www.irmbrjournal.com June 2017
International Review of Management and Business Research Vol. 6 Issue.2

Interaction Between Monetary Policy and Fiscal Policy: An Empirical Analysis Evidence from Jordan

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Abstract

The relation between between monetary and fiscal policies is recurring theme ,also it has a crucial issue, where fiscal policy effect the action of monetary policy in various ways ,via short term in demand ,also it has via effect of the confidence and in long- run via the conditions of growth and low inflation, but enhance the monetary policy accommodative to fiscal policy or counter active. In this paper VAR, and SVAR are used, then the SVECM is utilized to have the results of paper such as to prove that the real money demand function can be existence in the long- run. Results indicates that the fiscal multiplier is too small in Jordan economy, in addition to monetary policy affects real output positively ,and it has effected the shocks and movements of inflation ratio. The inflation coefficient of the monetary rule by Taylor rule is (0.63),but its through FTPL rule is (0.67),and the debt coefficient of fiscal policy rule is (0.051)through Taylor rule, and by FTPL rule is (0.095.

Key Words: *Monetary policy, Fiscal policy, VAR, VECM, Granger causality, Jordan.*

Introduction

Where the government used many instruments in the conduct of monetary , management of debt and fiscal policy ,therefore the main objective of this study is to check whether the government's financing needs and its payment obligations, in a status of consistent with a prudent of the lowest level of risk, through the government budget for stack composition, referred to strategic benchmark. Other objectives, such as to give a clear picture of monetary policy in Jordan and how it works in economics beyond the fiscal policy of the government. Also to insure of public finance sound spending and taxation impact fairly both in short and long –run. This paper focuses on the extent to which monetary policy should be concerned explicitly with financial stability objectives, where the macro prudential regulation is also a component of policy from work which aimed at preventing disruptive and costly crises.

Question of the Study

Whether monetary policy should be altered to constant fiscal or financial stability risk which evolves and circumstances change. However, the channel through which monetary policy effects financial stability domestically across borders, and over the business cycle is rapidly evolving. In general, we addressed whether the government spending and taxation operate according to automatic stabilizer, more precisely, how this process designed in order to insure that monetary policy act in a correct manner?

The other question is how different fiscal rules will perform in the presence of optimizing monetary policy makers. Were many difficulties of this extension is stands as obstacles in front policymakers, that is, through the complexity of the framework makes it more difficult to drive an appropriate welfare function for monetary policy makers in Jordan.

Preface of Subject

The core objective of fiscal and monetary policies is to control the inflation, and involved tradeoffs, also it would enhance the credibility, and effectiveness of policy which implement in Jordan .The plan of fiscal policy in Jordan to keep the cost of debt servicing low as they could in order to create in a short-run a fiscal space, and these forces lead the government to cut expenditures , or sometimes raise taxes, or made new taxes. But in the other hand, this may increase the volatility of future debt servicing, even debt amount itself increased by new borrowing, all these conditions lead government to take myopic policy choices in order to keep the stability and control the inflation.

Alternatively the fiscal policy attempted to hold the exchange rate of its currency, flexible, and interest rate in low ratio. The debt management in Jordan is centralized in both terms short and long- run the fiscal policy control both monetary policy and debt management policy ,many authors such as (Tinbergen,1952. Tobin ,1993. Miscualett,1997. And Wheeler, 2004), advised in their researches to separate the management of debt , and their opinion in this field as this can help to avoid conflicts ,and can help the government to improve its policies in life statements in country policies.

The interaction between monetary and fiscal policy are important, according to fiscal policy affects monetary policy in various ways: in many impact faces in a short-run of aggregate demand and labor ,and the effects in long –run is low inflation and economic stability. Authors as (Bobica,) says as a consequence if major policies such as price stability and sustainable growth have achieved, then the monetary policy may be accommodating or counteractive.

But in general, any study should have studied how the interaction between the two policies, where in Jordan the government policy situated constraints the efficacy of inflation strategy in keeping the inflation rate under controlling, and restraining fiscal dominance, and coordination between fiscal policy and monetary policy, this policy is national concern which regarding the interaction between the two policies which can be formulated at levels of macroeconomic analysis.

The continuous changes in the structure of the economy become a main factor in conducting the monetary policy, where the technology factor has evolved the real and financial sector due to its influence. the central banks and monetary theory also in this centaury has diverged ,because the world is infinitely more complex and constrains them before , in general central banks operate with empirical and political framework, also choosing the practical aspects in treatment problems which appear time to another ,to make operational decision in pursuing the monetary policy targeting ,the economic theories can provide no unambiguous guidance to policymakers in solving problems and how to deal with such errors in estimating the output gaps and crises.

Previous Studied

Among academic, certain beliefs hardened into paradigms with upshot being that eventually a certain approaches to theory of economic were deemed legitimate (Morley, 2010), reported in his study that macroeconomic eventually came to define a method rather than a subject of matter.(Roger and Vicek,2012) said that banks still use semi structural models as their core model in forecasting and policy analysis. were (Laider,2009) has studied the new paradigm, and he suggest ,we simply need to remember some of principles that served the bund bank as well, and have asked a question that have long will we have to wait until the neglect of money and credit in monetary theory and policy which will be as a major source of macro policy mistakes?

(White,2011)psychologists refer to the phenomenon of cognitive dissonance ,human beings gives little attention to evidence that conflicts with prevailing paradigm, until the evidence becomes so overwhelming that a paradigm shifts is required, The facts in this field that central banks sometimes shifted focus from one monetary aggregate to another, where monetary rules were a precursor of the Taylor rule, in that the operating producer followed to invert the estimate demand for money function and determine what path ,the policy rate had to follow to hit the money supply target.

(Leeper and Yun,2005) ,they have studied the fiscal theory of prices challenges of Barro –Ricardo equivalence market imperfections, tax-distortions ,consumer myopia by combining way of the fiscal and monetary policies together. where the true contributions in this field of monetary interaction with fiscal policy comes from (Muscatelliet et al, 2001)whom applying the VAR econometric model, their study conducted to G7economics, they examined the interaction between fiscal and monetary policies to answer the question of instrumental shocks, Where (Muscatelliet et al ,2004) argued that the perspective on the monetary fiscal action depends essentially on the type of structural model which applied to analysis the data. Finally they have provided a structural economic interpretation for the interaction between fiscal and monetary policy.

(Von Hagan et al , 2001), they have used in their study a cross sectional data to examine the relationships between monetary and fiscal policy a long business cycle , the results of the study indicate that the two policies are evolved together. Were (Hassan,2003) showing that the nominal interest rate does not have a significant impact on real domestic credit to the private sector . (Kumhof et al ,2010) who interest of new global integrated monetary and fiscal policies constructed of the IMF , distinguishes these two types of households as well as ,then he estimated the multiplier ,the extent of monetary accommodation ,and the presence of a financial accelerator mechanism as (Freedman et all ,2009).

(Sim,2013) who combing capital accumulation and governmental bonds, to examine regimes under which monetary policy can offset adverse effects of fiscal policy, he points out a recent expansion of central banks balance sheets of rich countries sovereign debt, as well as evolving political economy of the EMU.(Agenor et al 2011)found that a sudden floods have been on numerous occasions as a source of macroeconomic stability in many Mics as a result of rapid credit and monetary expansion ,inflationary pressures, real exchange rate appreciation and widening current account deficits. But (Terrier et al ,2011) provides a border review of macro prudential policy tools used or available to policymakers in the region to mitigate the recycles effect financial cycle. Also (Daving and Leeper , 2005) extend the original contribution of Leeper to an environment with switching regimes which cover all combinations of active and passive monetary and fiscal policy-making, this implies that the shocks to fiscal policy affects the dynamic of price level.

(M. Alalaya , 2016), investigated the effects of the monetary transmission mechanism in Jordan over the period 1988-2013, using the VAR model, h's finding reflects the current operating target of the monetary policy, the interest rates on bank loans, and how the C.D of 3months and 6 months influenced both the

bank retail rates and foreign reserves. The study shows that the aggregate activities in the Jordanian economy responds very slowly to changes in the lending channel of bank lending rates, therefore, it does not influence domestic credit, because the interest elasticity credit demand is low. Also the equity prices and the exchange rate are remarkably the significant channels of transmission monetary policy, generally, the evidence of monetary policy is low significant of affecting economic activities.

(Muscatelli et al,2005) , they have estimated a small econometric model for the USA, over the period 1970-2001, based on a log-linearzed new Keynesian DGE model , and analyzed the performance of fiscal stability in the presence of forward looking Taylor rule, they show how fiscal and monetary policy interaction in a structural model with inertia due to the presence of non optimizing consumers and firms Where (Muscatellid et al ,2002) estimates VAR models to examine the response of monetary and fiscal policy to macroeconomic targets, and how interdependence between the two policy instruments, and they have demonstrate that shifts in strategic can be captured by Bayesian VAR model ,utilized of a single equation in their methodology. (Tirelli and Trecerci ,2002) ,shows in their paper that fiscal and monetary shocks play a similar role in explaining the forecast error variance of business cycle fluctuation .The fiscal and monetary tends to move in the opposite direction to each other, and the higher debt burden tends to trigger an adjustment process , we can note these results in many studies such as (Von ,Haget et al ,2001) , who used the pooled data for numbers of OECD economic, and in (Melitz ,1997,2003) then (Wyplor,1999).

The main contribution of this paper is to show the logic needs to be modified in an environment which deports from all theories and economic thoughts such as Recardian equivalence , and Leeper's notation of active fiscal policy, alternatively with the view of fiscal theory of price level implying that equilibrium dynamic levels which driven by a Genuin interaction of monetary policy and fiscal policy , passed into a tractable new Keynesian model in which wealth a affects of the government's debt are not restricted to the intertemporal budget constraint of the government , but fully interact with all remaining equilibrium conditions of the country economy.

This paper organized as follows: the first section included the question of the study, objectives of this study, and introduction contains the previous studies. Where section two surveys some of existing literature reviews related to monetary –fiscal interactions, where section three stated the sources of data , and methodology included the model , section four we outlined the empirical results of the study ,where section five pointed out the conclusion of the paper.

Literature Review – Theoretical Approach

In this paper, we have chose some of variables related to the subject, not all of them such as :

1) Exchange Rate Regime

(Bordo ,2008), (Goodhart,2010) and (Laidler,2007),who has drown an earlier survey of the conduct of monetary policy ,but the real and financial sectors have evolved under the influence of technology which changed over time. From Britton Woods(1946 to 1972)then monetarism (1972-to 1982),inflation control (1982-to 1993),inflation targeting (1992 to 2007) , and finally the response to the crisis (2007 to 2015), the knowledge is accumulated incrementally, and the changes of monetary policy have occurred in response to these changes.

(Cagliarini et al,2010) who agree that both theories and practitioners are focused their intentions on inflation after the beginning of the great inflation of 1970's. Underlying reality the country cannot simultaneously have free capital flows, a fixed exchange rate and autonomous monetary policy. The Bretton Woods system gave priority to fixed exchange rate but some time adjustable to the conduct of

monetary policy in a country, the desire of this issue is reflects the belief that it's necessary for a country share in the world trade. In spite of the fact of the center of the system country, USA was pursuing an aggressive monetary policy ,also in spite of the rising domestic inflation, many authors argued about the reasons for the failure of monetary policy to resist rising of USA inflation, the first reason that inflation type is cost – push phenomenon ,while monetary policy could not do anything toward. (Meltzer,2009) and (Nelson,2012) have in their papers declared the Nixon's reelection by keeping policy rates down.

Growing many of theoretical literature, was supported many ideas such as a floating exchange regime allow determined a national monetary policy , a desirable response to systemic shocks between countries, this happens prior the breakdown of the Breton Woods system , after this breakdown trade expand rapidly and trade barriers are declining ,also capital flow stressed along the autonomous monetary policy. As conflicts inherent in the impossible trinity also still more evident.

The 1990's crisis attests to some problems posed for policymakers by higher volatile capital flows, in both capital inflows and outflows. In this period a number of Asian countries used an easy monetary policy to resist the upward pressure on their exchange rates. The exchange rate crisis led to a fundamental rethinking of how to deal with the impossible trinity problem, and theses' treaty led many studying research this problem or phenomenon which implied that free capital flows could cause floating exchange rates to move in vary along the way from the equilibrium level with significant implications.

Many of European anticipates in their discussions leading up to the establishment of the Euro zone, and if so the Euro zone required fiscal policy, banking and overall political union. In high of global crisis (Reinhart and Sbrancia,2011) in their study have noticed the growing capacity of AME- governments to serve their sovereign debts, Finally, IMF statements in 2012,that policymakers in countries where capital flow's originate must think about the implications for others,

Conducting Monetary Policy Framework

Policymakers required to have some knowledge or belief to connect what he is trying to control through the objectives of monetary policy also with control instruments, forced by an economic thoughts of how economic worked and political issues in their countries. This can be built by the formulated theories and experiences through their works and scientific methods which will be required to the policymakers. This viewpoint agreed by (Backhouse and Bateman ,2011), in this consequence the consensus supporting the use of models began to breakdown in late 1960's,many authors considered the two factors are playing a key roles facts and theory; first the simultaneous of unemployed and inflation in 1960'sand 1970's using a traditional empirical model.

(Friedman ,1968) ,and (phillips,1968), introduced the concepts of the NAIRU (non accelerating inflation rate of unemployment), the fact of these ideas if there is no long –run relationship between inflation and unemployment and no tradeoffs since inflationary expectations are endogenous. Especially on early 1970's which has two major shocks to oil prices , which led to much greater emphasis on modeling supply side shocks and other factors which explaining inflationary expectations. Also in 1970s (a reduced from) models which based on the monetarists theories of Milton Friedman has increased acceptance more than the Keynesians structural models.

The figure illustrates that the target output, inflation achieved, and no welfare lost in the forecast period, but there is growing financial risks, and it's higher in short-run ,and the crisis effects in lower expected in the medium term.

The relation between monetary policy and tradeoff is declared in figure (1) below.

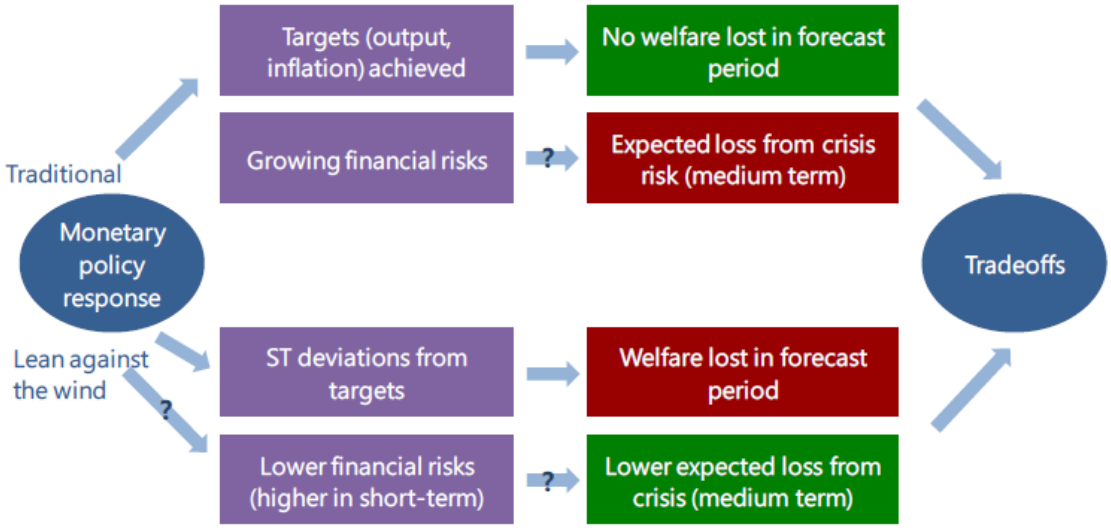


Figure (1): The relation between monetary policy and tradeoff.

The reduced forms of monetarist can be forecasting the nominal GDP on the basis of the previous rates of growth of monetary aggregates in a country data. Money growth in a country would drive up inflation and inflationary expectations, Friedman expected that real growth lets quickly return to trend once shocked away from it.

The monetarist framework was based that stable demand for money function proved to be an illusion. Friedman's assumption that unemployment could be a temporary phenomenon, led(Sargent and Walace, 1970) replaced the assumption of adaptive inflationary expectations with that of rational expectations, the logic of this replacement seemed compelling, and it made the assumption as a small model to be computationally tractable at the time. Then (Lucas,1980) noted that all structural equations have imbedded in them some process of forming expectations, also he noticed that any change in monetary policy would therefore render unstable estimated on past data.

(Hicks,1937), has suggested IS / LM model which expressed in Kene's general theory 1936, the model explains how fluctuation in the flow components of national income, certain beliefs hardened into paradigms with the upshot being that eventually, only certain approaches to the theory were deemed legitimate. For more thoughts which describe the modern macroeconomic such as dynamic stochastic general equilibrium models came to define a method rather than a subject matter of problem , and the effort of researchers and scientists is concentrating on evaluating the forecasting capacity of these models. The dynamic stochastic general equilibrium model (DSGEM),was estimated by many general banks, but their relevance to actual policy decisions seems to have been quite limited.

The constraint is imposed to central banks by the government and framework just always discussed through the conduct of monetary policy which declare first, even policymakers claim to be reasonably certain about what models is best describe the working of the economy and these remains about the nature of exogenous chocks. Second, they must be agreed on the objectives which being sought in conduct of monetary policy, then the third processes are required to formulate and then implement the monetary policy.

Political Framework

The development of policy over time, however, central banks were given some liberal policies and more independence policy , but this idea is misleading ,that no government institution can be wholly independent anywhere, due to needed by helping public and popular support(Sliber,2012),who record the Volcker belief.

In numbers of countries, the objectives of monetary policies which was clarified, and these objectives are ranking, but some of central banks, came to focus on a significantly narrow set of objectives, as these policies conflicts in the course of implementing of monetary policy became more apparent, in addition to the problems posed by impossible trinity, beyond some limits, these causes higher inflation.

Many central banks over the world has been given the mandate of pursuing stability of prices in their countries to arrange their the other policies in order to maximize growth in the economy, this can provide a consistent with the other objectives, to achieve these goals, these central banks has given by the political authority a dual mandate with no preference. The chosen of tradeoff determined through a wide spectrum of possibility, the chosen of tradeoff also determined between immutability and flexibility.

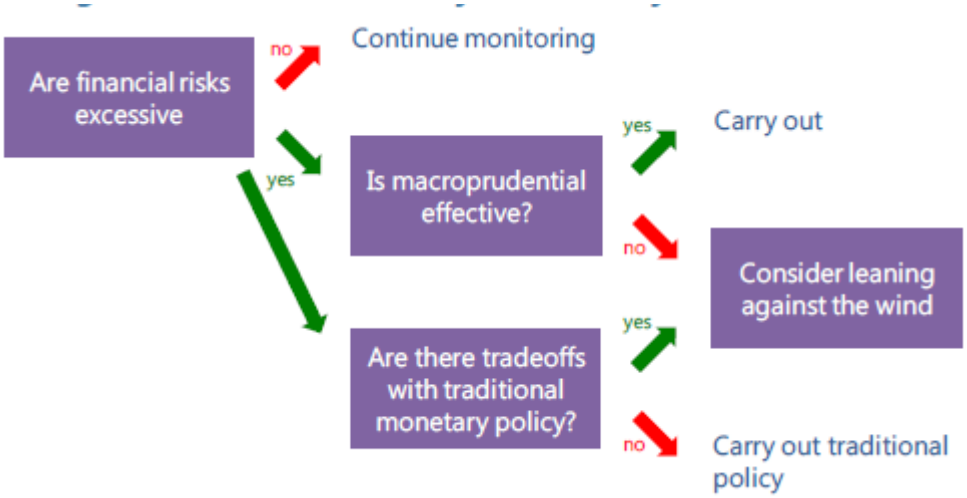
Central banks in many countries announced their policies in mandate jointly with the government legislations, and this mandate becomes as a part of the country's constitution. In general the government involvement policy interprets which considered by some banks as a threat to their affairs independency, in other hand other central banks welcomed of these involvements by putting some agreed constraints on the pursuit of active fiscal policies.

Therefore a clear assignment of responsibilities between central banks their self in council of IMF to keep monetary stability, and inside their countries with their government needed, the political pressure would always give primacy to short- run objectives, regarding of long term costs, was a further argument for putting technical issues.

The central bank has in principal an ex ants and ex post aspects, ex post accountability has to do with central banks has failing to fulfill their mandate, a variety mechanism have been put in place to insure that an explanation is give whenever mandate were not met in many countries, the government has explicit right to send a directive to governor of central bank to force a change policy ,this means that the governor of central bank resign if such a directive were sent, but in I ex ante aspects has do and act with transparency, and the central bank governor should explain the actions clearly, this principles or aspects changes overtime to the principle that the governor central banks never explain ,never apologize , but also this aspects changes after 1980's as central banks anywhere they should publishing monthly and annual (yearly)their specifications on internal economic indicators and models.

Uncertainty Conditions Dealing

The market theories clearing rational expectations which depend on imply of few uncertainties in conducting monetary policies, and any changes in monetary policy are reflected in change in prices with few side effect directly and also effected directly the level of prices. In the conduct monetary policy, central banks and policymakers should always have to cope with the other deficiencies in their knowledge about how the economy functions, such as to consider the current debate of fiscal multiplier, measuring output gap. (Borio, 2013) has noticed that aftermath at a credit bubble, when output level can be raised to unsustainable levels without a simultaneous increased by the inflation rate, all systems are subjected to unexpected chocks of various sorts.The dealing with a financial stability over the cyclic dimension is available in figure (2).



Figure(2) : Dealing with a financial stability over the cyclic dimension.
Source : International monetary fund, monetary policy and financial stability ,Augest ,2015.

As the figure the question which appear whether financial risk excessive, the answer is not continuing monitoring, but yes for tradeoff with traditional monetary policy, but not carry out traditional policy. In an aspects that any changes in policy rates reflected in other asset policies, such as exchange rate, and in turn of aggregate demand, output gap, and inflation rate, in addition to many effects either, interest rate effects through substitution effects .Where the distribution effects representations of wealth effects, risk seeking effects, foreign debt effects can affect the cost of capital. Many structural changes can be happening due to, implied changes of expectations, these changes occurred in real and fiscal side of the economy; these changes may affect the transmission mechanism over time. Many authors suggest that the objective of monetary policy should be changed to give more credibility and promise that policy rates are still at very low for a long time such as; (Woodford,2012) , (Turner,2013); they suggest that policymakers should consider expanding fiscal deficits.

Monetary Rules

In theoretical approach I have discussed the monetary policy , many authors have written their papers and studies to be an attempt to estimate the interest rate, (Muscatelli et al ,2002)provide that shifts may have occurred even after Volker years, other caveat is the monetary policy which estimated were shifts as anticipated deviation from the policy rule, and tends to misinterpret , to estimate the nominal of interest rate (r_t)the model can be written as follows:

$$Rt = GO_1 ET JI_{t+q} + GO_2 Y_{t+s} + GO_3 r_{t-1} + GO_4 r_{t-q} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where: rt represents the interest rate , and the model estimate can be inertia when to have good fit for the model , and have the specific estimates when q=1,and S=0 . The estimated interest rate results as monetary role of our evidence Jordan data during the estimated period results as; GO1 (0.316) with prob level (0.072) , GO2

(0.0257) with prob level (0.063) , and GO3 (0.769) with prob level (0.0584), where GO4 is (1.234) which significant at the 5% level with Std / error 0.8715 . Hansen test statistic as 18.51, where the test is insignificant at 5% level. The estimated equation and nominal interest rate as monetary policy rules shows that a significant output gap effect in Jordan economy, then as a long- run effect of GO_4 as expected inflation on nominal interest rates (rt) of Jordan economy is significantly greater than unity in the period of

study. The nominal interest rate can follow the Taylor rule which responding to the output gap, and inflation, the function of the nominal interest rate can be as follows:

$$rt = p\, r_{t-1} + (1-p)\,(\text{ᏩƆ}n\ Лt + \text{ᏩƆ}y\ y_t) + Et \ldots\ldots\ldots\ldots\ldots(2)$$

Where: (r_t) represents the nominal interest rate, and $Л = p_t / p_{t-1}$
The foreign exchange rate can be defined as a purchase of foreign currency to the local currency value, representing to exchange rate gap:

$$EX = b_1\, et + b_2\, \Delta\, et + ET^{EX} \ldots\ldots\ldots\ldots(3)$$

Where: EX: is nominal exchange rate gap , and et represents the nominal exchange rate, ET : is the stochastic errors , and $b_1, b_2 \leq 0$.

Finally the net of foreign assets of the central bank can written as:

$$NFA\ t = ANFA\ t\text{-}1 + EX \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

The fat is net foreign assets of the central bank, and EX: is the foreign exchange intervention.

Fiscal Rules

The automatic stabilizer for a Jordan fiscal policy can be determined as follows:

$$Tt = {}^{\gamma}{}_1 T_{t-1} + {}^{\gamma}{}_2\, y_{t-1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(5)$$

Tt represents the vector of two tax measures, and Yt is personal pay rules . The imposing of government taxes imposes the adjustment – pattern of tax, and its not care about how the tax measure can improve the policy. The idea does not allow the feedback of policy to budget deficits or debt accumulations.

The fiscal rule is capturing the automatic stabilizer in the short-run through output gap. The baseline estimated results is stated below. We considered in our estimation a number of variants for fiscal rules, and state the sensitivity analysis to conduct the fiscal policy rules which is affected by small changes in the central bank policy. We have simulated the model to capture the effect with combining the monetary policy rules and fiscal policy rules, the simulation assumed that temporary 2% inflation shock level, we have got two results:

1-The taxation feedback rules is switched on.
2-Both monetary policy rules and fiscal policy rules are labeled.

This means that fiscal policy works as; the shock to Phillips curve will cause more rise in inflation ratio in Jordan economy, where the output is falling. In this case the monetary policy will begin to react against the government spending and personal taxation react to reduce the consumption of consumer, while the government spending and personal taxation tend to increase demand and raise output. The government treaty of debt with the IMF raises the tax ratio and also raises the prices, and inflation ratio, and unemployment, all of these issues are against rule –of-thumb consumers. The government budget constraint can be written as follows:

$$Tt + ht = G_t I + G_t\, C + (d_{t-1})\,(b_{t-1}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots(6)$$

When the fiscal debt of government is generated by the tax cuts, and only government investment, and consumption increased suddenly the fiscal instruments have the following rule in their responds to fiscal

debt, and the government responds to the output gap, these relations can be in the following equation: set off

$$Tt = \gamma_b b_{t-1} + \gamma_1 G_t I + \gamma c\, G_t c \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

$$Gt\ I\ b_{t-1} + etGt\ C) \ldots (8) .. \zeta - P\ G1\ G_{t-1}\ I + (1-PGI)\ (\ VGtI\ Yt\ = G_t I$$

$$Gt\ C = PGc\ G_{t-1}\ I + (1- PGtc)\ (\ VGc\ Y_t - \zeta\ Gc\ b_{t-1)+Et}^{GtC} \quad \ldots\ldots(9)$$

Where:

Bt : real purchases of government bunds, which equal Bt / Pt . Et is the stochastic errors. Tt denotes to real lump sum taxes.

Gtc : denotes to government expenditure . Gt I : represents the government investments, and hat denotes to deviations of variables in their steady state. At last the following table explains the monetary policy effects on financial stability as a summarize of subjects.

Table (1) : Monetary policy effects on financial stability.

Sources of Financial Instability	Channel	Predicted Effect (↑ improves stability) ↓r	↑r	Selected Empirical Evidence	
Borrowing Constraints	Balance Sheet (default) Channel	↑	↓	Sengupta (2010) Jiménez and others (2009) Gertler and Gilchrist (1994) Asea and Blomberg (1998)	↑r, ↓ ↑r, ↓ ↑r, ↓ ↑r, ↓
Risky Behavior of Financial Institutions	Risk-taking Channel	↓	↑	Jiménez and others (2009) Ioannidou and others (2009) Merrouche and Nier (2010)	↓r, ↓ ↓r, ↓ X
	Risk-shifting Channel	↑	↓	Gan (2004) Landier and others (2011)	↑r, ↓ ↑r, ↓
Externalities through Aggregate Prices	Asset price Channel	↓	↑	Altunbas and others (2012) Del Negro and Otrok (2007) IMF (2009)	↓r, ↓ ↓r, ↓ X
	Exchange rate Channel	↑	↓	Hahm and others (2012) Merrouche and Nier (2010) Jonsson (2009)	↑r, ↓ ↑r, ↓ ↑r, ↓

Source: IMF.

1/ ↓r means a decrease of policy rates, ↑r means an increase of policy rates, "↓" means a decline of stability, "↑" an improvement, and "X" no statistically significant effect.

Section Three : Data and methodology:

The data sources are:

1-central bank of Jordan, monthly reports, annual books, several issues.
2-International monetary fund reports ,several issues.
3-Jordanian department of statics, several issues.
4- Arab unified economic report; 2000, 2009, 20016 .
5- The world development indicators,UN,2010,2014.

The structural VAR model mainly used in this analysis and its specifications, and variables are stated over period analysis (2000 – 2015),used annual data of these variables. We must sure that variables of data are stationary before using the VAR model , in this case variables series are non stationary at levels 0(1), then we should have to use the detrend variables or first difference of ADF,and PP tests, in our case we the three lags and seven lags difference in the ADF tests under 1%, 5%,10% level significantly.

Then we have test data series for nonlinear response to check whether the relations are linear or nonlinear. This is available in table (2) below.

Table (2) : test of non linear policy response .

policies	Transition variable	Hypothesis Ho:ζ=0	Testing Ho:ζ1=:ζ2 =0
Fiscal policy	Yt	0.3625	0.3174
	tЛ	0.9872	0.6553
	rt	0.2134**	0.9477*
	bd_{t-1}	0.8375	0.2.149**
Monetary policy	Yt	1.2177	1.8945**
	tЛ	1.2354*	1.7361
	r_{t-1}	0.5236	0.6418
	bdt	2.0762**	1.6489

and** indicates that null hypothesis is rejected at 5%,and 1% significant levels.*

Most relevant tests of nonlinear policy response are : ζ1=:ζ2 =0, which points up whether there is a policy response or not in a nonlinear way among these transition variables. The null hypothesis is rejected on fiscal policy at the 5% level , the lagged budget deficit ,which suggest that nonlinear is unlikely to affect any inference about the response of fiscal policy to monetary shocks and vice versa. Also we have tested the data by Taylor rule and FTPL rule, the results are stated in the table (3).

Table (3) : policy parameters of Jordan data through Taylor and FTPL rules.

Parameters	Coefficients	Taylor rule	FTPL rule *
ζ	Inflation coefficient of monetary rule	0.63	0.69
λ	Debt coefficient of fiscal rule	0.048	0.097

*: FTPL :is the fiscal theory of price level.

The domestic Taylor rule includes lagged interest rate, inflation, output gap, and the nominal exchange rate gap, but there is also a rule for foreign exchange intervention responding the nominal exchange rate gap and its changes (Sarno&Taylor,2001).the analysis indicates that debts is not operate under regimes that feature passive fiscal policies if we draw the IRF,the innovation of the real value of government debt are met by actions that initially fully offset the increase in Jordanian government debt.

The model of the study :

In this paper, we have utilized of the structural VAR model (structural vector auto regressive approach), which proposed by (Blanchard,and Watson,1986),and (Bernake , 1986),and (Sim ,1986), the VAR model of order p ,can be as follows :

$$B(0)\,Xt = Ц + \beta i\, Xt_{-1} + \ldots\ldots + \beta p\, Xt\text{-}p + et \quad \ldots\ldots\ldots\ldots (10)$$

Where: β(0) is a matrix of contemporaneous interaction , when diagonal and others reveal conterpornnous interaction. Bi : is a matrix of structural coefficients, i=1,….p
Xt: represents vector include the variables in the model. Where Ц is a vector of intercept terms with non zero mean. And et : is a white noise innovations process as a structural error, which suppose to correlate , but not auto correlated.

Where the reduced form of VAR model, which can be solved can be formed as follows:

$$Xt = \beta(0)^{-1} Ц + \beta(0)^{-1} \beta(L) X_{t-1} + \beta(0) et \quad \ldots\ldots\ldots\ldots\ldots\ldots(11)$$

In this reduced form(et) is a function of the structural innovations interaction among variables, and this

(et) is necessary to obtain the impulse response functions, also imposing restrictions of VAR to have a dynamic effect of exogenous shocks, and it is too important to the VAR model to represent as a vector moving average.

The restrictions on the VAR models known as: the short-run restrictions, which based on economic theory, it emphasis that the shocks are assumed to have temporary effects on the variables. Variables in the model are : real GDP (Yt) and inflation rate (JIi),which computed as the first difference on the lag of the GDP deflator, the fiscal policy stance variable in this paper is the government expenditure (Gt), due to the lak of taxes rates in Jordan. Where M2 is liquidity money in Jordan is used in the second policy, many authors arguments about the nature of effects between variables in monetary policy variables such as , Creel et al ,2005) and (Muscatelli et al ,2002)their arguments about the interest rate which is if the interest rate payment include in the cyclic adjustment deficits, when (Muscatelli et al ,2002) argued that the fiscal policy stance has the contemporaneous effect of interest rate , The GDP deflator is (2000 = 100%) as a base in this study, all variables are deflated with annual data.

The Long –Run Restrictions

The restrictions in the long –run are based on the structural shocks, behavior which is more acceptable and consistent with long –run properties of economic theory, the long –run can be captured from the moving average in the following equation:

$$Xt = (1 - \beta(L))^{*}(L)^{-1} et = Ц(L)et \quad \ldots\ldots\ldots\ldots\ldots(12)$$

Where: $Ц(L) = \Sigma Цi\, Li \quad \ldots\ldots\ldots \quad i=0$

This represents the response of variables of Xt+1 to the changes in the shocks, since Цi is the impact multiplier ,the Cholesky decomposition method is imposed with long-run restrictions ,Xt = (Yt, M2, Gt, Jlt) .Four structural break shocks ,price level break shocks(e^{p} , IS shocks e^{IS} , LM shocks e^{LM} , aggregate supply shock. e^{AS}.

Whearse (e^{AS}) can provide the solely effect on output , which affected by capital and labor endowments in the long-run as more illustration.(e^{IS}) reflects a chocks of fiscal policy, e^{LM} reflects the money supply shocks.

We have used the(SVECM)due to the advantages of this econometric method as it can deal with the unit roots of data , the estimation of the impulse response function is more accurate than other models. Also, it allows us to identify the structural shocks through imposing long-run restriction.

Empirical Results

1- Integration order of the series ,Augmented Dickey –Fulier (ADF) test has been implied ,and Phillips – Perron (PP) test for the existence of the unit root ; where the optimal number of lags has been selected by Hannan-Quinn ,in the ADF test, the null hypothesis of the presence of unit root could not be rejected for any of the variables includes in the (SVECM). Therefore, all variables in the model are 1(1), while their first difference become stationary at 5% significance level, this can capture in table (4).

Table (4): ADF and PP tests of unit root for annual data of Jordan.

Variables	ADF at level	ADF 1ST difference	PP at level	PP 1ST difference
Y	-2.0354 (0)	-4.372-e2* (0)	-1.973 (1)	-3.856 (3)
G	-0.937 (0)	-6.483** (0)	-0.783 (1)	-5.647 (1)
M2	-3.476 (1)	-2.146** (0)	2.981 (4)	2.075 (4)
Л	-2.072 (5)	-4.385* (6)	-3.159** (2)	-7.633 (2)

1) The numbers in brackets are the optimal lags HQ(Hannan- Quinn)information criterion.
*,** Machinnon (1996) critical values indicates that are significant at 1%,5% level, as null hypothesis existence at these levels.

The null hypothesis of the presence of a unit root test could be rejected for any variables at level in table(5),whereby the 1st difference done, then the test implied , their first difference becomes a stationary state,at 5% significance level. The chosen of lag length , we can make our choice through a plausible criterion to have an appropriate lag length of the VECM .

Table (5): Lag length

Lag	AIC	FPE	SC	HQ
0	-4.093-e05	2.798-e03	-4.082e03	-3.9821e04
1	10.8562	1.843e05	-10.235e03	10.1743
2	11.765	1.635e02	11.3975	11.0421
3	13.364-e08	1.245e04	13.2716	13.08541

AIC : Akaike information criterion.

The optimal number of lags in the ADF test has been selected by Hannan –Quinn criterion ,the results of the unit root test,Johnsen Co integration test is conducted, including constant and a linear, deterministic test trend in the data, According to Hannan – Quinn optimal lag length (2) lags are chosen for the VAR model.

The real money demand function can identify a Co integration, relation, where real money demand plays an important role in macroeconomic policy ,where M / P is the log of M2,i is the nominal interest rate ,and Y is the lag of GDP, therefore the equation as :

$$M / P = f (Y, i) \ldots\ldots..(13)$$

And $i=r+Л^e$ (Fischer's equation).

R:represents the real interest rate , $Л^e$ is the expected inflation rate in Jordan, whereby the interest rate is assumed to be constant in the function the function can be written as :

$$i = Л^{e} \quad \text{……(14)}$$

In the long –run ,this can be addressed ,the result of unrestricted Co integration of Johnsen – jousloies method appear in the table (6).

Table (6) : Unrestricted Co integration Johnsen method results

Hypothesis No of Ces	Eigenvalue	$_{trace}\lambda$	5% critical value of traceλ	$_{max}i\lambda$	5% critical value of max$i\lambda$
None C	0.918	48.956 (1)	41.786	32.164 (2)	25,458
At most 1	0.653	27.643	30.254	19.873	22.363
At most 2	0.124	0.489	14.379	0.675	12.134

1:p –value of is : 0.0162 ,0.3921, 1.00 .
2P-value of is : 0.0093 , 0.0658 , 1.00 .

The trace and maximum eigenvalue indicates that there is existence of Co integration equations as one equation at 5% significance level .

The Vector Error Correction Model (VECM):

Elimination algorithm is executed as it from regressor in the equation, and follow its contribution in improving the Hannan –Quinn criterion .The matrix contains the long –run parameters (β),and the short-run of error correction coefficient (a) , this can be obtained from Co integrated VAR. Then Wald test for beta restrictions of the Gt in the Co integration vector by using LM estimator, the null hypothesis is insignificant ,as these results, it can be rejected at 5% level significance level for this restriction.

Table (7) : VECM (vector error correction model estimation.

Variables	Estimated Co integration relation	d(M2)	d(Gt)	d(Y)	d(Л)
$M2_{(t-1)}$	1.00	$EC_{(t-1)}$ -0.314 (-6.267)	0.0001 (0.000)	-0.005 -(0.39)	-0.036 -(1.843)
$G_{(t-1)}$	0.0007				
$Y_{(t-1)}$	-0.658 (-10.935) *				
$Л_{(t-1)}$	2.897 (6.453)				
C	-3.1592 (-2.428)				

Values in brackets are t – statistics . * :
Wald test for restriction Beata : (0.0006)
T – statistics : (0.6835).
P –value : (0.4381) .

According to table (7): results the income elasticity of money demand in Jordan is positive ,this can be interpret through ,that the demand of money is increased, also in the is increased, and real money supply and the inflation rate are statistically significant, also the real GDP and inflation rate are statistically significant. The error correction coefficients declared that the monetary average adjustment is 31% during the period of study, the Co integration vector equation as follows:

M2t = -3.1592 + 0.658 Yt - 2.897 Лt
(2.428) (10.936) (6.455)

The test of residual which obtained from the VECM appears in table (8).

Table (8): Results of residual tests t of the VECM .

Tests	Statics	Prob level
Non normality test df:8 (Doormik and Hansen,1999)	3.6284	0.9176
Portmantaue test df 106	115.0327	0.8972
Jeraque –Bera test	1.06543	0.5842
E1	0.1398	0.0873
E2	0.6792	0.0965
E3	0.7445	0.8255
E4	0,7948	0.9032
Arch – LM test	11.3675	0.3894
E1	7.5682	0.8164
E2	10.4181	0.6545

The diagnostic results 0f test 0f the VECM residual indicates that the portmanteau test of autocorrelation among residual does not exist auto correlation at lags 1 to p, the null hypothesis of no auto correlation could not be rejected in the first 12 lags. The Jeraque –Berra and Doormok – Hansen tests are testing for the normality , these test let us do not reject normality at the 5% level significantly, when Arch LM test with 10 lags indicates to the absence of Hetroscadacticty problem in the model.

When we estimated the structural VECM model in both short –run and long –run by using the maximum likelihood, the coefficients are available in table (9)

Table (9) : The structural VECM impact.

short-run	M2	Gt	Yt	P
M2	0.0276 (4.0192)	0.0327 (2.6534)	0.0437 (3.0178)	-0.367 (-2.357)
Gt	0.2453 (0.0062)	3.9655 (0.0068)	-0.74 (-0.3972)	-.0516 (-1.7434)
Yt	0.0169 (0.3784)	0.0038 (3.1654)	0.0236 (4.268)	0.0252 (3.2169)
P	0.00369 (4.2171)	- 0.0091 (-0.6531)	-0.042 (-2.193)	0.0563 (4.6748)
The long -run				
M2	0.000	0.000	0.1534 (1.9657)	-0.543 (-4.352)
Gt	0.000	0.000	0.2976 (2.4356)	-0.o378 (-3.2542)
Yt	0.000	0.0419 (3.9762)	-0.0276 (-1.7869)	0.0359 (4.359)
Л	0.000	0.000	0.06978 (1.9876)	0.000

According to the table results in short- run and long –run , The coefficient represents contemporaneous interaction among the variables investigating the statistics, contemporaneous effects of fiscal policy shocks on the money supply and real output prove to statistically significant, regards to inflation(Л) it is an insignificant effect of aggregate supply shocks on the money supply and inflation rate. The aggregate supply shock proves to have statistically significant long-run effect on money supply, also shocks to the inflation rate can prove to have a negative permanent effect on money supply. Results are stated in (10).

Table (10): the SVECM forecast error variance decomposition

Variables	Forecast horizon				
Gt	1	0.000	0.76	0.04	0.23
	2	0.000	0.71	0.03	0.26
	5	0.001	0.63	0.02	0.29
	9	0.000	0.58	0.06	0.29
	12	0.000	0.51	0.08	0.31
M2	1	0.21	0.23	0.10	0.34
	2	0.09	0.18	0.36	0.19
	5	0.06	0.10	0.38	0.23
	9	0.04	0.06	0.47	0.25
	12	0.02	0.02	0.51	0.28
Yt	1	0.000	0,14	0.35	0.29
	2	0.03	0.07	0.37	0.32
	5	0.03	0.05	0.56	0.36
	9	0.02	0.04	0.62	0.38
	12	0.01	0.03	0.87	0.42
Pt	1	0.05	0.000	0.21	0.55
	2	0.03	0.04	0.25	0.41
	5	0.03	0.03	0.31	0.37
	9	0.02	0.02	0.46	0.33
	12	0.01	0.000	0.58	0.24

The movement in each variables reveals in it is proportion, and in its shock against the other variable shocks at the horizon of forecasting in the error variance decompositions.

The period of the horizon over of 10 years, shocks of price level explain 27%of the movement expenditure in second year, 29% in the third year. The aggregate supply of money shocks being influenced by the Co integration relation ,where shocks of fiscal policy reaches 24%in the second year, and 27%of movement of shock in third year, this remarkable the contribution of fiscal policy shock in forecasting the variation of money supply. The aggregate supply shocks are the predominant source of variation of output in the long-run, therefore monetary policy shocks explain a potion of 21% , but it explains a small in real output, where it contributes 19% to inflation shocks (as fiscal policy instrument).

However, the price level is driven by its own shocks in the short-run, and monetary policy is influential on the price level shocks, where fiscal policy is contributing a small portion of movement in short –run. These results support the fiscal dominance over the monetary policy, whereas the contribution between the passive monetary policy and active fiscal policy can be characterized as the interaction of these policies, the inflation rate with the expectation is increased in the period of study.

The results of analysis confirm the passive significant effect of both policies on output, in the fiscal policy multiplier is relatively small. The interdependence between two policies related to the interaction between

them and their coordination , the monetary policy, reducing the effects of fiscal policy , and enhance the independence of monetary policy.

Finally the Granger causality implied, to insure of interest rate effects on lending as an instrument of monetary policy, results are in the table(11).

Table (11): Granger causality tests of interest rate pair wise of central bank of Jordan (2000-2015) . N= 16

Null Hypothesis	F-Statistic	Prob
Lending rate does not Granger-cause 3-month deposit rate	2.31	0.986
Three-month deposit rate does not Granger-cause lending rate	2.94	0.873
Six-month t-bill rate does not Granger-cause 3-month deposit rate	1.89	0.747***
Three-month deposit rate does not Granger-cause 6-month t-bill rate	1.26	0.548*
Overnight interbank rate does not Granger-cause 3-month deposit rate	8.62	0.000**
Three-month deposit rate does not Granger-cause Overnight interbank rate	1.75	0.73*

,**,***: are 1%,5%, 10% significant levels, with lag length 2 of Hannan –Quinn.*

The results of interest rate as one of monetary instruments indicates that the overnight inter bank rate as it appear in the Granger causality as a strong rule in the interest channel. It Granger cause interest rate ate for 3 months deposit and the lending rate , there is a stronger evidence for strong competition for lending between private, cooperate and household sectors, also banking sector decreasing spread between cost of lending and investment returns on government securities.

Results of VECM Model with Unrestricted

The optimal lags are (2) ,and Hannan –Quinn again is chosen as the information criterion according to the minimize result of criterions (36.2676).portmanteau test with 18 df is 35.7137 , with a prob level 0.0077,this result let us not to reject the null hypothesis, result of heteroscaditacity indicates that there is no auto correlations in all variables in the study , Co integration rank indicates that one equation of Co integration exists, but in other hand there is in some equation of variables serial correlation according to Durbin-Watson and Rho ratio in table. The equations of variables as follows:

M2 = - 2553.4 – 0.7808 Y + 10036Gt-1 +0.2349 Pt-1

The R^2 is equal to 99.9% , where Durbin –Watson indicates to a serial correlation in the data appear ,but not autocorrelation ,and the F-tests of variables in the equation and Zero restrictions in lags give us a chance to reject the null hypothesis Ho = 0 ,and accept the alternative hypothesis which says that there is a statistically significant relationship between variables in the equation and each of them has its effect to others.

The second equation is :

Gt = 11281 – 0.06407M2-1+ 0.3561Gt-1 - 0.4749Pt-1 + 0.22748Yt

R2 is 98.9%. The t-values indicate that all variables null hypothesis are rejected in levels, and constant and Yt are significant at the 5% level, and the lagged of prices at 10% significance level ,absolutely there is no serial correlation in the equation.

The F-test of Zero restriction indicates that we can reject the null hypothesis of M2, enhance we cannot reject the null hypothesis of Gt and Pt. The third equation related to the restricted Gross domestic product (Yt) is:

P = 57.12 + 0.006248 M2 -1 + 0.00961Gt-1 + 0.00104 Pt-1 - 0.003008Yt.

F –test indicates that we can reject the null hypothesis of no relation between variables in the equation ,and there is no effect hypothesis between them . Durbin –Watson results indicate that there is no serial correlation, and the standard error of the equation is too small (4.119928). The F-tests of Zero restrictions for all lags of M2 this let us to reject the null hypothesis min other hand to accept the null hypothesis of P. The log likelihood of the VECM system is – 247.3334 it is accepted ratio.

Table (12) : VECM system of Jordan data , lag order 2

Maximum likelihood estimates, observations 2001-2015 (T = 14)
Co integration rank = 1
Case 3: Unrestricted constant
Beta (cointegrating vectors, standard errors in parentheses)

M2	1.0000
	(0.0000)
Gt	1.9642
	(1.3030)
p	-265.88
	(1.1749)

Alpha (adjustment vectors)

M2	0.0018163
Gt	0.0012933
p	0.0037662

Log-likelihood = -257.03464
Determinant of covariance matrix = 1.5360563e+011
AIC = 36.2713
BIC = 36.9793
HQC = 36.2637

Equation 1: d_M2

	p-value	*t-ratio*	*Std. Error*	*Coefficient*	
	0.1606	1.4954	440.236	658.342	const
**	0.0339	2.3936	0.0245323	0.0587198	Yt
	0.5506	0.6141	0.0029579	0.00181633	EC1

771.4837	S.D. dependent var	1481.400	Mean dependent var
641.1224	S.E. of regression	4932455	Sum squared resid
0.309397	Adjusted R-squared	0.408055	R-squared
0.865395	Durbin-Watson	0.588726	rho

Equation 2: d_Gt

	p-value	*t-ratio*	*Std. Error*	*Coefficient*	
**	0.0240	2.5832	189.793	490.268	const
	0.6874	−0.4123	0.0105763	−0.00436111	Yt
	0.3305	1.0142	0.0012752	0.0012933	EC1

266.6587	S.D. dependent var	385.9733	Mean dependent var
276.3981	S.E. of regression	916751.2	Sum squared resid
-0.074382	Adjusted R-squared	0.079101	R-squared
2.057833	Durbin-Watson	−0.063963	rho

Equation 3: d_p

	p-value	*t-ratio*	*Std. Error*	*Coefficient*	
***	<0.0001	23.6354	2.86301	67.6684	const
**	0.0278	−2.5025	0.000159542	−0.000399255	Yt
***	<0.0001	195.7874	1.92362e-05	0.00376621	EC1

233.1983	S.D. dependent var	−52.13333	Mean dependent var
4.169443	S.E. of regression	208.6111	Sum squared resid
0.999680	Adjusted R-squared	0.999726	R-squared
1.815029	Durbin-Watson	−0.023705	rho

Cross-equation covariance matrix:

	M2	Gt	p
M2	3.2883e+005	-70106.	1073.3
Gt	-70106.	61117.	-113.80
p	1073.3	-113.80	13.907

Determinant = 1.53606e+01

Results of figure (3) , represents the effect of percentage ratio of M2,Gt,and P, against percentage of GDP the results indicates , before 2008 there is a strong evidence that there is a fluctuation appear well , but there was slipped down in 2010 and 2011 in the ratio of M2 against GDP , whearse the fluctuation is still in the series ,but after 2012 is raising due to needs of foreigner investment ,Iraqian and Syrian investors and refugees then the foreign capital investment raised , due to these affect factors, beyond the transaction of Jordanian employment outside the country, therefore the local liquidity is become high.

Also the ratio of government expenditures /GDP percent was begins in highest level, then slow in growth in 2002,2003 .then it rises in 2008, and continuous nearby the same level, while in 2013 it rises highly ,but in 2014 it is slipped down strongly ,in 2015 it raise but in low ratio. While the level of prices / GDP percent is continuous rising, it reached the highest level in 2015 , because of the advices of I.M.F to the government to made some structural adjustment in economic structure.

The innovation behavior of M2, Gt,and p appears in figure (4) in index , which are extracted from the VARs , and VECM models. These innovations do not necessarily represent exogenous monetary policy, and fiscal policy shocks. While some authors says that the residuals of these affected variables are relevant monetary policy shocks.

The reduced form of VAR or VECM model can be represents some combination of endogenous contemporaneous response with the exogenous monetary policy shocks , due to the interaction between the affected variables of monetary policy shocks and fiscal policy shocks, the mutual effect can be observed in figure (4),of graph pof (I.R.F), therefore we can say that the money supply or liquidity represents with M2 ,in general has exponentially grown up , this means that the quantity and quality of money amount increased in the period of study within 10% to 11.4% yearly as average,(M.Alaya,2015), also the series almost trend is stationary.

The VARs residuals l display that there is a strong volatility (impulse)of M2,where the average of Gt (government expenditure, in anyhow give us an indicator that M2 quantity and quality, increased as other results which are indicates to the impulse response function of VARs, while the results of p response which has interact with GDP, also with M2, and Gt, which can be becomes as gap of inflation or sometimes increasing inflation ratio. While formal finance may involve transactions between related variables.

Conclusion

This study is seeking to study the interaction between the monetary policy and fiscal policy as theoretical approach, then the applied evidence is monetary policy interaction with fiscal policy in Jordan, the dynamic interaction has been examined through the data set from 2000 -2015.

Theory of both policies has been conducted as a solid base to investigate the interaction between them, the unit root tests are employed for data both ADF and PP tests, tests in levels are insignificant , but first difference has been done for data series, to insure of stationary at 5% significance level, then Johansen Co integration test utilized in this paper, which proves that the existence of one Co integration equation for real money demand function were identified .

The dynamic interaction of monetary and fiscal policies was investigated, the VECM model results which finding as a result of analysis, supports the positive Significant effects of fiscal policy shocks on monetary policy, and that fiscal policy drives monetary policy. The fiscal policy multiplier is found to be relatively small , whereas expansionary fiscal policy has a positive effect on real output in short-run , and consistent and aggregate supply shocks demonstrate a positive and significant effects inflation rate, government expenditure. And money supply is decline as a result of positive shocks in the price level of Jordan.

Through the taxation policy of Jordanian government and government expenditure, the two emerge methods , we can see the effect of fiscal policy and interest rate as monetary policy, it seems that to combine more efficiently with forward looking to internal monetary results than it feedback of its instruments, the effects of taxation inter in difference terms in the IS curve , in particularly the observed of co-movements of consumption and government expenditure (spending) following a fiscal shocks. A further more research should analyze of how optimal fiscal rule be designed for a Variety of different monetary policy rule in Jordan, and how the monetary policy impacts on optimal designed of fiscal stability in a model of strategic interactions, this need a great potentially effort to impose on fiscal policy effect on the Jordan economy to be still as open economy.

A further point of interest will be to evaluate how the current crisis might also lead to change policy going forward, and as a corollary ,we might understand how the interaction between one monetary policy (which might is good for one country and is seems not equally good for another), and the fiscal policy . Thus the authors and researchers should in future considered to search all directions of the effects of the crises, and the effects of both policies.

Further researches should study the interaction through other tunnels and more affected factors such the political policy of the country, and the fertility and mortality ratios effects on each policy, also the

migration effect due to wars and crisis. Also the pioneers in the research may study the interaction by the other methods of econometric procedures such as panel data ,the fixed effect ,random effect, and dynamic effect.

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Appendix

Table (1):
Responses to a one-standard error shock in M2

p	Gt	M2	period
1.8717	-122.26	573.44	1
1.2528	-122.47	573.14	2
1.2509	-122.47	573.14	3
1.2509	-122.47	573.14	4
1.2509	-122.47	573.14	5
1.2509	-122.47	573.14	6
1.2509	-122.47	573.14	7
1.2509	-122.47	573.14	8
1.2509	-122.47	573.14	9
1.2509	-122.47	573.14	10

Responses to a one-standard error shock in Gt

p	Gt	M2	period
0.53535	214.87	0	1
1.5888	215.23	0.50806	2
1.592	215.24	0.5096	3
1.592	215.24	0.5096	4
1.592	215.24	0.5096	5
1.592	215.24	0.5096	6
1.592	215.24	0.5096	7
1.592	215.24	0.5096	8
1.592	215.24	0.5096	9
1.592	215.24	0.5096	10

Responses to a one-standard error shock in p

p	Gt	M2	period
3.1808	0	0	1
-0.0042745	-1.0937	-1.5361	2
-0.013871	-1.097	-1.5407	3
-0.013899	-1.097	-1.5407	4
-0.0139	-1.097	-1.5407	5
-0.0139	-1.097	-1.5407	6
-0.0139	-1.097	-1.5407	7
-0.0139	-1.097	-1.5407	8
-0.0139	-1.097	-1.5407	9
-0.0139	-1.097	-1.5407	10

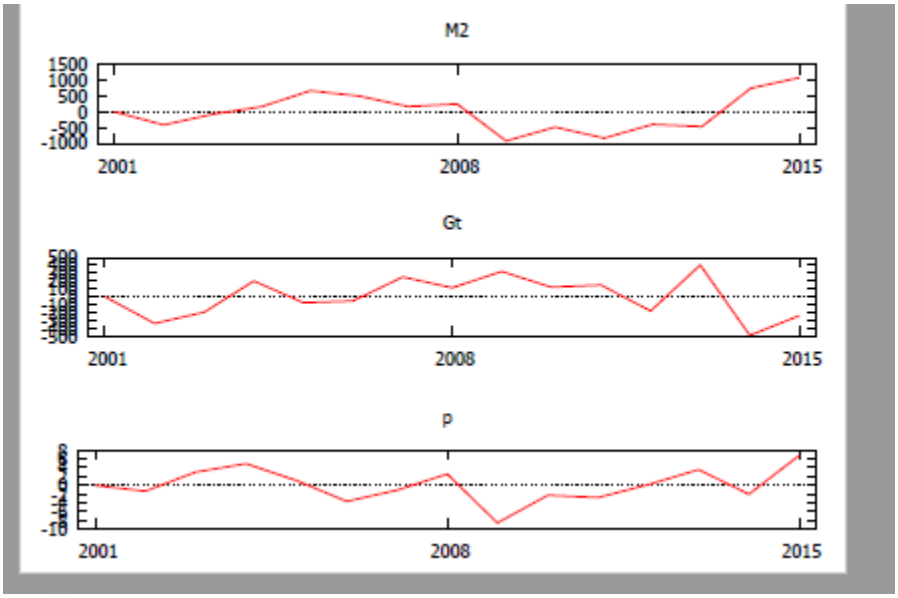

Figure (3): the interaction between variables against GDP %

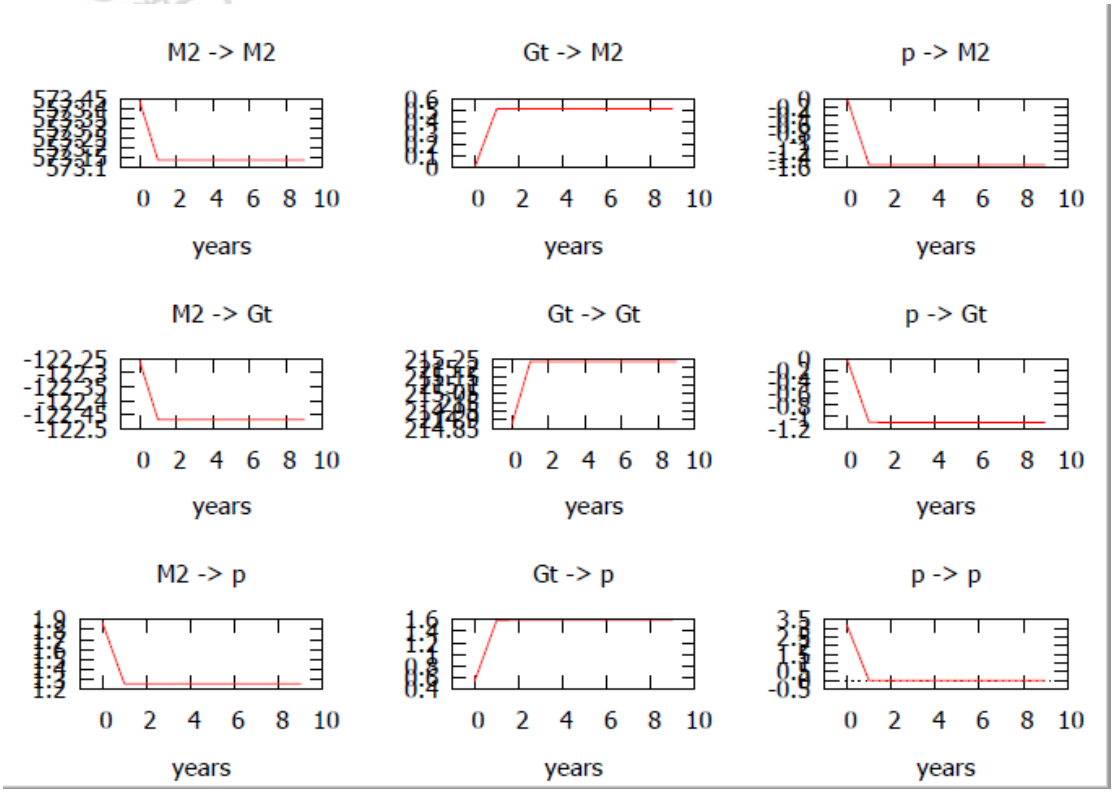

Figure (4): The (I.R.F) impulse response of related variables in VARs model.