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A New Policy Environment to Achieve Monetary Goals

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Abstract

Monetary environment as the core of financial system has been functionally designed in light of the new set of extensive goals including financial stability, sustainable noninflationary growth, external sustainability, and price stability. A comprehensive monetary policy framework is proposed for Iran which systematically include the new goals, stance variables, instruments, transmission mechanism as well as timely monitoring system. Accordingly, macroeconomic data provides a reliable momentum to evaluate how far the macroeconomic condition is away from the monetary goals in case the data is timely-consistently compiled by policy makers. A wide variety of policy instruments are occasionally applied in the context of the new monetary policy framework by the conventional transmission channels which are technically tracked via monetary condition index, early warning system, leading indicators, and stress tests that give a timely feedback to policy makers to draw contemporaneously a picture of macro prudential stance. Given the prominent share of asset market (housing and capital) in the whole financial and nonfinancial markets in Iran, the monetary policy is empirically required to streamline assets market's flow of funds instead of extra concentration on broad money growth and lending channel. Meanwhile, balance sheet channel is obviously expected to be more effective against monetary policy stance rather than lending channel in order to achieve monetary goals. In this regard, housing and capital markets are both significantly considered more efficient to finance flow of funds and fiscal deficit.

Key words: *Monetary policy, monetary transmission mechanism, financial markets*

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1. Introduction

Monetary policy is empirically implemented via wide varieties of conventional and unconventional policy instruments to reach monetary goals including price stability, sustainable non-inflationary growth, financial stability, and external sustainability. Monetary policy is also transmitted to the monetary goals through different sorts of transmission channels which influence money supply, fiscal gap, rrr rr lll lll ccc,, kkkk'' liiii gg aaa llll , mrr ktt eett imttt , ddd ll timtt ll y sseet mrr ktt 's flwwff f..... .n tii s rggrr,, tee tttt rittt ion of every single transmission channel on the monetary goals occasionally varies across monetary system which is precisely evaluated in this study.

The recent international financial turmoil which was obviously associated with a profound economic downturn, a huge leverage and a spark in sovereign debt augmented the new set of monetary policy via utilizing both conventional and unconventional policy instruments, and non-standard measures to achieve monetary goals. Unconventional policy instruments as well as non-standard policy measures which were gradually applied after financial crisis, were prudently functioned by the policy makers to address the widespread challenges including bubble burst at the asset market, credit crunch of the financial intermediaries, unsustainable sovereign debt as well as disordered policy reactions at the de-segmented financial markets. In this context, unconventional policy instruments are progressively introduced as complementary vehicles along with the conventional instruments to improve the financial system vulnerabilities against contingent shocks while revamping dysfunctional credit flows and bolstering flow of funds. Henceforth, monetary policy has prudently provided a good momentum to make a good-balance between comprehensive monetary goals and effective policy instruments via strengthening the consistency of policy instruments and enhancing regulations as well as prioritizing more-effective transmission channels. Accordingly, although monetary transmission mechanism as a supplementary tool conveys the impact of policy instruments on macroeconomic variables through different channels, the efficiency of each channel significantly varies based on the macroeconomic stance, the elasticity of effective interest rates, institutional balance sheet, kkkk'' liiii gg aacccity, ddd tee itt sss ity ff aaii tll flwws ggii sst

policy interest rate. In this regard, the enhanced-prudential-financial regulations along with the augmented policy instruments cause a more mmmh iaatdd rr eeerrr e to miii trr tee ssymmtt ric mtttt rr y glll s' condition and transmission channels which are articulately discussed in this paper.

This paper is organized as follows: The next section reviews the global financial system challenges and profound reforms since the recent Global Financial Crisis in 2007. The third section discusses monetary transmission mechanism and non-standard measures which were broadly utilized over the past few years. The fourth section evidently considers Iran monetary policy challenges during 1991-2014, and the fifth section introduces a comprehensive reform proposal for the monetary policy environment in Iran. Finally, the concluding remarks are presented in the last section.

2. Financial System Challenges and Reforms

The recent international financial chaos has obviously highlighted the crisis spillover the world and challenges of segmented financial system in light of regulations, supervision, policies and monitoring. Thus, reconciliation of macro-financial policy framework along with harmonization of supervisory regulation and policy coordination among different markets (money, capital, bonds, real estate, insurance, and pension) are essential to achieve the target of sustainable financial stability as a new goal of monetary policy (Praet, P. 2011). In this context, the financial system has recently been restructured via a Comprehensive Securities Markets Reform (CSMR) to monitor market value, depth, liquidity, contingent risks, flow of funds, as well ss ficccc ill mrr ktt ' yyffttttt i.... .n tii s tttt ttt , a eeeee e e aaaaiii al Stability Oversight Council (SFSOC) has been gradually established across the developed economies with different titles including European Systemic Risk Board in Europe, Financial Stability Oversight Council in the United States and Financial Stability Committee in the United Kingdom in order to provide an integrated institutional regulatory capacity for coordination in policies, goals, instruments, regulations and information while recognizing financial system vulnerabilities against contingent shocks. Accordingly,

although government is still considered in charge of fiscal and sovereign debt sustainability, the CBs are introduced as a key member of the SFSOC to reach the new goals of financial stability, external sustainability, and sustainable growth in line with price stability (Cukierman 1994, Oosterloo and de Haan 2004, Praet 2011).

Financial crisis which evidently weakens monetary transmission mechanisms, deteriorates asset market through reduction in the housing and capital market prices, contraction in the credit market, depreciation in foreign exchange market, and exacerbation of derivatives market risks. The financial crisis was also associated with the sovereign debt challenges while motivating the investors to transfer capital abroad and not to purchase public bonds due to unsustainable yields.

The eruption of the financial crisis also worsens bank exposures ddd wwwrss rikk mnggg ficccc ill itt rr miii rr iss' via itt rr kkkk ddd asset markets which subsequently exacerbate institutional credit score and financial soundness indicators. Furthermore, the aggravated-financial condition expands the gap between policy and non-policy interest rate owing to higher institutional and market risks. In this context, although quantitative easing monetary policy dramatically leads to a sharp reduction in the policy interest rate and bkkk'' fiii gg cost through open market operations, interbank markets, as well as overnight facilities, firms and families are not evidently able to raise fund with the low interest rate mainly because of the higher credit and market risks (Drudi, F. Durré, A. and Mongelli, F. 2012). Henceforth, the impact of policy instruments on the goals lengthens due to the accelerated gap between market and policy interest rate which also mitigates the response of credit crunch and lending capacity to the policy reactions. However, the new supplementary effective policy instruments should be gradually set up to achieve prolonged monetary goals which is also associated with a timely comprehensive transmission mechanism, an augmented financial regulation, a sterilized bank'' ficccc ill tttt mmtt ,, a mrr e rr ttttt eeeeeee es indicators, and a uni-targeted measurable policy assignment. Accordingly, forward guidance enhances the transparency of monetary policy outlook and improves money market uncertainty via short-term policy commitment and medium-term policy transparency (Lenza, M., Pill, H., and Reichlin, L. 2010).

3. Monetary Transmission Mechanism and Non-standard Measures

The recent Global Financial Crysis (GFC) have broadly hampered monetary transmission mechanism mainly because of the huge disorderly reduction in asset prices, a rapid growth in external sector sssss sii iiii lity, a vsst ii ttrr tion in tee sseet'' rll tt ive rr iee, nn expansion in the interest rate corridor, and a swift exacerbation in market sentiments. Therefore, monetary authorities are apparently forced to make over the Monetary Transmission Mechanism (MTM), monetary goals, regulations, and instruments while simultaneously applying non-standard measures, and unconventional policy instruments to support the effectiveness of conventional instruments.

Unconventional monetary policy instruments and non-standard measures as supplementary tools are articulately examined by the US Federal Reserve, ECB, and the Bank of England[1] in order to revitalize MTM including through targeting the zero lower bound, expanding overnight lending with minimum interest rate, diversifying Open Market Operation (OMO) for both bonds and institutional securities (equity security and debt security), discounting and refinancing credit entities, highly qualified assets and loans, escalating external sector sterilization, accelerating the international reserves SWAP[2], initiating a forward guidance to improve market sentiment, and enhancing institutional financial soundness indicators. The non-standard policy instruments have also been introduced to enhance lending capacity and liquidity buffer. Notwithstanding the monetary authorities have applied the Outright Monetary Transactions (OMTs) as a complementary unconventional instrument to enrich transmission mechanism pre-rr iii ,, vvvrr ii gn '''''' ii cctttt is tt ill limitaa at the

1. While the US Fed has quickly realized not to carry on accommodative monetary policy and pivot to the quantitative easing and streamline flow of funds, the ECB has conaaanlly geaeed oowadd fnnancnng aaasss' bond.. Meanwhlle, hhe BBB aooo was not able to narrow the range of interest rate corridor and revamp financial makke''' foow of funds either.
2. The US government bailout which partly focuses on the recapitalization of financial and credit entities, streamlines financial reforms and the MTM although the European states concentrate on the state financing and collateralized lending.

secondary market along with other restrictions on bonds transactions based on the volume, frequency, and maturities.

The ECB as a pioneer to establish the non-standard measures has significantly widened Euro-system balance sheet by fostering state finance, and amplifying bank lending against collateral rather than purchasing assets. The lending mechanism expands macroeconomic institutional consolidated balance sheet and flow of funds through higher money supply. The US Federal Reserve has mainly financed the institutional deficit and bank cash flow shortages via significant purchasing non-treasury securities and discounting qualified loans in the context of balance sheet channel unconventionally. In this regard, balance sheet channel was vividly applied by another group of CBs in industrialized economies with developed asset markets, in order to resolve flow of fund challenges while containing the size of macroeconomic consolidated balance sheet against nominal inflationary expansion.

3.1. Monetary transmission mechanism and monetary goals

The impact of monetary policy on real and nominal indicators is historically discussed based on different schools of thought. Neoclassical views indicate that money supply and policy interest rate as the main vehicles of monetary policy have typically and identically influenced nominal indicators and inflation mainly because of the asymmetric information assumption. Keynesian theories discuss that prices does not systematically adjust in different monetary stance due to asymmetric information and consequently factors of market rigidities. In this context, policy interest rate also affects real macro indicators without restoring the Keynesian price rigidities, as interest rtt i i ff lcccc e trr r tt if ff iiii ty rtt rr t t o ’’’’’’ ’tt rr n ss a rr yyy ff financial institutional net worth[1]. Thus, monetary policy is able to influence fiscal gap through rebalancing saving/investment, saving/consumption, capital flows gap as well as flow of funds which are also simultaneously monitored by the MTM.

1.Firms and household net worth

Monetary policy is occasionally utilized to achieve monetary goals including interest rate corridor, asset market channels[1], external balance mechanism, as well as credit channel (bank lending and balance sheet channels) which are empirically considered as MTM, givnn tee ffffiii cccy ff lll iyy ittt rmmttt s ddd lll iyy mkkrr'' credibility. The transmission size and period are definitely influenced by the financial market development, the social welfare, market frictions as well as the elasticity of capital, commodity, and asset markets to the monetary policy instruments. In this context, the macroeconomic condition is also crucial to streamline transmission mechanisms (Edwards and Mishkin 1995). Banks which are also itt reeeee e ss tee mii n ficccc ill itt rr miii rr iss to trsss frr aavrr'' fnnd to borrowers, obviously reflect two vigorous transmission channels including lending and balance sheet channels. In this regard, the transmission channels are statically prioritized based on the contribution in flow of funds and monetary goals.

Global financial crisis usually weakens the MTM due to the contraction in saving, assets prices, capital inflow, flow of funds, and consequently, macroeconomic financing capacity. Notwithstanding, the monetary policy instruments are inevitably deteriorated during crisis, they should be swiftly revamped in the context of the timely comprehensive coherent policy reactions package.

A) Interest rate channel

Traditional Keynesian IS-LM view of the MTM indicates that an expansionary monetary policy leads to a reduction in real interest rate corridor which in turn leads to lower cost of capital, higher investment, and an increase in the aggregate demand and output growth. In this regard, consumer and business decisions are affected by the real interest rates corridor, given the fact that the hypothesis of asymmetric information is held too. Anyway, a reduction in the real interest rate corridor causes a spark in the capital formation, residential housing

1. A reduction in the policy interest rate leads to an upsurge in bonds and assets prices, so institutional (household, entities) balance sheet expands and oonsqqunnyyybnnks' nnrdnng aapccyyycceerrrssss ss aase mccrocconomic risks have not widened interest rate corridor.

investment, household durable spending, and business inventory. Meanwhile, the expansionary monetary policy can also stimulate output growth through rising expected inflation and lowering real interest rate corridor respectively. Taylor (1995) finds that there is strong empirical evidence for substantial interest rate effects on consumer and investment spending. Bernanke and Gertler (1995) obtained also the same empirical evidence which underscores the significant impact of policy interest rate (in the context of corridor) on the output via asset markets and credit channels rather than investment cost. Henceforth, interest rate corridor as a main course of monetary policy realizes monetary goals mainly through flow of funds rather than investment cost.

B) Asset price channel

The New-Keynesian IS-LM view is repeatedly argued by the Monetarists who believe the variation in money supply affects GDP growth in the short time and price level in the long time. Therefore, monetary policy should stay as the focus on the targeted money growth rather than discretionary monetary policy. They also introduce a set of asset prices to explain money demand although the New-Keynesian approach which uses just one asset price interest rate to specify the variation in money demand [Friedman, Schwartz (1963), Meltzer (1995)]. In this regard, equity prices, exchange rate, net worth, and real wealth along with bonds evidently transmit the monetary policy effects on the macro economy through rebalancing institutional-inter tmnrrr ll rrr tfll io mmddd sss dd nn tee wwwsseets' relative prices[1] which leads to alterations in commodity and financial demand, and subsequently fiscal balance, output growth, and prices [(Friedman and Schwartz (1963), Franco Modigliani (1971)].

C) Exchange rate channel[2]

Exchange rate channel is evidently considered as another MTM which conveys the impact of policy instruments on monetary goals via rebalancing current account balance and net capital flows. Flexible

1. Financial and non-financial assets
2. Foreign exchange is not considered as an asset in the institutional portfolio in this paper.

exchange rate regime along with high openness, open capital account and developed financial markets enhance the role of exchange rate as a more effective transitional channel to reach monetary goals. Meanwhile, effective exchange rate channel streamlines the transition mechanism to reach both conventional and unconventional monetary goals including sustainable non-inflationary growth, price stability as well as external sustainability and financial stability.

A tightening monetary policy which is empirically associated with higher interest rate spurs the price of capital and durable goods as well as sparks replacement cost of capital, thereof, aggregate demand and inflation declines, output growth shrinks, and consequently, current account balance improves. In this regard, the increase in the relative interest rates motivates capital inflows and higher investment at the financial markets which in line with the improvement in the external balance, appreciates domestic money. Ultimately, the impact of monetary policy instruments on macroeconomic goals fosters through external sector in case the economy is open as well as international trade and financial transactions are elastic against exchange rate deviations [Bryant, Hooper, and Mann (1993) & Taylor (1993)][1].

D) Equity and housing price channels

Asset price channels which specifically include equity and housing transmission channels are empirically considered as an effective course of the MTM to reach monetary goals. A tightening monetary policy which leads to a trigger in the policy interest rate, raises the replacement cost of assets. Thus, investors would evidently pursue to invest on the old real estate and entities which are relatively exposed to the relative price advantage than the new investment cost in accordance with the Tobin Q ratio argument (Tobin 1969). In other words, a reduction in the Q ratio which is theoretically originates from a contractionary monetary policy, causes more costly investment in the new projects than the market value of the same equities in housing

1. Reciprocally, an expansionary monetary policy causes an increase in total absorption and a reduction in the net export, so exchange rate depreciation appears at the same time .

or stock markets[1]. Therefore, the investment on the new projects is institutionally reduced and consequently, investment in the old entities is relatively more advantageous[2] while output grows, and, fiscal gap and inflation drop.

E) Credit channels

Credit channel is also considered (recognized) as an important vehicle of the MTM which empirically incorporates both lending and balance sheet channels to reach monetary goals. An expansionary monetary policy which is usually associated with lower policy interest rate enhances lending capacity due to a surge in money supply, and ssss eeeett ly, rriii t ittt ittt isss ' sssss st. ee llllll ll tee rcccc tion in the interest rate simultaneously stimulates asset prices and empowers institutional balance sheet including banks, entities, and families which respectively improve flow of funds, investment and lending size (Bernanke & Gertler 1995, Cecchetti 1995, Kashyap & Stein 2000).

F) Bank lending channel

The bank lending channel obviously reflects the impact of monetary policy on the bank lending capacity through rebalancing the bank liabilities, specifically (including) interbank loans, debt securities, and sss tmmrr '' eeposits. An expansionary (tightening) monetary policy which is theoretically associated with lower (higher) cost of fund, surges (shrinks) banks' lending resources due to a spark (reduction) in the balance sheet liabilities. In other words, monetary policy influences lending capacity and the target of sustainable non-iff ltt irrrr y grwwtvv vir r ssizigg rriii t ittt ittt i''' a aalcccs seeeI.

1. Keynesian approach provided the same results, as a reduction in interest rate that driven by an expansionary monetary policy, brings the bonds earning down in comparison with equities. Hence, the macroeconomic stance expectedly improves via higher demand for durable goods and investment as well as an increase in the GDP.
2. Life cycle model which is empirically introduced by Franco Modigliani (1971) to elaborate the impact of life-time resources (human capital, real capital, and fnnanclll weatth) on hhe conuume''' decoooon, ss aooo eecogneed as a supplementary transition channel that is occasionally influenced by the policy instruments and subsequently wealth-effect corridor.

G) Balance sheet channel

Balance sheet channel as a main course (vehicle) of the bank lending ability is also driven by the net worth revaluation and asymmetric information. For instance, tightening monetary policy which leads to a drop in the asset prices and institutional net worth, contracts the collateral value and weakens the institutional creditworthiness to borrow from credit institutions. In this regard, the loans are practically allocated to more risk-prone borrowers due to higher interest rate, so demand for investment and consequently, output growth declines. Meanwhile, the shortage of risk evaluation system along with ssymmtt ric iff rr mtt inn sss iaally aaaa sss kkkk'' rrr aad ddd fcctlll ly weakens the resiliency of monetary transmission channel (Dabla-Norris and Floerkemeier, 2006).

3.2. The relationship between monetary transmission mechanisms

A temporary reduction in the reserve requirement ratio and refinancing rates in line with a contraction in the policy interest rate has a relative advantage for asset markets than money market to absorb institutional savings pre-crisis, while simultaneously spurs output growth by motivating institutional investment and durable consumption at lower interest rates. Therefore, the conventional monetary instruments which had already been applied pre-crisis, is essentially associated with a new set of unconventional policy instruments to motivate output growth and reinvigorate asset markets as well as to restore market confidence.

Monetary policy instruments also influence institutional portfolio through re-pricing asset markets, discounting long-term cash flow, and boosting leverage which simultaneously stimulates lending channels. In this regard, capital outflow which is evidently originates from interest rate difference and asset market crisis weakens both lending and balance sheet channels. Thus, financial safeguards should be promptly enhanced through higher capital requirements, wider net open position and better sterilization in order to enhance both banks and external sector resiliency against other contingent shocks.

Meanwhile, recapitalization from outside resources reinforces capital fff frr fff f fcccc ill ttt itiss' rssilicccy ggii ttt tttt tggttt ccccc..

3.3. Monetary goal conflicts and transmission mechanism

The recent international financial uproar has forcefully equipped monetary authorities with a new set of tools in order to predict contingent upcoming-crisis, give priority to transmission dynamics and resolute the damaged-monetary transmission mechanism. In this regard, unconventional monetary measures are wisely introduced as complementary instruments to respond to the exceptional chaotic circumstances. However, the application of unconventional measures for a long time might obviously deteriorate financial system stability and weaken the efficiency of monetary policy instruments. Thus, the new set of monetary goals (sustainable non-inflationary growth, price stability, external sustainability and financial stability) are hardly achieved (Praet 2012). In this context, monetary authorities should wisely make a balance between goal conflicts and time mismatch among the monetary goals. For instance, minimum policy interest rate which is theoretically expected to stimulate output growth and asset market, also leads to capital outflow, external sector volatilities, price instabilities, wider range of interest rate corridor, higher deviation in the cost of borrowing, and consequently, frailer monetary transmission mechanism. Hence, the monetary goal inconsistencies should be prudently resolved through introducing comprehensive committed financial system management, augmented supervisory regulations, effective timely monitoring system, and specifically inclusive efficient discount window.

The new analytical aspect of monetary policy technically involves the dynamics of assets market, growth and external sustainability along with price stability to monitor the transmission channels from a wide range of conventional, unconventional and non-standard measurement instruments. Accordingly, the mixture of price stability and sustainable output growth which are empirically considered as two main monetary policy goals augment policy environment via inflation targeting light approach to achieve multiple goals. Furthermore, the combination of external sustainability and price stability which are also recognized as asymmetric goals, succeed through external sector sterilization, foreign reserves swap, and

limitation on the short term capital flows. The simultaneous achievement of price and financial stability goals which have been recently introduced by the monetary authorities, also require an augmented policy environment including rules, regulations, instrument and markets. For instance, bank countercyclical capital requirements, tough net open position, and more prudential and credit measures provide susceptible room to achieve the mixture of monetary goals.

3.4. Monetary goals and de-leverage paradox

The recent international financial turmoil has evidently inflamed the ratio of debt-to-GDP as a proxy of leverage which mainly originates from the huge stress in the asset prices and yield as well as remarkable reduction in the output growth and inflation and consequently a sharp spark in the institutional deficit. Therefore, the macroeconomic environment has been potentially exposed to the debt crisis across the globe which should be swiftly addressed by deleveraging and overhauling flow of funds. In this context, the historical trade-off between lower output and higher leverage as a vicious circle is empirically considered an impediment paradox to reach the targets of debt sustainability and deleverage benchmarks. Ironically, although higher output growth might lead to deleverage, the sustainable economic growth also needs non-inflationary financial supports along with effective-lending and balance sheet channels which triggers the leverage and consequently flow of funds.

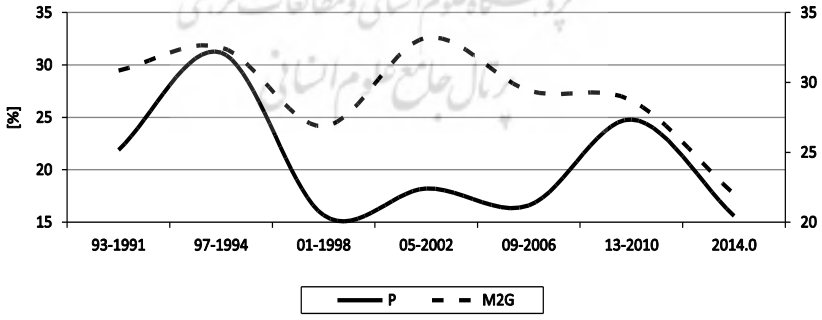
The CBs as lender of the last resort deliberately bolsters the leverage during financial crisis in order to mainly rebalance saving/investment gap and credit crunch via the OMTs, OMO, overnight lending, and collateralized liquidity funding for moderating dis-itt rr miii tt i.... . yywwwytaa aa aa'' ff frr t to lll vvrr gge lll nnce sheet by selling or collateralizing assets cause a further reduction in the asset prices so that leverage ratio and debt service upsurge in the vicious circle. In other words, the paradox of deleveraging which is technically called paradox of thrift is resulted from the macro-prudential rules to keep the equality between net lending and net borrowing. Accordingly, a specific amount of non-financial leverage (borrowing) for an entity equals the same amount of non-financial

lll vvrr gge (liiii gg) frr tttt rrr ttt ity oo tee ficccc ill yytt mm̀s ttt - saving is not changed. Whereas, households and credit institutions are generally considered as net lenders due to excess savings and adequate-capital resources, public sector and non-financial institutions are experimentally recognized as net borrowers. Both groups are not able to create financial and non-financial savings. The CBs are exclusively able to create financial savings and positive leverage owing to seniorage which are presumably in line with MTM. Therefore, flow of fund challenges are de facto adjusted by the CBs through overnight liquidity management, short term policy instruments and institutional collateralized and uncollateralized financing.

4. Iran Monetary Policy Challenges

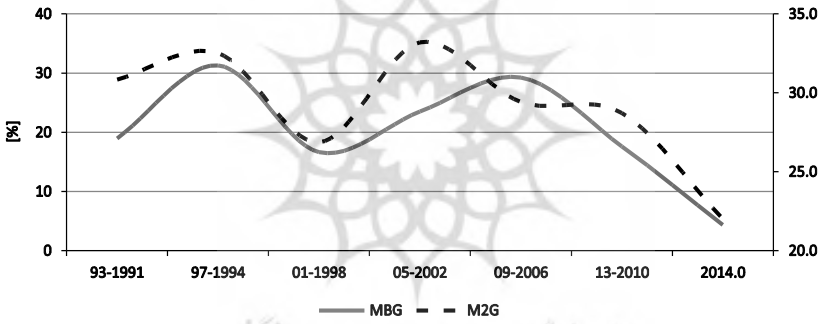
Monetary policy has chronically faced with destructive-constant challenges in Iran including inefficient policy instruments (weak policy interest rate and low-flexible requirement ratio), permanent shocks in the asset market, fiscal dominance, external unsustainability, vague monetary transmission mechanism, monetary aggregates and credit data shortcomings as well as uncertainty in macroeconomic environment which profoundly jeopardize monetary goals.

Figure 1: Broad money growth and inflation



Inflation is evidently driven by the highly-constant growth in broad money (Figure 1) which is also influenced by the growth of money base and money multiplier (Figure 2). While money base as outside money triggers aggregate demand and inflation, money multiplier as inside money has reversely influenced inflation through infrequent reliance of monetary authorities upon the conventional lll iyy ittt rmmttt s rrr igg iff ltt iorrr y rr ssrrr ss' iii eeee.. In tt eer words, although money multiplier is empirically and positively expected to affect broad money and inflation, its counter-movement with money base (Figure 3) and inflation (Figure 4) indicates that the reserve requirement ratio and the cash ratio as two main contributors of money multiplier are not both motivated by inflation (Figure 5)[1].

Figure 2: Broad money and money base growth



1. The relationship between inflation, monetary aggregates, external balance and assets price have been dramatically loosened due to the comprehensive-coherent structural-financial reform during 2002-05 including through reestablishment of private banks and insurance, diversification of monetary and fiscal policy instruments (bonds, reserve requirement), expansion of privatization, corporatization of public entities, augmentation of the open market operation, establishment of money and foreign exchange markets, harmonization-consolidation and augmentation of supervisory and foreign exchange regulations, establishment of oil stabilization fund, a wise capital market development, a successful unification in the foreign exchange system, partial liberalization of capital account, as well as a vast revision in the tax, trade, and foreign direct investment laws.

Figure 3: Money multiplier and money base growth

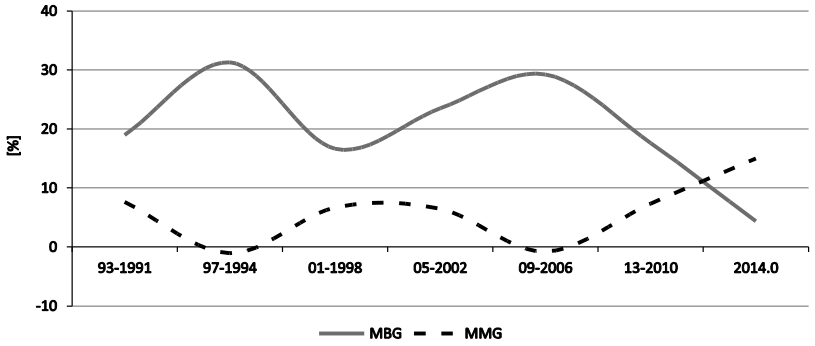


Figure 4: Inflation and money multiplier growth

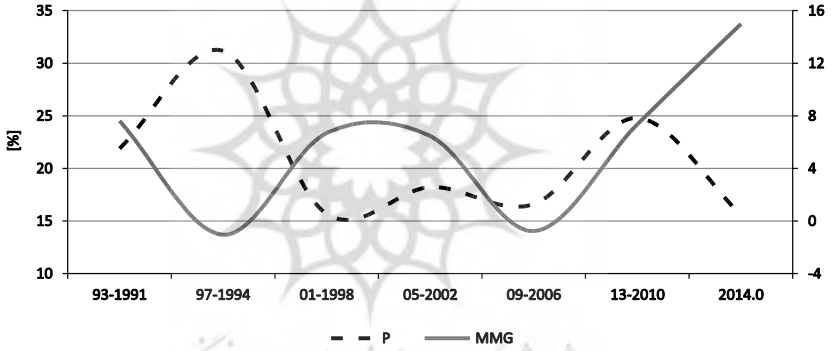


Figure 5: Inflation and share of money base in broad money

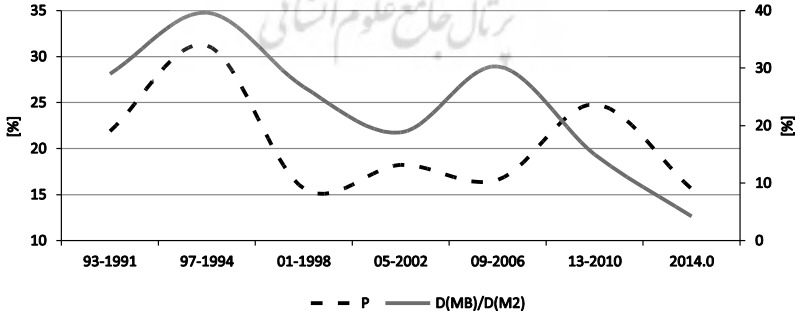


Figure 6: Share of NFA in the money base

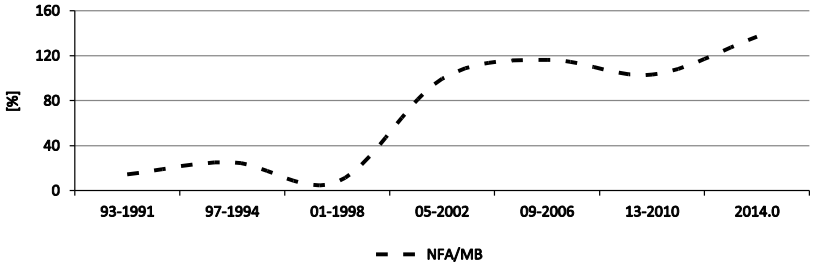
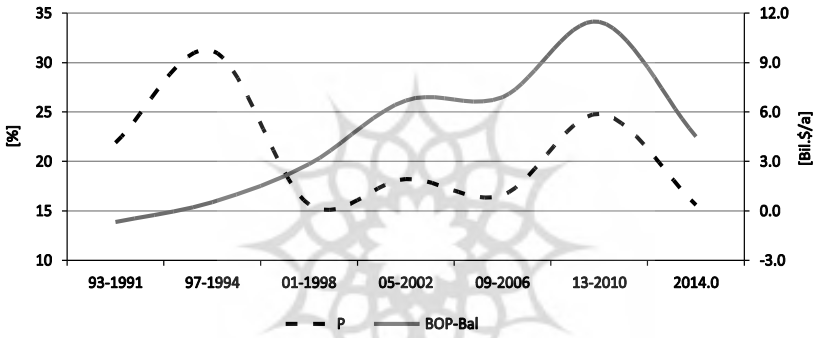


Figure 7: Inflation and BOP balance (Change in international balance)



Accordingly, outside money growth is (progressively) dominated by the fluctuations of net foreign assets (Figure 6) although net claim on banks and net claim on public sector are occasionally considered as effective variables to trigger money base too. In this context, buoyant international oil price has remarkably built up the central kkkk's itt rr ttt iolll rssrr vss ddd ssss eeee tt ly t"" NAA wii ch overheated macroeconomic environment during 2002-12 (Figure 7).

An accelerating price volatility has empirically led to a rise in the inflation standard deviation and ultimately, an increase in inflation (Figure 8) which simultaneously rebalances macroeconomic flow of funds from real to financial sector (assets market) in order to preserve ivvsstrr '' rrr aaaii gg wwwr ddd rii ee mrr e aaii t"" gii .. gggrr e ,, highlights the co-movement of inflation and the growth of assets market composite-price and thereof, speculation activities over the

past 24 years. In other words, inflation causes more financial resource accumulation in the asset market which faces with long-big boom/bust cycles that inevitably results in a contraction in the institutional assets liquidability, liquidity shortage at the credit institutions as well as a weak-inconsistent relation between money and credit policy.

Figure 8: Trend and standard deviation of inflation

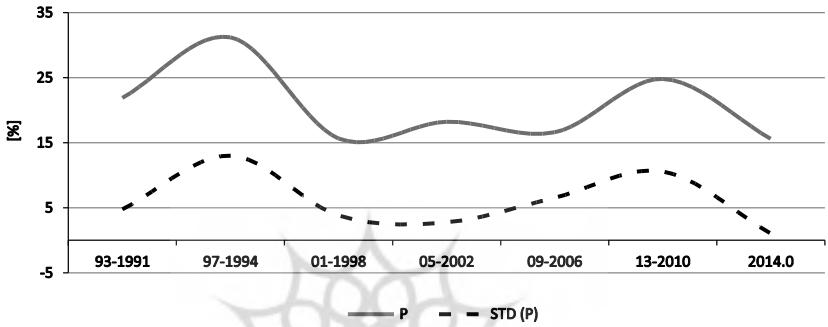
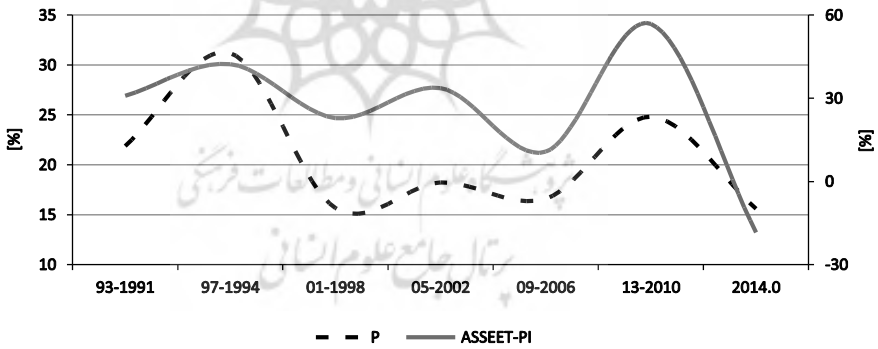


Figure 9: Inflation and average assets market price growth



Lack of subsidiary money market to discount or collateralize qualified assets is also recognized as the other crucial challenge to improve monetary environment and liquidize credit-institutional assets which vividly enhance liquidity management and streamline credit policy while associating with comprehensive reforms at the institutional, instrumental and market features.

5. Comprehensive Reform for Monetary Policy Environment in Iran

Given the fact that the financial system has been dramatically integrated over the past few decades, the asset markets flow of funds and subsequently, institutional portfolio are remarkably affected by the individual financial market policy instruments and specifically monetary policy. Thus, de-segmentation of financial system requires policy coordination among financial market authorities. Accordingly, a Supreme Financial Stability Oversight Council (SFSOC) should also be established to streamline the wide-spread financial system goals, to harmonize asset market policies, to monitor the cross-market flow of funds, as well as to recognize macro-financial system resiliency against contingent shocks while synchronizing the financial market goals, instruments, regulations, and supervisory practices (Chart 1).

For instance, stress test as a main vehicle to evaluate financial market vulnerabilities against policy changes or contingent shocks is regularly exercised by the SFSOC monitoring body, individual assets market supervisory authority and financial institutions. Assets market is evidently considered highly volatile in Iran (Figure 9) mainly because of the occasional-external shocks, sudden policy pivots, and non-disciplinary fiscal policy which should be wisely addressed by the establishment of SFSOC in order to moderate the financial system high-frequency instability via application of prudential regulations and effective policy instruments. The SFSOC also improves the ittt ittt illll flww ff f’’’’ rssilicccy ggii ttt tee eeelll tt ive destructive short-term distortions at both regulated and unregulated markets including money, insurance, and real estate market as well as capital and securities markets. Ultimately, notwithstanding the friction and asymmetric information have evidently dampened transmission mechanism and flow of funds in both real and financial sectors, policy coordination is inevitably crucial to improve financial system vulnerabilities in different episodes.

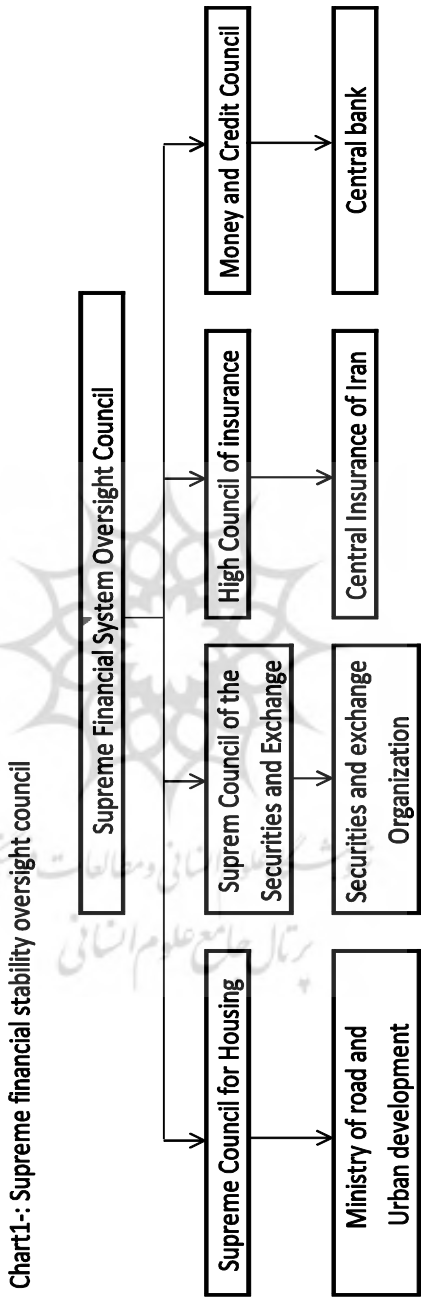


Chart1-: Supreme financial stability oversight council

5.1. Monetary policy environment

Monetary policy environment needs to be enhanced through extension of goals, markets, instruments, institutions and regulation which are articulately discussed in the following sections.

A) Monetary Policy Framework

Monetary policy is usually designed in the context of a central framework which systematically includes stance variables, goals, instruments, transmission mechanism as well as timely monitoring system. Macroeconomic data provides a reliable momentum to vvll ttt e ooth raal add finaiii al scctrr'' dddditinn in aaee the aata is timely-comprehensively-consistently compiled by the policy makrr'' miii trr igg yyttem (Crrr t 2). T"" aata says wwwfrr the macroeconomic stance is away from the monetary base and subsidiary goals given the relative importance of every single goal for policy makers and the gap between monetary quantitative targets and performed indicators. Thus, monetary policy is evidently designed based tt t gg glll s" rr ioritiss eee e efiii cccy ff iss trumttt tt ttt tttt h monetary policy is ultimately reflected in the policy interest rate and discount rates, some other specific supplementary issues are also reconsidered by the policy makers when monetary policy is being set which might not be publicly disclosed including the impact of policy interest rate on the consumption/saving trade off and saving/ investment gap, the reaction of flow of funds at the institutional and asset markets base to the new policy package, monetary transmission mechanism response to the new policy environment specifically credit and external channels (external balance and sustainability), as well as the monetary policy effect on the harmonization of lending and balance sheet channels. tttt hrr mrr ,, rr iii t intt ituti'''' fiaa iii ll statements are technically evaluated against the new policy instruments through stress test and contingent-shock analysis.

In this regard, money market vulnerabilities are wisely examined by the supervisory body based on the new-upcoming policies and consequently potential risks. Moreover, the impact of policy interest

rate on the interest rate corridor, macroeconomic risk factors and unregulated credit markets are continuously scrutinized. However, monetary policy framework should also significantly improve financial system policy cooperation to achieve interrelated-sectoral goals.

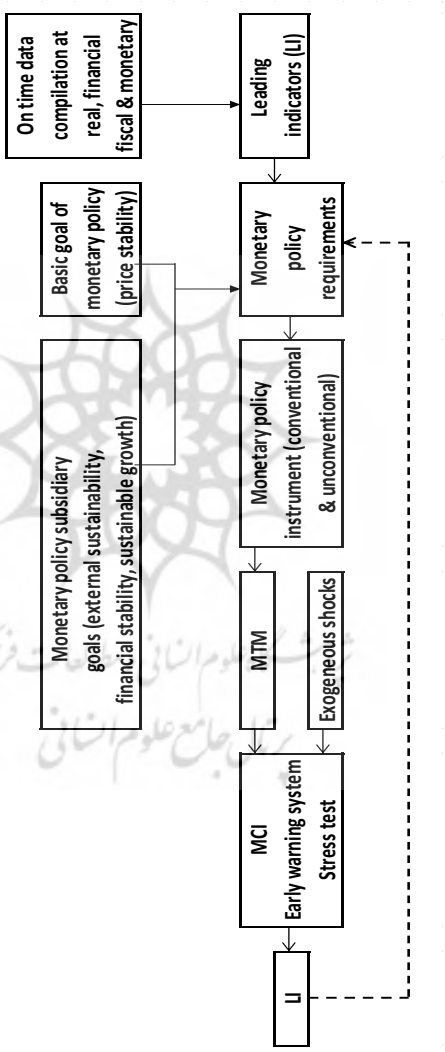


Chart 2: Monetary Policy Framework

A wide variety of policy instruments which occasionally apply in the context of conventional transmission channels are obviously tracked by the monetary condition index, early warning system, leading indicators, and stress tests that give a timely feed- back to the policy makers to draw a comprehensive picture of macroeconomic condition and macro prudential stance. The new macroeconomic condition also provides an opportunity to revise or augment monetary policy setting.

B) Goals

The new set of monetary goals should be articulately introduced by the law makers which include financial stability, external sustainability, sustainable output growth as well as price stability. In this regard, the monetary policy instruments are comprehensively-timely assigned to the individual goals while considering the goals integration. Whereas, an economy overpasses the targeted inflation, the policy interest rate as nominal anchor is regularly lifted to condense money supply and consequently inflation, given the other monetary goals. In this context, higher interest rate differential also leads to a simultaneous capital inflow to the money market and an appreciation in the foreign exchange market which is empirically associated with an increase in the net foreign asset, a lift in the money base and broad money, as well as a mitigation in the output growth and an eruption in the financial market volatilities. Furthermore, although interest rate is usually utilized as a key monetary policy instrument to maintain price stability and stimulate output growth, it is not recommended to respond to the financial instability as a high-frequency short term macroeconomic challenge mainly because of the simultaneous-disruptive impact on the real sector and external sustainability as medium term goals. In this regard, tightening monetary policy contemporaneously jeopardizes external sustainability via capital inflow, exchange rate appreciations and competitiveness failure which should be resolved by repurchasing bonds to sterilize the impact of external sector surplus on the NFA, swapping the international reserves between CBs, as well as restricting the short-term capital flow to the money markets. In other words, the supplementary-external policies enhance external

sustainability resiliency against short-term monetary policies and financial instability.

In other words, although interest rate policy is mainly introduced to facilitate price stability, it is sometimes applied to subdue financial mrrktt'' rr sstic vll tt ilitie.. Hwwvrr, tee ficccc ill mrrktt tyii aal fluctuations are usually addressed by the policy coordination, prudential supervision regulation and market clearing system.

Ultimtt ll y, tee glll '' ffff litt llll l ee rr ttttt ty rss ll vdd yy the policy makers through augmenting policy making capacity, cultivating policy instruments, strengthening supervisory regulations, prioritizing the monetary goals, and improving policy coordination.

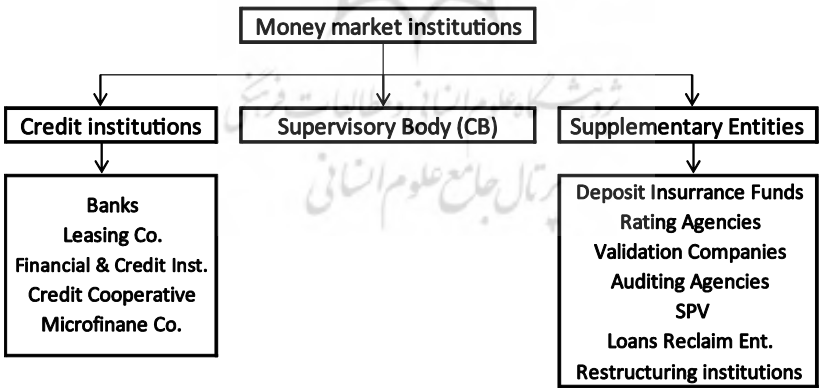
C) Instruments

Macro prudential regulations are carefully associated with a consistent combination of the conventional and unconventional policy instruments to reach the monetary asymmetric goals including through utilizing the interttt iaaa l rssrr vss' pppp p mii tt ii n ttt rr nal sustainability during the short-term highly volatile capital flows, extending the interest rate corridor to realize the goals of monetary policy, buoyant flow of funds, reliable-secure payment systems, and characterized institutional risks. Furthermore, some other llll ll ttt rr y ittt rmmttt s illl eee lll ltt rr aliztt ion ff tee kkkk'' highly-llll ifidd iiii tiss' rffddd via ii cctttt wiwwww frr wrr d guidance to mitigate market uncertainty, restriction on the short term capital flows in order to comprehend assets and foreign exchange market volatilities, re-establishment of supervisory practice in the central banks based on the function of last resort at the secondary money and capital market, introduction of timely-efficient monetary transmission mechanism to track the impact of policy instrument on the macroeconomic variables, limitation on the period and clearance of the medium-term foreign exchange derivatives which are evidently associated with the traditional rate of requirement ratio, open market operation, and discount rates. The instruments are empirically expected to be regulated by the law makers or supervisory bodies.

D) Institutions

Credit channel is experimentally considered as the main transmission channel to convey the impact of monetary policy to the macro indicators via bank lending and balance sheet channels. Hence, all credit institutions as main financial intermediary need to be monitored at the regulated and unregulated money markets which include both banks and non-bank credit institutions (including banks, leasing companies, credit institutions, micro finance entities, credit cooperatives). In this regard, central bank should expand supervisory practices over all money market institutions while facilitating the establishment of supplementary entities to streamline flow of funds and liquidity management such as deposit insurance funds, auditing agencies, validation companies, loans collection companies, rating entities, restructuring institutions, and Special Purpose Vehicle (SPV) institution (Chart 3). Although the functional harmonization of all financial institutions are hardly experimentally observed in different economies across the world, the regulatory and policy coordination have been evidently reported pre and post crisis.

Chart 3: Money market supplementary institutions



E) Markets

Financial markets usually contribute to achieve monetary goals which should be gradually and regularly established in Iran. Secondary capital market has a crucial role to exercise the Open Market Operations (OMO) in line with short term interest rate policy which is obviously located in the center of interest rate corridor. Meanwhile, interbank domestic and foreign exchange markets are also considered as overnight-ficccc igg eett rr to mii tt ii n kkkk'' liiii ii ty lll ccc e ddd clear payment systems with penalized interest rate which is logically mounted above short term policy interest rate owing to the uncollateralized lending and risk-oriented financing. Secondary money market which is functionally introduced to discount highly-qualified asset backed securities (highly qualified fixed assets and non-recourse secured loans with short term remaining maturity) simplifies fund raising by banks with lower rates than interbank and the CBs overnight rate. In this context, there is also a discount window at tee eeaaaaa ay aaii tll mrr ktt rr vvrr tee ttttt tt to eell kkkk'' lww-quality assets to the SVPs, loan collection entities, or other credit and financial institutions (Chart 4).

In this regard, banks which face cash flow shortage, rely on the assets discount, interbank financing, and overnight uncollateralized lending by central bank at different interest rates. The interest rate of the central bank overnight-lending as ceiling rate is empirically higher than the overnight-interbank rate due to the penalized-overnight-financing policy of the CBs.

Eventually, the interest rate corridor is historically bounded by the CBs deposit rate and overnight-lending interest rate as the lower and higher bands. Meanwhile, the short term policy interest rate (OMO), the interest rates of assets discount and interbank rate are respectively located between the middle and top of the corridor.

5.2. Effective monetary transmission channels

Monetary policy, which is conveyed to the macroeconomic indicators by different course of monetary transmission channels, affects output gap through aggregate demand, macroeconomic-consolidated balance sheet, and subsequently, flow of funds at the institutional and market level. The flow of funds which reflect both financial and nonfinancial

saving/investment channels is significantly influenced by the monetary policy key channels including lending and balance sheet channels.

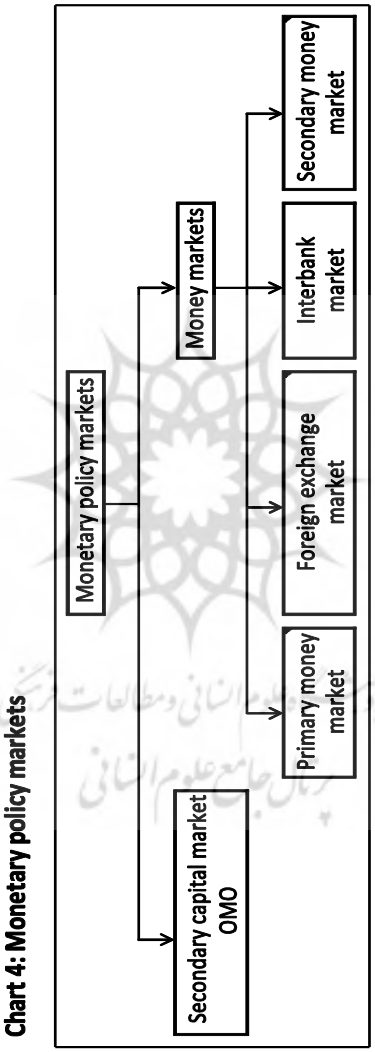


Chart 4: Monetary policy markets

Balance sheet channel which mainly results from the balance sheet revaluation and consequently institutional net worth, specifically banks, partly contributes into the macroeconomic-financing mechanism. Moreover, lending channel is also quantitatively affected by the net worth, such as balance sheet channel, along with broad money growth, saving/consumption trade-off, investment dividend, and loans repayment. Ultimately, lending and balance sheet channels associate together to influence asset liquidability, and macroeconomic flow of funds via different markets. In this context, markets are ranked based on the relative importance in asset market and flow of funds as money market, housing and capital markets respectively constitute 36.7%, 30.4%, and 22.1% of investment in 2013. In other words, although money market is empirically recognized as the engine of financial and nonfinancial investment, the considerable share of housing market as less-productive market with long boom/bust cycle underlines low speed of credit cycle (Table 1). Meanwhile, debt securities which are empirically introduced to finance big projects and public sector deficit, unexpectedly highlight the least share in the financial markets.

Given the prominent share of asset markets (housing and capital) in the whole financial and nonfinancial markets and flow of funds, the monetary policy is evidently requirdd to ttraamliee sseet mrrktt's flow of funds instead of extra concentration on broad money growth and lending channel. Meanwhile, balance sheet channel is obviously expected to be more sensitive against monetary policy stance rather than lending channel in order to achieve monetary goals. In this regard, housing [1] and capital market both seem to effectively contribute to flow of funds and investment financing.

1. Housing market rental return is the least in the assets market which indicates that speculators count on the capital gain rather than rent in the second largest-low liquid assets market in Iran. Hence, financial system policy makers make should make a balance between long-term non-capital gain earning and institutional market value position of real estate given the monetary authorities commitment ookkle fuhhkr eeqpo ooconnnnmnfooooo and asse''' makket bubb...

Table 1: Share of different markets in the flow of funds

	2013 [thousand.bil.Rls/a]	2013 (%)
Debt securities	43	0.8
Capital market	1188	22.1
Regulated market	188	3.5
Unregulated market	1001	18.6
Foreign exchange and gold market	440	8.2
Foreign exchange market	428	8.0
Gold market	12	0.2
Commodity market and OTC	93	1.7
Housing market	1631	30.4
Money market	1971	36.7
Regulated market	1557	29.0
Unregulated market	415	7.7
Total	5367	100.0

6. Conclusion

Financial system has been dramatically integrated over the past few decades, so the institutional portfolio and subsequently flow of funds are remarkably affected by the individual and compound asset market fluctuations, financial market policy instruments and specifically monetary policy. De-segmentation of financial system requires policy coordination among financial market policy makers. Henceforth, the SFSOC has been established to harmonize asset market policies, to monitor the cross-markets flow of funds, as well as to recognize macro-financial system resilience against contingent shocks while yyrrrr iii zigg tee ficccc ill mrr ktt '' glll ,, ittt rmnttt ,, rggll tt inns, and supervisory practices.

Monetary environment as the core of financial system has also been designed in light of the new set of extensive goals including financial stability, sustainable noninflationary growth, external sustainability, and price stability which are functionally considered as macro prudential goals too. In this regard, the monetary policy framework is comprehensively proposed for Iran which systematically

includes the new goals, stance variables, instruments, transmission mechanism as well as timely monitoring and feedback system. Accordingly, macroeconomic data provides a reliable momentum to evaluate both real and financial sectors condition in case the data is timely-ssss itttttt ly mmmiildd yy tee lll iyy mkkrr'' miii trr igg system. The data indicates how far the macroeconomic condition is away from the monetary goals and targets given the relative importance of every single goal for policy makers and the gap between monetary quantitative targets and performed indicators.

Although monetary policy is ultimately reflected into the policy interest rate and discount rates, some other specific-supplementary issues are also reviewed by the policy makers including the impact of policy interest rate on the consumption/saving trade off, saving/investment gap, the contingent reaction of flow of funds at the ittt ittt illll aaa a aatt'' mrr ktt s to the new policy package, monetary transmission mechanism response to the new policy environment specifically credit and external channels (external balance and sustainability), as well as the monetary policy effect on the harmonization of lending and balance sheet channels. In this context, money market vulnerabilities are wisely examined by the supervisory body based on the new-upcoming policies and consequently potential risks. Moreover, the impact of policy interest rate on the interest rate corridor, macroeconomic risk factors and unregulated credit markets are continuously scrutinized.

A wide variety of policy instruments are occasionally applied in the context of the new monetary policy framework by the conventional transmission channels which are technically tracked via monetary condition index, early warning system, leading indicators, and stress tests that give a timely feedback to the policy makers to contemporaneously draw a comprehensive picture of macroeconomic condition and macro prudential stance. The new macroeconomic condition also provides an opportunity to revise monetary policy setting. Macro prudential regulations are carefully associated with a consistent combination of the conventional and unconventional policy instruments to reach the monetary asymmetric goals including tt ilizigg tee itt rr ttt iaaa l rssrr vss' pppp po mii tt ii n ttt rr nal sustainability during the short-term highly volatile capital flows, extending the interest rate corridor to realize the goals of monetary

policy, buoyant flow of funds, reliable-secure payment systems, and characterized institutional risks.

Furthermore, some other supplementary instruments include lll ltt rr ll izttinn ff tee kkkk'' ii gll y-llll ifidd iiii tiss' rffddd via discount window, forward guidance to mitigate market uncertainty, restriction of the short term capital flows in order to comprehend assets and foreign exchange market volatilities, re-establishment of supervisory practice in the central banks based on the function of the last resort at the secondary money and capital market, introduction of timely-efficient monetary transmission mechanism to track the impact of policy instrument on the macroeconomic variables, limitation on the period and clearance of the medium-term foreign exchange derivatives which are evidently associated with the traditional rate of reserve requirement, open market operation, and discount rates.

Credit channel is experimentally considered as the main monetary transmission channel to convey the impact of monetary policy to the macro indicators via bank lending and balance sheet channels which should be cautiously monitored at the regulated and unregulated credit institutions such as banks, leasing companies, credit institutions, micro finance entities, and credit cooperatives. In this regard, central bank develop supervisory practices over all money market institutions while facilitating the establishment of supplementary entities to streamline flow of funds and liquidity management through deposit insurance funds, auditing agencies, validation companies, loans collection companies, rating entities, and SPVs to discount highly-qualified assets.

Balance sheet channel which mainly results from the balance sheet revaluation and consequently, institutional net worth, partly contributes to the macroeconomic-financing mechanism. Moreover, lending channel is also quantitatively motivated by the net worth contributors, such as broad money growth, saving/consumption trade-off, investment dividend, loans repayment, as well as balance sheet channel. Eventually, both lending and balance sheet channels associate together to achieve monetary goals while streamlining the macroeconomic flow of funds, assets liquidability, and cash flow in different markets.

Given the prominent share of asset market (housing and capital) in the whole financial and nonfinancial markets in Iran, the monetary lll iyy is mmi riaally riiii rdd to ttraamliee sseets mrrktt's flww ff funds instead of extra concentration on broad money growth and lending channel. Meanwhile, balance sheet channel is obviously expected to be more effective against monetary policy stance rather than lending channel in order to achieve monetary goals. In this regard, housing and capital markets are both-significantly considered more efficient to finance flow of funds and fiscal deficit.

Policy coordination is historically considered as the most effective-available-expedite driving force in the Iran monetary policy environment given the lack of efficient-consistent tool box, an extended unregulated money market, and weak monitoring system.

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