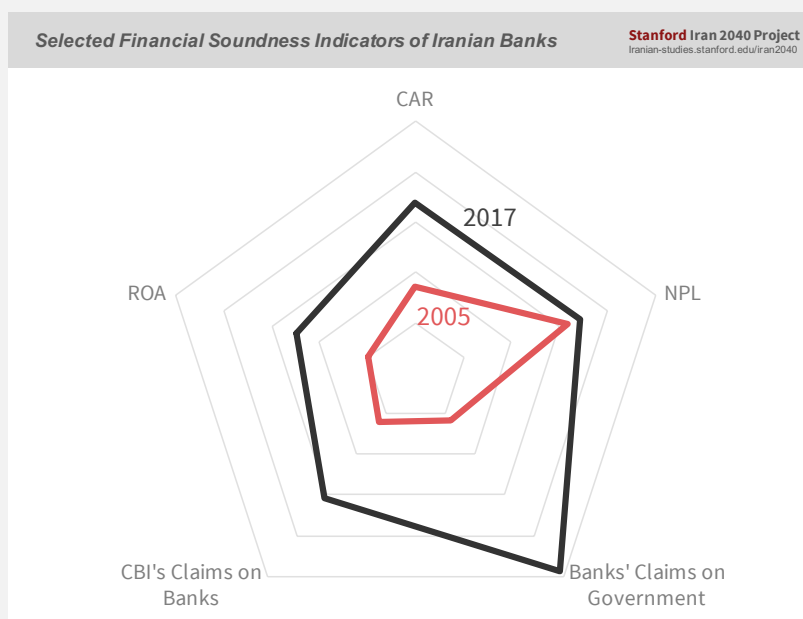


Figure 10. Comparison of selected financial soundness indicators of Iranian banks in 2005 and 2017. For all variables, the center represents the desirable side of the range and the outmost layer represents the undesirable side [10, 23, 24].

Cash flow problems and inadequate capital constitute two of the more pressing issues facing Iran's banking system. The cash flow problem is a consequence of high interest rates and the accumulation of non-income-generating assets, which itself is caused by i) massive government debts (directed lending), ii) overvalued and illiquid fixed assets due to speculative investments in real estate during a bubble, and iii) large amounts of non-performing loans. The underlying reasons for the latter issue are poor credit assessments, nepotism based on political affiliation, and moral hazard behavior in projects guaranteed by the government [25]. In addition to all these, high interest rates and economic conditions—such as fluctuations in inflation, recession, and sanctions in recent years—exacerbated the problems and made the repayment of debt more difficult. Based on conservative official estimates, the total amount of banks' NPLs has exceeded 1,300 trillion rial (roughly \$30 billion), which corresponds to about 9% of the GDP. It is important to note that these estimates of NPLs exclude the rolled over loans which comprise a significant portion of the fresh loans. In the absence of effective supervision by the central bank, these problems, although somewhat masked by liquidity growth, were hidden for a long time. In fact, by using complex and convoluted accounting tricks, the banks were able to roll over toxic assets and register them as fresh loans, thus allowing the banks to book interest income, pay dividends to shareholders, and give lucrative bonuses to managers.

To avoid liquidity risk, the banks offered high interest rates on deposits to absorb more resources. While a sizable portion of banks' assets were unable to generate revenue, paying high interest rates on the liability side amplified their cash flow problems and balance sheet imbalances. In addition, with the increasing penetration of unregulated credit institutions (*Moasesat-e-E'tebari*) free to offer higher interest rates, competition to attract new deposits led to a price war and a Ponzi scheme. Meanwhile, with higher interest rates, the cost of borrowing in the real sector increased and, through the adverse selection effect, put more pressure on the banks' balance sheets [26]. This situation resulted in a downward spiral of higher interest rates and a further rise of NPLs. Increasing the relative size of banks was perceived as a protection against bankruptcy (by becoming too big to fail). Indeed, many banks have received uncollateralized supports from the central bank. In the last decade, the CBI claims on banks have increased on average by 13% per year, placing it as the main driver of the monetary base growth. Given that the banks' debt to the CBI (9.2% of total loans) is approaching their required reserves with the CBI (11.6% of total loans) further liquidity injection through a reduction in the reserve requirement is practically infeasible.

At the same time, an unleashed growth rate of liquidity (M2) led to an expansion of banks' size without a corresponding increase in their required capital, causing the capital adequacy ratio in the banking system to reach an unprecedented low level of less than 5%, which is far below the Basel II and Basel III international standards that recommend minimum CAR levels of 8% and

10.5%, respectively. The accumulation of NPLs along with insufficient capital is a precursor for bank failure which can then trigger a financial crisis (e.g., the financial crises in East Asia and sub-Saharan African countries and the global financial crisis of 2008) [27]. Today, the real net capital position of the banks in Iran, on average, is effectively negative.

Further, an outdated accounting system, far from the rules of the International Financial Reporting System (IFRS), has exacerbated the challenges in banks' balance sheets and masked the very issues that need to be addressed by the CBI. Reporting and monitoring of financial soundness indicators have been limited and the CBI has failed to report problems and alert banks and other stakeholders that they need to manage the issues in a timely manner.

Impairments in the banks' balance sheets affect not only the banks' risk management performance and their operating profitability, but also their connections with the international banking system. Avoidance of IFRS standards came at the expense of the banks' disconnecting with their international counterparts. However, due to the overwhelming role of banks in Iran's financial market, it is the real sector that ultimately shoulders the burden, as it is highly dependent on bank credit (upwards of 90% of corporates' external finance [28]). Despite a rapid growth in broad money supply, the real sector has consistently faced liquidity and cash flow problems. A recent study estimated that over 80% of companies listed on the Tehran Stock Exchange face credit constraints [29].

The reaction of the CBI to the abovementioned issues in the banking system so far was limited to attempts to play a more effective role in the interbank market, prohibit dividend distribution in loss-making banks, and push for more transparency and compliance with the Anti-Money Laundering (AML) and Combating the Financing of Terrorism (CFT) frameworks. However, these efforts could well prove to be too little, too late in the not-too-distant future. In fact, without decisive and immediate reform actions, a banking crisis in Iran is very likely. If this happens, such a crisis will likely have far-reaching effects in the economy, such as low credit and GDP growth [30]. Historical data indicate that the GDPs of countries that experience a major banking crisis collapse significantly and it often takes a long time for the output to recover to its pre-crisis levels. Further, banking crises have relatively larger real effects in developing countries due to less developed bond and equity markets and difficulty in providing support for troubled banks [31]. Given the devastating socioeconomic costs associated with a banking crisis in bank-based financial markets such as Iran's, it is of vital importance for the CBI and other authorities to embark on a comprehensive set of decisive reforms regardless of the resistance that will likely be exerted by banks and other interest groups.

3. The Desirable Way Forward

Major structural and operational reforms are needed in order to restore the ability of the CBI to conduct effective monetary policy. First and foremost, the issues of chronic fiscal dominance and massive public debt need to be addressed as sound public finance is a decisive prerequisite for monetary policy. To this end, current government debt should be securitized to generate cash flow for the banks to mitigate their liquidity problems and provide opportunities for investment. This will provide banks with collaterals in the interbank market and enable the CBI to effectively conduct open market operations.

One can infer from the historical monetary data presented earlier that high inflation—as long as it would not have seemed to provoke social unrest—has persistently been of little concern to both the legislative and executive branches of the Iranian government. In fact, a prolonged period of fiscal dominance has inverted the traditional roles of the fiscal and monetary policies: inflation has been predominantly determined by the decisions made in the fiscal domain while economic growth and government solvency have been among the top priorities of monetary policy. In fact, by reducing the debt in real terms, high inflation has consistently benefited the country's major debtors to the banking system (the government itself and a small group of privileged people). Given the sizable portion of non-productive expenditures in the budget as well as the potential for higher public revenue by taxing *bonyads* which have been tax-exempt since their inceptions, even a substantial cut in the fiscal deficit could potentially be benign to the provision of public goods and services in the future. However, it is clear that any meaningful change in this realm will require a wide consensus among various political players whose short-term interests are in fact the reason why such reforms have been politically infeasible thus far.

Financial Reforms

In addition to much-needed fiscal reforms, Iran should embark on a number of fundamental reforms in the structure, governance, and operation of the central bank to avoid a similar catastrophic outcome from monetary policy in the future. These reforms can be broadly categorized into those that (a) target the objectives of the CBI, (b) improve the governance of the central bank, (c) create more effective tools for implementing monetary policy, and (d) enhance bank supervision.

As discussed earlier, the CBI is currently overburdened with multiple objectives—some of which are not only unattainable in the long run but are also inconsistent with each other under specific conditions. Rather, the CBI should make price stability the primary objective of the country's monetary policy, to which all other objectives would be subordinated. The CBI operation should also ensure financial stability as long as it does not contradict its primary objective of price stability in the long term. In this paradigm, instead of surprising the public with its decisions, the CBI should publicly announce and justify its target inflation for the mid-run and make institutional commitments to achieve that. The CBI should also make it clear to the public that

it will allow the exchange rate to align with levels warranted by the fundamentals, although it may continue to smooth out fluctuations in the short run. Also, politicians, once and for all, must understand that the CBI is neither expected nor able to affect unemployment and steer real wages in the long term. After all, the success of this reform will require the CBI to be given more autonomy, while having the backing of the political authorities, and to develop a greater degree of technocratic capacity.

The second group of reforms should aim to improve the quality of the CBI's governance with the overarching goal of making the central bank independent, transparent, and accountable. Studies show that the more independent the central bank, the better its performance in controlling inflation. As such, central banks around the world, especially those in advanced economies, have become increasingly more independent from their governments. Although some degree of institutional coordination between the central bank and the government is needed, the independence of the central bank should shield it from discretionary decisions of the political authorities who tend to prioritize short-term gains over long-term economic benefits. Based on the degree of autonomy, the independence of central banks can be broadly grouped into those that allow for operational independence (the ability to set monetary policy instruments) and those that allow goal independence (the ability to set goals and objectives in addition to the instruments). Theory and empirics suggest that in developing countries like Iran, political independence—that is, the absence of political influence on central bank goals or personnel—is an indispensable ingredient for the success of the monetary policy [32]. In particular, the answer to the question whether politicians can dismiss the CBI's governor is of great importance. By all means, the law should ensure that the governor cannot be dismissed because of policy choices. Furthermore, the board of the CBI should replace the existing MCC as the highest level of authority for making monetary decisions. The members of the board should have professional qualifications, rather than being political appointees from other institutions, with appointment terms longer than typical political cycles to allow them to formulate policies with, ideally, no influence from outside.

Contrary to the strategy of the Central Bank of Iran that systematically refrains from revealing its intention for future moves, the prevailing view among modern central banks is to be highly predictable to economic agents. Economic decisions are shaped by expectations; transparency is a modern institutional solution to influence these expectations. The CBI can improve the outcome of monetary policy if it becomes more transparent about its objectives, its strategy for reaching them, and the rationale for its key decisions. It is important for communications to the public to be clear and easy to interpret. Transparency will help the CBI regain its currently eroded public confidence and therefore be able to effectively anchor inflationary expectations. Otherwise, in case of a financial crisis, lack of public confidence in the CBI will amplify the magnitude of the economic damage and make the recovery period longer. To hold the CBI accountable for its performance and decisions, a clear metric, such as deviation from the target

inflation rate over a period of time, should be used to evaluate its performance.

Along with improving the CBI governance, the Iranian government needs to provide more effective tools for implementing monetary policy, which is essential to achieving price and financial stability goals. While the CBI needs to phase out rationing credit and setting the retail rate of return for the banking system, it must move to develop market-based instruments as a modern central bank. As the CBI sets the short-term policy rate and uses open market operations to achieve this rate in the interbank market, the lending and deposit rates should be set by the rules of supply and demand. Furthermore, in line with best international practices, the CBI could move toward operating through an interest rate corridor system. In such an arrangement, the CBI sets its monetary policy stance by the policy rate in the interbank market and uses the discount rate, open market operations, repos, and reverse repos as monetary instruments to maintain the short-term interest rate close to the intended policy rate. This structure will allow banks to borrow from the interbank market on a short-term basis and the CBI no longer will need to allow the banks to access its line of credit. The interbank market will also provide real time information about the banks' overall financial health.

Although the ongoing formidable challenges to the banking system in Iran are to some extent spillovers from imbalances in the real sector, they clearly indicate that, for too long, supervision of banks by the CBI has been overly relaxed or even entirely missing on some fronts. Besides technical causes that might have played a role in the delayed identification of, and slow response to, the current banking crisis, currying favor with the government and other centers of power seems to be an important reason why the CBI knowingly did not fulfill its supervisory task in a timely manner. The latter issue can—and in fact will—happen again in the future unless meaningful reforms toward central bank independence materialize and, thereby, a credible management team free from political pressure takes control of the CBI.

On a practical note, the CBI should implement international best practices for asset classification, real sector investments, liquidity management, and internal controls, while complying with international frameworks and standards (such as the IFRS, AML, and CFT). Development of a crisis management framework and a comprehensive contingency preparedness framework are among the top priorities for dealing with the current banking crisis. It is important that the crisis management framework entail an insolvency regime for banks and a clear definition of the CBI's lender-of-last-resort policy. Furthermore, the central bank should identify the more viable banks and NBFIs by conducting an asset quality review and, if needed, setting the grounds for their recapitalization while restructuring or resolving others. The CBI should take steps to limit the dividend distribution of undercapitalized banks to improve their capital adequacy ratios and modify their required reserves to guarantee liquidity buffers.

Oil Revenue and Foreign Exchange Regime Reforms

Due to Iran's crude oil production shocks of the past decades along with large fluctuations in the

global oil market, the contribution of oil and gas exports to the Iranian economy varied over an incredibly large range. The share of oil in the GDP varied between 7% and 26% and its share in the central government budget varied between 26% and 82% over the past three decades [10]. To cope with the macroeconomic challenges of such massive fluctuations in natural resource revenues, similar to many other large commodity-exporting countries, Iran created a countercyclical fund, the OSF, to help smooth its budget expenditures. After some years, Iran established its second natural resource fund, the national development fund, to facilitate public investment and serve as intergenerational savings. However, neither of these two funds—the OSF with a countercyclical objective or the NDFI with an intergenerational saving objective—has delivered the expected results. The former has become obsolete due to persistent budget deficits while the latter has turned into a mere quasi-fiscal arm of the government. Since its inception in 2011, the NDFI has received some \$90 billion—equivalent to 20% of oil export proceeds. However, as yet another example of the lack of fiscal discipline and institutional weakness, the NDFI was mandated to give considerable amounts of facilities and make large deposits with the commercial banks, both in rials [33]. To this end, the NDFI, parallel to the central bank, has made large injections of petrodollars in the foreign exchange market.

To address the abovementioned challenges, we propose an alternative arrangement for the flow and allocation of oil revenue among the government, the National Iranian Oil Company (NIOC), NDFI, and OSF while taking the CBI out of the oil revenue arrangement. Based on this proposal, the collected oil revenues will be distributed among the NDFI, OSF, and the NIOC based on predetermined fixed percentages; for example, 80% for the NDFI, 5% for the OSF, and 15% for the NIOC. Then, based on an ex-ante fiscal rule, the NDFI will pay a certain annuity in rial to the government and use the balance for investment in international markets. In this arrangement, the NDFI will exchange just enough petrodollars in the market to be able to pay the annuity. The fiscal rule itself can be as simple as a fixed percentage of expected non-oil GDP in the coming year. Here, the stabilization fund (i.e., OSF) will play a countercyclical role by supplementing the NDFI's annuity when the economy is in recession. It will also clear any remaining balance between the NDFI and the government based on ex-post performance of the economy (after determination of the actual non-oil GDP). The overarching structure of our proposed arrangement for the flow of oil revenue is illustrated in **Figure 11**.

Payment of the annuity in domestic currency to the government, based on a predetermined fiscal rule, will not only reduce uncertainty in the budget but also help the central bank focus on monetary policy, as it will no longer need to sterilize the government's share of the oil revenue. In this setup, the NDFI will not have an incentive to keep the rial overvalued, which will in turn prevent misalignment in the exchange market and will boost non-oil exports. However, a prerequisite for successful implementation of this reform is to make NDFI fully compliant with the Santiago principles [34] which, among other recommendations, encourage transparency and communication with the people, who are in fact ultimate owners of sovereign funds.

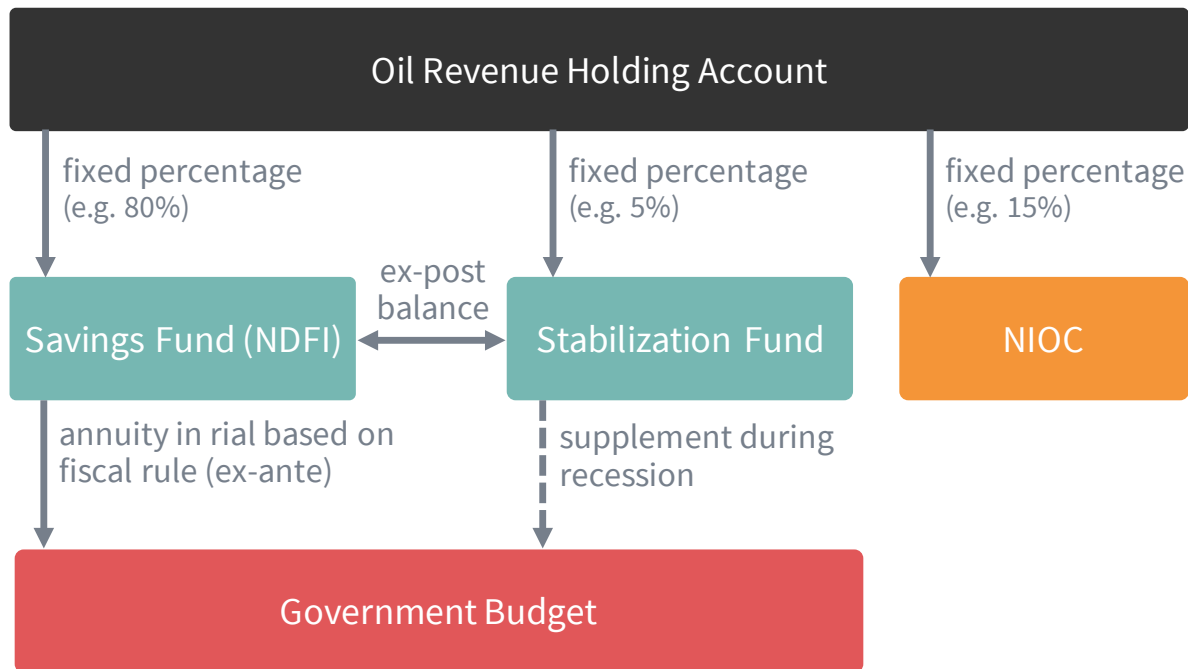


Figure 11. A proposed structure for the flow of petroleum funds in Iran.

At the same time, on the exchange rate policy, the CBI needs to eliminate the multiple exchange rate practice and move toward a more flexible and market-based exchange regime. As the CBI relinquishes unwarranted responsibilities about handling government oil revenues and lets the NDFI manage those, it could focus on maintaining price stability and use the exchange rate policy as one of the tools in its arsenal to tackle inflation and external shocks. While historically many oil exporting countries with open capital accounts abandon independent monetary policy and use fixed exchange rate regimes as an anchor [20], the CBI has struggled to follow an exchange rate regime that would serve it best. Although there are merits to keeping the exchange rate fixed, the flexible exchange rate regime has proven to be far more efficient. The flexible regime would facilitate real adjustment, provide a cushion against external fluctuations and shocks, work as a self-stabilizer in the balance-of-payment disequilibrium, promote free international trade, and increase international capital movements.

Concluding Remarks

In this report, we discussed how macroeconomic policies in Iran have evolved over the past four decades with particular focus on the role of the monetary authorities in navigating through turbulent periods. We then described major structural issues of the Central Bank of Iran and evaluated its performance over the past few decades. At the end, we outlined a number of fundamental reforms without which the objectives of monetary policy in general, and the objective of price stability in particular, will remain unattainable.

Iran's average inflation rate of 20% over the past three decades demonstrates that high inflation—as long as it doesn't appear to provoke social unrest—has persistently been of little concern to the legislative and executive branches of the Iranian government. Besides fiscal dominance, lack of proper monetary instruments at the CBI's disposal is responsible for the poor outcome of Iran's monetary policy. Although the central bank is eventually responsible for preserving the value of money, its performance should be judged with consideration for the degree of difficulty imposed by exogenous uncontrollable factors. Both of the abovementioned causes for high inflation in Iran—fiscal dominance and the lack of proper monetary instruments at the CBI's disposal—are to some extent the consequences of a more general economic misconduct in the country. Iran would have had a significantly smaller fiscal deficit, hence lower inflation, had the state been more responsible with respect to its expenditures and more willing to tax some of the large, quasi-private conglomerates (such as *bonyads*) that have been tax-exempt since their inceptions. Some other obvious reforms that could have helped control the fiscal deficit, such as a reduction in energy subsidies, were also omitted as the power structure in Iran hardly leaves any incentives for the politicians to justify taking such socially expensive moves. Failure of the government to control inflation, however, has benefited the country's major debtors: the government itself, some privileged special interest groups, and people in the ruling class. The benefit to these groups has come at the expense of putting a hidden regressive tax on all citizens with consequences that are in sharp contrast with the state's own pro-poor rhetoric and stated values. The second most important cause of high inflation—lack of proper monetary instruments—is an implication of decades of reluctance to use market-based tools because they were not perceived as compliant with the usury-free principles of Islamic finance. In fact, the CBI has suffered from a legacy of inefficient laws and regulations that are attributed to the post-revolutionary Islamic ideology. It is important to note that Iran is probably the only country in the world where all dimensions of the financial sector are restricted by these rules.

We also argued that the CBI has failed to monitor and supervise the banking system which, in turn, has brought the economy to the verge of a major financial crisis. The paper provided a set of institutional reforms along with best international practices to address the abovementioned challenges. First and foremost, the current government debt should be securitized to generate cash flow for the banks to mitigate their liquidity problems. This will provide banks with collaterals in the interbank market and enable the CBI to effectively conduct open market

operations. The CBI law should be revised to provide operational autonomy and limit the way in which the government has been able to dominate the central bank's policies. The paper also suggested a set of policy rules to handle oil revenues in a sustainable framework. We also discussed the exchange rate policy and argued that it should be part of a coherent macroeconomic policy.

In the absence of a prompt and determined policy response, the crises currently facing Iran are likely to accelerate and take the whole economy into a downward spiral toward a state of major collapse.

Acknowledgments

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Glossary

AML	Anti-Money Laundering
CAR	Capital Adequacy Ratio
CBI	Central Bank of Iran
CFT	Combating the Financing of Terrorism
CPI	Consumer Price Index
FDI	Foreign Direct Investment
FOB	Freight on Board
FSI	Financial Soundness Indicators
GDP	Gross Domestic Product
GIR	Gross International Reserves
IFRS	International Financial Reporting System
JCPOA	Joint Comprehensive Plan of Action
M1	Narrow Money Supply (sum of currency and demand deposits)
M2	Liquidity (sum of currency, demand deposits, and time deposits)
MB	Monetary Base (high-powered money)
MCC	Money and Credit Council
MCP	Multiple Currency Practices
mmbbl/d	million barrels per day
NBFIs	Non-Bank Financial Institutions
NDFI	National Development Fund of Iran
NEER	Nominal Effective Exchange Rate
NFA	Net Foreign Assets
NGL	Natural Gas Liquids
NIOC	National Iranian Oil Company
NPLs	Non-performing Loans
OSF	Oil Stabilization Fund
REER	Real Effective Exchange Rate
Repo	Repurchase Agreement
ROA	Return on Assets
STDev	Standard Deviation

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Appendix A: GDP per Capita of Iran and Selected Countries

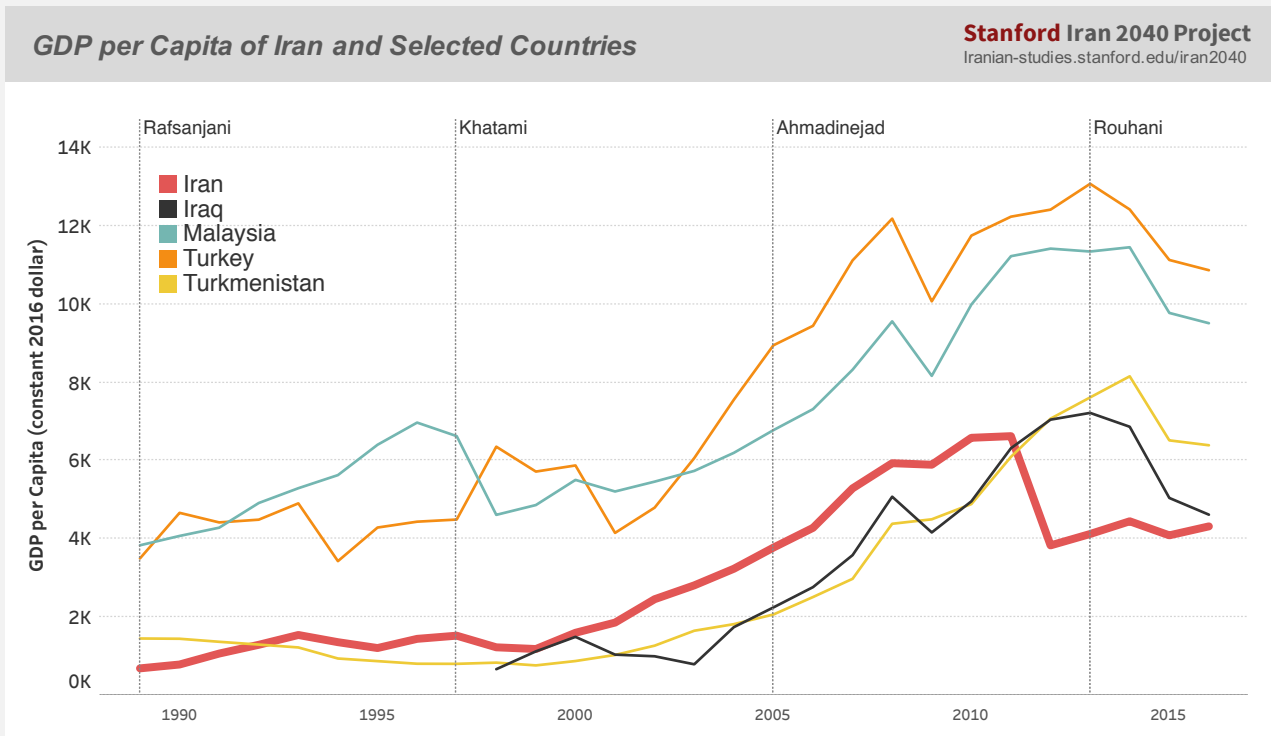


Figure A1. The GDP per capita of Iran and selected countries in constant 2016 dollar (1989–2016).

Appendix B: Energy Subsidies

The costs of government subsidies on gasoline and diesel fuels between 1989 and 2016 are shown in **Figure B1**. These values were calculated by multiplying the annual consumption of each fuel by its respective average freight on board (FOB) price in that year. Therefore, they represent the opportunity cost of liquid fuel subsidies rather than the actual amount paid by the government for the provision of these fuels.

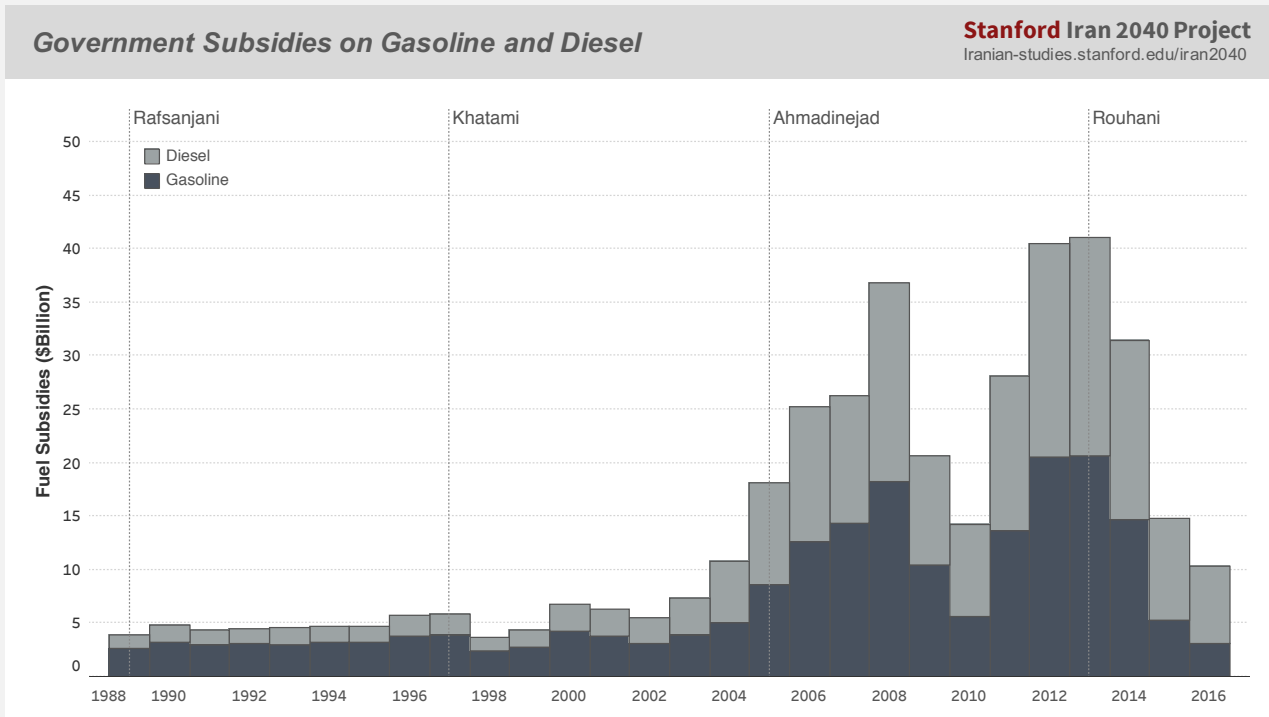


Figure B1. The opportunity cost of subsidies on gasoline and diesel fuel (1989–2016).